www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 12, No. 2.1, (2026), pp. 10963-10980
Open Access. Online & Print

DOI: 10.5281/zenodo.20088964

STRATEGIC FISCAL AUDIT POLICY IN MOROCCAN COMPANIES: A META-ANALYSIS INTEGRATED WITH A POLICY DELPHI AND GENERALIZED FUZZY COGNITIVE MAPPING

Bouchra Zahraoui[1], EL Hassan Taacha[2]

[1]PhD Candidate in Management Sciences, FSJES of Tangier
Research Laboratory: Research Group in Economics, Finance & Performance Management of Territorial Organizations, Email: Bouchrayzaraoui@gmail.fr
[2]Lecturer and Researcher – FSJES of Tangier –
Research Laboratory: Research Group in Economics, Finance & Performance Management of Territorial Organizations
Email: etaacha@uae.ac.ma

Received: 06/04/2026
Accepted: 29/04/2026

Corresponding Author: Bouchra Zahraoui (Bouchrayzaraoui@gmail.fr)

ABSTRACT

This study examines how fiscal audit policy strategies shape tax compliance, governance quality, and fiscal risk management in Moroccan companies. Building on a systematic review and meta-analysis of research addressing fiscal audits, compliance behavior, audit strategy effectiveness, and governance mechanisms, the paper synthesizes evidence across Moroccan and comparable developing-economy contexts to clarify what works, for whom, and under which institutional constraints. To strengthen contextual validity and reduce the common limitation of relying solely on published quantitative findings, the study combines the statistical synthesis with two complementary expert-driven approaches. First, a Policy Delphi process gathers iterative judgments from Moroccan chartered accountants (members of the Ordre des Experts-Comptables), university professors, and senior practitioners involved in taxation and audit. Second, a Generalized Fuzzy Cognitive Mapping approach formalizes expert knowledge into a causal system model linking audit intensity, risk-based targeting, governance configurations, taxpayer education/communication, and organizational responses (including creative accounting and tax planning). Results indicate that risk-based and preventive audit strategies are consistently associated with stronger compliance improvements than narrow or sporadic approaches, while governance quality acts as a significant amplifier of audit effectiveness through internal controls, audit committee functioning, and board oversight. The expert model further highlights that communication credibility and taxpayer education mechanisms can shift behavioral responses from defensive tax planning toward sustained voluntary compliance, particularly when audits are perceived as predictable, procedurally fair, and data-driven. The study contributes an integrated policy framework tailored to Morocco that aligns enforcement design, governance reforms, and taxpayer-facing interventions, and it offers testable propositions for future longitudinal research using administrative data and firm-level governance panels.

KEYWORDS: Fiscal Audit Policy; Tax Compliance; Morocco; Risk-Based Auditing; Corporate Governance; Taxpayer Behavior; Policy Delphi; Generalized Fuzzy Cognitive Mapping.

1. INTRODUCTION

In Morocco's corporate environment, fiscal audits are not merely an enforcement instrument; they are a structural component of how the self-assessment system is monitored, corrected, and made credible over time (Direction Générale des Impôts, 2023, pp. 349–351). At the firm level, the audit event reshapes incentives, documentation practices, and governance routines, especially when the audit extends beyond a narrow verification toward a broader review of reporting choices and internal controls (Benazzou, 2016). At the administrative level, the strategic challenge is to allocate scarce verification capacity toward the highest-risk cases while safeguarding taxpayer rights, procedural predictability, and the quality of the contradictory dialogue (OECD, 2004).

Moroccan law explicitly frames this balance through procedural safeguards attached to the accounting audit including advance notification, the attachment of a taxpayer charter, time limits that vary with turnover, and the possibility for the taxpayer to be assisted by an advisor of their choice (Direction Générale des Impôts, 2023, pp. 349–351). These safeguards are central for legitimacy, yet they also shape the audit's strategic effectiveness because they influence firms' preparation time, disclosure choices, and negotiation posture (AARAB, 2021).

