

Article

The Impact of Accounting Conservatism on Investment Efficiency and Cost of Capital: Evidence from Non-Financial Listed Firms in Saudi Arabia

Fahad Alrobai

Department of Accounting, College of Business Administration, Majmaah University, Al-Majma'ah 11952, Saudi Arabia; f.alrobai@mu.edu.sa

Abstract

Purpose: This research aims to examine the impact of accounting conservatism on investment efficiency and the cost of capital within the Saudi Arabian corporate context following the implementation of Saudi Vision 2030. **Methodology:** This study analyzes panel data from 105 non-financial listed firms on the Saudi Stock Exchange (Tadawul) from 2016 to 2024. To fulfill the structural requirements for measuring investment efficiency, the sample is restricted to sectors containing a minimum of 10 firms. The empirical framework relies on four robust Ordinary Least Squares (OLS) econometric models to evaluate the hypothesized relationships. **Findings:** The empirical findings indicate two primary results. First, accounting conservatism exerts a significant positive impact on investment efficiency. Second, statistical tests reveal that accounting conservatism has a nuanced, asymmetric, and non-linear impact on the components of the cost of capital—specifically, the weighted average cost of capital (WACC), cost of equity (COE), and cost of debt (COD)—when conditioned across three distinct regimes: the full sample, underinvesting firms, and overinvesting firms. These results challenge traditional linear assumptions, indicating that a state-contingent framework better explains market reactions to financial reporting strategies. **Implications and Recommendations:** The findings suggest that decision makers should abandon the assumption that maximizing accounting conservatism is a universally risk-averse or beneficial strategy. Instead, corporate managers should treat accounting conservatism as a strategic instrument governed by definite thresholds, as its impact on financing costs is deeply tied to a firm's structural investment realities. Regulatory bodies and standard setters in the Saudi market are encouraged to integrate these non-linear insights when evaluating the capital market effects of financial transparency reforms.

Keywords: accounting conservatism; investment efficiency; cost of capital; agency theory; information asymmetry; Saudi Arabia



Academic Editor: Mirela Cătălina
Türkçü

Received: 25 May 2026

Revised: 14 July 2026

Accepted: 15 July 2026

Published: 31 July 2026

Copyright: © 2026 by the author.

Licensee MDPI, Basel, Switzerland.

This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC BY\)](https://creativecommons.org/licenses/by/4.0/) license.

1. Introduction

1.1. Theoretical Underpinnings and the Governance Role of Conservatism

Accounting conservatism (AC) plays a major role in providing fair financial reporting and has become one of the most debated research areas in recent decades (R. M. H. Mohammed, 2022). The consequences of financial reporting quality have long been a subject of debate in accounting and finance research. Yet, the debate over AC remains particularly contentious due to the adoption of international standards, defined mainly as the asymmetric verification requirements for recognizing gains versus losses. While many

scholars (Fu et al., 2025; Malo-Alain et al., 2021; R. A. Mohammed et al., 2019) argue that such asymmetry may result in potentially biased financial reports, a wave of the current literature (Chin-Fang et al., 2023; Muslim & Setiawan, 2023; Rosalina et al., 2025) suggests that conservatism functions as a vital, non-contractual governance mechanism. By mandating the timely recognition of “bad news”, it acts as a disciplinary force that mitigates information asymmetry. In the context of agency theory, the role of AC is paramount (Arnold & de Lange, 2004; Masulis & Reza, 2015). Managers, often driven by short-term compensation structures, possess a natural incentive to defer the disclosure of losses and overstate the financial ratios (Flayyih & Khiari, 2023; Kasbar et al., 2023). This informational friction often culminates in two primary forms of market inefficiency: distortionary investment behavior and an inflated cost of capital (COC). Investigating the current research further, the relationships among AC, investment efficiency (IE), and the COC constitute a pivotal triangular nexus in corporate finance. In depth, AC acts as a powerful internal governance tool that disciplines managerial behavior. By mandating the timely recognition of economic losses, it curtails the agency-driven propensity to overinvest while reducing the information asymmetry that leads to capital rationing.

1.2. The Evolution of the Saudi Financial Landscape

While the impact of AC has been documented in developed economies, it remains empirically underexplored within emerging markets (Al-Faryan, 2020; Aldoseri et al., 2022; Boshnak et al., 2023). In this landscape, Saudi Arabia emerges as an ideal business environment for investigation. Driven by the strategic imperatives of Saudi Vision 2030, the Saudi Capital Market (Tadawul) has undergone a radical structural transformation designed to attract international institutional capital. A cornerstone of this reform was the mandatory transition to the International Financial Reporting Standards (IFRS). However, the efficacy of these international standards is frequently mediated by local institutional nuances. The kingdom is characterized by concentrated ownership structures and a heavy reliance on bank-intermediated debt. Furthermore, the specialized application of Zakat and tax regulations creates a distinct set of incentives for financial reporting. As the Saudi market secured its inclusion in global markets, the quality of its financial “signals” transitioned from a local concern to a matter of national economic interest. This unique setting provides fertile ground for examining the functionality of conservatism outside the framework of developed economies.

1.3. Research Motivation and the Knowledge Gap in Saudi Arabia

This study’s research motivation is rooted in the structural reforms currently reshaping the Kingdom under Saudi Vision 2030. Despite the critical nature of these developments, a significant research gap persists in the existing literature. While the Saudi Capital Market Authority (CMA) has successfully increased the quantity of public disclosures, the economic consequences of conservative reporting remain empirically unverified. This study addresses several conspicuous voids in the current body of knowledge: first, the lack of empirical consensus; second, the absence of a multidimensional perspective. There is a notable lack of comprehensive analysis that simultaneously explores the impact of AC on both IE and COC. Based on that, this study aims to bridge the gap by empirically evaluating the disciplinary role of AC in the Saudi market. This study is structured to answer the following pivotal questions:

- Does AC enhance IE among Saudi listed firms?
- Does AC impact the weighted average cost of capital (WACC) among Saudi listed firms?
- Does AC impact the cost of equity (COE) and cost of debt (COD) among Saudi listed firms?

1.4. Research Structure

The remainder of this article is organized as follows: Section 2 comprises a literature review and the development of the hypotheses. Section 3 describes the research methodology. Section 4 provides the results. Section 5 presents the discussion. Section 6 provides the conclusion.

2. Literature Review and Hypotheses Development

2.1. Accounting Conservatism and Investment Efficiency

IE is defined as a firm's ability to invest in projects with a positive net present value (NPV) (Laux & Ray, 2020; Meucci et al., 2025). In an ideal market, firms would invest until the marginal benefit equals the marginal cost. However, information frictions, specifically adverse selection and moral hazard, distort this process, leading to two distinct types of inefficiency: overinvestment and underinvestment (Lee et al., 2016). Under agency theory, AC serves as a disciplinary tool to mitigate the "empire-building" tendencies of managers. By mandating the asymmetric timeliness of earnings, where economic losses are recognized immediately while gains require stricter verification, conservatism ensures that the consequences of poor investment decisions are reflected in financial statements in real time (Houcine, 2017; Chin-Fang et al., 2023; Chowdhury et al., 2023).

Simultaneously, information asymmetry theory explains how AC addresses the friction between a firm's insiders and external capital providers (Bilyay-Erdogan et al., 2024). When managers have more information, external stakeholders demand a higher risk premium to protect themselves against potential losses. AC acts as a credible protective signal that reduces this uncertainty by ensuring the balance sheet is not overstated.

From an empirical side, there are two waves of evidence in the literature, where the first wave ensured the positive impact of AC on IE; for example, Ma and Jeong (2022) investigated the effect of AC on corporate investment decisions in China and found that AC suppressed the occurrence of IE and showed a negative relationship between AC and excessive investment. Moving to Taiwan, Lin et al. (2024) examined the role of conservative reporting in mitigating underinvestment in listed firms from 2013 to 2022 and revealed that AC, in general, significantly alleviates underinvestment. In contrast, AC does not significantly affect investment decisions in stable cash flow. Additionally, the study finds that AC can reduce the cost of capital under high cash flow volatility, thereby increasing IE. Going to Indonesia, Rosalina et al. (2024), based on 122 non-classical consumer listed firms from 2019 to 2023, highlighted the importance of AC in influencing IE. Based on the American environment, Zarinpour et al. (2024), using a sample of 530 listed firms from 2015 to 2019, noted that AC increases IE. Moreover, Meucci et al. (2025), based on the New York Stock Exchange from 2010 to 2018, provided evidence that AC has a major role in increasing IE.

