

Strengthening the Corporate Governance System through Financial Reporting Quality: Evidence from Accounting Conservatism in an Emerging Market

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Strengthening the Corporate Governance System through Financial Reporting Quality: Evidence from Accounting Conservatism in an Emerging Market

Abstract:

This article investigates the role of financial reporting quality as a mechanism for strengthening corporate governance in emerging markets. While most governance studies emphasize internal structures—particularly the board of directors—this research highlights the external disciplinary function of accounting conservatism as shaped by the firm’s institutional environment. Drawing on the methodology developed by Khan & Watts (2009), we construct two firm-year-level scores that capture opposing reporting strategies: timely loss recognition (C_SCORE) and aggressive accounting (G_SCORE). Using a sample of 38 non-financial firms listed on the Casablanca Stock Exchange over the 2011–2021 period, the study explores how structural characteristics—grouped under the Investment Opportunity Set (IOS)—influence firms’ accounting behaviors. Empirical estimations are conducted using Fama-MacBeth regressions, Pooled OLS, and FGLS methods to ensure robustness. The findings reveal that two IOS variables—the market-to-book ratio and financial leverage—are significantly associated with conservative reporting practices. Firms with high growth opportunities and elevated debt levels tend to adopt more prudent accounting strategies, characterized by faster loss recognition and limited anticipation of gains. In contrast, firm size does not appear to be a relevant determinant in the Moroccan context. Additionally, the analysis shows a marked improvement in financial reporting quality after 2017, coinciding with regulatory reforms, including the establishment of the Moroccan Capital Market Authority (AMMC) and the adoption of Circular No. 03/19. The study contributes to the literature by emphasizing financial reporting quality as a governance mechanism shaped by institutional forces. It also demonstrates the relevance of the Khan & Watts model in an emerging market context and underlines the active role regulators can play in enhancing accounting discipline. Finally, the paper opens new avenues for cross-country comparisons and extensions into non-financial reporting domains.

Keywords: Corporate governance, Financial reporting quality, Accounting conservatism, Timely loss recognition, Institutional environment

JEL Classification : G34, M41, G28

Paper type: Empirical research

1. Introduction:

Corporate governance is one of the most extensively studied fields in economics and finance. It is generally approached through the analysis of its internal mechanisms, among which the board of directors occupies a central position. While fruitful, this approach tends to overlook an equally fundamental dimension: the connection between the firm and its institutional environment (Ball, 2001; Bushman & Piotroski, 2006; Watts, 2003). Indeed, beyond internal arrangements, governance is also exercised through external mechanisms that constrain or encourage managers to adopt behaviors aligned with stakeholder interests.

Among these mechanisms, financial reporting quality plays a decisive—albeit often underestimated—role in the governance literature (Ball, 2001). By disclosing verifiable and objectively grounded information, financial reporting serves as a disciplinary tool for managers, particularly in relation to creditors, shareholders, and regulators (Ahmed & Duellman, 2011, 2013; Nikolaev, 2010; Zhang, 2008). This disciplinary function is even more pronounced when accounting information adheres to a conservative logic, especially through what the literature refers to as conditional conservatism (Ball & Shivakumar, 2005; Watts, 2003; Wittenberg-Moerman, 2008). This concept is characterized by the timelier recognition of losses than gains (Basu, 1997), reflecting a desire to limit opportunistic behavior arising from information asymmetry (Watts, 2003).

Research on accounting conservatism has flourished in the U.S. and other common-law countries, where markets are mature, legal frameworks well established, and regulatory pressure historically strong (Ball et al., 2000). By contrast, emerging contexts remain relatively underexplored, even though they exhibit institutional specificities that make the role of financial reporting potentially more critical. In such environments, the weakness of internal checks and balances and the fragmentation of capital markets heighten the need for a reliable accounting signal (Chen & Zhu, 2013; Gormley et al., 2012). Moreover, the approach developed by Khan & Watts (2009)—which enables the measurement of conservatism in an individualized and dynamic manner—is widely used in developed countries but has rarely been applied to emerging economies.

This article aims to address this dual gap. By applying the Khan & Watts model, it seeks to measure the degree of accounting conservatism among listed Moroccan firms while analyzing the structural determinants of this behavior. This model has the advantage of linking conservatism to each firm's Investment Opportunity Set (IOS) (Smith & Watts, 1992), through three variables: the market-to-book ratio, firm size, and financial leverage. In doing so, it allows for the exploration of governance dimensions that do not pertain to the firm's internal structure but rather to its institutional anchoring, as it captures the interaction between strategic profile, market pressures, and regulatory environment.

The objective of this article is thus to analyze to what extent the structural characteristics of listed Moroccan firms influence their propensity to adopt a conservative reporting strategy, within a shifting institutional context. It also seeks to examine the temporal evolution of these behaviors in light of reforms introduced by regulatory authorities, particularly the establishment of the Moroccan Capital Market Authority (AMMC) and the implementation of new transparency requirements.

The results confirm the significant effect of the market-to-book ratio and financial leverage on conservatism scores, while firm size does not appear to be a relevant explanatory factor in the case under study. Furthermore, a notable improvement in conservatism scores is observed from 2018 onward, suggesting a progressive alignment of accounting practices with the transparency requirements induced by the new regulatory environment.

The article is structured as follows. The first section provides a literature review on the relationship between governance and financial reporting quality. The second section presents

the research hypotheses. The third details the data and methodological approach. The fourth section presents the empirical results, and the fifth discusses them in light of the hypotheses. A general conclusion closes the article.

2. Literature review and hypotheses development:

2.1. Background

Financial reporting quality can be assessed according to multiple criteria, given the numerous normative, technical, and informational dimensions involved. However, if the goal is to make it a tool for corporate governance, the conservative approach appears to be the most relevant strategy according to the academic literature (Watts, 2003; Ball & Shivakumar, 2005; Watts & Zimmerman, 1986; Wittenberg-Moerman, 2008).

