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The Asymmetric Impact of Market Risk and Turbulence on Financial Reporting Conservatism: The Moderating Role of Macroeconomic Fluctuations in an Emerging Economy

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Highlights

- **Market risk increases conservatism; market turbulence decreases it.**
- **Inflation and exchange rate depreciation amplify both effects.**
- **Economic growth and higher interest rates weaken conservatism's sensitivity to uncertainty.**
- **Conservatism is a dynamic response to firm-level and macroeconomic volatility.**
- **The uncertainty-conservatism relationship reverses under extreme macro conditions.**

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Abstract

This study identifies a theoretical puzzle: while agency theory predicts that allforms of uncertainty increase accounting conservatism as a precautionary buffer, we find that market turbulence reduces it. This paradoxical reversal cannot be explained by standard risk-aversion frameworks. Using a balanced panel of 154 firms listed on the Tehran Stock Exchange over 2015-2024 (1,540 firm-year observations), we employ FGLS as our primary estimator, complemented by System GMM to address endogeneity. Our findings reveal a fundamental asymmetry consistent with our proposed Conditional Dominance Framework: market risk has a positive and significant effect on conservatism, supporting the agency-theoretic view of conservatism as a rational response to mitigate agency costs. Conversely, market turbulence exerts a negative and significant impact, consistent with Prospect Theory's prediction that under ambiguity and loss-domain conditions, managers become risk-seeking and abandon prudent reporting. Critically, this behavioral reversal is not constant but is activated and amplified by adverse macroeconomic conditions—inflation and exchange rate depreciation—which act as cognitive regime-switches. Economic growth and higher real interest rates weaken these relationships. The primary contribution is demonstrating that financial reporting conservatism is not merely a strategic response but a fragile defense mechanism that systematically collapses under extreme macro-volatility, challenging the implicit assumption that conservatism always increases with uncertainty. Our findings offer critical insights for managers, investors, and policymakers navigating volatile emerging economies.

1. Introduction

Financial reporting practices, particularly conservatism, often evolve as a direct response to uncertainty. When faced with ambiguity, accountants and

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managers frequently opt for a prudent approach, which entails a lower verification threshold for recognizing losses than for gains. This results in the systematic understatement of assets and revenues, while ensuring liabilities and expenses are recognized in a timely manner. Conservatism has been a cornerstone of financial reporting since the early 20th century, acting as a constraining factor on managerial optimism (Bayat & Mohammadi, 2017; Diem, 2025). While some scholars argue that conservatism can impede the rapid dissemination of favorable information, potentially creating informational distortions (Bloom, 2018; Hsieh et al., 2019; Rashidi, 2021; Hasani, 2022), a compelling body of literature contends that because managers are inherently inclined to maximize reported assets and income, less conservative reports are more vulnerable to managerial bias and manipulation (Bhattacharya et al., 2003). Rezazadeh & Azad (2009) and García Lara et al. (2014) provide evidence that conservatism mitigates information asymmetry and enhances the informational value of financial statements by providing credible signals about managers who may otherwise be inclined to withhold unfavorable news.

Financial reports must furnish reliable and robust data for economic policymaking and investment decisions (Tavakoli et al., 2024; Assad et al., 2026). The objective of conservatism is to present a more realistic and cautious view of a firm's financial position, performance, and inherent risks. By adopting this stance, firms prioritize reliability and verifiability, even if it means potentially understating short-term financial performance. This approach can, however, influence the measurement of income and expenses, potentially affecting future organizational value (Haider et al., 2021). Critically, conservatism serves as a mechanism to mitigate risks associated with uncertainty, potential losses, and market volatility, thereby fostering investor confidence and enhancing the transparency of financial statements.

The relevance of this issue is magnified in the context of macroeconomic instability. Volatility in key macroeconomic variables erodes asset returns, increases the cost of external financing, and intensifies corporate financial constraints (Akhlaghi & Shamsoddini, 2023; Shamsoddini & Nourani, 2023; Barzegar et al., 2023). From an economic perspective, fluctuations in inflation, exchange rates, and interest rates directly alter the real value of a firm's assets, liabilities, and future cash flows. In response to this heightened uncertainty and risk, firms are theoretically expected to adopt a more conservative reporting stance to buffer against potential adverse outcomes (Francis et al., 2015; Khalilov, 2025). This manifests as a greater reluctance to recognize gains prematurely and a heightened sensitivity to recognizing losses, thereby creating a buffer against potential financial distress. Risk, in this sense, directly impacts investor confidence in a firm's financial health (Xuan & Loang, 2023), and conservatism acts as a credible commitment mechanism to reassure stakeholders.

Concurrently, turbulence in market conditions (characterized by unpredictabi lity, volatile sales, and shifting customer preferences) introduces a different kind of pressure (Handoyo et al., 2023; Wang et al., 2015). This ambiguity, as distinct from quantifiable risk, can create significant uncertainty for management (Mohanta et

al., 2020; Ghazi et al., 2025). The theoretical prediction for its effect on conservatism is less straightforward. While conventional wisdom might suggest that all forms of uncertainty increase prudence, behavioral theories like Prospect Theory offer an alternative. They posit that in situations of potential loss, which are prevalent during market turbulence, decision-makers may become risk-seeking, preferring aggressive strategies to avoid reporting certain losses (Barberis, 2013). Hsieh et al. (2019) argue that in highly ambiguous environments where knowledge is limited, decision-making deviates from simple expected utility maximization. Therefore, the impact of market turbulence on conservatism remains an empirical question, particularly in developing economies.

Despite the substantial literature on conservatism and uncertainty, a critical theoretical gap remains unaddressed. Prior studies have treated uncertainty as a monolithic construct, implicitly assuming that market risk (quantifiable volatility) and market turbulence (unquantifiable ambiguity) exert similar directional effects on reporting behavior. This assumption is theoretically problematic. Standard agency theory and risk-aversion frameworks predict that any increase in uncertainty should increase demand for conservative reporting as a contracting and monitoring mechanism. However, behavioral economics (specifically Prospect Theory) suggests the opposite under ambiguity: when probabilities are unknown, managers in the loss domain become risk-seeking, potentially reducing conservatism. No prior study has empirically pitted these competing theoretical predictions against each other within a single framework, nor has any study examined whether the dominant mechanism shifts from agency-theoretic (risk-averse) to behavioral (risk-seeking) depending on the type of uncertainty. Furthermore, and most critically, existing research treats macroeconomic conditions as either control variables or linear moderators. We argue that this is insufficient. In economies with structural volatility, macroeconomic variables may operate as threshold-based switches rather than linear amplifiers. That is, below a certain inflation rate, the agency-theoretic logic dominates; above that threshold, the behavioral logic takes over. This possibility, a regime-switching effect where the very direction of the risk-conservatism relationship could theoretically reverse at extreme macro levels, has never been theoretically articulated or empirically tested.

Over the past decade, the Iranian economy has been characterized by significant inflationary pressures and macroeconomic volatility (Jafari & Erfani, 2025), creating a uniquely uncertain environment for listed firms. This context provides an ideal laboratory to investigate how firm-level financial reporting strategies interact with macro-level fluctuations. While the direct effects of risk and turbulence have been studied, the interactive or moderating role of macroeconomic variables remains largely unexplored in the context of emerging markets like Iran. This study aims to fill this gap by addressing the following core questions: How do market risk and market turbulence, as two fundamental firm-level variables, influence the adoption of financial reporting conservatism in firms listed on the Tehran Stock Exchange (TSE)? And crucially, how do fluctuations in key

macroeconomic variables (the inflation rate, exchange rate growth, GDP growth, and the real interest rate) moderate these relationships?

This research contributes to the literature by providing a nuanced understandi ng of the micro-macro link in corporate reporting behavior. We argue and empirically demonstrate that the impact of firm-level uncertainty on reporting strategy is conditional on the broader macroeconomic climate. In doing so, we move beyond simple main effects to uncover a more complex, dynamic interaction. Our findings suggest that adverse macro conditions (high inflation, currency depreciation) exacerbate the sensitivity of reporting conservatism to both risk and turbulence, while favorable conditions (GDP growth, higher real rates) dampen it. These results have profound implications for managers calibrating their financial strategies, for investors interpreting financial signals, and for policymakers designing regulatory frameworks in volatile economic environments.

2. Theoretical Framework and Literature Review

The modern business landscape, characterized by the separation of ownership and control, intensifies conflicts of interest among various stakeholders, leading to an increased reliance on financial information. However, this information is not uniformly distributed, creating information asymmetries between managers and investors, and among investors themselves (Shamsoddini et al., 2016; Hashim & Mohammed, 2022; Nasehpoor et al., 2023). It is within this agency-theoretic framework that the role of accounting conservatism becomes paramount. Conservatism is often viewed as an efficient governance mechanism that mitigates agency problems by facilitating the monitoring of managerial decisions and constraining opportunistic or overly optimistic reporting behaviors (Manoel & Moraes, 2022; Laux & Ray, 2020). By requiring a higher degree of verification for good news than for bad news, conservatism reduces managers' ability to overstate net assets and performance for personal gain, thereby lowering the firm's overall agency costs (Abed & Khudair, 2022; Biddle et al., 2022). This, in turn, enhances the reliability of financial data and reduces information asymmetry across different segments of the firm (Meshki & Mohammadi, 2019).

The conceptual framework of financial reporting underscores the importance of qualitative characteristics, such as reliability and verifiability. Prior research has consistently shown that the quality of financial information significantly influences corporate financial decision-making (Kim et al., 2013; Chen et al., 2014; Monteiro et al., 2021). The application of the conservatism principle is instrumental in improving this quality, thereby facilitating the comparability of financial information and enabling more informed economic decisions (Namakavarani et al., 2021).

2.1 The Relationship Between Market Risk and Conservatism

The economic rationale for a positive link between risk and conservatism is deeply rooted in agency and contracting theories. Market risk, often defined as the potential for financial loss due to fluctuations in market prices or rates, can

significantly impact a firm's financial health. As risk increases, so does the potential for conflicting interests between managers and stakeholders. In such high-risk environments, the demand for verifiable, prudent accounting information intensifies (Hejranijamil et al., 2020). Conservatism serves as a contracting tool that mitigates the costs associated with these risks. For instance, shareholders and board members typically support conservative reporting as it allows for more effective oversight, preventing opportunistic or overly optimistic over-investment.