The second wave noted mixed evidence; Laux and Ray (2020) analyzed how biases in financial reporting affect managers' incentives to make appropriate investment decisions. Conservative reporting practices make verification standards for recognizing good news. It means that more conservative reporting, therefore, weakens the manager's incentive to work on innovative ideas and investment. So, conservatism reduces the risk of an overstatement. Based on a sample of 27 firms from 2010 to 2019, Lawal and Hassan (2021) explored the moderating effect of financial constraints on the relationship between AC and the IE of consumer goods firms listed on the Nigerian Stock Exchange and indicated that there is a significant nexus between AC and IE. Moreover, it was concluded that financial constraint has an antagonistic role in AC in explaining IE; thus, AC may not improve investment decisions in firms facing financial constraints. Chin-Fang et al. (2023) noted that firms with high financial flexibility and conservatism in the prior period are less

likely to overinvest in the current period, because managers tend to make conservative decisions. Moreover, equity financing results in overinvestment among overpriced firms, which is robust after considering a firm's hedging factor and high agency costs. [Zou and Othman \(2024\)](#), through empirical analysis of the financial reports and research and development (R&D) investment data of Chinese listed firms from 2015 to 2022, found a negative nexus between AC and firm investment. Based on the preceding arguments, the following hypothesis is proposed in line with the agency theory:

H1. *AC positively impacts IE among Saudi listed firms.*

2.2. Accounting Conservatism and Cost of Capital

2.2.1. The Weighted Average Cost of Capital (WACC)

The WACC represents the composite hurdle rate that a firm must overcome to satisfy its various capital providers, including both shareholders and creditors ([Chan et al., 2009](#); [Alia & AbuSarees, 2023](#)). For non-financial firms, WACC is a critical determinant of corporate value and strategic expansion. Theoretically, the quality of financial reporting, and specifically the degree of AC, is a primary driver of this cost ([Missaoui & Brahmi, 2025](#)).

The relationship between AC and WACC is fundamentally rooted in information asymmetry theory, which posits that AC serves as a credible mechanism to reduce the gap between firm insiders and capital providers ([Li, 2015](#); [Widiatmoko & Indarti, 2024](#)). When managers provide conservative statements, they are effectively offering a protective signal to the market by ensuring that assets, income, and earnings are not overstated. Thus, AC exerts pressure on the WACC, directly translating into lower financing costs ([Muslim & Setiawan, 2023](#); [Santoso, 2025](#)). Furthermore, the agency theory shows how AC optimizes WACC by reducing the costs associated with the moral hazard related to manager–shareholder and manager–creditor nexuses. In the absence of conservative reporting, managers may be incentivized to manipulate earnings or delay the recognition of bad news to protect their personal compensation. AC provides creditors with an early warning system to intervene when project values decline, thereby lowering the COD ([Abu Alia et al., 2024](#); [R. M. H. Mohammed, 2022](#)).

In an environment like the Saudi market, which is increasingly integrated with global indices, WACC is not just a financial metric but a reflection of market trust. AC serves as a proxy for reporting integrity. It signals to all capital providers that the management is committed to a realistic and cautious portrayal of the firm's financial position. This lowers the monitoring costs for both equity and debtholders, leading to a synergistic reduction in the cost of each capital component.

From an empirical side regarding WACC, [Malo-Alain et al. \(2021\)](#), based on the Saudi environment, found that there was a positive impact of IFRS adoption on the level of AC. IFRS also improves the efficiency of investment decisions, as it is negatively related to the COC. Going further, [R. M. H. Mohammed \(2022\)](#) reviewing fourteen studies that were published in different journals for time periods (2015–2020), noted that AC has a role in reducing information asymmetry and the WACC within the framework of international standards (IFRS). Moreover, [Alia and AbuSarees \(2023\)](#) ensured that AC, theoretically, could be used to reduce the COE based on evidence from developed countries and tested this impact on the Palestinian market, as a developing country, from 2015 to 2019, and confirmed that AC reduces the WACC. More recently, [Abu Alia et al. \(2024\)](#) examined the moderating effect of AC on the relationship between information asymmetry and WACC by using data from the exchanges of the Gulf Cooperation Council (GCC) countries covering the 2015–2021 period and noted that AC moderates the positive effect of information asymmetry on the COC. Therefore, firms may reduce the COC by decreasing information

asymmetry and enhancing the use of conservative accounting practices. Based on the Korean environment from 2000 to 2018, [Kim and An \(2025\)](#) noted that an increase in EPU adversely affects Korean firms' AC and that this adverse impact is more pronounced in the WACC. In another piece of evidence, [Santoso \(2025\)](#) noted that firms in Indonesia still bear the highest WACC in ASEAN+3. So, they analyzed the nexus between AC, free cash flow, and the WACC based on a sample of 68 listed firms from 2020 to 2021 and found that high AC reduces the WACC.

2.2.2. The Cost of Equity (COE)

The impact of AC on the COE is primarily explained by integrating information asymmetry theory and signaling theory ([Missaoui & Brahmi, 2025](#)), which describe how "prudent" reporting reduces the risk premium demanded by equity investors. Complementing this, signaling theory illustrates how AC acts as a "high-quality signal" that distinguishes strong firms from their weaker counterparts in the market ([Hwang et al., 2014](#); [H. Xiao, 2023](#)). In an emerging market like Saudi Arabia, where institutional oversight is still maturing, a firm's voluntary commitment to conservative reporting, which is "costly" because it makes short-term profits look lower, signals management's confidence in the firm's long-term viability. This commitment builds market trust and enhances the credibility of financial disclosures ([Chouaibi & Belhouchet, 2023](#); [Solikhah & Jariyah, 2020](#)).

According to signaling theory, conservative accounting provides a high-quality signal to equity markets. By voluntarily adopting a reporting style that accelerates the recognition of losses, managers signal that they are not engaging in opportunistic earnings management to inflate the stock price. This transparency reduces the agency risk perceived by shareholders. In the Saudi market, which has seen a significant increase in Qualified Foreign Investors (QFIs), the demand for such "honest" signals has increased. When investors perceive a lower risk of a "hidden" financial crisis within the firm, they demand a lower risk premium, thereby reducing the COE ([Chan et al., 2009](#); [Muslim & Setiawan, 2023](#); [Widiatmoko & Indarti, 2024](#)).

From an empirical side regarding COE, the literature provides mixed evidence. [Chan et al. \(2009\)](#), based on the UK environment, indicated that ex ante AC is associated with higher-quality accounting information and lower COE and that ex post AC is associated with lower-quality accounting information and higher COE capital. Moreover, [Solikhah and Jariyah \(2020\)](#) focused on investigating the effect of AC on the COE, using 121 manufacturing-listed Indonesian firms, and found that AC has a negative impact on the COE. Furthermore, [Chouaibi and Belhouchet \(2023\)](#) examined the moderating effect of International Financial Reporting Standards (IFRS) adoption on the nexus between AC and the COE, using a sample of 284 Canadian firms over the period 2007–2019, and noted a negative relationship between AC and the COE. In addition, IFRS adoption moderates the relationship between AC and the COE in Canadian firms. Going further, [Muslim and Setiawan \(2023\)](#) used a sample of 200 Indonesian firms for the 2016–2018 period and provided evidence that information asymmetry is related to AC and COE capital, as well as having a role in influencing AC and COE capital. More recently, [Widiatmoko and Indarti \(2024\)](#) examined the effect of corporate governance on the COE capital, both directly and indirectly, and noted that profitability and AC exerted a negative effect on the COE.

2.2.3. The Cost of Debt (COD)

AC serves as a vital contractual governance mechanism that addresses the inherent conflict between debtholders and shareholders under the agency theory ([Missaoui & Brahmi, 2025](#)). Shareholders and managers may have incentives to engage in "asset substitution" or pay out excessive dividends, both of which increase the risk of default for creditors ([Ni &](#)

Yin, 2018; R. A. Mohammed et al., 2019). AC mitigates this moral hazard by providing an “early warning system” through the asymmetric timeliness of loss recognition. By forcing the immediate disclosure of bad news, conservatism allows lenders to identify potential violations of debt covenants sooner, facilitating earlier intervention, renegotiation, or the acceleration of repayment (Lorca et al., 2011; Deng et al., 2024). This enhanced monitoring capability reduces the agency costs of debt, leading lenders to demand lower interest rate spreads as compensation for risk (Usman et al., 2019).

In a bank-centric economy like Saudi Arabia, the COD is the most sensitive variable to AC. Unlike equity holders, who may benefit from upside gains, creditors are primarily concerned with the downside risk—the firm’s ability to repay its obligations. AC is inherently “lender-friendly”. By undervaluing assets and overvaluing liabilities through asymmetric recognition, AC provides a “safety cushion” for creditors. This approach makes it easier for banks to monitor debt covenants. When a firm’s performance begins to deteriorate, conservative reporting triggers these covenants earlier, allowing Saudi banks to intervene and protect their capital before a total default occurs. At the same time, lenders reward this early warning system by offering lower interest rate spreads to conservative firms. For non-financial firms in Saudi Arabia, which often use physical assets as collateral, conservative valuation of these assets builds long-term trust with financial institutions, leading to a tangible reduction in the COD.