To understand how this strategy constitutes an effective governance mechanism, it is necessary to distinguish between the rationales underpinning different reporting policies. In this respect, the distinction between economic income and accounting income is key. Economic income incorporates not only current cash flows but also the net present value of future flows. As such, it reflects not only past performance but also the anticipation of future outcomes, although these remain uncertain. Financial reporting policies differ in terms of how much these future flows are incorporated into accounting income—that is, in terms of their level of anticipated integration (Ball, 2001).

At first glance, it may seem appealing to align accounting income with economic income in order to provide financial statement users with a more accurate picture of the firm's intrinsic value. However, this perspective loses its appeal once governance concerns are taken into account. Future flows are inherently unverifiable and subject to significant information asymmetry; their inclusion in accounting income makes the latter dependent on managerial discretion (Holthausen and Watts, 2001). In effect, only managers are truly capable of accurately estimating their firm's future cash flows, which gives them a substantial informational advantage.

In this configuration, corporate governance may be weakened, as managerial subjectivity opens the door to opportunistic behavior. When faced with the choice of overestimating or underestimating future flows, managers will naturally tend to favor the former option (Ball & Shivakumar, 2005; Watts, 2003; Ahmed et al., 2002). Several factors explain this preference. On the one hand, managerial compensation is often performance-based, creating a direct incentive to overstate earnings. On the other hand, overstated results can help conceal the negative net value of certain projects. This concealment strategy is all the more tempting given that managers are neither exposed to long-term horizons nor fully accountable for future losses. The limited nature of their liability, combined with their ability to defer losses to successors, creates a misalignment of interests with those of the firm. Even in the event of litigation, other stakeholders—such as shareholders or creditors—will rarely be able to recover the full amount of their losses. Ultimately, allowing managers to subjectively incorporate unverifiable flows into accounting income amounts to delegating the production of a strategic information signal to an agent whose interests may diverge from those of the firm.

Faced with these potential excesses, accounting conservatism provides an appropriate institutional response. It is based on the asymmetric recognition of future flows, requiring a higher level of verifiability for gains than for losses. In its most classic formulation, Basu (1997) defines accounting conservatism as a heightened verification requirement for economic gains compared to losses. This means that a gain may be included in accounting income even if it has not yet been realized, provided that it is objectively verifiable. In other words, there should be no reasonable doubt about its value, and all observers should arrive at the same estimate regardless of their subjective judgment (Watts, 2003). A typical example is accounts receivable,

which—although not yet collected—are recorded because their collection is considered almost certain. Conversely, losses—even if uncertain or not objectively verifiable—are immediately recognized. This mechanism is referred to as timely loss recognition.

This recognition asymmetry fulfills several essential governance functions. First, the verifiability of gains enhances the contractual value of accounting information. For contracts binding the firm to its stakeholders to be legally enforceable, they must rely on objective elements (Nikolaev, 2010; Watts, 2003; Watts & Zimmerman, 1986; Zhang, 2008). By ensuring that only verifiable flows are recognized as gains, conservatism provides contracting parties with confidence that the accounting data have not been manipulated for discretionary purposes, thereby reinforcing the reliability of contractual clauses.

Second, timely loss recognition serves a disciplinary role by compelling managers to disclose difficulties as soon as they arise. This mechanism operates both *ex post* and *ex ante*. *Ex post*, it prevents the concealment of losses and encourages managers to focus on corrective actions rather than falsifying accounts. *Ex ante*, it discourages managers from undertaking projects with low net present value, knowing that any potential losses will need to be immediately recognized in the financial statements (Ball & Shivakumar, 2005; LaFond & Watts, 2008).

In the relationship between managers and creditors, conservatism also plays a protective role. Since creditor compensation is fixed, they do not benefit directly from the firm's excess gains, but they may suffer total or partial losses on their investment if net value declines. To limit this risk, debt contracts often include restrictive clauses—called covenants—that are triggered by deteriorating results. These clauses enable creditors to take corrective actions, such as prohibiting dividend distributions or the assumption of new debt. For these covenants to be truly effective, losses must be recognized as early as possible. Conservatism therefore facilitates the prompt activation of these protection mechanisms (Ahmed et al., 2002; Nikolaev, 2010; Zhang, 2008).

Finally, timely loss recognition limits misleading communication strategies by constraining the content of non-financial disclosures. The transparency induced by accounting conservatism reduces the leeway managers have to present overly optimistic projections. Indeed, when accounting income already reflects negative performance signals, it becomes difficult for management to maintain a positive narrative based on subjective arguments (Ball & Shivakumar, 2005). Hard information embedded in accounting thus conditions the credibility of soft information in managerial communication, reinforcing the overall discipline of the governance system.

It is essential to emphasize that financial reporting quality does not depend solely on formal accounting standards. As noted by Ball et al. (2000) and Bushman & Piotroski (2006), it primarily results from the incentives faced by managers. When investors—whether shareholders or creditors—demand reliable information, managers have every reason to comply, since without external financing, the firm cannot grow. At the same time, the institutional environment plays a crucial deterrent role. In jurisdictions with strong investor protection laws, managers are exposed to substantial litigation risk in cases of earnings manipulation, which increases their propensity to adopt a conservative reporting strategy (Ball et al., 2000). Likewise, the presence of an active market regulator exerts ongoing pressure on accounting practices. Knowing they are monitored by a powerful and independent authority, managers are naturally more inclined to adhere to expected transparency standards (Watts, 2003).

All of these elements lead to the conclusion that financial reporting quality should be considered a governance mechanism in its own right. It does not depend solely on the firm's internal arrangements—such as the board of directors—but is embedded in a broader institutional framework. This framework includes market expectations, investor demands, and legal and regulatory constraints. Accounting conservatism, as a strategy based on asymmetric

verifiability and timely loss recognition, crystallizes all of these influences within a coherent logic aimed at reducing managerial opportunism and strengthening contractual discipline.