From an expected utility perspective, decision-makers faced with complex choices, such as investment decisions under uncertainty, are often drawn to options that offer more certain outcomes, even if they are lower in absolute value. This risk aversion extends to financial reporting. By adopting conservative methods, firms provide a cushion that protects them and their stakeholders from future negative surprises. This is consistent with the argument that conservatism reduces the likelihood of making suboptimal investment decisions based on overvalued earnings (Laux & Ray, 2020; Imperatore & Pundrich, 2026). The theory of risk aversion further posits that external pressures, such as market volatility and uncertainty, compel firms to adopt more conservative reporting practices to safeguard their financial integrity and maintain stakeholder trust (Grable et al., 2024). Firms facing higher market risk are therefore expected to use conservative strategies to mitigate the potential impact of adverse market conditions on their financial statements. Consequently, we propose our first hypothesis:

H1: Market risk has a positive and significant effect on the level of financial reporting conservatism.

2.2. The Relationship Between Market Turbulence and Conservatism

Market turbulence, defined by unpredictability, volatility in sales, and rapid shifts in customer preferences, creates an environment of ambiguity where probabilities of future outcomes are unknown (Handoyo et al., 2023; Wang et al., 2015). This is distinct from the quantifiable risk discussed above. In such highly turbulent and ambiguous environments, the theoretical prediction for managerial behavior changes. Zhou et al. (2019) suggest that firms must adapt by increasing innovation and their capacity to absorb new information. However, the effect on reporting strategy may be counterintuitive.

Hsieh et al. (2019) argue that under ambiguity, relying solely on expected utility maximization is insufficient. Instead, Prospect Theory (Barberis, 2013) provides a more powerful lens. This theory posits that individuals evaluate outcomes relative to a reference point and are loss-averse; they feel the pain of a loss more acutely than the pleasure of an equivalent gain. Critically, in the domain of losses, individuals become risk-seeking. When market turbulence signals an increased threat of loss (i.e., adverse conditions), managers are expected to choose riskier behaviors in an attempt to avoid reporting those losses. This behavioral shift would logically lead to a decrease in conservative reporting practices (Fuad et al., 2023). Managers may succumb to pressure to demonstrate resilience and better performance, adopting more aggressive reporting strategies to present a favorable

picture to investors and mask underlying weaknesses. This behavioral finance perspective suggests that during periods of high market turbulence, psychological factors can override the rational, risk-averse response predicted by agency theory alone. Thus, we propose a competing hypothesis for the effect of turbulence:

H2: Market turbulence has a negative and significant effect on the level of financial reporting conservatism.

2.3. The Moderating Role of Macroeconomic Fluctuations

Key macroeconomic variables (such as inflation, exchange rates, interest rates, and GDP growth) shape the broader environment in which firms operate. They influence overall market conditions, investor expectations, and corporate financial strategies. Adverse movements in these variables create systemic uncertainty for all businesses (Biehl et al., 2023; Valadkhani et al., 2026). When macroeconomic indicators signal instability (e.g., rising inflation, currency depreciation), firms face a more complex and hostile environment. This likely strengthens the theoretical mechanisms linking firm-level uncertainty to reporting conservatism.

First, consider the risk-conservatism link (H1); Adverse macroeconomic changes amplify the perceived cost of risk. Higher inflation erodes the real value of assets and increases the volatility of nominal cash flows. A depreciating currency increases the cost of imported inputs and servicing foreign currency debt. These economy-wide shocks exacerbate firm-specific risks, making the potential consequences of bad outcomes even more severe. Therefore, the demand for the protective, buffering role of conservatism should be heightened. In essence, the macro environment acts as a threat amplifier, making the prudent response to risk even more prudent. This aligns with risk perception theories, which suggest that environmental uncertainty leads businesses to reassess and fortify their financial strategies (Nalban & Smădu, 2021). This leads to our third hypothesis:

H3: Macroeconomic fluctuations moderate the relationship between operational volatility and financial reporting conservatism.

Adverse movements in macroeconomic variables (increases in inflation and exchange rate depreciation) strengthen the positive relationship between operational volatility and conservatism, while favorable conditions (economic growth and higher real interest rates) weaken this relationship.

Second, consider the turbulence-conservatism link (H2); The behavioral shift toward risk-seeking in the face of ambiguity (loss domain) is likely intensified by a deteriorating macroeconomic backdrop. When market turbulence is accompanied by high inflation or a collapsing currency, the loss domain becomes more pronounced and threatening. The pressure to show short-term resilience to anxious investors and creditors intensifies. The ambiguity of the turbulent market is compounded by the uncertainty of the macroeconomy, making long-term planning nearly impossible. In such a perfect storm of uncertainty, managers may become even more myopic, doubling down on aggressive reporting to survive the immediate crisis, potentially exacerbating the negative effect on conservatism. Conversely, a stable and growing macroeconomy (high GDP growth, stable real

interest rates) provides a buffer. It makes the environment more predictable and reduces the pressure for desperate, short-term measures, thereby weakening the negative impact of turbulence. Thus, we propose our final hypothesis:

H4: Macroeconomic fluctuations moderate the relationship between competitive intensity and financial reporting conservatism.

Adverse movements in macroeconomic variables strengthen the negative relationship between competitive intensity and conservatism, while favorable conditions weaken this relationship.

To clarify the link between our theoretical framework and empirical specification, we summarize the predicted coefficient restrictions as follows. H1, grounded in agency theory and risk aversion, predicts a positive sign for β_1 (the coefficient on $Risk_{it}$ in Equation 5). H2, derived from Prospect Theory's loss-domain logic, predicts a negative sign for β_2 (the coefficient on $Turb_{it}$ in Equation 5). H3, based on the threat amplification mechanism, predicts that the interaction coefficients for adverse macro variables ($Risk \times CPI$ and $Risk \times EXCH$ in Equation 6) will be positive and larger in magnitude than β_1. H4, grounded in cognitive overload theory, predicts that the interaction coefficients for adverse macro variables ($Turb \times CPI$ and $Turb \times EXCH$ in Equation 7) will be negative and larger in magnitude (i.e., more negative) than β_2. These precise coefficient restrictions are directly testable in our econometric models and, if supported, will validate the theoretical mechanisms we propose.

2.4. Toward a Synthetic Theoretical Framework: The Conditional Dominance Hypothesis

The preceding discussion reveals a fundamental theoretical tension. Agency theory and transaction cost economics predict a monotonic positive relationship between uncertainty and conservatism (H1). Prospect Theory and behavioral finance predict that under ambiguity (turbulence), the relationship may reverse (H2). Neither perspective alone is sufficient. We propose a conditional dominance framework that synthesizes these competing logics.

Proposition 1 (Mechanism Switching): The dominant behavioral mechanism shifts from agency-theoretic risk aversion to behavioral loss-seeking as the nature of uncertainty changes from quantifiable risk to unquantifiable ambiguity. This explains the asymmetric effects documented in H1 and H2.

Proposition 2 (Threshold Activation): The shift from agency-rational to behavioral-irrational responses is not linear. It is activated only when macroeconomic conditions reach critical thresholds (e.g., inflation > 30%, exchange rate depreciation > 50%). Below these thresholds, the agency-theoretic logic dominates; above them, the behavioral logic dominates, and the negative effect of turbulence intensifies disproportionately.

Proposition 3 (Macro as a Cognitive Constraint): Adverse macroeconomic shocks (high inflation, currency collapse) do not merely amplify existing responses; they fundamentally alter the cognitive environment of managerial decision-making. Under extreme macro-volatility, managers face cognitive overload (information

processing capacity exceeded), leading to reliance on simple heuristics—one of which is the abandonment of conservative reporting as a perceived constraint on short-term survival flexibility.

This framework generates a novel, testable prediction not previously examined in the literature: The negative effect of market turbulence on conservatism should exhibit a non-linear, convex pattern, with a discernible "kink" or threshold beyond which the effect accelerates dramatically. While our current empirical models assume linearity for parsimony (consistent with the published literature to facilitate comparability), we acknowledge this as a limitation and a clear direction for future research. Our finding that the interaction coefficients for adverse macro variables (inflation, exchange rate) are larger in magnitude than the main effects is prima facie evidence consistent with this threshold logic.

3. The Methodology and Model

This study employs a quantitative, ex post facto research design using a panel dataset. The analysis relies on archival data, combining firm-level financial information with national macroeconomic time series.

3.1. Sample and Data Collection

The initial population comprises all firms listed on the Tehran Stock Exchange (TSE) actively operating between 2015 and 2024 (602 firms). To ensure a consistent and comparable sample, we applied the screening criteria as shown in Table 1:

Table1. Sample screening process

Screening step	Excluded	Remaining
Total firms listed on TSE (2015-2024)	-	602
Less: Firms with fiscal year-end not on March 20th	-187	415
Less: Firms not continuously listed during 2015-2024	-156	259
Less: Firms with inconsistent fiscal year-end	-23	236
Less: Banks, credit institutions, investment companies, and financial intermediaries	-53	183
Less: Firms with missing financial data for the study period	-29	154
Final sample (balanced panel)		154 firms
Firm-year observations (154 × 10 years)		1,540

***Source**: Research Findings*

Consistent with standard practice in accounting and finance research, we excluded all financial firms, including banks, credit institutions, investment companies, pension funds, and other financial intermediaries, from our sample. These firms operate under different reporting standards, capital adequacy requirements, and regulatory oversight, which would confound the comparability of accounting conservatism measures across firms. After applying these filters, a balanced panel of 154 firms (1,540 firm-year observations) was selected as the final sample. Firm-level financial data were extracted from the TSE database and audited financial statements. Macroeconomic data for Iran (inflation rate, GDP growth rate, free market exchange rate, and nominal bank interest rate) were obtained from the

official website of the Central Bank of Iran. The real interest rate was calculated as the nominal bank interest rate minus the official inflation rate. The free-market exchange rate growth was used as it more accurately reflects the economic pressures faced by firms in Iran's dual-currency environment. Hypotheses were tested using panel data econometric techniques in EViews software.

3.2 Variables and Empirical Models

3.2.1 Dependent Variable: Financial Reporting Conservatism (CFR)

Following the established literature, we use the asymmetric timeliness of earnings measure developed by Basu (1997), as operationalized by Al-Taie et al. (2017). This model captures conservatism by measuring the degree to which earnings reflect bad news (negative returns) more quickly than good news (positive returns).

The first-stage model is estimated for each firm-year to derive the firm-specific conservatism coefficient:

$$NI_{it} = \alpha + \theta_1 DR_{it} + \theta_2 RET_{it} + \theta_3 RET_{it} \times DR_{it} + \varepsilon_{it} \quad (1)$$

Where:

- NI_{it} is net income before extraordinary items for firm i in year t, scaled by the market value of equity at the beginning of the year.
- RET_{it} is the annual stock return, capturing economic news.
- DR_{it} is a dummy variable equal to 1 if RET_{it} is negative (bad news), and 0 otherwise.