From the empirical side regarding COD, Li (2015) examined the role of AC in mitigating the COD in an international setting and found that firms domiciled in countries with more conservative financial reporting systems have lower COD. Moreover, this relation is more pronounced in countries with stronger legal enforcement, suggesting a complementary role between conservatism and legal institutions in capital markets. In addition, conservatism only reduces the COD in countries where accounting-based covenants are widely used. Furthermore, R. A. Mohammed et al. (2019) used a sample of Iraqi listed firms from 2016 to 2017 and found a positive relationship between AC and the debtholders’/shareholders’ conflicts. In addition, increasing the AC by minimizing the accruals leads to a lower COD. Based on Chinese listed firms from 2010 to 2017, Deng et al. (2024) examined how public–private partnerships (PPPs) affect the COD and financial reporting practices. Mainly, it was found that PPPs may access debt markets at a lower cost. Moreover, the level of AC—as a practice—has an insignificant impact on the COD; in other words, the nexus between AC and COD was statistically unclear. Still in China, Fu et al. (2025) found that firms tend to increase their AC and that the increase is concentrated among firms with higher litigation risk and greater media attention from overseas. Moreover, it was noted that enhanced conservatism results in a lower COD for bonds in the financial market. It means that firms enhance AC to facilitate foreign bond investors’ assessment of credit risk. Table 1 summarizes the COC-related main literature.

Table 1. Summary of the main COC literature.

Component	Theoretical/Empirical Variables	Key Study	Key Finding
WACC	Accounting conservatism/free cash flow/cost of capital	(Santoso, 2025)	High AC reduces WACC
COE	Corporate governance/cost of equity/accounting conservatism	(Widiatmoko & Indarti, 2024)	AC has a negative effect on the COE
COD	Cost of debt/accounting conservatism/bond market liberalization	(Fu et al., 2025)	AC results in a lower COD

Based on the preceding arguments regarding WACC, COE, and COD, the following hypothesis is proposed among Saudi listed firms:

H2. *AC negatively impacts the WACC, COE and COD among Saudi listed firms.*

3. Research Methodology

3.1. Population and Sample

The population consisted of listed firms in the Saudi stock market during the period from 2016 to 2024. The sample was selected according to the availability of the required data and firms belonging to sectors with a minimum of 10 firms to meet the requirements of investment efficiency. The final sample comprised 105 firms within six sectors according to 2-digit GICS classification. Data were winsorized at 3% to reduce the influence of outliers. Table 2 illustrates the distribution of the 945 firm-year observations.

Table 2. Distribution of the sample.

GICS Sector Name	Firms	Freq.	Percent
Consumer Discretionary	19	171	18.10
Consumer Staples	22	198	20.95
Health Care	10	90	8.57
Industrials	15	135	14.29
Materials	18	162	18.10
Real Estate	21	189	20.00
Total	105	945	100.00

3.2. Variable Measurement

3.2.1. Measuring Accounting Conservatism (AC)

To quantify the degree of AC, we utilized the Market-to-Book (MTB) ratio, a widely established proxy in the accounting literature (Rosalina et al., 2024; Kim & An, 2025). The MTB ratio captures conservatism by measuring the extent to which a firm's market value exceeds its book value. In the context of the Saudi market, this measure is particularly effective as it reflects the long-term cumulative effect of a firm's reporting policies. Moreover, MTB is especially relevant for our dependent, as it directly represents the "informational cushion" or hidden reserves that external capital providers and creditors use to assess a firm's risk profile and asset protection levels.

Going further, while the Market-to-Book (MTB) ratio is widely adopted in the empirical accounting literature as a proxy for cumulative AC, it is important to acknowledge that it also captures firm growth opportunities, intangible assets, and market sentiment. Consequently, a higher MTB ratio reflects a combination of both conservative accounting choices (which depress book value) and market-driven valuation expectations.

3.2.2. Measuring Investment Efficiency (IE)

IE measures a firm's ability to engage in a new investment with positive net present value and avoid any investment with negative present values (Alsayegh et al., 2023). Till now, there has been no generally accepted direct method to capture a firm's IE in the accounting literature. However, this research adopted an investment model that has been previously applied in the literature (Bilyay-Erdogan et al., 2024; Chowdhury et al., 2023; D.

Xiao & Yu, 2023). IE is calculated as a function of growth opportunities measured by sales growth, as follows:

$$\text{Investment}_{i,t} = \alpha + \beta_1 \text{Sales growth}_{i,t-1} + E_{i,t}$$

where $\text{Investment}_{i,t}$ is the volume of investment in the year (t) for a firm (i), computed as a net increase in property, plant, equipment (PPE), and intangible assets scaled by the lagged total assets in the year (t) for a firm (i). In addition, $\text{Sales Growth}_{i,t-1}$ is the percentage change in sales volume in the year (t – 1) to (t) for a firm (i). Based on that, $\text{IE}_{i,t} = -|E_{i,t}|$, and we then multiply the absolute value of residuals from the regression model by (–1) to transform the measure into a direct measure of IE. By applying this multiplication by (–1), we aimed to facilitate the interpretation of our findings by establishing consistent directionality for the IE measure, where greater (less negative) numbers indicate greater investment efficiency.

In more detail, following the foundational literature, IE is measured as the absolute negative value of the residuals derived from an investment model driven by lagged sales growth. The raw residual $E_{i,t}$ represents the deviation from a firm's predicted optimal investment level based on its growth opportunities. Economically, a positive residual ($E_{i,t} > 0$) indicates that the firm invested more than expected, signaling overinvestment. Conversely, a negative residual ($E_{i,t} < 0$) implies that the firm invested less than optimal, signaling underinvestment. To construct a continuous metric where higher scores denote superior efficiency, the raw residuals are transformed into $-|E_{i,t}|$. The mathematical intuition behind this transformation is to bound perfect efficiency at a maximum threshold of 0. Consequently, any deviation from optimal investment pulls the metric into negative territory. This explains why the reported mean value of investment efficiency in our descriptive statistics is naturally negative; it reflects the real-world reality that listed firms operate with varying degrees of capital allocation inefficiency. For the sub-sample analyses, which constitute a central element of this study, firms are classified into distinct regimes based on the directional sign of the raw residual. Firms with $E_{i,t} > 0$ are assigned to the overinvestment cohort, while those with $E_{i,t} < 0$ form the underinvestment cohort. This zero-threshold classification rule provides an objective, theoretically grounded partition that avoids the arbitrary sample truncation associated with alternate rules (such as quartile splits), thereby ensuring that our state-contingent findings are robust and map directly to the true underlying directional distortion of corporate capital.

Going further, to meet the stringent econometric requirements for measuring corporate investment efficiency, the sample was restricted to sectors containing a minimum of 10 listed firms within any given year. Methodologically, calculating the investment efficiency residual (E) requires executing cross-sectional regressions for each specific industry-year group following the literature framework. Estimating these models in sectors with fewer than 10 observations would introduce severe small-sample bias, deplete the necessary statistical degrees of freedom, and generate highly volatile, unrepresentative residuals. Consequently, this threshold is imposed as a statistical prerequisite to ensure parameter stability and model reliability.

3.2.3. Measuring the Weighted Average Cost of Capital, Cost of Equity, and Cost of Debt

Given the comprehensive financial reforms under Saudi Vision 2030, the Saudi Stock Exchange has transitioned into a highly mature, globally integrated emerging market characterized by widespread public trading and significant foreign ownership. Because international institutional investors play a central role in pricing securities on the Tadawul, the market widely adopts the same financial valuation practices used in developed foreign

capital markets. Consequently, standard international measurement frameworks for the COC are highly applicable and are operationalized in this research.

The weighted average cost of capital (WACC) represents the aggregate hurdle rate a firm must exceed to create value for its stakeholders. Following the standard valuation framework, WACC is calculated as the weighted average of the COE and the after-tax COD, using the market value of equity and the book value of debt to determine their respective weights. This comprehensive measure is essential for our analysis, as it captures the total “pricing” of AC by both shareholders and creditors. In the Saudi Arabian context, where firms often maintain a balance between bank-intermediated debt and equity financing on the Tadawul, the WACC provides a holistic view of how financial reporting prudence influences the firm’s overall financing environment and its long-term economic sustainability. Thus, the weighted average cost of capital (WACC) is calculated as:

$$WACC = \left(\frac{E}{V} \times R_e \right) + \left(\frac{D}{V} \times R_d \times (1 - T) \right)$$

where E = market value of equity, D = market value of debt, V = E + D, R_e = cost of equity, R_d = cost of debt, T = corporate tax rate.