2.2. Hypotheses development

In this subsection, we provide an empirical translation of accounting conservatism as previously defined, namely as a disciplinary mechanism acting upon both managers and contracting parties. We follow the methodology developed by Khan & Watts (2009), which allows for the derivation of two scores measuring, respectively, timely loss recognition (C_SCORE) and aggressive accounting (G_SCORE). These firm-year-level scores are computed from structural characteristics specific to each company, enabling the capture of strategic profile heterogeneity within the sample under study. This approach has the advantage of being grounded in a broader conception of governance, incorporating several channels identified in the literature as drivers of accounting conservatism. The authors represent these channels through a vector known as the Investment Opportunity Set (IOS), which serves as the basis for our research hypotheses.

The IOS refers to the set of strategic opportunities specific to each firm. It reflects the combined configuration of assets-in-place and growth options, which defines the decision-making environment in which the manager operates. This concept allows for the empirical translation of the structural determinants of accounting conservatism identified by Watts (2003), namely contractual constraints, litigation risk, tax considerations, and regulatory pressure.

Firms with an extended IOS—meaning those exposed to high strategic uncertainty—are more likely to face elevated agency costs, volatile stock returns, greater litigation exposure, and more discretionary accounting practices. These features increase the demand for accounting prudence, whether to reassure creditors, comply with contractual commitments, avoid litigation, or meet tax obligations. Conversely, firms with a more limited IOS—generally more mature and stable—may face less intense pressure in this regard.

To capture this variability, Khan & Watts (2009) propose modeling the IOS using three variables: the market-to-book ratio (MTB), firm size (SIZE), and financial leverage (LEV). These variables operationalize the hypotheses that firms' accounting behavior—whether conservative or aggressive—structurally depends on their strategic configuration. Based on this modeling, we formulate the following research hypotheses.

2.2.1. Market-to-book ratio (MTB)

The MTB ratio expresses the market value of the firm relative to the book value of its equity. A high ratio reflects the importance of growth options and greater uncertainty regarding the future value of projects. Firms with high MTB face higher agency costs, greater stock return volatility, and weaker sectoral regulation. Accounting conservatism acts here as a disciplinary mechanism by limiting the early recognition of gains (Smith & Watts, 1992; Watts, 2003).

However, this relationship must be qualified. Roychowdhury & Watts (2007) discuss the so-called *buffer problem*, whereby some firms may accumulate implicit reserves that temporarily delay loss recognition, thereby inverting the expected relationship between conservatism and the MTB ratio. This bias tends to diminish over the long term.

Hypothesis 1: The market-to-book ratio is positively associated with C_SCORE and negatively associated with G_SCORE.

2.2.2. Firm size (SIZE)

Large firms benefit from greater information coverage and are perceived as more transparent. This information richness reduces information asymmetry and, consequently, the demand for accounting prudence stemming from the contractual channel (Easley et al., 2002). However, size may also increase litigation exposure, thereby encouraging greater prudence for legal reasons. Empirically, the relationship between size and conservatism remains ambiguous, justifying further investigation.

Hypothesis 2: Firm size is negatively associated with C_SCORE and positively associated with G_SCORE.

2.2.3. Financial leverage (LEV)

Leverage measures the weight of debt relative to the market value of equity. High leverage intensifies agency conflicts between shareholders and creditors, notably through behaviors such as asset substitution, underinvestment, or excessive dividend distribution (Watts and Zimmerman, 1986). Accounting conservatism helps mitigate such behavior by introducing verifiable thresholds that trigger covenants more rapidly (Ball, 2001; Watts, 2003). Leverage is also correlated with greater legal exposure and increased tax pressure—two factors that strengthen the demand for conservatism.

Hypothesis 3: Financial leverage is positively associated with C_SCORE and negatively associated with G_SCORE.

These hypotheses reflect the idea that firms exposed to higher opportunism risk (high MTB or high LEV) will be more likely to adopt conservative accounting policies. Conversely, large firms—perceived as more transparent—may be more inclined to recognize gains early, provided that litigation risk remains under control.

3. Research method

3.1. Sample selection

The empirical analysis is based on a sample of non-financial firms listed on the Casablanca Stock Exchange, observed over an eleven-year period from 2011 to 2021. Financial institutions are excluded due to the specific nature of their financial statements, their particular sectoral regulation, and the distinct structure of their governance.

The sample was selected based on the availability of data required to compute the Khan & Watts (2009) scores, as well as the related regression variables. Firms with missing or negative book value of equity were excluded from the analysis. After applying these filtering criteria, the final sample comprises 38 firms, representing a total of 418 firm-year observations.

Financial and accounting data were collected from published annual financial statements, while market data used to calculate stock returns were retrieved from the official databases of the Casablanca Stock Exchange. All quantitative variables were winsorized at the 1% level on both tails of the distribution to limit the influence of extreme values on the estimates.

Table 1: Variable definition

Variable	Name	Description
X_i	Earnings per share	the net income before extraordinary outcomes deflated by outstanding shares
PO_i	Opening stock price	Stock price at the beginning of fiscal year
R_i	Annual Stock return	Buy-and-hold annual stock return ranging from nine months before fiscal year's end to three months after fiscal year's end
D_i	Bad news indicator	Dummy variable set to 1 if $R_i < 0$ (bad news), 0 otherwise
MTB_i	Market-to-Book Ratio	Market value of equity at the end of fiscal year's end divided by book value of equity
$SIZE_i$	Firm's size	natural logarithm of market valuation
LEV_i	Leverage	sum of short and long-term debts adjusted by market value of equity

Source: authors

3.2. Research model

Khan & Watts (2009) base their measurement approach on the timely loss recognition model

proposed by Basu (1997), which remains the most widely used reference in the literature (Watts, 2003). Their definition of conditional conservatism is grounded in the idea that losses are recognized more quickly than gains, reflecting the asymmetric and timely nature of accounting information.