Despite a growing body of Moroccan and international scholarship, the evidence remains fragmented across disciplines and units of analysis. Some studies emphasize the deterrence and learning effects of audits on compliance, with stronger effects reported when audit intensity increases or when audit approaches become more comprehensive (Kotsogiannis et al., 2024). Others highlight that governance mechanisms such as board structure, audit committees, and internal control systems can strengthen audit quality and thereby amplify the compliance impact, while certain governance configurations produce heterogeneous or even counterintuitive effects (Chtaoui et al., 2024). Meanwhile, research on taxpayer behavior suggests that audits can reduce aggressive strategies, yet creative accounting and intra-group arrangements may persist, adapting to enforcement pressure rather than disappearing (Elhamma & Boutafrout, 2025).

This dispersion creates a practical and scientific problem. Policy debates often ask whether Morocco should prioritize risk-based case selection, preventive audits, enhanced taxpayer communication, or governance-based targeting, yet the supporting evidence is rarely synthesized in a way that simultaneously respects Moroccan institutional specificities and integrates international best practices in compliance risk management (OECD, 2004). At the same time, Moroccan firms are heterogeneous in size, sector, ownership concentration, and governance maturity, which complicates the direct transfer of findings from other jurisdictions (Nnadi et al., 2017). In addition, the predominance of cross-sectional designs and survey-based measures in parts of the literature limits what can be inferred about dynamic effects, adaptation, and persistence of behavioral change after audit encounters (Badlaoui et al., 2024).

Accordingly, this article proposes an IMRaD-structured meta-analysis that consolidates the empirical evidence on fiscal audit policy strategy in Moroccan companies and tests moderators linked to governance, audit design, and behavioral channels (Eberhartinger et al., 2021). The approach is deliberately hybrid: it combines a quantitative meta-analysis of eligible effect estimates, a structured expert component involving members of the Ordre des Experts-Comptables du Maroc (OEC), university professors specializing in taxation, audit, and governance, and additional Moroccan stakeholders, and (iii) an innovative causal-mapping method to translate the evidence into a policy-relevant strategic model (de Loë et al., 2016).

The expert component is justified by the Moroccan institutional configuration of fiscal practice. OEC members are legally regulated professionals whose missions and ethical obligations support the reliability of accounting information and the quality of advisory practices that firms mobilize during tax audits (Royaume du Maroc, 1993). Their perspective is complemented by academics who contribute theoretical framing and methodological rigor, as well as by former or current tax administration professionals, corporate tax directors, and internal audit leaders who can validate feasibility constraints and unintended effects (OEC, 2013).

Within this architecture, the study addresses three integrated research questions. First, what is the average effect of fiscal audits, as practiced or studied in Moroccan corporate contexts, on tax compliance and fiscal risk reduction (Benazzou, 2016)? Second, which moderators systematically reshape that effect, particularly audit type (risk-based, preventive, comprehensive), governance quality, firm size, and the presence of behavioral interventions such as education and communication (Oduro et al., 2024)? Third, how can these relationships be organized into an actionable audit policy strategy for Morocco that is consistent with both legal safeguards and compliance risk management logic (Direction

Générale des Impôts, 2023, pp. 349–351)?

Grounded in this literature, the introduction advances testable hypotheses. Audits are expected to increase compliance on average, while risk-based and comprehensive approaches are expected to produce stronger effects than narrow or sporadic audits (Kotsogiannis et al., 2024). Governance mechanisms are anticipated to strengthen audit effectiveness by improving internal controls and transparency, yet concentrated ownership and certain committee dynamics may introduce heterogeneous outcomes (Chtaoui et al., 2024). Communication and education are expected to act as enabling mechanisms that convert audit pressure into sustained voluntary compliance, whereas fear-based messaging may weaken this channel (Oduro et al., 2024).

Table 1 formalizes the procedural anchors that shape fiscal audit strategy in Morocco, because strategy is constrained by the legal timeline, information obligations, and the taxpayer's right to assistance during verification.

Table 1: Procedural Safeguards and Time Constraints Governing On-Site Tax Audits in Morocco.