The COE is estimated using the capital asset pricing model. By using this market-based measure, this study isolates how AC serves as an information-risk reducer.

$$K_e = R_f + \beta_i (E(R_m) - R_f)$$

where: K_e : cost of equity, R_f : risk-free rate (proxied by Saudi Government Bond yields), β_i : the firm’s systematic risk, $(E(R_m) - R_f)$: the equity market risk premium.

The COD is operationalized as an accounting-based proxy that reflects the actual financing burden borne by the firm in its dealings with creditors and financial institutions. It is calculated as the ratio of the firm’s total interest or financing expenses to its average total interest-bearing debt for the fiscal year. This measure is particularly appropriate for the Saudi context, where corporate financing is heavily bank-intermediated and often structured through Sharia-compliant instruments. By measuring the realized cost of borrowing, this study can empirically evaluate whether lenders reward firms that maintain higher levels of AC—and, thus, lower downside risk—with more favorable interest rates and reduced credit spreads.

$$K_d = \frac{\text{Total Interest (financing) Expenses}}{\left(\frac{\text{Total Debt (Beginning)} + \text{Total Debt (Ending)}}{2} \right)}$$

where: K_d : pre-tax cost of debt, Total Interest Expense: all interest and Sharia-compliant financing costs, Average Total Debt: the mean of the opening and closing interest-bearing debt balances.

3.2.4. Measuring Control Variables

The research incorporated a suite of firm-level control variables that are theoretically and empirically linked to the research dependent variables based on the previous literature (Solikhah & Jariyah, 2020; Rosalina et al., 2024; Santoso, 2025). Specifically, the firm size, profitability, leverage, and cash holdings are included, as follows in Table 3.

Table 3. Control variable measurement.

Variable Name	Symbol	Measurement Method	Reference
Firm Size	Size	Natural logarithm of total assets	(Solikhah & Jariyah, 2020)
Profitability	ROA	Net income/total assets	(Rosalina et al., 2024)
Leverage	Lev	Total liabilities over total assets	(Santoso, 2025)
Cash holdings	CH	Cash and cash equivalent/total assets	(Muslim & Setiawan, 2023)

3.3. Research Model

To test the impact of AC on investment efficiency (to facilitate the interpretation of model 1, the researcher multiplied investment inefficiency by -1 to drive a direct measure of investment efficiency) and cost of capital within the context of the Saudi market, the current research develops four regression models. The following equations present the proposed regression models:

The first regression model examines the first hypothesis, the impact of AC on IE, as follows:

$$IE_{i,t} = \beta_0 + \beta_1 MTB_{i,t} + \beta_2 Size_{i,t} + \beta_3 Lev_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CH_{i,t} + \text{Year Fixed Effect} + \text{Sector Fixed Effect} + \varepsilon_{i,t} \quad (1)$$

The second regression model examines the second hypothesis, the impact of AC on WACC, as follows:

$$WACC_{i,t} = \beta_0 + \beta_1 MTB_{i,t} + \beta_2 Size_{i,t} + \beta_3 Lev_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CH_{i,t} + \text{Year Fixed Effect} + \text{Sector Fixed Effect} + \varepsilon_{i,t} \quad (2)$$

To test the robustness of the second hypothesis analysis, we developed the following two models.

The third regression model examines the impact of AC on COE, as follows:

$$COE_{i,t} = \beta_0 + \beta_1 MTB_{i,t} + \beta_2 Size_{i,t} + \beta_3 Lev_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CH_{i,t} + \text{Year Fixed Effect} + \text{Sector Fixed Effect} + \varepsilon_{i,t} \quad (3)$$

The fourth regression model examines the impact of AC on COD, as follows:

$$COD_{i,t} = \beta_0 + \beta_1 MTB_{i,t} + \beta_2 Size_{i,t} + \beta_3 Lev_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CH_{i,t} + \text{Year Fixed Effect} + \text{Sector Fixed Effect} + \varepsilon_{i,t} \quad (4)$$

where, IE_{it} = investment efficiency for firm (i) at year (t). $WACC_{it}$ = weighted average cost of capital for firm (i) at year (t). COE_{it} = cost of equity for firm (i) at year (t). COD_{it} = cost of debt for firm (i) at year (t). MTB_{it} = accounting conservatism for firm (i) at year (t). $Size_{it}$ = firm size for firm (i) at year (t). ROA_{it} = firm profitability for firm (i) at year (t). Lev_{it} = leverage for firm (i) at year (t). CH_{it} = cash holding for firm (i) at year (t).

4. Results

4.1. Descriptive Statistics

Table 4 presents a comprehensive overview of the summary statistics for all variables incorporated into the research models. Panel (A) shows descriptive statistics for the full sample; this includes the mean, median, standard deviation (SD), 25th percentile (P25), and 75th percentile (P75). Furthermore, panel (B) shows two-sample T-test according to overinvestment and underinvestment.

Table 4 summarizes the results of descriptive statistics: IE shows an overall mean of (-0.024) , with high dispersion and variation between firms and through the research period. WACC shows a mean of (0.135) for the full sample, and firms with underinvestment have higher significant costs of capital (0.138) compared to firms that have overinvestment (0.131) . Moreover, COE exhibits a mean of (0.164) , (0.167) , and (0.159) for the full sample, firms with underinvestment and firms with overinvestment, respectively. Furthermore, COD

is higher for firms with overinvestment (0.024) compared to firms with underinvestment (0.022) and (0.017) for the full sample. AC shows a mean of (4.286), indicating high levels of AC practices and high levels of unrecorded goodwill with high heterogeneity in the practices of AC. In addition, firms with underinvestment are more conservative (4.742) compared to firms with overinvestment (3.663).

Table 4. Descriptive statistics for full sample.

Panel (A)								
	Obs.	Mean	SD	Min	p25	Median	p75	Max
IE	945	−0.024	0.028	−0.154	−0.031	−0.015	−0.006	0.000
WACC	945	0.135	0.042	0.040	0.106	0.134	0.164	0.224
COE	945	0.164	0.052	−0.597	0.138	0.163	0.187	0.321
COD	945	0.023	0.017	0.000	0.006	0.022	0.040	0.061
MTB	945	4.286	9.273	0.003	0.879	1.559	3.134	49.667
Size	945	21.077	1.752	17.729	19.841	21.080	22.275	24.950
Lev	945	0.463	0.210	0.048	0.312	0.472	0.622	0.857
ROA	945	0.071	0.094	−0.103	0.011	0.050	0.112	0.359
CH	945	0.112	0.131	0.001	0.024	0.062	0.142	0.552
Panel (B) Descriptive statistics for bad and goods news times								
	Observations		Mean		Dif.	St. Err	<i>p</i> value	
	Underinvestment	Overinvestment	Underinvestment	Overinvestment				
WACC	546	399	0.138	0.131	0.007	0.003	0.019	
COE	546	399	0.167	0.159	0.008	0.004	0.022	
COD	546	399	0.022	0.024	−0.003	0.001	0.021	
MTB	546	399	4.742	3.663	1.079	0.610	0.077	
Size	546	399	20.992	21.194	−0.203	0.116	0.079	
Lev	546	399	0.456	0.472	−0.015	0.014	0.263	
ROA	546	399	0.075	0.065	0.011	0.006	0.091	
CH	546	399	0.120	0.102	0.018	0.009	0.035	

It is important to note, as shown in Table 3, that the MTB ratio (AC proxy) exhibits a relatively high mean (4.286) and substantial dispersion (SD = 9.273). This high variance is reflective of the institutional setting of the Saudi capital market, which contains a stark contrast between highly valued, capital-intensive firms or fast-growing sectors supported by Saudi Vision 2030 and more traditional, mature industries. The wide dispersion highlights that while MTB captures conservative reporting, it is simultaneously influenced by heterogeneous market-based valuation effects unique to an emerging and rapidly transitioning economy.

4.2. Correlation Analysis Results

Table 5 presents the Pearson correlation matrix, which provides a preliminary understanding of the linear relationships among the current study's variables. Correlation coefficients are employed to determine both the direction and strength of the linear relationship between any two variables included in this research.

The Pearson's correlation matrix reported in Table 4 reveals that there is positive significant correlation between IE and AC. In contrast, there is no significant correlation between AC practices and WACC and COE. On the other hand, there is negative significant correlation between AC and COD.

Table 5. Correlation matrix (pairwise correlations).