The starting point of their methodology lies in Basu's (1997) equation, which can be specified as follows:

$$\frac{X_i}{PO_i} = \alpha_0 + \alpha_1 D_i + \beta_0 R_i + \beta_1 D_i \cdot R_i + \epsilon_i \quad (1)$$

where $\frac{X_i}{PO_i}$ represents the earnings per share of firm i , scaled by the opening stock price; R_i denotes the firm's annual stock return, capturing economic news; and D_i is a binary variable equal to 1 if $R_i < 0$ (i.e., bad news), and 0 otherwise. The coefficient β_0 captures the sensitivity to good news, while β_1 measures the incremental speed of recognition of bad news.

To derive firm-specific scores, Khan & Watts (2009) incorporate the three IOS characteristics into the analysis. This approach enables the construction of conditional conservatism scores that are both discriminating and operational, capable of capturing firm heterogeneity without overcomplicating the model. These three variables are assumed to have a linear relationship with the coefficients β_0 and β_1 , expressed as follows:

$$G_SCORE \equiv \beta_0 = \mu_0 + \mu_1 SIZE_i + \mu_2 MTB_i + \mu_3 LEV_i \quad (2)$$

$$C_SCORE \equiv \beta_1 = \lambda_0 + \lambda_1 SIZE_i + \lambda_2 MTB_i + \lambda_3 LEV_i \quad (3)$$

It is important to note that these equations do not constitute econometric models per se. The coefficients μ_i and λ_i , for $i = 0, \dots, 3$, must be estimated based on the timely loss recognition model proposed by Basu (1997). To this end, the expressions for β_0 and β_1 are substituted into the initial equation, resulting in the following specification:

$$\begin{aligned} \frac{X_i}{PO_i} = & \alpha_0 + \alpha_1 D_i + R_i(\mu_0 + \mu_1 SIZE_i + \mu_2 MTB_i + \mu_3 LEV_i) \\ & + D_i \cdot R_i(\lambda_0 + \lambda_1 SIZE_i + \lambda_2 MTB_i + \lambda_3 LEV_i) \\ & + (\varphi_1 SIZE_i + \varphi_2 MTB_i + \varphi_3 LEV_i + \varphi_4 D_i \cdot SIZE_i + \varphi_5 D_i \cdot MTB_i + \varphi_6 D_i \cdot LEV_i) + \epsilon_i \end{aligned} \quad (4)$$

This specification is enriched by interaction terms between stock returns and firm characteristics, to capture combined effects. The addition of these components helps balance the model and mitigate potential confounding effects. This model is estimated separately for each year in the sample period. The estimators μ_i and λ_i , for $i = 0, \dots, 3$, are constant across firms within a given year but vary from year to year. At the same time, the structural characteristics defining the IOS also evolve over time. Thus, the G_SCORE and C_SCORE measures capture both cross-sectional variation—through differences in structural profiles—and time variation, via changes in annual estimation coefficients and firm-specific attributes. In this framework, the degree of conditional conservatism increases with C_SCORE, while the level of aggressiveness increases with G_SCORE.

To compute the C_SCORE and G_SCORE measures, equation (4) is estimated separately for each year in our sample, covering the period from 2011 to 2021. The annual coefficients μ_i and λ_i , for $i = 0, \dots, 3$, are then used in equations (2) and (3) to calculate the respective G_SCORE and C_SCORE values. Because a detailed analysis of each yearly estimation would be particularly redundant, we adopt a synthetic approach following the methodology proposed by Khan & Watts (2009), which relies on the Fama-MacBeth regression procedure.

Introduced by Fama & MacBeth (1973), this method is widely used in empirical finance to estimate relationships among financial variables while accounting for time-series dependence in the error terms. It allows for robust inference in contexts where models are estimated repeatedly across cross-sections over multiple periods. One of its key advantages is the production of standard errors corrected for autocorrelation and heteroskedasticity, making it particularly suitable for unbalanced panel data.

This method unfolds in two steps. First, model (4) is estimated year by year in a cross-sectional framework. Using generic notation where β denotes a coefficient and x the corresponding explanatory variable, this step yields a time series of eleven coefficients $\hat{\beta}_{jt}$ for each variable x_j , corresponding to the years from 2011 to 2021.

In the second step, the time-series average of each coefficient is computed using the following formula:

$$\bar{\beta}_j = \frac{1}{T} \sum_{t=1}^T \hat{\beta}_{jt}$$

The standard error associated with this average is expressed as:

$$SE_j^{Fama-Macbeth} = \frac{s_j}{\sqrt{T}} \quad (5)$$

where s_j^2 is the empirical variance of the time series, defined as:

$$s_j^2 = \frac{1}{T-1} \sum_{t=1}^T (\hat{\beta}_{jt} - \bar{\beta}_j)^2$$

In addition to the Fama-MacBeth method, two other econometric approaches are employed to assess the robustness of the results. This methodological triangulation is intended to ensure that the score estimations do not depend solely on the choice of a specific estimator. The second method involves Pooled Ordinary Least Squares (Pooled OLS) estimation, applied to the full sample of firms and years, with heteroskedasticity-robust standard errors. This correction, commonly attributed to Huber (1967) and White (1980), relies on an adjusted variance-covariance matrix, expressed as:

$$\widehat{Var}(\hat{\beta}_{OLS}) = (X^T X)^{-1} X^T \hat{\Omega} X (X^T X)^{-1}$$