In this model, θ_2 measures the sensitivity of earnings to good news (positive returns). The coefficient θ_3 captures the incremental sensitivity of earnings to bad news. The total sensitivity to bad news is $\theta_2 + \theta_3$. A positive and significant θ_3 indicates accounting conservatism, as it shows earnings are more responsive to bad news. The primary measure of conservatism (CFR_{it}) for firm i in year t is therefore:

$$CFR_{it} = \theta_{3\,it} \quad (2)$$

A higher value of CFR_{it} indicates a greater degree of conditional conservatism.

We acknowledge that estimating firm-year conditional conservatism using the Basu (1997) model with limited time-series observations may introduce measurement error. To address this concern without altering our main specification, we conduct extensive robustness checks in Section 4.3, including (i) a rolling 5-year window Basu estimation that increases degrees of freedom, and (ii) an unconditional conservatism measure from Wang et al. (2009). As demonstrated in Table 9, our findings are robust to these alternative approaches, mitigating concerns about measurement error in the dependent variable.

3.2.2 Independent Variables

- Market Risk ($Risk_{it}$): We measure market risk using the coefficient of variation of sales, following Arieftiara et al. (2017). This captures the volatility of a firm's core revenue-generating activity relative to its average sales, reflecting the stability of its operating environment.

$$Risk_{it} = \frac{\sigma_{Sales}}{Sales} = \frac{\sqrt{\sum_1^t \frac{(S_i - \bar{S})^2}{t}}}{\bar{S}} \quad (3)$$

We select the coefficient of variation of sales over alternative risk measures (e.g., stock return beta or earnings volatility) for three reasons. First, in emerging economies like Iran, stock markets are characterized by speculative trading, low liquidity, and price manipulation, making return-based risk measures noisy and unreliable. Second, sales volatility directly captures operational risk—the uncertainty inherent in a firm's core revenue-generating activities—which is the primary channel through which macro shocks transmit to firm performance. Third, the coefficient of variation is scale-invariant, allowing meaningful comparison of risk across firms of different sizes. This measure is widely validated in the literature on environmental uncertainty and corporate strategy.

- Market Turbulence ($Turb_{it}$): To capture the firm-specific experience of market turbulence, we follow the approach of Fuad et al. (2023) and Hsieh et al. (2019). This measure proxies for the intensity of competition and the need for adaptive marketing, which are hallmarks of a turbulent market. It is calculated as the ratio of a firm's selling and marketing expenses to the total selling and marketing expenses of all firms in its industry.

$$Turb_{it} = \frac{S\&M_{it}}{\sum_{j,Industry} S\&M_{jt}} \quad (4)$$

A higher ratio suggests a more turbulent and competitive market environment for that firm, as it needs to spend relatively more to maintain its position. We measure market turbulence using the relative intensity of selling and marketing expenses rather than more common proxies such as sales volatility or customer churn rates. This measure, directly captures the behavioral response of firms to competitive pressure and market unpredictability. In a turbulent market, firms must aggressively spend on marketing, advertising, and sales promotion merely to defend their market position. A higher ratio of a firm's sales and marketing expenses relative to its industry total indicates that the firm operates in a more contested, unpredictable environment. Unlike sales-based measures of turbulence, which may conflate firm-specific volatility with industry-wide shocks, this measure is relative and thus isolates the competitive intensity dimension of turbulence. This operationalization is consistent with the definition of turbulence in the strategy literature as unpredictability and rapid shifts in competitive dynamics.

3.2.3 Moderating Variables

The vector of macroeconomic moderators (M_t) includes annual measures for the Iranian economy. Following prior literature that examines the role of macroeconomic conditions on corporate reporting behavior (Cerqueira & Pereira, 2020; Crawley, 2015; Chen et al., 2024), we include:

- CPI_t: Inflation rate, measured as the annual growth in the Consumer Price Index.

- $EXCH_t$: Exchange rate growth, measured as the annual growth rate of the free market USD/IRR rate.

- GDP_t: Economic growth rate, measured as the annual real GDP growth rate.
- RR_t: Real interest rate, calculated as the nominal bank lending rate minus the CPI_t inflation rate.

3.2.4 Control Variables

Following Guo et al. (2020), Anagnostopoulou et al. (2021) and Bai et al. (2025), we include a set of firm-level control variables known to influence conservatism:

- $Size_{it}$: Firm size, measured as the natural logarithm of the market value of equity.
- ROA_{it}: Return on assets, measured as net income divided by average total assets.
- LEV_{it}: Financial leverage, measured as total debt divided by total assets.
- MBV_{it}: Market-to-book ratio, measured as market value of equity divided by book value of equity.

3.2.5 Empirical Models

To test the direct effects of risk and turbulence (H1 and H2), we first estimate a baseline model based on Fuad et al. (2023):

$$CFR_{it} = \beta_0 + \beta_1 Risk_{it} + \beta_2 Turb_{it} + \beta_3 Size_{it} + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 MBV_{it} + \varepsilon_{it} \quad (5)$$

To test the moderating role of macroeconomic variables (H3), we interact the macroeconomic variables with the market risk variable:

$$CFR_{it} = \beta_0 + \beta_1 Risk_{it} + \beta_2 Turb_{it} + \beta_3 Risk_{it} * CPI_{it} + \beta_4 Risk_{it} * GDP_{it} + \beta_5 Risk_{it} * EXCH_{it} + \beta_6 Risk_{it} * RR_{it} + \beta_7 Size_{it} + \beta_8 ROA_{it} + \beta_9 LEV_{it} + \beta_{10} MBV_{it} + \varepsilon_{it} \quad (6)$$

To test the moderating role of macroeconomic variables (H4), we interact them with the market turbulence variable:

$$CFR_{it} = \beta_0 + \beta_1 Risk_{it} + \beta_2 Turb_{it} + \beta_3 Turb_{it} * CPI_{it} + \beta_4 Turb_{it} * GDP_{it} + \beta_5 Turb_{it} * EXCH_{it} + \beta_6 Turb_{it} * RR_{it} + \beta_7 Size_{it} + \beta_8 ROA_{it} + \beta_9 LEV_{it} + \beta_{10} MBV_{it} + \varepsilon_{it} \quad (7)$$

Given the directional predictions of our hypotheses regarding adverse movements:

- For H3 (Model 2): We expect β_3 (inflation interaction) and β_5 (exchange rate interaction) to be positive and larger than β_1, while β_4 (GDP growth interaction) and β_6 (real interest rate interaction) to be positive but smaller than β_1.
- For H4 (Model 3): We expect β_3 and β_5 to be negative and larger in magnitude (i.e., more negative) than β_2, while β_4 and β_6 to be negative but smaller in magnitude (i.e., less negative) than β_2.

A methodological note is warranted regarding the inclusion of year fixed effects alongside macroeconomic interaction terms. While year fixed effects absorb the main effects of common macroeconomic shocks across all firms, they do not absorb the interaction effects ($Risk_{it} \times M_t and Turb_{it} \times M_t$) because the latter vary cross-sectionally due to firm-level heterogeneity in $Risk_{it}$ and $Turb_{it}$ within each

year. Thus, identification is achieved through within-year cross-sectional variation in firm-level variables, a standard approach in the literature.

3.3 Estimation Strategy

Given the panel structure of our data (N=154, T=10), we first conduct specification tests. The F-Limer test is used to choose between pooled OLS and panel data models. The Hausman test is then employed to choose between fixed effects (FE) and random effects (RE) models. Based on the results, we proceed with the appropriate panel estimator. Diagnostic tests reveal the presence of first-order autocorrelation (Wooldridge test) and heteroskedasticity (modified Wald test).

A legitimate concern in panel data analysis is the potential for cross-sectional dependence (CSD) arising from common macroeconomic shocks. In our context, all firms operate within the Iranian economy and are simultaneously exposed to inflation, exchange rate, and interest rate fluctuations. However, we argue that our empirical strategy adequately addresses this concern. Our models explicitly include macroeconomic variables and year fixed effects, which absorb the dominant sources of common shocks. Any residual CSD is therefore likely to be weak. To verify this, we apply the Pesaran et al. (2004) CD test to the residuals of our FGLS models. As reported in Table 9, the CD test fails to reject the null of no CSD for all models ($p > 0.10$ for all specifications), confirming that our inclusion of macro variables sufficiently captures cross-sectional dependencies.

3.3.1. Justifying FGLS and Employing GMM for Endogeneity

Given the panel structure of our data and the diagnostic test results (Wooldridge test for autocorrelation, modified Wald test for heteroskedasticity), we select Feasible Generalized Least Squares (FGLS) as our primary estimation method. FGLS provides efficient and unbiased estimators by explicitly modeling the panel-specific AR(1) autocorrelation and groupwise heteroskedasticity, making it superior to traditional methods like OLS or fixed effects with robust standard errors in the presence of such irregularities (Bai et al., 2021). The FGLS estimator with panel-specific autocorrelation (AR(1)) and heteroskedasticity correction is widely used in accounting and finance research with similar panel dimensions. Studies have shown that in such moderate panels, FGLS with appropriate bias correction performs well and offers higher efficiency than robust covariance estimators.

However, we acknowledge that FGLS alone cannot fully address endogeneity concerns arising from omitted variable bias or potential reverse causality. We employ a System Generalized Method of Moments (System GMM) estimator to provide a stronger identification strategy and enhance the validity of our findings. The application of GMM offers several methodological advantages: (1) it internally addresses endogeneity from omitted variables and reverse causality using internal instruments (lags of the endogenous variables) (Arellano & Bover, 1995; Blundell & Bond, 1998); and (2) it is robust to heteroskedasticity and autocorrelation. Consequently, we cross-validate our FGLS results (efficient and appropriate for the

panel's error structure) with GMM estimates (robust to endogeneity). The convergence of results from these two distinct estimators will substantially increase the credibility of our findings.

4. Empirical Results

4.1 Descriptive Statistics and Preliminary Tests

Table 2 presents the descriptive statistics for the main variables used in the study.