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) IE1	1.000								
(2) WACC	−0.012 (0.709)	1.000							
(3) COE	0.052 (0.114)	0.577 *** (0.000)	1.000						
(4) COD	−0.029 (0.366)	−0.041 (0.209)	0.266 *** (0.000)	1.000					
(5) MTB	0.085 *** (0.009)	−0.018 (0.578)	−0.053 * (0.102)	−0.013 (0.700)	1.000				
(6) Size	0.080 ** (0.014)	−0.168 *** (0.000)	0.189 *** (0.000)	0.389 *** (0.000)	−0.104 *** (0.001)	1.000			
(7) Lev	0.071 ** (0.030)	−0.285 *** (0.000)	0.123 *** (0.000)	0.350 *** (0.000)	0.055 * (0.093)	0.521 *** (0.000)	1.000		
(8) ROA	0.016 (0.628)	0.217 *** (0.000)	0.002 (0.947)	−0.048 (0.137)	0.056 * (0.085)	0.155 *** (0.000)	−0.233 *** (0.000)	1.000	
(9) CH	0.078 ** (0.016)	0.184 *** (0.000)	−0.047 (0.149)	−0.211 *** (0.000)	0.044 (0.180)	0.030 (0.360)	−0.204 *** (0.000)	0.512 *** (0.000)	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5 presents the pairwise correlation matrix along with its associated p -values reported in parentheses. The preliminary analysis of the correlation coefficients indicates that multicollinearity is unlikely to pose a threat to the validity of our subsequent regression estimations. The econometric literature widely suggests that multicollinearity becomes a serious concern only when pairwise correlation coefficients exceed a conservative threshold of 0.70 or 0.80. In our dataset, all coefficients remain well below this threshold. For instance, the independent variable of interest, Market-to-Book ratio (5) (MTB), displays low and statistically manageable correlations with the cost of capital components, such as its correlation with (2) WACC ($r = -0.018$, $p = 0.578$), (3) COE ($r = -0.053$ *, $p = 0.102$), and (4) COD ($r = -0.013$, $p = 0.700$). Even the highest correlation observed among the control variables, which occurs between (6) Size and (7) Lev ($r = 0.521$ ***, $p = 0.000$), remains safely below the problematic benchmark. These initial statistics confirm that the chosen explanatory and control variables capture distinct corporate characteristics, fully justifying their joint inclusion within the final OLS regression models.

4.3. Testing Hypotheses

Examining the direct impact of AC practices on IE, several goodness-of-fit tests should be performed to verify that the proposed model in the current research accurately represents the sample data. The tests include multicollinearity, heteroskedasticity, omitted variables, and autocorrelation. All these assumptions must be considered before estimating the final pooled OLS model.

In brief, to test the hypotheses, the research estimates pooled Ordinary Least Squares (OLS) regression models. Given the longitudinal nature of our firm-year observations, the research implements several controls and diagnostic safeguards to ensure the validity of our statistical inferences. The research includes sector fixed effects to control for unobserved, time-invariant industry variations and year fixed effects to capture macroeconomic shocks

or structural shifts over time in the Saudi market. In addition, panel (B) in each table shows the goodness of fit.

4.3.1. Analyzing Direct Impact of Accounting Conservatism on Investment Efficiency

Table 6 reveals that regression models are significant since its Prob > F is less than 0.05. According to R-squared, AC explains 11.1%, 11.4%, and 15.3% of the variation in IE for the full sample, firms with underinvestment, and firms with overinvestment, respectively, indicating AC practices have significant importance for IE for listed firms in Saudi Arabia.

Table 6. The impact of AC on IE.

Panel (A): testing model 1			
Variable	Full Sample	Under investment	Over investment
MTB	0.20 ***	0.14 **	0.26 **
Size	−0.00022	−0.00086	0.0007
Lev	0.01363 **	0.02577 ***	−0.05656 **
Lev2	--	--	0.06324 **
ROA	0.01117	0.02101	0.00239
CH	0.02691 ***	0.02513 ***	0.02453 *
_cons	−0.02494 *	−0.01522	−0.03143
Sector Effect	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes
Obs.	945	546	399
R2	11.1%	11.4%	15.3%
Adjusted R2	9.3%	8.4%	11.1%
F-Stat	7.18	4.108	4.474
Prob > F	0.0000	0.0000	0.0000
Panel (B) Goodness of Fit			
VIF mean	1.441	1.439	1.452
Heteroskedasticity	54.18	96.39	2.05
	0.0000	0.0000	0.1525
Omitted variables	0.25	0.69	0.91
	0.8599	0.5606	0.4356
Autocorrelation	5.356	2.936	1.469
	0.0226	0.0902	0.2299

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

AC has symmetric effects on IE for all levels of analysis. Accordingly, research reveals a positive significant impact of AC on IE for the full sample, firms that have underinvestment and firms that have overinvestment. Moreover, firm size has symmetric effects, with no effect on IE for all levels of analysis.

In contrast, firm leverage has asymmetric effects on investment efficiency, revealing a positive effect on IE for the full sample and for firms that have underinvestment. In contrast, leverage has curvilinear effects on investment efficiency. Accordingly, the pattern of the curvilinear effect of Lev on IE takes the form of a U-shaped curve, meaning that Lev must reach a certain minimum threshold (44% with confidence interval between 29% and 60%), which is considered as a turning point beyond which leverage begins to increase the IE. This means that leverage must have a minimum percentage of 44% to increase investment

efficiency. In terms of firm profitability, ROA has a symmetric effect, with no effect on IE for all levels of analysis. Moreover, cash holding has an symmetric effect, with a positive effect on IE for all levels of analysis.

To validate these parametric estimations, panel (B) documents the model's goodness-of-fit and diagnostic properties. Multicollinearity is statistically negligible across all estimations, as evidenced by the Mean Variance Inflation Factor (VIF), which remains exceptionally low, ranging from 1.439 in the underinvestment sample to 1.452 in the overinvestment sample—well below the conservative threshold of 5.0. Ramsey's RESET test for omitted variables confirms no severe specification bias, yielding high p -values across the board (e.g., $p = 0.8599$ for the full sample).

4.3.2. Analyzing Direct Impact of AC on WACC

Table 7 reveals that regression models are significant since its Prob > F is less than 0.05. According to R-squared, AC explains 19.1%, 17.2%, and 23.5% of the variation in WACC for the full sample, firms with underinvestment, and firms with overinvestment, respectively, indicating AC practices have significant importance for WACC for listed firms in Saudi Arabia.

Table 7. The impact of AC on WACC.

Panel (A): testing model 2			
Variable	Full Sample	Underinvestment	Overinvestment
MTB	−0.09	−0.29 *	0.29 *
Size	−0.02985 **	−0.03660 *	−0.00137
Size2	0.00066 *	0.00083 *	--
ROA	−0.04454 ***	−0.03521 ***	−0.05542 ***
Lev	0.07694 ***	0.06972 ***	0.08521 ***
CH	0.03065 ***	0.04370 ***	0.00619
_cons	0.47017 ***	0.53885 ***	0.16885 ***
Sector Effect	Yes	Yes	Yes
Obs	945	546	399
R2	19.1%	17.2%	23.5%
Adjusted R2	18.1%	15.5%	21.6%
F-Stat	20.58	10.58	13.03
Prob > F	0.0000	0.0000	0.0000
Panel (B) Goodness of Fit			
VIF mean	1.441	1.439	1.452
Heteroskedasticity	5.41	3.61	2.70
	0.0200	0.0575	0.1002
Omitted variables	0.30	0.46	0.28
	0.8247	0.7090	0.8386
Autocorrelation	23.657	8.574	4.767
	0.000	0.0044	0.0326

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

AC has an asymmetric effect on WACC. Accordingly, research reveals MTB has no significant impact on WACC for the full sample. On the other hand, AC practices have a negative significant impact on WACC for firms that have underinvestment. In contrast, AC increases the WACC for firms that have overinvestment.

Moreover, firm size has an asymmetric effect; it has no effect on WACC for firms that have overinvestment. In contrast, size has a curvilinear effect on WACC, taking the form of a U-shaped curve for the full sample and for firms that have overinvestment, meaning that firm size must reach a certain maximum threshold (SAR 6 billion with confidence interval between 1 and 13 billion), which is considered as a turning point beyond which firm size begins to increase WACC. In terms of firm leverage, Lev has a symmetric effect; it has a positive effect on WACC for all levels of analysis. Moreover, ROA decreases WACC for all levels of analysis. Cash holding has an asymmetric effect; it has a positive effect on WACC for the full sample and for firms that have underinvestment. In contrast, cash holding has no effect on WACC for firms that have overinvestment.

4.3.3. Analyzing Direct Impact of AC on COE

Table 8 reveals that regression models are significant since its Prob > F is less than 0.05. According to R-squared, AC explains 33.1%, 49.2%, and 27.9% of the variation in COE for the full sample, firms with underinvestment, and firms with overinvestment, respectively, indicating AC practices have significant importance for COE for listed firms in Saudi Arabia.

Table 8. The impact of AC on COE.