The robust standard errors are then obtained from the diagonal of this matrix as:

$$SE_j^{robust} = \sqrt{[\widehat{Var}(\hat{\beta})]_{jj}} \quad (6)$$

The third estimation method is based on the Feasible Generalized Least Squares (FGLS) technique. This approach adjusts ordinary least squares to account for potential heteroskedasticity across statistical units. More specifically, the matrix $\hat{\Omega}$ is estimated from the residuals of a first-step OLS regression, and then injected into the following GLS estimator:

$$\hat{\beta}_{FGLS} = (X^T \hat{\Omega}^{-1} X)^{-1} X^T \hat{\Omega}^{-1} y$$

In our setting, the matrix $\hat{\Omega}$ is specified to reflect cross-sectional heteroskedasticity while assuming conditional independence of the error terms within firms. Under this framework, FGLS standard errors are computed as follows:

$$SE_j^{FGLS} = \sqrt{[(X^T \hat{\Omega}^{-1} X)^{-1}]_{jj}} \quad (7)$$

Taken together, this estimation strategy allows for the derivation of dynamic and differentiated measures of accounting conservatism, while accounting for structural firm heterogeneity and the temporal evolution of reporting behavior. By successively applying the Fama-MacBeth, Pooled OLS, and FGLS methods, we seek to ensure the robustness of the empirical results. The next section presents the estimated coefficients and analyzes the structural determinants of the C_SCORE and G_SCORE metrics.

4. Results and discussion

4.1. Descriptive statistics

Table 2 reveals that out of the 418 firm-year observations, 202 report a negative return, accounting for no less than 48% of the sample. The average return across the sample stands at approximately 6.2%. When focusing solely on observations with a positive return, the average rises to 30%, in stark contrast with the -19% recorded for firms showing a negative return. Regarding the IOS variables, only firm size shows no significant difference between the two groups. The MTB ratio is significantly higher among firms with a positive return. Conversely, the financial leverage ratio suggests that firms with a negative return rely more heavily on debt than those with a positive return.

Table 2: Descriptive statistics

Variables	Overall Sample (obs=418)		Positive Return (obs=216)		Negative Return (obs=202)		Diff	t-test
	Mean	SD	Mean	SD	Mean	SD		
R	0.062	0.345	0.30	0.30	-0.19	0.15	-0.488***	20.483
SIZE	21.147	1.797	21.29	1.66	20.99	1.93	-0.300*	1.710
MTB	2.809	2.104	3.09	2.08	2.51	2.09	-0.573***	2.808
LEV	0.753	0.912	0.62	0.77	0.89	1.03	0.272***	-3.082

Variables are defined in Table 1, * significant at 1%, ** significant at 5%, *** significant at 10%

Source: authors' calculations

4.2. Regression results

The results obtained from the three estimation methods are summarized in Table 3. The table is organized into three distinct panels, each corresponding to a specific method. Panel (A) presents the results from the Pooled OLS estimation with robust standard errors. Panel (B) reports the average coefficients derived from the Fama-MacBeth procedure. Panel (C) displays the results obtained using the FGLS estimator. In each case, the standard errors associated with the coefficients are shown in parentheses. This presentation makes it possible to assess the stability of the estimated parameters and to evaluate the consistency of the structural relationships underlying the computation of the scores. More specifically, the objective is to empirically test the theoretical links that justify the inclusion of the three structural characteristics selected to represent the Investment Opportunity Set (IOS).

We begin by examining the coefficients associated with the baseline variables from the Basu model, namely R and $D \times R$, which reflect, respectively, the sensitivity of earnings to good news and the intensity of conditional conservatism. The estimated coefficients for R are positive across all methods and statistically significant in the case of FGLS. In contrast, the coefficient for $D \times R$ does not conform to theoretical expectations, as it alternates in sign and lacks consistent statistical significance. This result should be interpreted with caution, given that the interactions between $D \times R$ and IOS characteristics represent the primary channels through which conditional conservatism manifests in this modeling framework.

The interaction terms between stock returns and IOS components ($R \times SIZE$, $R \times MTB$, $R \times LEV$) yield coefficients that are generally consistent with theoretical predictions. Similarly, the $D \times R \times IOS$ ($D \times R \times SIZE$, $D \times R \times MTB$, $D \times R \times LEV$) enable the evaluation of heterogeneous sensitivity to bad news depending on firm profiles. The coefficients associated with $D \times R \times MTB$ and $D \times R \times LEV$ are statistically significant in most specifications, reinforcing the empirical relevance of these structural dimensions. In contrast, firm size (SIZE) does not appear to play a meaningful role in explaining either of the two strategies. Finally, the adjusted R-squared of the Pooled OLS model is 32.44%, indicating a relatively robust explanatory power by empirical accounting standards.

Table 3: Estimation results from equation (4)

VARIABLES	Pred. Sign	Panel A		Panel B		Panel C	
		Pooled OLS		Fama-Macbeth		FGLS	
		coef	S.E. ^a	coef	S.E. ^b	coef	S.E. ^c
Intercept		0.2992***	(0.0662)	0.1519	(0.1150)	0.2054***	(0.0435)
D		-0.0395	(0.1065)	-0.2305	(0.3580)	0.0987	(0.0724)
G_SCORE components							
R	+	0.4033*	(0.2100)	1.1834	(0.6839)	0.6084***	(0.1411)
RxSIZE	+	-0.0153	(0.0098)	-0.0409	(0.0276)	-0.0246***	(0.0068)
RxMTB	-	-0.0119**	(0.0053)	-0.0365*	(0.0174)	-0.0106***	(0.0038)
RxLEV	-	-0.0341**	(0.0155)	-0.2464	(0.1560)	-0.0550***	(0.0113)
C_SCORE components							
DxR	+	0.0885	(0.4020)	-3.0211*	(1.5850)	-0.0372	(0.3064)
DxRxSIZE	-	-0.0072	(0.0191)	0.1064	(0.0689)	-0.0000	(0.0145)
DxRxMTB	+	0.0259**	(0.0108)	0.0497**	(0.0175)	0.0168**	(0.0085)
DxRxLEV	+	0.0662	(0.0449)	0.9591**	(0.3034)	0.0720***	(0.0276)
SIZE		-0.0107***	(0.0031)	-0.0054	(0.0052)	-0.0071***	(0.0020)
MTB		0.0016	(0.0021)	0.0046	(0.0029)	0.0029**	(0.0014)
LEV		-0.0268**	(0.0117)	0.0135	(0.0168)	-0.0028	(0.0067)
DxSIZE		0.0011	(0.0051)	0.0099	(0.0164)	-0.0043	(0.0034)
DxMTB		0.0014	(0.0036)	-0.0059	(0.0110)	-0.0005	(0.0022)
DxLEV		0.0080	(0.0177)	0.0344	(0.0381)	-0.0176*	(0.0096)
Adj. R ² (%)		32.44		56.76			