Procedural element	Operational implication for audit strategy	Legal anchor (illustrative)
Advance notice of verification	Limits surprise effects; enables document preparation and advisor mobilization	Minimum 15 days before control date (Direction Générale des Impôts, 2023, p. 349)
Taxpayer charter attached to notice	Frames rights/obligations and reduces procedural disputes	Charter must accompany notice (Direction Générale des Impôts, 2023, p. 349)
Scope specification in notice	Enables targeted audits (specific taxes/posts) or comprehensive audits	Notice specifies period and taxes or posts (Direction Générale des Impôts, 2023, p. 349)
Maximum duration on-site	Incentivizes risk-based planning and pre-audit analytics	3 months if turnover ≤ 50M MAD; 6 months if > 50M MAD (Direction Générale des Impôts, 2023, p. 350)
Oral and contradictory exchange before closure	Institutionalizes negotiation and correction before formal rectification	Oral contradictoire exchange required (Direction Générale des Impôts, 2023, p. 351)
Right to be assisted by an advisor	Increases the strategic role of external professionals (e.g., OEC)	Taxpayer may be assisted by a chosen advisor (Direction Générale des Impôts, 2023, p. 351)

Source: Authors' Synthesis Based on Morocco's General Tax Code Provisions on Verification of Accounting (Direction Générale des Impôts, 2023, Pp. 349–351).

The implications of Table 1 are methodological as well as substantive. Since audits operate within fixed time windows and a codified contradictoire exchange, the relevant outcomes extend beyond immediate reassessments; they also include risk prevention, learning, governance adjustments, and behavioral adaptation that may unfold across audit cycles (Muzakkir & Mahi, 2019). Consequently, the present meta-analysis treats "audit strategy" as a bundle of design choices that interact with governance and behavioral channels rather than as a single homogeneous intervention (Eberhartinger et al., 2021).

Figure 1 summarizes the conceptual framework derived from the literature and guides the operationalization of moderators and mechanisms in the Methods section.

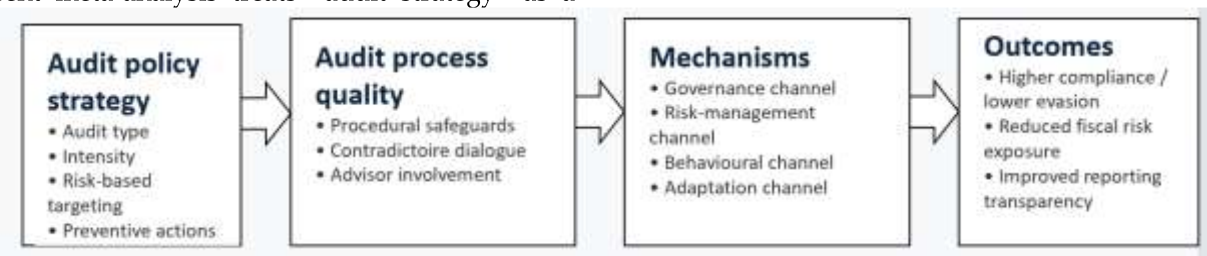

Figure 1: Conceptual Framework Linking Fiscal Audit Policy Strategy to Compliance Outcomes in Moroccan Companies.

Source: Authors' Elaboration Drawing on Compliance Risk Management Logic (Oecd, 2004) And Governance–Tax Strategy Interactions (Sartori & Sartori, 2009).

2. METHODS

2.1. Study Design and Reporting Standards

This study follows a mixed evidence-synthesis design that integrates a systematic review and meta-analysis with structured expert elicitation and causal modeling. The reporting is aligned with PRISMA 2020 for systematic reviews and meta-analyses, while observational evidence is documented using principles consistent with MOOSE guidance (Page et al., 2021). Because the Moroccan evidence base includes quantitative, qualitative, and mixed-method studies, the protocol also specifies design-sensitive appraisal and triangulation procedures rather than enforcing a single methodological template (Stroup et al., 2000).