Panel (A): testing model 3			
Variable	Full Sample	Underinvestment	Overinvestment
MTB	−0.00008	0.01008 *	−0.00027 *
MTB2	--	−0.00239 *	--
Size	−0.04637 ***	0.00673 ***	−0.08923 ***
Size2	0.00121 ***	--	0.00217 ***
Lev	−0.03908 *	−0.00764	0.00958
Lev2	0.04278 *	--	--
ROA	−0.03304 *	−0.07145 ***	−0.08430 *
ROA2	--	--	0.48326 **
CH	−0.09119 **	−0.01309	−0.04416
CH2	0.16259 **		
_cons	0.62357 ***	0.04464 ***	1.08270 ***
Year Effect	Yes	Yes	Yes
Obs	945	546	399
R2	33.1%	49.2%	27.9%
Adjusted R2	31.9%	47.9%	25.1%
F-Stat	47.132	47.857	15.438
Prob > F	0.0000	0.0000	0.0000
Panel (B) Goodness of Fit			
VIF mean	1.441	1.439	1.452
Heteroskedasticity	16.01	3.92	3.59
	0.0001	0.0477	0.0580
Omitted variables	4.99	2.59	4.96
	0.0019	0.0518	0.0022
Autocorrelation	0.632	0.000	0.032
	0.4283	0.9948	0.8580

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

AC has an asymmetric effect on COE. Accordingly, research reveals MTB has a negative significant impact on COE for firms that have overinvestment. On the other hand, AC practices have a quadratic effect on COE for firms that have underinvestment, taking the form of an inverted U-shaped curve, meaning that AC must reach a certain minimum threshold (23 with confidence interval between 17 and 30), which is considered as a turning point beyond which MTB begins to decrease COE for firms that have underinvestment. In contrast, AC practices have no impact on COE for the full sample.

Moreover, firm size has an asymmetric effect; it has a positive effect on COE for firms that have underinvestment. In contrast, size has a curvilinear effect on COE and takes the form of a U-shaped curve for the full sample and for firms that have overinvestment, meaning that firm size must reach a certain maximum threshold (SAR 860 million with confidence interval between 450 million and 2.2 billion), which is considered as a turning point beyond which firm size begins to increase COE.

In terms of firm leverage, Lev has an asymmetric effect; it has no effect on COE for firms that have overinvestment and firms that have underinvestment. In contrast, leverage has a curvilinear effect on COE. Accordingly, the pattern of the curvilinear effect of Lev on COE takes the form of a U-shaped curve, meaning that Lev must reach a certain maximum threshold (45% with confidence interval between 28% and 64%), which is considered as a turning point beyond which leverage begins to increase the COE, meaning that leverage must have a maximum percentage of 44% to decrease COE. Moreover, ROA has a negative effect on COE for the full sample and for firms that have underinvestment. In contrast, ROA has a curvilinear effect on COE and takes the form of a U-shaped curve, meaning that ROA has a threshold (9% with confidence interval between 2% and 15%), which is considered as a turning point beyond which ROA begins to increase the COE. In terms of firm cash holding, cash holding has an asymmetric effect. It has no effect on COE for firms that have overinvestment and firms that have underinvestment. In contrast, cash holding has a curvilinear effect on COE. Accordingly, the pattern of the curvilinear effect of cash holding on COE takes the form of a U-shaped curve, meaning that cash holding must reach a certain maximum threshold (28% with confidence interval between 20% and 35%), which is considered as a turning point beyond which cash holding begins to increase the COE. This means that leverage must have a maximum percentage of 44.28 to decrease COE.

4.3.4. Analyzing Direct Impact of AC on COD

Table 9 reveals that regression models are significant since its Prob > F is less than 0.05. According to R-squared, AC explains 25.7%, 47.1%, and 57.2% of the variation in COD for the full sample, firms with underinvestment, and firms with overinvestment, respectively, indicating AC practices have significant importance for COD for listed firms in Saudi Arabia.

AC has an asymmetric effect on COD. Accordingly, research reveals MTB has a positive significant impact on COD for firms that have underinvestment. On the other hand, AC practices have no effect on COD for the full sample and for firms that have overinvestment.

Moreover, firm size has an asymmetric effect. It has a positive effect on COD for full-sample firms that have underinvestment. In contrast, size has a curvilinear effect on COD and takes the form of an inverted U-shaped curve for firms that have overinvestment.

In terms of firm leverage, Lev has an asymmetric effect; it has a positive effect on COD for the full sample and firms that have overinvestment. In contrast, leverage has a curvilinear effect on COD for firms that have underinvestment. Accordingly, the pattern of the curvilinear effect of Lev on COD takes the form of an inverted U-shaped curve. Moreover, ROA has a negative effect on COD for all levels of analysis. Concerning cash holding, it has a negative impact on COD for all levels of analysis.

Table 9. The impact of AC on COD.

Panel (A): testing model 4			
Variable	Full Sample	Underinvestment	Overinvestment
MTB	0.03	0.13 ***	0.03
Size	0.00231 ***	0.00304 ***	0.04500 ***
Size2	--	--	−0.00100 ***
Lev	0.01829 ***	0.07518 ***	0.01135 **
Lev2	--	−0.07474 ***	--
ROA	−0.01229 *	−0.01455 **	−0.02270 **
CH	−0.02645 ***	−0.02433 ***	−0.01028 *
_cons	−0.02755 ***	−0.05789 ***	−0.49672 ***
Year Effect	Yes	Yes	Yes
Obs.	945	546	399
R2	25.7%	47.1%	57.2%
Adjusted R2	24.9%	45.7%	55.6%
F-Stat	44.221	44.431	50.67
Prob > F	0.0000	0.0000	0.0000
Panel (B) Goodness of Fit			
VIF mean	1.441	1.439	1.452
Heteroskedasticity	0.00	0.02	0.30
	0.9791	0.8786	0.5870
Omitted variables	4.29	0.44	5.04
	0.0051	0.7236	0.0019
Autocorrelation	72.177	15.396	62.951
	0.0000	0.0002	0.0000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The statistical properties and goodness-of-fit indicators are reported in panel (B). Multicollinearity is thoroughly ruled out as a threat to our estimations, with the Mean Variance Inflation Factor (VIF) settling at an identical, safe range between 1.439 and 1.452 across all regressions. The null hypothesis of homoskedasticity cannot be rejected across the models, as indicated by the highly insignificant test statistics (e.g., a test score of 0.00, $p = 0.9791$ for the full sample, and 0.02, $p = 0.8786$ for the underinvestment sample). Crucially, the Wooldridge test confirms the severe presence of first-order serial correlation across all specifications, notably yielding high test statistics in the full sample (test statistic = 72.177, $p = 0.0000$) and the overinvestment sub-sample (test statistic = 62.951, $p = 0.0000$).

5. Discussion

Our research makes a pivotal contribution to the accounting and finance literature by investigating the real role of AC within an important emerging market (e.g., Saudi Arabia). While other studies often treat AC as a linear governance mechanism (purely positive or negative), this research advances the knowledge by uncovering the non-linearities and boundary conditions of AC's efficacy. By conducting this study in Saudi Arabia during the implementation of Vision 2030, the research provides a unique laboratory to observe how one of the major financial reporting mechanisms, such as AC, impacts both IE and COC.

In addition, to capture the real impacts among the research variables, we conducted the statistical analysis under three levels/categories. The first analysis was for the full sample (945 observations), the second for underinvesting firms (546 observations), and the third for overinvesting firms (399 observations).

In terms of IE, the previous literature has provided an unclear lens on the impact of AC on IE. So, our research tested this arguable issue within the Saudi context and noted a positive and significant impact of AC on IE for the full sample, which is consistent with agency theory, and part of the literature (Ma & Jeong, 2022; Meucci et al., 2025; Zarinpour et al., 2024) comes from China and the United States. In terms of robustness, this research explored further than the prior literature, as the positivity remains under both categories, which were over-/underinvesting firms.

In terms of COC, the literature—till now—has not provided clear evidence concerning the impact of AC on COC and still oscillates between positive and negative evidence. So, this research examined it within the Saudi context from three themes: WACC, COE, and COD. The evidence was rich and helpful, as we discovered that AC has an asymmetric effect on WACC as it has no significant impact on WACC for the full sample in Saudi Arabia. So, this result—statistically based on the research conditions—was against the still-existing insight in the literature, which comes from GCC (Malo-Alain et al., 2021; Alia & AbuSarees, 2023) and the assumption of information asymmetry theory. Furthermore, the “no impact” finding is a statistical illusion, when segmented by investment states, as AC has a significantly negative impact on WACC for firms with underinvestment. In contrast, AC increases the WACC for firms with overinvestment.

AC has an asymmetric effect on COE. It has no impact on COE for the full sample, which is inconsistent with the signaling theory and the previous literature (Muslim & Setiawan, 2023; Widiatmoko & Indarti, 2024). Moreover, it has a significantly negative impact on COE for firms with overinvestment. On the other hand, AC has a quadratic effect (inverted U-shaped curve) on COE for firms with underinvestment. Economically, overinvesting firms are typically prone to agency problems, such as managerial empire-building and wasting free cash flow on low-return projects. In this specific context, equity investors view AC as a powerful corporate governance and monitoring mechanism. By forcing the timely and accelerated recognition of economic losses, conservatism constrains managerial opportunism, exposes poorly performing projects early, and protects minority shareholders from value destruction. This reduction in agency risk and information asymmetry reassures equity markets, leading investors to demand a lower risk premium, which directly reduces the COE.