^a: robust standard errors between parenthesis as defined in equation (6)

^b: Fama-Macbeth standard errors between parenthesis as defined in equation (5)

^c: FGLS standard errors between parenthesis as defined in equation (7)

Variables are defined in Table 1

* significant at 1%, ** significant at 5%, *** significant at 10%

Source: authors' calculations

4.3. Descriptive analysis of C_SCORE and G_SCORE

Table 4 presents the descriptive statistics for the two scores in Panel A, along with the correlation matrix in Panel B. The latter highlights a strong negative relationship between C_SCORE and G_SCORE. The Spearman correlation coefficient reaches -0.9351 , while the Pearson coefficient stands at -0.9075 . Both coefficients are statistically significant at the 1% level, indicating that a one-point increase in C_SCORE is, on average, accompanied by an almost equivalent decrease in G_SCORE in absolute terms.

This particularly strong inverse relationship reinforces the findings previously obtained, as it demonstrates the ability of IOS characteristics to generate two distinct but structurally coherent empirical measures. G_SCORE captures an aggressive reporting approach, characterized by the rapid recognition of accounting gains. In contrast, C_SCORE reflects a prudence-based strategy, emphasizing a stricter standard of verifiability for gains than for losses. The high negative correlation between the two scores suggests that these strategies are mutually exclusive, which supports the theoretical hypothesis of substitutability between conditional conservatism and aggressive accounting.

Table 4: Descriptive Statistics and correlation matrix of C_SCORE and G_SCORE

Panel A : Descriptive statistics							
Variables	Mean	SD	Min	Q1	Median	Q3	Max
C_SCORE	0.149	0.293	-1.810	0.126	0.188	0.241	1.870
G_SCORE	-0.069	0.325	-1.245	-0.204	-0.063	0.042	1.769

Panel B : Correlation matrix ^a		
	C_SCORE	G_SCORE
C_SCORE	1	-0.9075***
G_SCORE	-0.9351***	1

^a: Pearson top triangle and Spearman bottom triangle

* significant at 1%, ** significant at 5%, *** significant at 10%

Source: authors' calculations

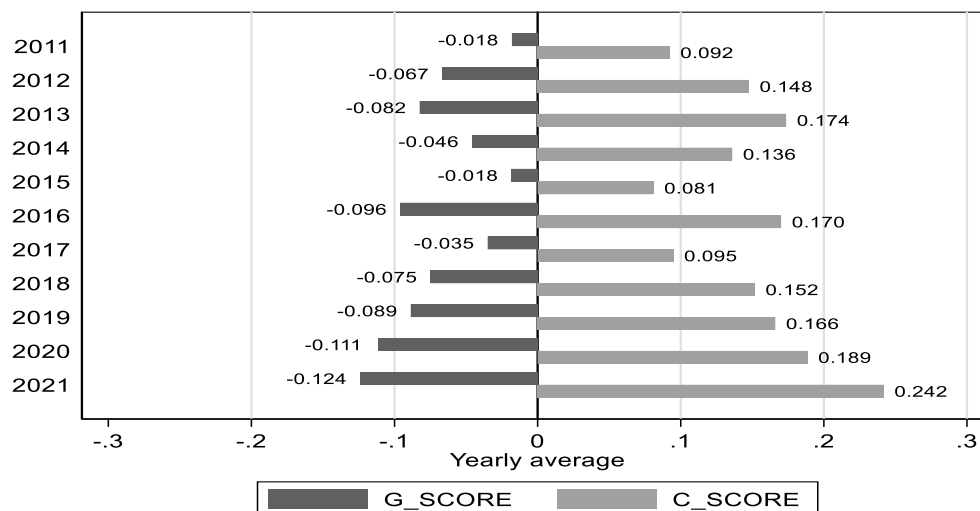
Panel A of Table 4 shows that the average C_SCORE across the sample is 0.149. For illustrative purposes, this value can be compared to that reported by Khan & Watts (2009) in their study of U.S. firms, where the observed mean was 0.105. This comparison is not intended to suggest a direct equivalence between two fundamentally different institutional environments, but rather to provide a general sense of scale. The analysis of quartiles reveals that 75% of observations exhibit a C_SCORE above zero. This predominance is further confirmed by the frequency distribution, which shows that only 6.46% of firms have a negative score. Collectively, these results suggest a widespread adoption of conditional conservatism among Moroccan listed firms over the study period.

This trend is also reflected in the descriptive statistics for G_SCORE. The overall average stands at -0.069 , suggesting a marked absence of timely recognition of economic gains. Panel A of Table 4 indicates that this prudent orientation extends to the median, which also remains negative. A more detailed frequency analysis confirms this trend, with 69.26% of observations displaying a negative G_SCORE. These findings point to a particularly high standard of verifiability for gains. They also reinforce the idea of a substitutive relationship between the two reporting strategies—one centered on prudence, the other on accelerated recognition of good news—without the possibility of a balanced coexistence between the two.