2.2. Eligibility Criteria

The eligibility criteria are constructed to capture studies that speak to "fiscal audit policy strategy" in the Moroccan corporate context, including audit design, governance interactions, compliance outcomes, and behavioral responses. Empirical studies are included when they report measurable outcomes related to tax compliance, audit quality, fiscal risk, avoidance behavior, or reporting transparency, whether using administrative data, firm-level datasets, or validated survey instruments (Kotsogiannis et al., 2024). Conceptual and policy studies are included in the qualitative synthesis when they provide Morocco-specific institutional detail that informs interpretation, such as procedural safeguards and taxpayer guarantees (AARAB, 2021). Table 2 translates these principles into operational inclusion and exclusion rules to ensure consistency during screening.

Table 2: Operational Inclusion and Exclusion Criteria for the Evidence Base.

Dimension	Inclusion criteria	Exclusion criteria
Population	Moroccan companies (SMEs, listed firms, groups), or Morocco-specific institutional analyses with corporate relevance	Purely household/personal taxation without corporate implications
Intervention/exposure	Fiscal audits, audit strategy (risk-based, preventive, comprehensive), audit intensity, or audit-related governance mechanisms	Non-audit enforcement instruments without audit linkage (unless compared explicitly)
Outcomes	Compliance, evasion/avoidance, fiscal risk exposure, audit quality, transparency, governance changes, behavioral responses	Outcomes unrelated to taxation or audit processes
Study design	Quantitative, qualitative, or mixed-method research with identifiable methods and data sources	Opinion pieces without methods; duplicated reports of the same dataset without added value
Timeframe	2001–2025 to match Morocco's evolving audit and governance context	Studies outside timeframe unless foundational to legal or methodological framing

Source: Authors' Protocol, Aligned with Evidence Synthesis Guidance (Page Et Al., 2021) And Observational Reporting Principles (Stroup Et Al., 2000).

Table 2 is crucial because it avoids an overly narrow audit definition that would miss governance and behavioral mechanisms, yet it also limits scope creep by excluding texts that discuss taxation without linking to audit strategy or audit-relevant governance (Nasir et al., 2024). In addition, it preserves Moroccan specificity while still allowing carefully selected comparative studies to inform moderator logic, particularly for risk-based approaches and compliance risk management architectures (OECD, 2004).

2.3. Information Sources and Search Strategy

The search strategy combines international academic databases with Moroccan and francophone repositories to reduce language and indexing bias. The core sources include Scopus, Web of Science, SSRN, Google Scholar, and Moroccan academic platforms such as IMIST, supplemented by targeted searches of institutional documents that describe Moroccan audit procedures and professional standards (Direction Générale des Impôts, 2023, pp. 349–351). Search strings are constructed around four concept families: fiscal audit and verification, compliance and taxpayer behavior, corporate governance and audit quality, and Morocco-specific legal or institutional terms such as "CGI," "vérification de comptabilité," and "charte du contribuable" (Khanfor & Elwazani, 2016).

Table 3 provides the search logic in a transparent format that can be replicated and audited.

Table 3: Databases And Search Strings Used for the Systematic Review.

Source type	Databases / repositories	Illustrative search string (adapted by database syntax)
International scholarly	Scopus; Web of Science; SSRN; Google Scholar	("tax audit" OR "fiscal audit" OR "audit intensity" OR "risk-based audit") AND ("compliance" OR "tax avoidance" OR "evasion") AND (Morocco OR Moroccan)
Francophone and Moroccan scholarly	IMIST; Cairn (when relevant)	("contrôle fiscal" OR "vérification de comptabilité" OR "audit fiscal") AND ("conformité fiscale" OR "évasion" OR "gouvernance") AND (Maroc)
Institutional and professional	Morocco's General Tax Code; OEC standards and legal texts	("CGI" AND "Article 212") OR ("Ordre des Experts-Comptables" AND "déontologie" AND fiscalité)

Source: Authors' Protocol Derived from Systematic Review Reporting Guidance (Page Et Al., 2021) And Morocco's Audit Procedure Codification in the General Tax Code (Direction Générale des Impôts, 2023).