Table2. Descriptive statistics (2015-2024)

Variable	Symbol	Mean	Median	Max	Min	Std. Dev.
Conservatism	CFR	0.053	0.047	0.527	0.011	0.024
Market Risk	$Risk$	0.125	0.052	0.99	0.001	0.186
Market Turbulence	$Turb$	0.043	0.052	0.119	0.001	0.011
Inflation Rate	CPI	27.77	30.85	47.1	9	2.94
Exchange Rate Growth	$EXCH$	0.892	0.368	1.632	0.129	0.299
GDP Growth	GDP	0.043	0.037	0.2	-0.14	0.032
Real Interest Rate	RR	-4.45	1.25	8.9	-24.27	2.48
Firm Size	$Size$	14.912	14.61	21.904	10.151	1.683
Return on Assets	ROA	0.178	0.154	0.673	-0.188	0.146
Leverage	LEV	0.352	0.282	0.999	0.008	0.262
Market-to-Book	MBV	2.862	2.639	7.414	0.26	1.925

***Source**: Research Findings*

The descriptive statistics reveal significant variation in the adoption of conservative reporting practices across TSE-listed firms. The average market risk is 0.125, suggesting moderate volatility at the firm level. Crucially, the macroeconomic indicators for the period paint a picture of considerable instability: an average annual inflation rate of 27.8%, an average annual free-market exchange rate depreciation of 89.2%, an average real GDP growth of only 4.3%, and a negative average real interest rate (-4.45%). These conditions underscore the appropriateness of the Iranian context for studying the moderating role of macro fluctuations.

Before proceeding to the main analysis, it is essential to validate the classical regression assumptions for our panel dataset. This involves testing for the normality of errors, homoskedasticity, autocorrelation, multicollinearity, and the stationarity of the variables. Furthermore, we must formally determine the most appropriate panel data specification. First, given the inclusion of an intercept term in our models, the assumption of a zero mean for the error term is inherently satisfied. Moreover, with a sufficiently large number of observations (N=154, T=10), the Central Limit Theorem assures us that the distribution of the error term can be approximated as normal, relaxing the strict normality assumption for inference. A critical concern in panel data analysis is the presence of autocorrelation and heteroskedasticity, which can lead to biased standard errors and inefficient estimates if not addressed. To test for first-order autocorrelation in the idiosyncratic error terms, we employ the Wooldridge test. The test statistics for our three main models (Equations 5, 6, and 7) were 1.203, 0.919, and 1.168, respectively, with

corresponding p-values leading to the rejection of the null hypothesis of no first-order autocorrelation. This confirms the presence of serial correlation in the residuals. Simultaneously, we used the modified Wald test for groupwise heteroskedasticity in the residuals of a fixed effects regression model. The test results were highly significant ($p < 0.01$) for all models, providing strong evidence against the null hypothesis of homoskedasticity. The presence of both autocorrelation and heteroskedasticity violates the Gauss-Markov assumptions required for Ordinary Least Squares (OLS) to be the Best Linear Unbiased Estimator (BLUE). Consequently, to obtain reliable and unbiased standard errors for hypothesis testing, we must employ an estimation method that is robust to these issues. We therefore estimate all our models using Feasible Generalized Least Squares (FGLS), which explicitly accounts for the panel-specific autocorrelation and heteroskedasticity structure. Next, we assess multicollinearity among the independent variables using the Variance Inflation Factor (VIF). As a rule of thumb, a VIF value exceeding 5 for any variable is often taken as an indication of problematic multicollinearity that could inflate standard errors. The VIF results for our main variables are presented in Table 3.

Table 3. Variance inflation factor (VIF) test results for multicollinearity

Variable	CFR	Risk	Turb	CPI	EXCH	GDP	RR	Size	ROA	LEV	MBV
VIF	1.19	2.41	2.60	3.53	3.35	3.29	4.36	1.78	2.04	1.80	2.15

***Source**: Research Findings*

As shown in Table 3, the VIF for all variables is comfortably below the conventional threshold of 5. This indicates that multicollinearity is not a serious concern in our analysis, and the coefficient estimates will not be unduly distorted by linear dependencies among the predictors.

A further prerequisite for panel data analysis, especially with a moderately long-time dimension (T=10), is to ensure that all variables are stationary. Regressing non-stationary variables can lead to spurious results. Given the mixed nature of our data, we employ two different unit root tests. For the firm-level panel variables, we use the Fisher-type Augmented Dickey-Fuller (ADF-Fisher) test, which combines the p-values from individual unit root tests for each cross-section. For the purely time-series macroeconomic variables, we use the standard ADF test. The results are reported in Table 4.

Table 4. Unit root test results

Variable	Symbol	Test Statistic	p-value	Conclusion
Panel Variables (ADF-Fisher Test)				
Conservatism	CFR	293.46	0.000	Stationary
Market Risk	$Risk$	465.25	0.000	Stationary
Market Turbulence	$Turb$	279.75	0.000	Stationary
Firm Size	$Size$	412.42	0.000	Stationary
Return on Assets	ROA	192.99	0.000	Stationary
Leverage	LEV	321.56	0.000	Stationary
Market-to-Book	MBV	505.09	0.000	Stationary

Time-Series Variables (ADF Test)				
Inflation Rate	CPI	-3.06	0.030	Stationary
Exchange Rate Growth	$EXCH$	-4.33	0.000	Stationary
GDP Growth	GDP	-9.65	0.000	Stationary
Real Interest Rate	RR	-3.24	0.020	Stationary

***Source**: Research Findings*

The results in Table 4 are conclusive: the null hypothesis of a unit root is rejected for all variables at conventional significance levels. This confirms that all series are stationary, mitigating any concerns about spurious regression and allowing for reliable inference from our panel models.

Finally, to select the most appropriate panel data specification, we conduct two formal tests. The first is the F-Limer test (also known as the Chow test), which compares the pooled Ordinary Least Squares (OLS) model against a panel model with individual-specific effects (either fixed or random). A significant p-value indicates that the panel model is preferred over the pooled OLS. The second is the Hausman test, which helps choose between the fixed effects (FE) and random effects (RE) models. The Hausman test examines whether the unique errors are correlated with the regressors. Under the null hypothesis, both FE and RE are consistent, but RE is more efficient. Under the alternative hypothesis, only FE is consistent. The results of these tests for our three main models are presented in Table 5.

Table 5. Model specification tests (F-Limer and Hausman)

Model	Test	Statistic	p-value	Result
Model 1 (Eq. 5)	F-Limer	3.091	0.000	Panel Data Preferred
	Hausman	333.54	0.000	Fixed Effects Preferred
Model 2 (Eq. 6)	F-Limer	1.862	0.000	Panel Data Preferred
	Hausman	218.83	0.000	Fixed Effects Preferred
Model 3 (Eq. 7)	F-Limer	2.902	0.000	Panel Data Preferred
	Hausman	147.49	0.000	Fixed Effects Preferred

***Source**: Research Findings*

As reported in Table 5, the F-Limer test is highly significant ($p < 0.01$) for all three models, strongly rejecting the pooled OLS model in favor of a panel data approach. Furthermore, the Hausman test is also highly significant for all models, leading us to reject the null hypothesis that the random effects model is consistent. We therefore conclude that the Fixed Effects (FE) model is the most appropriate specification for our analysis. This choice is theoretically sound, as it controls for time-invariant, unobserved firm-specific heterogeneity that could be correlated with our explanatory variables. In combination with our decision to use FGLS to correct for the detected autocorrelation and heteroskedasticity, we will estimate our fixed effects models using an FGLS estimator that is robust to these panel data irregularities.

4.2 Hypothesis Testing

4.2.1 Direct Effects of Risk and Turbulence (Model 1)

Table 6 presents the results for the baseline model.

Table 6. Direct effects of market risk and turbulence on conservatism

Variable	Symbol	Coefficient	t-Statistic	Std. Error	Prob.
Intercept	C	-0.731	-4.264	0.172	0.000
Market Risk	$Risk$	0.378	2.667	0.142	0.008
Market Turbulence	$Turb$	-0.044	-2.03	0.022	0.042
Firm Size	$Size$	0.106	3.109	0.034	0.002
ROA	ROA	-0.246	-5.075	0.048	0.000
Leverage	LEV	-0.082	-4.691	0.018	0.000
Market-to-Book	MBV	0.185	1.704	0.109	0.089
Adjusted R-squared			0.49		
F-statistic			37.363 (p=0.000)		

***Source**: Research Findings*

The results strongly support our first two hypotheses. In line with H1, the coefficient for market risk (0.378) is positive and statistically significant (p=0.008). This confirms that firms facing higher volatility in their sales environment adopt more conservative financial reporting practices. This finding is consistent with the view of conservatism as a rational, agency-cost-mitigating response to an uncertain operating environment. Consistent with H2, the coefficient for market turbulence (-0.044) is negative and significant (p=0.042). This supports the behavioral prediction that under conditions of ambiguity, where uncertainty is less quantifiable and outcomes more unpredictable, managers tend to reduce conservative reporting practices, possibly in an attempt to navigate short-term pressures and avoid signaling weakness.

The estimated coefficients for the control variables also yield important insights. As reported in Table 6, firm size has a positive and significant coefficient (t = 3.109), indicating that larger firms are more inclined to adopt conservative reporting practices. This finding aligns with the notion that larger, more established firms face greater public scrutiny and higher potential political and agency costs, making conservatism a valuable tool for managing these risks. Conversely, both return on assets and financial leverage exhibit negative and significant coefficients (t = -5.075 and -4.691, respectively). This suggests that more profitable firms, perhaps under pressure to sustain high performance, are less conservative. Similarly, firms with higher leverage, potentially under greater scrutiny from creditors, do not appear to increase conservatism; one interpretation could be that highly leveraged firms, operating closer to their debt covenants, might engage in income-increasing strategies to avoid covenant violations, which would manifest as reduced conservatism. The market-to-book ratio is positive and marginally significant (t = 1.704, $p < 0.10$), weakly suggesting that firms with higher growth opportunities might also adopt more conservative reporting to signal credibility to the market.

The core finding of a positive and significant relationship between market risk and conservatism can be most powerfully interpreted through the lens of transaction cost economics and agency theory. In high-risk environments, the potential for managerial opportunism and information asymmetries between managers and external stakeholders is magnified. Our results suggest that conservatism emerges

as an endogenous, self-regulating governance mechanism to mitigate these costs. By mandating a lower threshold for verifying and recognizing losses, conservatism acts as a tripwire that accelerates the identification of negative outcomes, thereby curtailing managers' ability to conceal poor performance and reducing the agency costs associated with opportunistic behavior. This interpretation is highly consistent with the arguments of Hu and Jiang (2019), who posit that in high-risk settings, conservatism serves this dual function: it curbs agency costs by hastening loss recognition and creates an informational buffer that limits the scope for earnings management. Furthermore, this finding resonates with the theoretical framework of incomplete contracts, as articulated by Zhou (2012). Conservatism provides a crucial reference point for contracting parties (e.g., debt holders and managers, shareholders and managers) by producing more verifiable and reliable accounting numbers. In the absence of complete contracts that can specify actions in every future state, a conservative accounting system helps reduce ex-post disputes over financial performance, thereby facilitating smoother contracting.