Figure 1 traces the evolution of the annual averages of both scores over the study period. This temporal trajectory allows for the distinction of two subperiods with contrasting dynamics. The first, spanning from 2011 to 2017, is characterized by a cyclical pattern marked by alternating upward and downward phases. The second period, from 2017 to 2021, exhibits a more defined trend, with a steady increase in C_SCORE and a simultaneous decline in G_SCORE. More

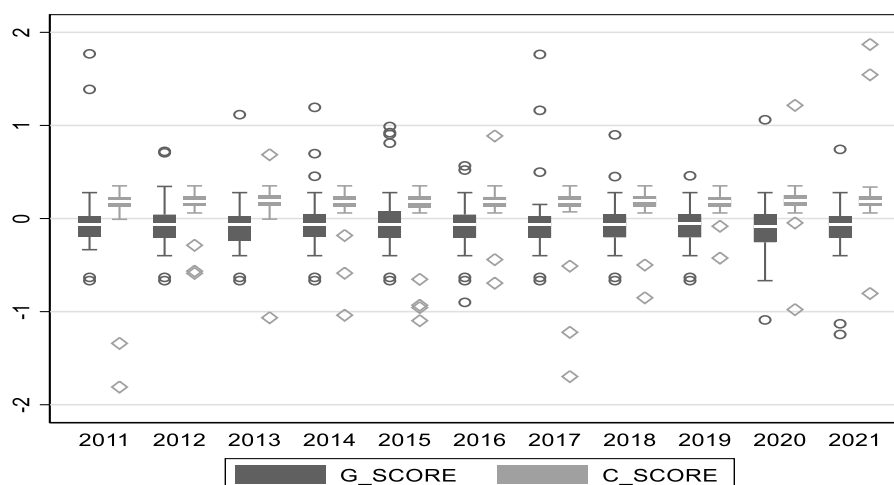
specifically, the average annual C_SCORE rose from 0.152 in 2018 to 0.242 in 2021, an increase of approximately 60%. At the same time, G_SCORE experienced a significant drop, with its annual average falling from -0.075 to -0.124 —a decrease of nearly 65%, with an average annual variation of around 18% in absolute value. Figure 2 presents boxplots of the two scores for each of the eleven years covered by the study. The graphical analysis of C_SCORE reveals a narrow interquartile range, as evidenced by the compact size of the boxes. This concentration suggests a relative homogeneity of prudent accounting practices among the majority of firms. However, the presence of extreme values, mostly located in the negative zone, indicates the existence of a subgroup of firms with persistently poor reporting quality. Notably, these outliers tend to become less frequent over time. Comparing the two previously identified subperiods, the share of firms with a negative score drops from 7.52% to 4.61%, indicating a gradual weakening of the influence of extreme values on the average C_SCORE. Moreover, the examination of the G_SCORE distribution over time confirms the substitutive relationship between the two indicators. The inverse dynamics observed in the distribution of extreme values and the shifts in medians throughout the period reflect a gradual retreat from aggressive accounting practices in favor of a more prudence-oriented approach.

Figure 1: Evolution of annual average scores



Source: authors' calculations

Figure 2: Box plots of G_SCORE and C_SCORE



Source: authors' calculations

The combined analysis of the evolution in annual averages and empirical distributions of the scores reveals a progressive substitution dynamic between C_SCORE and G_SCORE. This trend, particularly pronounced in the second half of the study period, reflects a growing shift toward prudence-based financial reporting practices. At an aggregate level, it suggests a sustained improvement in accounting quality among Moroccan listed firms, in response to structural incentives to better reflect economic losses.

4.4. Discussion

This section discusses the empirical results in light of the research hypotheses formulated earlier. Among the three hypotheses tested, two are supported by empirical evidence consistent with theoretical predictions, while the third is not confirmed. We begin by examining the results for the unconfirmed hypothesis, before turning to the other two. Finally, an institutional interpretation of the temporal evolution of the scores is proposed to explain the marked improvement in financial reporting quality observed during the second half of the study period.

4.4.1. Firms size (Hypothesis 2)

The hypothesis that firm size influences financial reporting choices is not confirmed by the results. From a theoretical standpoint, large firms are generally perceived as more transparent due to greater information coverage, stricter regulation, and more credible governance. This institutional positioning should, in principle, reduce the pressure on managers to adopt a prudent loss recognition strategy. Consequently, size would be associated with lower accounting conservatism, empirically reflected by a negative coefficient on $D \times R \times SIZE$ and a positive coefficient on $R \times SIZE$.

However, the results deviate significantly from this intuition. The coefficients associated with $R \times SIZE$ are negative across all specifications and statistically significant in the case of the FGLS estimator, which contradicts the notion that larger firms more readily recognize gains. As for $D \times R \times SIZE$, it exhibits neither a stable sign nor statistical significance. These findings suggest that size, as a structural characteristic, does not exert a discriminating effect on conservative or aggressive accounting practices in the Moroccan context.

One possible explanation lies in the fact that being listed on the stock exchange in Morocco is, in itself, a selection criterion that homogenizes firms in terms of visibility, regulation, and informational expectations. As such, the SIZE variable may not be sufficiently discriminating to capture significant behavioral differences within the local capital market.

4.4.2. Market-to-Book Ratio (Hypothesis 1)

The market-to-book ratio (MTB) emerges as the most robust variable in the model, both in terms of theoretical coherence and statistical significance. According to Watts (2003a), a high MTB reflects a greater intensity of growth options, increased volatility in stock returns, lower asset tangibility, and greater exposure to uncertainty. These factors reinforce the incentives for conditional conservatism, as investors prefer that losses be recognized promptly to limit opportunistic behavior stemming from opaque growth prospects.