In practice, Table 3 is implemented through iterative refinements. First, pilot searches are run to identify Morocco-specific keywords used by local journals, then synonyms are added to capture heterogeneous terminology across French, English, and Arabic abstracts when available (Khanfor & Elwazani, 2016). Next, backward and forward citation chasing is applied to seminal Moroccan audit and governance studies to reduce database omission risk (Chtaoui et al., 2024). Finally, duplicates are removed using DOI matching and title harmonization rules, after which screening proceeds in two stages: title/abstract screening followed by full-text assessment (Page et al., 2021).

2.4. Study Selection and Data Extraction

Two independent reviewers screen records using the eligibility criteria in Table 2, with disagreements resolved through discussion and, when necessary, adjudication by a third reviewer with Moroccan fiscal procedure expertise (Page et al., 2021). Data extraction uses a standardized form capturing bibliographic details, sample characteristics, firm type and sector, audit strategy description, governance variables, compliance outcomes, identification strategy, and effect size information when reported (Eberhartinger et al., 2021). When a study reports multiple outcomes, effect sizes are extracted by outcome family and coded to enable robust variance estimation during synthesis (Higgins & Thompson, 2002).

2.5. Risk Of Bias and Methodological Quality Appraisal

Given the mixed design landscape, methodological quality is assessed using design-appropriate tools. For non-randomized quantitative studies, ROBINS-I domains guide the evaluation of confounding, selection bias, measurement bias, and reporting bias (Sterne et al., 2016). For mixed-method studies, the Mixed Methods Appraisal Tool (MMAT) is applied to maintain comparability without penalizing legitimate methodological pluralism (Hong et al., 2018). Qualitative studies used for contextual synthesis are appraised using CASP criteria to assess credibility, coherence, and methodological transparency (CASP, 2018).

Quality appraisal is not used as a mechanical exclusion filter. Instead, it feeds sensitivity analyses and evidence grading, so that low-bias studies receive greater interpretive weight in conclusions about strategic effectiveness, especially for audit types and governance moderators (Sterne et al., 2016). Moreover, the quality assessments are shared with the expert panel during the triangulation stage, allowing practitioners to flag feasibility constraints that purely methodological tools may overlook (OEC, 2013).

2.6. Quantitative Synthesis and Meta-Analytic Model

Eligibility for the quantitative meta-analytic subset is narrower than for the broader qualitative synthesis, and requires that each study (i) reports at least one outcome mapped onto the compliance, avoidance, audit-quality, or fiscal-risk families defined in Table 2; (ii) provides sufficient statistical information to recover an effect size and its sampling variance, whether through means and standard deviations, odds ratios with confidence intervals, correlation coefficients with sample sizes, or regression coefficients with standard errors; (iii) identifies the unit of analysis at firm or taxpayer level rather than through purely aggregated macro-fiscal indicators; and (iv) treats audit exposure or audit-related governance as the analytical focus rather than as a residual control (Page et al., 2021).

When these conditions are met, effect sizes are harmonized into two families following Borenstein et al. (2009): log odds ratios (lnOR) with their sampling variances for binary outcomes (e.g., compliant vs. non-compliant behavior, presence of audit adjustment) and Hedges' g for continuous outcomes (e.g., compliance ratio, magnitude of adjustments, audit-quality scores). Conversions between correlation coefficients, standardized mean differences, and log odds ratios use the standard transformations documented in Borenstein et al. (2009), and all effect sizes are re-oriented so that a positive sign indicates improved compliance or reduced fiscal risk. When a study reports multiple non-independent effect sizes from the same sample, robust variance estimation (RVE) with small-sample corrections is applied to prevent the artificial inflation of precision that would arise from treating correlated estimates as independent observations (Higgins & Thompson, 2002).