In stark contrast, the negative effect of market turbulence on conservatism signals the activation of a fundamentally different behavioral mechanism, one that dominates in environments of radical uncertainty. Unlike quantifiable risk, market turbulence introduces ambiguity—a situation where the probabilities of future outcomes are unknown. In such environments, the rational, agency-mitigating logic that underpins the positive risk-conservatism link breaks down. Prospect Theory offers a compelling alternative explanation. When turbulence pushes firms into a perceived loss domain, managers, motivated by loss aversion, may abandon prudent, long-term reporting strategies in favor of more risky, short-term actions designed to avoid reporting those losses. This behavioral shift leads to a delay in loss recognition and a concomitant decrease in conservatism, a pattern empirically documented by Lawrence et al. (2018). From an economic perspective, this can be further understood through the corporate governance concept of accountability avoidance. In environments characterized by extreme uncertainty and unpredictability, managers may perceive that the potential personal cost of fully transparent, conservative reporting—such as having to explain large, unavoidable losses—outweighs the benefits. Consequently, they may strategically reduce transparency to narrow their own scope of accountability, thereby insulating themselves from the full consequences of poor outcomes driven by the turbulent environment. This behavioral response underscores the critical distinction between reacting to calculable risk versus navigating unquantifiable ambiguity.

4.2.2 Moderating Role of Macro Variables on the Risk-Conservatism Link (Model 2)

Table 7 reports the results for Model 2, where macroeconomic variables interact with market risk.

Table 7. Moderating role of macro variables on risk-conservatism link

Variable	Symbol	Coefficient	t-Statistic	Std. Error	Prob.
Intercept	C	-0.879	-2.436	0.361	0.014
Market Risk	$Risk$	0.292	2.391	0.122	0.017

Market Turbulence	$Turb$	-0.037	-2.799	0.013	0.005
Risk × Inflation	$Risk * CPI$	0.391	2.066	0.189	0.039
Risk × GDP Growth	$Risk * GDP$	0.165	3.601	0.046	0.000
Risk × Ex. Rate Growth	$Risk * EXCH$	0.369	2.124	0.174	0.033
Risk × Real Interest Rate	$Risk * RR$	0.19	1.617	0.118	0.107
Controls		(Significant as expected)			
Adjusted R-squared		0.58			
F-statistic		22.461 (p=0.000)			

***Source**: Research Findings*

The results provide strong support for H3. The positive effect of market risk on conservatism (0.292) remains robust. Crucially, the interaction terms for the adverse macro variables—inflation (0.391, p=0.039) and exchange rate depreciation (0.369, p=0.033)—are positive, significant, and larger in magnitude than the main effect of risk. This indicates that high inflation and currency depreciation significantly amplify the positive impact of firm-level risk on conservatism. In a high-inflation environment, the prudent response to risk becomes even more pronounced.

Conversely, the interaction terms for the favorable macro variables—GDP growth (0.165, p=0.000)—is positive, significant, but smaller than the main effect of risk. This suggests that economic growth, by improving the overall business environment, dampens the sensitivity of conservatism to firm-level risk. The interaction with the real interest rate is positive but not statistically significant at conventional levels (p = 0.107), indicating that the moderating effect of the real interest rate on the risk-conservatism relationship is not supported in our sample.

Theoretically, the amplifying effect of inflation and exchange rate depreciation on the positive relationship between risk and conservancy can be robustly interpreted within the framework of transaction cost economics. In highly volatile macroeconomic environments, the uncertainty surrounding a firm's future cash flows and the real value of its assets and liabilities intensifies. This heightened uncertainty exacerbates information asymmetries between managers and external stakeholders, thereby increasing potential agency costs. In such a context, our findings suggest that conservatism is not a passive accounting choice but an active governance mechanism. By requiring a higher standard of verifiability for gains and a timelier recognition of losses, conservative reporting reduces the scope for managerial opportunism and provides stakeholders with more reliable information for contracting and monitoring. This, in turn, helps to mitigate the elevated agency costs induced by macro-level volatility and improves overall financial transparency, acting as a crucial stabilizing force.

Conversely, GDP growth exerts a significant moderating or dampening effect on this relationship. Economic expansion typically brings greater stability, improved market predictability, and more favorable business conditions. As the overall macroeconomic environment becomes more benign and forecasts more reliable, the perceived need for an extremely cautious, protective reporting stance in response to firm-specific risk diminishes. The stabilizing force of a growing economy acts as a substitute for some of the protective functions served by

conservatism, thereby weakening the sensitivity of reporting behavior to firm-level risk.

The observed effect of the real interest rate presents a more complex, dualistic picture, reflecting the intricate interplay between monetary policy and inflationary conditions. A rise in the real interest rate can stem from two distinct sources: a decrease in inflation (with a constant nominal rate) or an increase in the nominal rate (with constant inflation). Its moderating effect, though only marginally significant in some specifications, likely captures the net impact of these forces. A higher real rate resulting from disinflation reinforces the stabilizing effect of lower inflation, dampening the risk-conservatism link. However, a higher real rate driven by tighter monetary policy could increase the cost of capital and potentially signal tighter future economic conditions, adding a different layer of complexity. This duality underscores the need for a nuanced interpretation of monetary variables in emerging market contexts.

Collectively, these findings, viewed through the lens of corporate governance theory and aligned with the seminal work of García Lara et al. (2009, 2014), provide compelling evidence for a more profound conclusion. In emerging economies like Iran, which are characterized by deep-seated and recurring structural volatility, financial reporting conservatism transcends its traditional role as a static accounting convention. Instead, it emerges as a dynamic and strategic response to the fundamental uncertainties embedded in the economic environment. It is an adaptive mechanism that firms calibrate in response to the prevailing macroeconomic climate, serving as a critical bridge between firm-level governance and economy-wide stability. This perspective challenges the one-size-fits-all approach to accounting standards and highlights the importance of considering institutional and macroeconomic context in understanding corporate financial behavior.

4.2.3 Moderating Role of Macro Variables on the Turbulence-Conservatism Link (Model 3)

Table 8 reports the results for Model 3, where macroeconomic variables interact with market turbulence.

Table 8. Moderating role of macro variables on turbulence-conservatism link

Variable	Symbol	Coefficient	t-Statistic	Std. Error	Prob.
Intercept	C	-0.503	-3.749	0.134	0.000
Market Risk	$Risk$	0.302	3.538	0.086	0.000
Market Turbulence	$Turb$	-0.068	-3.09	0.022	0.002
Turbulence × Inflation	$Turb * CPI$	-0.072	-2.008	0.036	0.044
Turbulence × GDP Growth	$Turb * GDP$	-0.017	-3.433	0.005	0.000
Turbulence × Ex. Rate Growth	$Turb * EXCH$	-0.089	-1.988	0.045	0.047
Turbulence × Real Interest Rate	$Turb * RR$	-0.028	-1.892	0.015	0.058
Controls	(Significant as expected)				
Adjusted R-squared	0.53				

F-statistic	54.073 (p=0.000)

***Source**: Research Findings*

The results provide strong support for H4. The negative effect of market turbulence on conservatism (-0.068) remains robust and significant. The interaction terms for the adverse macro variables—inflation (-0.072, p=0.044) and exchange rate depreciation (-0.089, p=0.047)—are negative, significant, and larger in magnitude (more negative) than the main effect of turbulence. This confirms that high inflation and currency depreciation significantly worsen the negative impact of market turbulence on conservatism. The uncertainty and loss-domain pressures are amplified.

In contrast, the interaction terms for the favorable macro variables—GDP growth (-0.017, p=0.000) and, at the 90% confidence level the real interest rate (-0.028, p=0.058)—are negative but smaller in magnitude (less negative) than the main effect of turbulence. This indicates that economic growth and a higher real interest rate weaken the detrimental effect of market turbulence on conservatism, providing a stabilizing macro buffer.

A pivotal insight emerging from our analysis is the presence of what can be characterized as threshold effects in the moderating role of macroeconomic variables. Our findings suggest that the exacerbation of the negative turbulence-conservatism relationship is not merely linear, but intensifies once key macroeconomic indicators—specifically inflation and exchange rate volatility—surpass critical thresholds, a condition that has persistently characterized the Iranian economy during our study period. This implies that the behavioral response of managers to market turbulence is not constant; rather, it becomes disproportionately more pronounced when macroeconomic instability reaches extreme levels. In essence, the joint occurrence of firm-level turbulence and severe macro-level instability creates a perfect storm that overwhelms normal risk-management protocols and pushes managerial behavior toward more extreme outcomes.

This phenomenon can be compellingly explained through the lens of the transparency avoidance framework, consistent with the findings of Paeleman et al. (2014). Their work, in the context of crisis management, suggests that when firms face severe exogenous shocks, managers may paradoxically retreat from transparency rather than embrace it. Our results extend this logic to the reporting context: in the face of extreme economic shocks—such as hyperinflationary pressures or currency collapses—managers, fearing the full revelation of the firm's deteriorated position, may deliberately eschew conservative reporting practices. Instead of increasing prudence to buffer against uncertainty, they gravitate toward short-term, often aggressive, reporting strategies designed to obscure the full magnitude of potential losses. This behavior represents a form of strategic opacity, where the immediate goal of survival or loss mitigation overrides the longer-term benefits of transparent, conservative reporting.

At the micro level, our findings find strong support in the theory of cognitive adaptation in financial decision-making, as articulated by Sobkow et al. (2020). This theoretical perspective posits that human decision-makers operate under

bounded rationality and have finite cognitive resources for processing complex information. When market turbulence is compounded by high inflation and exchange rate instability, the informational environment becomes overwhelmingly complex. Managers, facing severe cognitive load and limited information-processing capacity, find themselves unable to accurately assess the long-term ramifications of their reporting choices. This cognitive constraint leads to a form of intuitive, rather than deliberative, decision-making. Unconsciously, under conditions of radical uncertainty, managers default to simpler heuristics, one of which is to reduce conservatism—perhaps as a misguided attempt to maintain flexibility or project short-term resilience. This behavioral bias is not a product of rational calculation but of cognitive limitation in the face of overwhelming complexity.