On the other hand, AC exhibits a quadratic effect (inverted U-shaped curve) on the COE for firms with underinvestment. This non-linear trajectory reveals a critical economic trade-off for firms struggling to deploy capital efficiently. In the initial phase, as AC increases, the COE rises. This occurs because equity investors view initial increases in AC as a compounding factor to underinvestment; accelerating loss recognition further depresses reported earnings and book values, signaling extreme managerial risk aversion and a lack of growth initiatives, which drives up the required equity risk premium. However, once AC passes an optimal threshold (the peak of the inverted U-shape), the economic dynamic reverses, and further AC begins to lower the COE. Past this point, extreme financial prudence acts as a rigorous commitment device. It signals to the market that while the firm is cautious, its reported figures are entirely scrubbed of overvaluation, eliminating downside uncertainty and giving equity investors a high-quality, transparent baseline that reduces risk perceptions and brings down the COE.

AC has an asymmetric effect on COD. It has no effect on COD for the full sample, which is inconsistent with the signaling theory and the previous literature (Fu et al., 2025; R. A.

Mohammed et al., 2019) but is in line with Deng et al. (2024). Moreover, it has a positive and significant impact on COD for firms with underinvestment. On the other hand, it has no effect on COD for firms with overinvestment. Economically, debtholders are primarily concerned with default risk and a firm's capacity to generate stable cash flows to service its obligations. When an underinvesting firm applies strict AC, it heavily accelerates the recognition of losses and suppresses reported asset values. Rather than viewing this as a protective mechanism, lenders interpret this combination as a signal of acute financial distress, worsening performance, or extreme managerial risk aversion. Consequently, creditors perceive a higher probability of default or long-term value erosion, prompting them to demand a higher risk premium and charge higher interest rates, which directly drives up the COD.

On the other hand, AC does not affect the COD for firms with overinvestment. Economically, this implies that when a firm is aggressively overinvesting, creditors do not look at AC metrics to price their loans. Instead, debtholders in this specific sub-segment likely place their primary emphasis on tangible collateral, asset substitution risks, macro-level industry factors, or the firm's immediate liquidity and capacity to meet interest payments, rendering the incremental effect of conservative reporting negligible in their credit risk models. Thus, the results are consistent with the proposed mechanisms under the assumed conditions and data constraints. Table 10 summarizes the research results.

Table 10. The main research results.

Independent	Dependent	Full Sample	Underinvestment	Overinvestment
AC	IE	Positive	Positive	Positive
	WACC	No significant impact	Negative	Positive
	COE	No significant impact	inverted U-shaped curve	negative
	COD	No significant impact	positive	No impact

The evidence cited in this research has practical significance, particularly when analyzing the specific nexus between AC, IE, and COC within the Saudi context, as follows in Table 11.

Table 11. Research's practical significance.

1	Firm managers	The uncovered non-linearities offer an actionable roadmap for optimization. Decision-makers should abandon the assumption that maximizing AC is a universally risk-averse strategy. Instead, the research provides empirical evidence that AC must be treated as a strategic instrument governed by definite thresholds. While a baseline of AC is shown to mainly enhance IE, its relationship with the COC is highly sensitive to the firm's financial attributes.
2	Financial executives	The wise management of COC requires balancing AC against market perspectives. The discovery of the inverted U-shaped relationship between AC and the COE for underinvesting firms provides corporate boards with a precise operational boundary. Financial executives should realize that while initial increments of AC reduce the equity risk premium by signaling financial transparency and mitigating information asymmetry, excessive conservatism eventually triggers an information opacity penalty. When AC crosses the optimal threshold, equity investors cease to view it as a virtue.
3	Institutional creditors	Institutional creditors within the Saudi banking sector rely on AC as an early-warning mechanism for credit risk. However, there are asymmetric findings across the sub-samples. So, firm management should synchronize its accounting policies with its capital allocation strategies.
4	Capital Market Authority	The findings provide empirical evidence for the policy trajectories spearheaded by the Capital Market Authority (CMA). By establishing new insight regarding AC, IE, the COE, and the COD nexuses.

6. Conclusions

This research moves beyond the broad regional generalizations often found in Middle Eastern accounting and finance research by identifying three themes of analysis among Saudi firms (full sample, overinvestment, and underinvestment). Thus, unlike the previous literature, our analysis captures IE and COC with three levels (WACC, COE, and COD), offering a deeper insight into how these variables interact with each other. This focus on non-linear impacts provides the depth essential for understanding this issue.

In depth, this research explored the nexus between AC, IE, and COC in the Saudi context (105 listed firms from 2016 to 2024) and mapped the intricate ways in which AC influences firm outcomes. The overarching conclusion is that, while AC remains a foundational factor—based on the research evidence—for high-quality reporting that enhances IE, its impact on market-based financing costs is governed by complex, non-linear trajectories that require strategic managerial calibration. In terms of the main findings, the core results—statistically based on the research conditions—establish that AC is a significant driver of IE regardless of a firm's investment propensity. However, the research evidence identifies the limits of conservatism; it demonstrates that there is an asymmetric effect of AC on WACC, COE, and COD in the Saudi context under three themes (full sample/underinvestment/overinvestment). Based on that, the evidence contributes to the agency theory and information asymmetry literature by illustrating that AC does not operate alone; its role is contingent upon the firm's investment state. This shifts the narrative from “more AC is better” to an “optimal AC” framework, offering a more sophisticated lens through which to view financial reporting quality in emerging markets. In addition, this research relied mainly on the MTB ratio as the primary proxy for AC. While justified by the literature, a limitation of this approach is that MTB inherently captures non-accounting factors such as growth potential and market expectations. Future research could expand upon these findings by incorporating earnings-based measures.

The primary limitation is the sample exclusion of smaller sectors to satisfy the statistical requirements of the IE model, potentially omitting the unique dynamics of high-growth SMEs. Additionally, the use of quantitative proxies for AC, while standard in the literature, may not fully capture the nuanced qualitative motivations behind a firm's conservative reporting. Future research should reinvestigate these nexuses between the Saudi main market (Tadawul) and the parallel market (Nomu). Furthermore, a distinct boundary condition of this study relates to its sample restriction, which excludes economic sectors containing fewer than 10 listed firms to preserve the econometric integrity of the IE estimations. While this restriction significantly strengthens the internal validity and statistical reliability of our parameters, it introduces constraints regarding external validity. Specifically, the documented relationships between AC, investment allocation, and COC may not fully generalize to small-scale, highly specialized, or heavily concentrated niche industries within the Saudi market that do not meet this baseline density. Future research could explore alternative mathematical techniques or longitudinal aggregations to capture these smaller sectors without compromising statistical power.

Funding: The author extends their appreciation to the Deanship of Postgraduate Studies and Scientific Research at Majmaah University for funding this research work through the project number (R-2026-305).

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study are available on request from the corresponding author.

Conflicts of Interest: The author declares no conflicts of interest.