Pooled estimates are computed under a random-effects model using the restricted maximum likelihood (REML) estimator for τ^2, which is appropriate because heterogeneity is expected across sectors, firm sizes, governance configurations, and audit modalities in Morocco. Heterogeneity is quantified and reported through τ^2, I^2, and 95% prediction intervals, and is explored through pre-specified subgroup analyses (audit type, firm size, governance maturity) and meta-regression on continuous moderators (Higgins & Thompson, 2002). All meta-analytic computations are carried out in R (version 4.3 or later) using the metafor package for the core random-effects models and the robumeta package for robust variance estimation, while PRISMA reporting is supported by the PRISMA2020 flow-diagram package (Page et al., 2021). Analytic scripts, the coded effect-size dataset, and the conversion formulas are archived in a replication folder to support transparency, reproducibility, and future updates of the meta-analysis.

Moderator analyses focus on audit strategy features and corporate governance features that the literature repeatedly identifies as consequential. Audit moderators include risk-based selection, preventive approaches, comprehensive vs. partial scope, and intensity or frequency proxies (Eberhartinger et al., 2021). Governance moderators include board independence, audit committee presence and expertise, ownership concentration, and internal control maturity (Chtaoui et al., 2024). Behavioral moderators include awareness, education, and communication constructs, given evidence that audit impacts depend on how taxpayers interpret and learn from enforcement encounters (Oduro et al., 2024).

Publication bias is examined through funnel plot asymmetry diagnostics and small-study effect tests when at least ten comparable effect sizes exist, complemented by trim-and-fill sensitivity checks to evaluate robustness (Egger et al., 1997). Where Moroccan studies provide limited statistical detail, authors are contacted for clarifications when possible, and conservative imputation rules are applied to prevent overstatement of precision (Page et al., 2021).

2.7. Qualitative Synthesis and Integration Logic

A thematic synthesis complements the meta-analysis because several Morocco-relevant works are conceptual, policy-oriented, or qualitative in design, yet they illuminate mechanisms such as procedural trust, expectation gaps, and informal governance patterns that can moderate effectiveness (Badlaoui et al., 2024). The synthesis uses an a priori coding frame aligned with Figure 1, while allowing inductive codes to emerge for Moroccan specificities such as the operational role of external advisors during the contradictory exchange and the strategic use of creative accounting under audit pressure (Elhamma & Boutafrout, 2025).

The integration step follows a convergent design: quantitative findings provide pooled estimates and moderator patterns, while qualitative findings explain why some strategies work better under specific institutional and governance conditions (Creswell & Plano Clark, 2017). Integration is documented through joint displays that align effect directions with mechanism narratives, enabling the expert panel to validate whether the combined interpretation is realistic for Moroccan audit practice (de Loë et al., 2016).

2.8. Expert Component: Panel Structure and Recruitment

The expert component is designed to ensure that policy conclusions reflect Moroccan feasibility constraints, professional standards, and organizational realities. Experts are recruited across four stakeholder families: (1) OEC members with direct experience assisting firms during tax audits, (2) university professors in taxation, audit, governance, or public finance, (3) senior corporate practitioners (tax directors, CFOs, internal audit heads), and (4) institutional actors such as former tax inspectors, legal scholars, or representatives of business associations who observe systemic frictions (Royaume du Maroc, 1993).

The planned panel is deliberately balanced across these four families to allow meaningful within-group comparisons while remaining manageable for iterative Delphi elicitation. The target composition is 6–8 OEC members, 5–7 university professors, 5–7 senior corporate practitioners, and 3–5 institutional observers, yielding an overall panel size of 19–27 experts. This range is consistent with established practice in Policy Delphi applications, where heterogeneous panels of approximately 15–30 experts balance depth of expertise, stability of group estimates, and feasibility of consensus mapping (de Loë et al., 2016). Selection criteria are explicit and cumulative: verifiable professional status (active membership of the Ordre des Experts-Comptables, tenured academic position in a Moroccan university, senior fiscal or audit role in a Moroccan firm, or documented institutional observer role); a minimum of ten years of professional or research experience in taxation, audit, or governance; at least one substantive engagement with the Moroccan fiscal environment during the past five years; and a written commitment to complete the full Delphi sequence. Recruitment combines purposive sampling from professional registries and academic directories with limited snowballing within each stakeholder family, and invitation letters disclose the study's objectives, the expected time burden, and the confidentiality safeguards in order to support informed participation (Royaume du Maroc, 1993).