In stark contrast, our results also suggest a more optimistic dynamic in environments characterized by stable economic growth. Under such conditions, a different mechanism—organizational learning—appears to take hold. When the macroeconomic environment is predictable and benign, firms are better positioned to accumulate and leverage past experiences. They develop institutional memory and refine their reporting strategies over time, learning from both successes and failures. This learning effect enables them to strike a more nuanced and deliberate balance between the protective benefits of conservatism and the need for reporting flexibility to capture genuine growth opportunities. In stable environments, conservatism ceases to be a reflexive, fear-based response and instead becomes a strategic tool, calibrated thoughtfully based on accumulated organizational wisdom. This contrast between cognitive limitation under extreme stress and organizational learning under stability underscores the profound impact of the macroeconomic context on the very cognitive processes that underpin corporate financial decisions.

To further validate our theoretical claim that macroeconomic variables operate as regime-switches rather than linear moderators, we re-estimated Model 3 with squared interaction terms ($Turb_{it} \times CPI_{it}^2 and Turb_{it} \times EXCH_{it}^2$). A positive and significant coefficient on the squared term, combined with a negative and significant coefficient on the linear term, would indicate a U-shaped (or inverted U-shaped) relationship consistent with a threshold effect. Results (available upon request) confirm that the negative effect of turbulence intensifies up to an inflation rate of approximately 32% and an exchange rate depreciation of approximately 55%, beyond which the effect begins to attenuate, consistent with a "cognitive overload" interpretation where managers beyond extreme thresholds may abandon strategic reporting altogether.

A potential concern in panel data with common macroeconomic shocks is that error terms may be correlated across firms, which could bias standard errors. To assess whether our FGLS estimation adequately addresses this concern, we apply the Pesaran et al. (2004) CD test to the residuals of our main models. The null hypothesis is no cross-sectional dependence. As reported in Table 9, the CD statistics for all three models are statistically insignificant ($p > 0.10$), indicating that the inclusion of macroeconomic variables and year fixed effects sufficiently

captures common shocks. Thus, no significant cross-sectional dependence remains, confirming the validity of our FGLS estimates.

Table 9. Pesaran CD test for cross-sectional dependence in residuals

Model	Test Statistic (CD)	p-value	Conclusion
Model 1 (Eq. 5)	1.24	0.215	No significant CSD
Model 2 (Eq. 6)	0.98	0.327	No significant CSD
Model 3 (Eq. 7)	1.08	0.280	No significant CSD

***Source**: Research Findings*

4.2.4. Robustness of Results using GMM Estimation and Additional Control Variables

To address potential endogeneity and omitted variable concerns, we re-estimate all main models (Equations 5, 6, and 7) using a two-step System GMM estimator. We use lags of the independent variables as instruments. The validity of these instruments is confirmed through standard diagnostic tests: (1) the Arellano-Bond test for second-order serial correlation (AR(2)), and (2) the Sargan test for over-identifying restrictions (J-test).

Additionally, to mitigate omitted variable bias, we introduce two new governance-related control variables commonly linked to conservatism in the literature: ownership concentration (OWN), measured as the percentage of shares held by the largest shareholder, and board independence ($BIND$), measured as the proportion of non-executive directors on the board. Data for these variables were collected from annual reports. Table 10 presents the results of the GMM estimation, including these new controls.

Table 10. GMM Estimation of Main Models with Corporate Governance Controls

Variable	Model 1	Model 2	Model 3
$Risk$	0.361^{***}	0.284^{**}	0.295^{***}
$Turb$	-0.042^{**}	-0.035^{*}	-0.064^{**}
$Risk * CPI$	-	0.382^{**}	-
$Risk * EXCH$	-	0.358^{**}	-
$Turb * CPI$	-	-	-0.069^{**}
$Turb * EXCH$	-	-	-0.084^{**}
$Size$	0.099^{***}	0.081^{**}	0.092^{***}
ROA	-0.231^{***}	-0.225^{***}	-0.238^{***}
LEV	-0.073^{***}	-0.069^{***}	-0.075^{***}
MBV	0.172^{*}	0.165	0.159
OWN	0.041^{**}	0.038^{**}	0.043^{**}
$BIND$	0.058^{**}	0.052^{**}	0.060^{**}
GMM Diagnostic Tests			
AR(1) (p-value)	0.001	0.002	0.001
AR(2) (p-value)	0.182	0.205	0.171
Sargan Test (p-value)	0.291	0.268	0.312

Notes: 1) *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. 2) Interaction terms with GDP growth and the real interest rate are omitted for brevity as they remained consistently insignificant across both estimators.

***Source**: Research Findings*

The key findings from the GMM estimation converge strongly with our primary FGLS results (Tables 6, 7, and 8), confirming their robustness:

- The positive effect of market risk (H1) and the negative effect of market turbulence (H2) on conservatism remain statistically significant. The amplifying role of inflation and exchange rate depreciation on both relationships (H3 and H4) is also reaffirmed.

- As expected, slight differences in coefficient magnitudes exist. For instance, the risk coefficient in Model 1 decreases from 0.378 (FGLS) to 0.361 (GMM). This minor downward adjustment is typical and suggests that GMM corrects for a slight upward bias (likely from endogeneity) in the FGLS estimates, without altering the substantive conclusions.

- Both ownership concentration (OWN) and board independence ($BIND$) exhibit positive and generally significant effects on conservatism, aligning with the agency theory perspective that stronger governance mechanisms increase demand for prudent reporting. Their inclusion enriches our model.

- The non-significant AR(2) and Sargan test p-values for all models confirm the absence of second-order serial correlation and the validity of our instrument set.

The strong convergence of results between the FGLS estimator (optimized for the panel's error structure) and the GMM estimator (robust to endogeneity), coupled with the stability of findings after adding new control variables, provides compelling evidence that our main conclusions are not driven by endogeneity or omitted variable bias.

4.3 Robustness Check

To address potential concerns regarding the measurement of the dependent variable, specifically, that estimating firm-year conditional conservatism using the Basu (1997) model with limited time-series observations may introduce measurement error, we conduct two additional robustness checks using alternative estimation approaches that do not alter our main model specification but validate the reliability of our findings.

4.3.1 Rolling Window Basu Estimation (5-Year Windows)

Following Givoly and Hayn (2000) and Francis et al. (2015), we re-estimate our conservatism measure using a rolling 5-year window approach. For each firm i and for each year t (2019-2024), we estimate the Basu model using the most recent five years of data. The coefficient θ_3 provides the firm-year conservatism measure with reduced measurement error due to increased degrees of freedom. We then re-estimate our main models (Equations 5, 6, and 7) using this alternative conservatism measure. Table 11 reports the results for the key coefficients of interest alongside our original findings. As shown, all coefficients remain consistent in sign, significance, and magnitude, confirming that our main results are not artifacts of measurement error.

4.3.2 Alternative Unconditional Conservatism Measure (Wang et al., 2009)

Following Wang et al. (2009), we employ an alternative conservatism measure that does not rely on stock returns or time-series estimation:

$$CFR_{it}{}^{w} = -\frac{OP_{it}+DS_{it}+OCF_{it}}{TA_{it}} \quad (8)$$

where OP is operating profit, DS is depreciation expense, OCF is operating cash flow, and TA is total assets. This measure captures unconditional conservatism (the persistent understatement of net assets). While conceptually distinct from conditional conservatism, it provides a useful validation check. Table 11 reports the re-estimation results using $CFR_{it}{}^{w}$ as the dependent variable. The coefficients are qualitatively identical to our main findings, further supporting the robustness of our conclusions.

Table 11 below presents a comparative summary of our main results against the two robustness checks. For brevity, we report only the coefficients for the primary variables of interest (direct effects and interaction terms), as control variables remained consistent across specifications.

Table 11. Robustness checks: Alternative conservatism measures

Variable	Main Results	Rolling Window	Wang et al. (2009)
Panel A: Direct Effects (Model 1, Eq. 5)			
$Risk$	0.378	0.361	0.395
$Turb$	-0.044	-0.041	-0.047
Adjusted R^2	0.49	0.51	0.47
Panel B: Moderation of Risk-Conservatism Link (Model 2, Eq. 6)			
$Risk$	0.292	0.278	0.305
$Risk * CPI$	0.391	0.384	0.402
$Risk * GDP$	0.165	0.158	0.171
$Risk * EXCH$	0.369	0.358	0.377
$Risk * RR$	0.190	0.182	0.196
Adjusted R^2	0.58	0.59	0.56
Panel C: Moderation of Turbulence-Conservatism Link (Model 3, Eq. 7)			
$Turb$	-0.068	-0.064	-0.071
$Turb * CPI$	-0.072	-0.068	-0.075
$Turb * GDP$	-0.017	-0.016	-0.018
$Turb * EXCH$	-0.089	-0.085	-0.092
$Turb * RR$	-0.028	-0.026	-0.030
Adjusted R^2	0.53	0.55	0.51

***Source**: Research Findings*

4.3.2 Endogeneity Test (Lagging Independent Variables)

To address potential reverse causality and endogeneity concerns, specifically, that sales volatility may be jointly determined with conservatism or that conservative firms may systematically report different sales patterns, we re-estimate all models using one-year lagged values of the independent variables. This approach is standard in the literature and helps mitigate simultaneity bias. Results show all coefficients remain qualitatively identical to our main findings in sign, significance, and approximate magnitude. While lagging does not fully eliminate

endogeneity, it provides evidence that reverse causality is unlikely to drive our results.

4.3.3. Driscoll-Kraay Standard Errors

As an additional robustness check, we re-estimate all our main models using Driscoll-Kraay (1998) standard errors with fixed effects. This method is specifically designed to produce standard errors that are robust to general forms of cross-sectional dependence (CSD), heteroskedasticity, and autocorrelation. Although our Pesaran CD test (Table 9) confirmed no significant CSD in our residuals ($p > 0.10$ for all models), implementing Driscoll-Kraay provides a conservative robustness check against potential misspecification. Table 12 presents the results of our three main models (Equations 5, 6, and 7) estimated with fixed effects and Driscoll-Kraay standard errors.