The results fully support this prediction. The coefficients associated with $R \times MTB$ are consistently negative and statistically significant, indicating that firms with high growth potential are less inclined to recognize gains early. Simultaneously, the coefficients on $D \times R \times MTB$ are positive and significant across all three estimation methods, suggesting heightened sensitivity to losses. This pattern supports the hypothesis that MTB functions as a driver of accounting discipline in environments characterized by high information asymmetry. These findings reinforce the notion that the market exerts incentive pressure on firms to adopt conservative reporting practices when the potential divergence between actual and anticipated performance is substantial.

4.4.3. Financial Leverage (Hypothesis 3)

Financial leverage is another important determinant of firms' accounting behavior, particularly due to the tensions it creates between shareholders and creditors. The literature has extensively documented that high levels of debt can trigger opportunistic behaviors such as asset substitution, underinvestment, or excessive dividend distribution. To guard against such risks, creditors often impose covenants in debt contracts, which rely on accounting indicators. Conservative reporting thus becomes an essential mechanism for promptly activating the protective measures specified in these contracts.

The empirical results largely support this view. The coefficients on $R \times LEV$ are negative in two of the three methods and statistically significant at the 1% (FGLS) and 5% (Pooled OLS) levels, indicating lower early gain recognition among the most highly leveraged firms. As for $D \times R \times LEV$, it is positive and significant in both the Fama-MacBeth and FGLS models, confirming that highly leveraged firms tend to recognize losses more promptly, in line with theoretical expectations.

These results support the view that leverage acts as an indirect governance mechanism, operating through creditor-imposed constraints. In this context, conservatism becomes a rational response to a restrictive contractual environment.

4.4.4. Score Improvement from 2017 Onward: An Institutional Perspective

The temporal analysis of C_SCORE and G_SCORE, presented earlier, reveals a clear inflection point starting in 2018, characterized by a sustained increase in the former and a concurrent decline in the latter. This dynamic suggests a gradual shift toward more conservative accounting practices. One possible explanation lies in the evolution of Morocco's regulatory and institutional capital market framework during this period.

The year 2016 marked the establishment of the Moroccan Capital Market Authority (AMMC), which replaced the former *Conseil Déontologique des Valeurs Mobilières*. From its inception, the AMMC adopted a proactive regulatory stance, notably through the adoption of Circular No. 03/19. This regulation strengthened transparency requirements for publicly traded companies, mandating the publication of a structured annual report including information on governance, risk, and ESG performance.

This institutional strengthening can be interpreted, in line with Watts (2003), as an external factor encouraging firms to adopt more conservative reporting. In contexts with active regulators, the cost of manipulating financial statements increases, while the incentives for timely loss recognition are reinforced. This dynamic also reflects the political cost that the regulator itself may bear. In the event of a financial scandal, regulators often come under scrutiny alongside, or even more than, fraudulent executives. The experiences of Enron, WorldCom, and others have demonstrated that most scandals are characterized by overstated earnings. In this perspective, the regulator has every interest in discouraging premature gain recognition by promoting a more conservative approach to financial reporting. In doing so, it functions as an external governance mechanism, helping align accounting practices with the expectations of investors, creditors, and other stakeholders.

From this standpoint, the observed improvement in the scores during the second half of the study period is not merely an endogenous phenomenon but results from a more rigorous regulatory environment, which promotes the diffusion of accounting conservatism as an implicit norm of financial discipline.

5. Summary and conclusions:

This article explores financial reporting quality through the lens of accounting conservatism, viewed as an external governance mechanism shaped by the firm's institutional environment.

By applying the model developed by Khan & Watts (2009), we proposed a dynamic and firm-specific measurement of two opposing reporting strategies: the early recognition of gains (G_SCORE) and the timely recognition of losses (C_SCORE). The empirical analysis focused on a sample of Moroccan listed firms from 2011 to 2021 and examined the relationship between firms' structural characteristics—captured by the Investment Opportunity Set (IOS)—and their accounting behavior.

The results show that two dimensions of the IOS—the market-to-book ratio and financial leverage—exert a significant influence on conservative accounting choices. Firms with high growth potential and elevated debt levels are more likely to adopt a conservative policy, characterized by quicker loss recognition and limited anticipation of gains. In contrast, firm size does not appear to be a relevant determinant in the Moroccan context. Furthermore, the descriptive and time-series analysis of the scores reveals a marked improvement in financial reporting quality beginning in 2018, suggesting a positive influence from the strengthening of the regulatory framework—most notably through the establishment of the AMMC and the implementation of Circular No. 03/19.

These findings offer several contributions to the literature. Theoretically, they reintegrate the quality of accounting information at the core of governance mechanisms—not merely as a reflection of internal choices, but as a strategic response to the institutional environment. Methodologically, the study demonstrates the applicability of the Khan & Watts model in an emerging market context, showing that the resulting scores are sensitive to firms' structural specificities and the evolution of the regulatory landscape. Empirically, it highlights the active role that a regulator can play in improving accounting discipline within a developing market. Nonetheless, certain limitations must be acknowledged. The relatively small sample size—due to the limited number of listed firms in Morocco—restricts the possibility of conducting in-depth sectoral analysis. Moreover, although the Khan & Watts scores help to mitigate the specification biases of the Basu model, they also rely on an indirect formalization of conservatism, which could be complemented by alternative measures. Finally, the effect of regulation would benefit from being modeled more explicitly, using coded institutional variables or formally identified regulatory shocks.

These limitations open several promising avenues for future research. Comparative studies across emerging markets could help test the robustness of the scores in differing institutional environments. Additionally, the analysis of conservatism could be enhanced by incorporating other external governance mechanisms, such as pressure from credit rating agencies, media coverage, or the structure of institutional ownership. Lastly, extending this approach to the domain of non-financial reporting—particularly within the ESG framework—would offer a natural continuation of the investigation into the disciplinary role of information in contemporary governance.

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