References

- Abu Alia, M., Mashni, B., Mashaqi, Y., & Mezied, D. (2024). The moderating effect of accounting conservatism on the relationship between information asymmetry and cost of capital: An empirical study on the industrial companies listed on the GCC markets. *AAU Journal of Business and Law*, 8(1), 148–168. [\[CrossRef\]](#)
- Aldoseri, M. M., Albaz, M. M., & Ghali, A. A. (2022). The managerial determinants of accounting conservatism during COVID-19 era: Evidence from Saudi Arabia. *Information Sciences Letters*, 11(3), 951–957. [\[CrossRef\]](#)
- Al-Faryan, M. A. S. (2020). Corporate governance in Saudi Arabia: An overview of its evolution and recent trends. *Risk Governance and Control: Financial Markets and Institutions*, 10(1), 23–36. [\[CrossRef\]](#)
- Alia, M. A., & AbuSarees, A. K. (2023). Reducing cost of capital. Do voluntary disclosure and accounting conservatism contribute? *FIIIB Business Review*, 15(1), 101–111. [\[CrossRef\]](#)
- Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2023). Corporate sustainability performance and firm value through investment efficiency. *Sustainability*, 15(1), 305. [\[CrossRef\]](#)
- Arnold, B., & de Lange, P. (2004). Enron: An examination of agency problems. *Critical Perspectives on Accounting*, 15(6–7), 751–765. [\[CrossRef\]](#)
- Bilyay-Erdogan, S., Danisman, G. O., & Demir, E. (2024). ESG performance and investment efficiency: The impact of information asymmetry. *Journal of International Financial Markets, Institutions and Money*, 91, 101919. [\[CrossRef\]](#)
- Boshnak, H. A., Alsharif, M., & Alharthi, M. (2023). Corporate governance mechanisms and firm performance in Saudi Arabia before and during the COVID-19 outbreak. *Cogent Business and Management*, 10(1), 2195990. [\[CrossRef\]](#)
- Chan, A. L. C., Lin, S. W. J., & Strong, N. (2009). Accounting conservatism and the cost of equity capital: UK evidence. *Managerial Finance*, 35(4), 325–345. [\[CrossRef\]](#)
- Chin-Fang, C., Lin, Y. M., & Wang, T. S. (2023). Effects of financial flexibility value and accounting conservatism on investment: Evidence from mispricing. *Journal of Economics and Finance*, 47(3), 690–706. [\[CrossRef\]](#)
- Chouaibi, Y., & Belhouchet, S. (2023). Moderating effect of IFRS adoption on accounting conservatism and cost of equity: Evidence from Canadian ESG data. *Journal of Global Responsibility*, 14(4), 492–515. [\[CrossRef\]](#)
- Chowdhury, M. R. U., Xie, F., & Hasan, M. M. (2023). Powerful CEOs and investment efficiency. *Global Finance Journal*, 58, 100886. [\[CrossRef\]](#)
- Deng, Q., Li, H., & Yue, H. (2024). Public-private partnership, cost of debt and accounting conservatism. *Economics and Politics*, 36(1), 432–482. [\[CrossRef\]](#)
- Flayyih, H. H., & Khiari, W. (2023). An empirical study to detect agency problems in listed corporations: The emerging market study. *Journal of Governance and Regulation*, 12(1), 208–217. [\[CrossRef\]](#)
- Fu, R., Gao, F., & Wang, Y. (2025). The impact of bond market liberalization on accounting conservatism. *Journal of Business Finance and Accounting*, 52(1), 403–432. [\[CrossRef\]](#)
- Houcine, A. (2017). The effect of financial reporting quality on corporate investment efficiency: Evidence from the Tunisian stock market. *Research in International Business and Finance*, 42, 321–337. [\[CrossRef\]](#)
- Hwang, I., Kim, H., & Pae, S. (2014). Equity-based compensation for outside directors and cost of equity capital. *Journal of Applied Business Research*, 30(1), 15–26. [\[CrossRef\]](#)
- Kasbar, M. S. H., Tsitsianis, N., Triantafylli, A., & Haslam, C. (2023). An empirical evaluation of the impact of agency conflicts on the association between corporate governance and firm financial performance. *Journal of Applied Accounting Research*, 24(2), 235–259. [\[CrossRef\]](#)
- Kim, S. H., & An, Y. (2025). Does economic policy uncertainty affect conservatism? evidence from Korea. *Pacific Accounting Review*, 37(2), 141–163. [\[CrossRef\]](#)
- Laux, V., & Ray, K. (2020). Effects of accounting conservatism on investment efficiency and innovation. *Journal of Accounting and Economics*, 70(1), 101319. [\[CrossRef\]](#)
- Lawal, A., & Hassan, S. U. (2021). Moderating effect of financial constraint on relationship between accounting conservatism and investment efficiency of nigerian consumer goods firms. *Journal of Accounting and Taxation*, 1(1), 25–42. [\[CrossRef\]](#)
- Lee, J., Cho, E., & Choi, H. J. (2016). The effect of internal control weakness on investment efficiency. *Journal of Applied Business Research*, 32(3), 649–662. [\[CrossRef\]](#)
- Li, X. (2015). Accounting conservatism and the cost of capital: An international analysis. *Journal of Business Finance and Accounting*, 42(5), 555–582. [\[CrossRef\]](#)
- Lin, I.-C., Wei, W.-L., Yao, C.-Y., & Luo, Y.-Y. (2024). Mitigating underinvestment through accounting conservatism: A comparative study of family and non-family firms in taiwan. *International Journal of Business and Social Science Research*, 5(5), 10–19. [\[CrossRef\]](#)
- Lorca, C., Sánchez-Ballesta, J. P., & García-Meca, E. (2011). Board effectiveness and cost of debt. *Journal of Business Ethics*, 100(4), 613–631. [\[CrossRef\]](#)
- Ma, H., & Jeong, K. (2022). The effects of accounting conservatism on investment decision: Evidence from listed companies in China. *Cogent Business and Management*, 9(1), 2093484. [\[CrossRef\]](#)

- Malo-Alain, A., Aldoseri, M. M., & Melegy, M. A. H. (2021). Measuring the effect of international financial reporting standards on quality of accounting performance and efficiency of investment decisions. *Accounting*, 7(1), 249–256. [\[CrossRef\]](#)
- Masulis, R. W., & Reza, S. W. (2015). Agency problems of corporate philanthropy. *Review of Financial Studies*, 28(2), 592–636. [\[CrossRef\]](#)
- Meucci, F., Caldarelli, A., & Maffei, M. (2025). Direct and indirect effects of unconditional conservatism on investment efficiency. *Journal of Applied Accounting Research*, 26(3), 554–576. [\[CrossRef\]](#)
- Missaoui, I., & Brahmi, M. (2025). Decision to determine the optimal firm's capital structure: A systematic literature review. *Converging Economic Policy, Corporate Strategy, and Technology for Emerging Economies*, 39–58. [\[CrossRef\]](#)
- Mohammed, R. A., Abdulaali, B. A. K., & Khuzaa, M. H. A. (2019). Accounting conservatism and the cost of debt: Evidence from Iraq. *ARP Journal of Engineering and Applied Sciences*, 14(2), 1–19. [\[CrossRef\]](#)
- Mohammed, R. M. H. (2022). The effect of the accounting conservatism on reducing information asymmetry and the cost of capital within the framework of international standards. *Journal of Global Social Sciences*, 3(11), 1–12. [\[CrossRef\]](#)
- Muslim, A. I., & Setiawan, D. (2023). The effect of accounting conservatism on the cost of equity capital: Evidence from Indonesia. *International Journal of Economic Policy in Emerging Economies*, 18(1), 40–56. [\[CrossRef\]](#)
- Ni, X., & Yin, S. (2018). Shareholder litigation rights and the cost of debt: Evidence from derivative lawsuits. *Journal of Corporate Finance*, 48, 169–186. [\[CrossRef\]](#)
- Rosalina, E., Lukviarman, N., Hamidi, M., & Adrianto, F. (2024). The influence of accounting conservatism, ownership concentration, and debt maturity on investment efficiency. *Journal of International Conference Proceedings*, 7(1), 77–88. [\[CrossRef\]](#)
- Rosalina, E., Lukviarman, N., Hamidi, M., & Adrianto, F. (2025). The influence of corporate governance criteria, accounting conservatism, sales growth and firm size on investment efficiency. *Ilomata International Journal of Management*, 6(4), 1549–1566. [\[CrossRef\]](#)
- Santoso, A. (2025). Blockholder, accounting conservatism, free cash flow, and the cost of capital: What do we know? *Indonesian Journal of Economics, Social, and Humanities*, 7(1), 51–64. [\[CrossRef\]](#)
- Solikhah, B., & Jariyah, J. (2020). Corporate governance attribute, blockholder ownership and accounting conservatism: Which aspects reduce the cost of equity? *Accounting*, 6(7), 1275–1284. [\[CrossRef\]](#)
- Usman, M., Farooq, M. U., Zhang, J., Makki, M. A. M., & Khan, M. K. (2019). Female directors and the cost of debt: Does gender diversity in the boardroom matter to lenders? *Managerial Auditing Journal*, 34(4), 374–392. [\[CrossRef\]](#)
- Widiatmoko, J., & Indarti, M. G. K. (2024). Corporate governance and cost of equity capital: The mediation role of accounting conservatism. *Journal of Accounting and Investment*, 25(3), 874–894. [\[CrossRef\]](#)
- Xiao, D., & Yu, X. (2023). How do credit ratings affect corporate investment efficiency? *International Journal of Finance and Economics*, 30(1), 330–351. [\[CrossRef\]](#)
- Xiao, H. (2023). Do cost behaviors affect cost of equity: Evidence from seasoned equity offering? *Asia-Pacific Journal of Financial Studies*, 52(4), 565–608. [\[CrossRef\]](#)
- Zarinpour, M., Mansourfar, G., & Zarei, A. (2024). Corporate social responsibility in the relationship between accounting conservatism and investment efficiency. *Interdisciplinary Journal of Management Studies*, 17(2), 507–520. [\[CrossRef\]](#)
- Zou, W., & Othman, A. (2024). The impact of accounting conservatism on enterprise innovation investment. *Heliyon*, 10(16), e36106. [\[CrossRef\]](#) [\[PubMed\]](#)

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.