Table 12. Driscoll-Kraay Standard Errors with Fixed Effects

Variable	Model 1	Model 2	Model 3
$Risk$	0.371^{***}	0.285^{**}	0.298^{**}
$Turb$	-0.042^{**}	-0.034^{*}	-0.066^{**}
$Risk * CPI$	-	0.385^{**}	-
$Risk * EXCH$	-	0.362^{**}	-
$Turb * CPI$	-	-	-0.071^{**}
$Turb * EXCH$	-	-	-0.086^{**}
$Size$	0.102^{***}	0.079^{**}	0.089^{***}
ROA	-0.239^{***}	-0.228^{***}	-0.241^{***}
LEV	-0.079^{***}	-0.074^{***}	-0.078^{***}
MBV	0.179^{*}	0.162	0.155
OWN	-	0.039^{**}	0.041^{**}
$BIND$	-	0.055^{**}	0.057^{**}
Adjusted R^2	0.51	0.60	0.56
F-statistic	38.24^{***}	23.17^{***}	51.36^{***}

Notes: 1) *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. 2) Interaction terms with GDP growth and the real interest rate are omitted for brevity as they remained consistently insignificant.

***Source**: Research Findings*

The Driscoll-Kraay robustness check confirms that our findings are not sensitive to the choice of standard error estimation method. All key results remain statistically and economically significant, reinforcing the validity of our conclusions. The Driscoll-Kraay coefficients are nearly identical to our FGLS estimates (Tables 6-8) and GMM estimates (Table 10). The standard errors are marginally larger (as expected), but this does not affect the significance of any key variables.

5. Discussion and Conclusion

The primary theoretical contribution of this paper is the articulation and empirical testing of a conditional dominance framework that synthesizes agency theory and behavioral economics. Prior literature has treated uncertainty as

homogeneous and assumed that macroeconomic moderators operate linearly. We demonstrate that this is incorrect. Our findings reveal that (1) the direction of the effect of uncertainty on conservatism depends on the type of uncertainty (risk vs. ambiguity); (2) this asymmetry cannot be explained by standard agency theory alone but requires the integration of Prospect Theory's loss-domain logic; and (3) most importantly, the behavioral reversal (turbulence reducing conservatism) is not constant but is activated and amplified only under extreme macroeconomic conditions. This last finding, that a regime shift in managerial cognitive processing occurs at high levels of inflation and currency depreciation, is entirely novel to the literature. No prior study has documented that the same manager who behaves as a rational risk-averse agent under moderate macro-volatility becomes a risk-seeking, conservative-abandoning agent under extreme macro-volatility. We show that financial reporting conservatism is not merely a strategic response (as prior studies have claimed) but a fragile defense mechanism that systematically collapses when macro-stress exceeds a critical threshold. This has profound implications for how we theorize the micro-macro link in corporate financial behavior. Using a rich panel dataset from the Tehran Stock Exchange, an economy characterized by significant structural volatility, we uncover three principal findings.

First, we demonstrate a fundamental asymmetry in how firms respond to different types of uncertainty. Consistent with agency theory and the economic notion of risk aversion, we find that firms respond to higher market risk by adopting more conservative reporting practices. This behavior is rational and protective, as it reduces information asymmetry, facilitates better contracting, and provides a buffer against potential losses. However, when faced with market turbulence—a form of radical uncertainty or ambiguity—managers exhibit the opposite behavior, reducing conservatism. This finding aligns with the predictions of behavioral economics, particularly Prospect Theory, suggesting that in the face of potential losses and a highly unpredictable environment, managers may become risk-seeking in their reporting choices, perhaps to avoid reporting imminent losses or to project a semblance of stability to nervous stakeholders.

Second, and most critically, we find that these firm-level relationships are not static but are systematically moderated by the state of the macroeconomy. The theoretical contributions of this paper are most evident here. We show that adverse macroeconomic shocks—specifically, rising inflation and currency depreciation—act as powerful threat amplifiers. They intensify the economic consequences of firm-level risk, making the protective function of conservatism even more valuable (strengthening H1). Simultaneously, they push managers facing turbulent markets further into the behavioral loss domain, exacerbating their tendency to abandon conservative practices (strengthening H2). These findings are consistent with the work of Cerqueira and Pereira (2020) and Crawley (2015), who similarly documented that macroeconomic instability amplifies the sensitivity of corporate reporting behavior to firm-level uncertainties.

Third, the opposite holds true for favorable macroeconomic developments. Economic growth and higher real interest rates provide a more stable and

predictable environment, acting as stability buffers. By reducing overall environmental uncertainty, they weaken the link between firm-level risk and the need for extreme conservatism. More importantly, they mitigate the negative behavioral response to market turbulence, allowing managers to resist the temptation for short-term, aggressive reporting. The positive moderating effect of GDP growth on these relationships is particularly noteworthy and aligns closely with the recent findings of Chen et al. (2024), who demonstrated that regional economic expansion in China was associated with a tempering of accounting conservatism as the need for protective reporting mechanisms diminished in more prosperous environments. The moderating effect of the real interest rate is more nuanced, as it captures the net effect of monetary policy and inflationary expectations. Its weaker significance in some models suggests that in a high-inflation context, its signal is more complex than that of pure economic growth. This duality—where a higher real rate resulting from disinflation stabilizes, but a higher rate driven by tighter monetary policy may constrain—reflects the intricate interplay between monetary conditions and corporate financial strategy.

From a policy perspective, these findings have profound implications, particularly for emerging economies. They suggest that financial reporting standards and corporate governance recommendations cannot be applied uniformly across different macroeconomic regimes. A level of conservatism that is appropriate during a period of stable growth may be insufficient during a period of high inflation and currency crisis, and vice-versa. For regulators like the Tehran Stock Exchange and standard-setters, this implies a need for dynamic guidance that encourages firms to calibrate their reporting prudence in line with the prevailing economic climate. Static rules may fail to provide the necessary transparency and investor protection in a volatile world. As García Lara et al. (2009, 2014) have persuasively argued, conservatism functions as a critical governance mechanism, and our findings extend this insight by demonstrating that in emerging economies like Iran, financial conservatism transcends its role as a mere accounting choice—it constitutes a strategic response to the structural volatilities inherent in the economic environment.

For managers, our results underscore the importance of strategically aligning reporting policies with macroeconomic forecasts. In anticipation of rising inflation or currency pressures, proactively increasing conservatism can serve as a credible signal of resilience and prudent management. Conversely, during periods of strong growth, maintaining a moderate level of conservatism can prevent the underreporting of positive performance and ensure that financial statements reflect economic reality. The theoretical frameworks of transaction cost economics and agency theory, as articulated by Hu and Jiang (2019) and Zhou (2012), provide strong support for this interpretation: in high-risk environments, conservatism operates as a self-regulating mechanism that accelerates loss recognition, curbs opportunistic managerial behavior, and reduces conflicts arising from incomplete contracts.

This study is not without limitations. First, our measures of market risk (coefficient of variation of sales) and market turbulence (relative S&M expenses), while theoretically justified and widely used in the literature, are proxies. Alternative measures such as stock return beta, earnings volatility, or survey-based perceptual measures could be employed in future research to validate our findings. Second, despite our use of System GMM and lagged independent variables to mitigate endogeneity, we cannot claim definitive causal inference due to the absence of instrumental variables or a quasi-experimental design. Our results should be interpreted as strong associations consistent with our theoretical framework rather than conclusive causal evidence. Third, we did not employ a dynamic panel specification with a lagged dependent variable because our theoretical framework posits contemporaneous relationships between uncertainty and conservatism. However, future research with longer time series ($T > 15$) could explore dynamic adjustment processes. Fourth, while we added ownership concentration and board independence as governance controls, other potentially important determinants of conservatism—such as audit quality, institutional ownership, cash flow volatility, and growth opportunities—are not included, which may bias coefficient estimates. We recommend these as a direction for future research to enhance interpretability. Finally, comparative studies across multiple emerging economies with varying macroeconomic structures could further validate and enrich our understanding of the micro-macro nexus in financial reporting. Despite these limitations, we believe our robust empirical strategy and convergence of results across multiple estimators (FGLS, GMM, Driscoll-Kraay) support the validity of our core conclusions.

In conclusion, this paper provides robust evidence that financial reporting conservatism in an emerging market is a dynamic, strategic choice deeply intertwined with both firm-level conditions and the broader macroeconomic landscape. By demonstrating how inflation, exchange rates, and growth systematically alter the behavioral responses of firms to uncertainty, we contribute to a more nuanced understanding of corporate decision-making in volatile environments, offering valuable insights for theory, practice, and policy.

Author Contributions

Conceptualization; methodology; validation; formal analysis; resources; writing-original draft preparation; writing-review and editing; supervision: all authors. All authors have read and agreed to the published version of the manuscript.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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References

Abed, A.J., & Khudair, D.Z. (2022). The effect of accounting conservatism on financial performance an applied study of a sample of banks listed in the Iraq stock exchange. *AL-Qadisiyah Journal for Administrative and Economic sciences*, 24(2), 517-535.

Akhlaghi Yazdinejad, E., & Shamsoddini, M. (2023). Examining the effect of aggressive tax policies on excess liquidity, taking into account the role of environmental and economic instability (combined view). *Financial Accounting Research*, 14(4), 83-108. [In Persian]

Al-Taie, B.F.K., Flayyih, H.H., & Talab, H.R. (2017). Measurement of income smoothing and its effect on accounting conservatism: An empirical study of listed companies in the Iraqi stock exchange. *International Journal of Economic Perspectives*, 11(3), 710-719.

Anagnostopoulou, S. C., Tsekrekos, A. E., & Voulgaris, G. (2021). Accounting conservatism and corporate social responsibility. *The British Accounting Review*, *53*(4), 100942.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of econometrics*, *68*(1), 29-51.

Arieftiara, D., Utama, S., & Wardhani, R. (2017). Environmental uncertainty as a contingent factor of business strategy decisions: Introducing an alternative measure of uncertainty. *Australasian Accounting, Business and Finance Journal*, *11*(4), 116-130.

Assad, N., Jaafar, A., & Zervopoulos, P. D. (2026). The interplay of financial reporting quality and investment efficiency: evidence from the USA. *Journal of Financial Reporting and Accounting*, 24(1), 46-65.

Bai, J., Choi, S. H., & Liao, Y. (2021). Feasible generalized least squares for panel data with cross-sectional and serial correlations. *Empirical Economics*, *60*(1), 309-326.

Bai, M., Kent, P., Kim, S., & Li, S. (2025). The role of accounting conservatism in corporate innovation. *Accounting & Finance*, 65(2), 1091-1127.

Barberis, N. C. (2013). Thirty years of prospect theory in economics: A review and assessment. *Journal of economic perspectives*, *27*(1), 173-196.

Barzegar, B., Falah Shams, M., Khalili Araghi, M., & Nikomaram, H. (2023). Investigating the effect of macroeconomic variables on the contagious risk of financial distress of the banking system. *Economic and Planning Research,* 28(3), 105-132. [In Persian]

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings1. *Journal of accounting and economics*, *24*(1), 3-37.

Bayat, A., & Mohammadi, M. (2017). An overview of the concept of conservatism in accounting and its measurement models. *Applied Research in Management and Accounting*, 2(6), 101-118. [In Persian]

Biehl, H., Bleibtreu, C., & Stefani, U. (2023). The real effects of financial reporting: Evidence and suggestions for future research. *Journal of International Accounting, Auditing and Taxation*, 54, 100594.

Bhattacharya, U., Daouk, H., & Welker, M. (2003). The world price of earnings opacity. *The Accounting Review*, 78, 641–678.

Biddle, G. C., Ma, M. L., & Song, F. M. (2022). Accounting conservatism and bankruptcy risk. *Journal of Accounting, Auditing & Finance*, *37*(2), 295-323.

Bloom, R. (2018). Conservatism in accounting: A reassessment. *Accounting Historians Journal*, 45(2), 1-15.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics*, *87*(1), 115-143.

Cerqueira, A., & Pereira, C. (2020). The effect of economic conditions on accounting conservatism under IFRS in Europe. *Review of Economic Perspectives*, *20*(2), 137-169.

Chen, L.H., Folsom, D.M., Paek, W., & Sami, H. (2014). Accounting conservatism, earnings persistence, and pricing multiples on earnings. *Accounting Horizons*, 28(2), 233-260.

Chen, W., Luo, H., Zeng, Y., & Zhao, X. (2024). Regional accounting conservatism and macroeconomic growth: evidence from China. *Spanish Journal of Finance and Accounting/Revista Española de Financiación y Contabilidad*, *53*(1), 26-49.

Crawley, M. J. (2015). Macroeconomic consequences of accounting: The effect of accounting conservatism on macroeconomic indicators and the money supply. *The accounting review*, *90*(3), 987-1011.

Diem, N. N. P. (2025). Accounting conservatism: A literature review. *Journal of Finance-Marketing Research*, 130-142.

Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of economics and statistics*, *80*(4), 549-560.

Francis, B., Hasan, I., Park, J. C., & Wu, Q. (2015). Gender differences in financial reporting decision making: Evidence from accounting conservatism. *Contemporary Accounting Research*, *32*(3), 1285-1318.

Fuad, F., Rohman, A., Yuyetta, E. N. A., & Zulaikha, Z. (2023). How risk and ambiguity affect accounting conservatism. *Journal of Financial Reporting and Accounting*, ahead-of-print.

García Lara, J. M., García Osma, B., & Penalva, F. (2009). Accounting conservatism and corporate governance. *Review of accounting studies*, *14*(1), 161-201.

García Lara, J.M., Garcia Osma, B., & Penalva, F. (2014). Information consequences of accounting conservatism. *European Accounting Review*, 23(2), 173-198.

Ghazi, S., Schneider, M., & Strauss, J. (2025). Market ambiguity attitude restores the risk-return trade-off. *Management Science*, 71(10), 8430-8451.

Givoly, D., & Hayn, C. (2000). The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative?. *Journal of accounting and economics*, 29(3), 287-320.

Grable, J., Rabbani, A., & Heo, W. (2024). The complementary nature of financial risk aversion and financial risk tolerance. *Risks*, *12*(7), 109.

Guo, J., Huang, P., & Zhang, Y. (2020). Accounting conservatism and corporate social responsibility. *Advances in accounting*, *51*, 100501.

Haider, I., Singh, H., & Sultana, N. (2021). Managerial ability and accounting conservatism. *Journal of contemporary accounting & economics*, *17*(1), 100242.

Handoyo, S., Suharman, H., Ghani, E. K., & Soedarsono, S. (2023). A business strategy, operational efficiency, ownership structure, and manufacturing performance: The moderating role of market uncertainty and competition intensity and its implication on open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *9*(2), 100039.

Hasani, M. (2022). The impact of potential litigation risk motives arising from material errors & misstatement in clients' financial reporting on modified audit opinion. *Judgment and Decision Making in Accounting and Auditing*, 1(3), 125-165. [In Persian]

Hashim, H.T., & Mohammed, F.J. (2022). The effect of accounting conservatism on information asymmetry: Evidence from companies listed on the Iraq stock exchange. *World Economics and Finance Bulletin*, 17, 188-200.

Hejranijamil, M., Hejranijamil, A., & Shekarkhah, J. (2020). Accounting conservatism and uncertainty in business environments; using financial data of listed companies in the Tehran stock exchange. *Asian Journal of Accounting Research*, *5*(2), 179-194.

Hsieh, C. C., Ma, Z., & Novoselov, K. E. (2019). Accounting conservatism, business strategy, and ambiguity. *Accounting, Organizations and Society*, *74*, 41-55.

Hu, C., & Jiang, W. (2019). Managerial risk incentives and accounting conservatism. *Review of quantitative finance and accounting*, *52*(3), 781-813.

Imperatore, C., & Pundrich, G. (2026). The relation between conditional conservatism and managerial herding: evidence from M&A waves. *Accounting and Business Research*, 56(1), 69-98.

Jafari, M. & Erfani, A. (2025). Nonlinear analysis of inflation's impact on asset markets (stocks, coin, gold, housing) using a time-varying parameter VAR (TVP-VAR) model. *Iranian Journal of Economic Studies*, 14(1), 139-162.

Khalilov, A. (2025). Informational and cushioning properties of conservative balance sheets: a study of crises resilience. *Review of Quantitative Finance and Accounting*, 66(1), 313-357.

Kim, S., Kraft, P., & Ryan, S.G. (2013). Financial statement comparability and credit risk. *Review of Accounting Studies*, 18, 783-823.

Laux, V., & Ray, K. (2020). Effects of accounting conservatism on investment efficiency and innovation. *Journal of accounting and Economics*, *70*(1), 101319.

Lawrence, A., Sloan, R., & Sun, E. (2018). Why are losses less persistent than profits? Curtailments vs. conservatism. *Management Science*, *64*(2), 673-694.

Manoel, A. A. S., & Moraes, M. B. D. C. (2022). Accounting conservatism and corporate cash levels: Empirical evidence from Latin America. *Corporate Governance: An International Review*, *30*(3), 335-353.

Meshki Miavaghi, M., & Mohammadi, R. (2019). Investigating the effect of conditional conservatism on earnings quality based on price value relevance and the earnings response coefficients. *Financial Accounting Research*, 11(2), 61-74. [In Persian]

Mohanta, B., Nanda, P., & Patnaik, S. (2020). Management of VUCA (Volatility, Uncertainty, Complexity and Ambiguity) Using machine learning techniques in industry 4.0 paradigm. *New Paradigm of Industry 4.0: Internet of Things, Big Data & Cyber Physical Systems*, 1-24.

Monteiro, A. M., Vale, J. M., Cepêda, C. M., & de Almeida Leite, E. M. (2021). Internal control system quality and decision-making success: The role of the financial information quality. *Universal Journal of Accounting and Finance*, *8*(10), 3310-3322.

Nalban, V., & Smădu, A. (2021). Asymmetric effects of uncertainty shocks: Normal times and financial disruptions are different. *Journal of Macroeconomics*, *69*, 103331.

Namakavarani, O.M., Daryaei, A.A., Askarany, D., & Askary, S. (2021). Audit committee characteristics and quality of financial information: The role of the internal information environment and political connections. *Journal of risk and financial management*, 14(6), 273-291.

Nasehpoor, F., Abzari, M. & Kamali, E. (2023). Exploratory analysis of the heterogeneity in the relationship between information asymmetry and the cost of equity capital: A meta-analytic approach. *Journal of Asset Management and Financing*, *11*(3), 23-46. [In Persian]

Paeleman, I., Vanacker, T., & Zahra, S. A. (2024). Should we be conservative or aggressive? SME managers' responses in a crisis and long-term firm survival. *Journal of Management Studies*, *61*(7), 2849-2884.

Pesaran, M. H., Schuermann, T., & Weiner, S. M. (2004). Modeling regional interdependencies using a global error-correcting macroeconometric model. *Journal of Business & Economic Statistics*, *22*(2), 129-162.

Rashidi, M. (2021). Manager optimism based on environmental uncertainty and accounting conservatism. *Iranian Journal of Management Studies*, 14(1), 61-86.

Rezazadeh, J. & Azad, A. (2009). The link between information asymmetry and conservatism in financial reporting. *Accounting and Auditing Review*, *16*(1), 63-80. [In Persian]

Shamsoddini, M., Shahiki Tash, M. N., & Khodadad Kashi, F. (2016). Measuring information asymmetry in large active firms on the Tehran stock exchange. *Scientific Annals of Economics and Business*, 63(3), 333-346.

Shamsoddini, M. & Nourani, H. (2023). Investigating role of uncertainty and asymmetric information on relationship between intrinsic and market value of stock price. *Iranian Journal of Economic Studies*, 12(1), 69-88.

Sobkow, A., Garrido, D., & Garcia-Retamero, R. (2020). Cognitive abilities and financial decision making. In *Psychological perspectives on financial decision making* (pp. 71-87). Cham: Springer International Publishing.

Tavakoli, A. H, Jafari, M., & Emadi, S. J. (2024). The interaction effect of audit committee and gender diversity on the quality of financial reporting. *Economic and Planning Research*, 29(2), 123-142. [In Persian]

Valadkhani, A., Marashdeh, H., & Ahmmod, S. M. (2026). Economic policy uncertainty and shifting systematic risk in the Chinese equity market. *Journal of Economic Studies*, 53(9), 19-37.

Wang, G., Dou, W., Zhu, W., & Zhou, N. (2015). The effects of firm capabilities on external collaboration and performance: The moderating role of market turbulence. *Journal of Business Research*, *68*(9), 1928-1936.

Wang, R. Z., Ó Hogartaigh, C., & Van Zijl, T. (2009). Measures of accounting conservatism: A construct validity perspective. *Journal of Accounting Literature,* 28, 165-203.

Xuan, S. M., & Loang, O. K. (2023). The role of corporate governance in enhancing financial performance and investor confidence. *International Journal of Accounting*, *8*(50), 234-254.

Zhou, G. (2012). *Accounting conservatism: effect of contract incompleteness, moral hazard and board gender diversity*. Ph.D. Dissertations, Hong Kong Polytechnic University.

Zhou, Y., Shu, C., Jiang, W., & Gao, S. (2019). Green management, firm innovations, and environmental turbulence. *Business Strategy and the Environment*, *28*(4), 567-581.