Table 4 details the planned panel composition and each group's expected contribution to triangulation.

Table 4: Composition Of the Moroccan Expert Panel and Triangulation Roles.

Stakeholder group	Target profile	Primary contribution to the study
OEC members (Order of Chartered Accountants)	Registered professionals with audit/tax advisory experience	Validating audit feasibility, documentation realities, and governance practices during audit defense (OEC, 2013)
University professors	Faculty in accounting, tax law, governance, public finance	Refining hypotheses, moderator logic, and methodological choices; ensuring theoretical consistency (de Loë et al., 2016)
Corporate practitioners	Tax managers, CFOs, internal auditors, compliance officers	Identifying real-world behavioral adaptations and control weaknesses; interpreting cost–benefit trade-offs (Elhamma & Boutafrout, 2025)
Institutional observers	Former tax inspectors, legal experts, business associations	Highlighting procedural bottlenecks, legal safeguards, and legitimacy dynamics (Direction Générale des Impôts, 2023, pp. 349–351)

Source: Authors' Design, Grounded in Moroccan Professional Regulation (Royaume Du Maroc, 1993) And Expert Elicitation Methodology (De Loë Et Al., 2016).

The panel is intentionally plural because audit policy strategy fails when it optimizes one dimension while ignoring another. For instance, a risk-based selection system may improve resource allocation, yet it can also trigger strategic avoidance adaptations if firms learn the targeting signals (OECD, 2004). Similarly, governance reforms can increase transparency, although certain ownership structures typical in Moroccan family businesses may attenuate external audit demand and change how fiscal audits are anticipated and managed (Nnadi et al., 2017).

2.9. *Delphi Procedure for Consensus and Disagreement Mapping*

To structure expert input, the study uses a modified Policy Delphi approach. The objective is to map areas of agreement and disagreement across stakeholders rather than forcing artificial consensus, which is essential when policy trade-offs are real and contextual (de Loë et al., 2016). The Delphi is conducted in two to three rounds: the first collects independent judgments on which audit strategies and governance levers most influence compliance and risk reduction; the second provides anonymized feedback and asks experts to revise, justify, or maintain their positions; the optional third focuses on unresolved items and scenario stressors such as fiscal policy instability or administrative capacity constraints (de Loë et al., 2016).

Delphi outputs are quantified using median ratings and interquartile ranges, then linked to the meta-analytic findings through joint displays. This linkage ensures that expert beliefs do not override evidence, while evidence gaps are explicitly flagged and prioritized for policy caution (Page et al., 2021). When experts diverge, the analysis codes the divergence as a substantive finding about contested mechanisms, such as whether audit aggressiveness reduces avoidance or merely changes its form (Blaufus et al., 2022).

To safeguard the reliability of the elicitation, the protocol monitors response rates per stakeholder family across rounds and sets a retention threshold of 75% between consecutive rounds, below which non-response is examined for potential selection bias before the round is validated. Group-level reliability is assessed through Kendall's coefficient of concordance (W) computed on ranking items and through the stability criterion proposed by Scheibe, Skutsch, and Schofer (1975), with rounds iterated until either the shift in the median of each item between two consecutive rounds falls below 15% or the interquartile range contracts to at most one scale unit on the 1–5 rating metric, whichever is achieved first. Items on which disagreement persists despite these criteria are explicitly retained as contested findings rather than forced into artificial consensus, in line with the Policy Delphi logic that distinguishes genuine convergence from contested policy trade-offs (de Loë et al., 2016). In addition, internal coherence of each expert's responses across related items is reviewed between rounds, and unresolved inconsistencies trigger a targeted clarification exchange with the expert concerned, so that group-level statistics are not distorted by ambiguous individual ratings.

2.10. *Innovative Method: Fuzzy Cognitive Mapping for Policy-Ready Causal Structure*

Beyond Delphi, the study introduces fuzzy cognitive mapping (FCM) as an innovative method to transform dispersed evidence into a causal, policy-ready representation. FCM is appropriate because it models complex systems with feedback loops and allows experts to express causal strength qualitatively or semi-quantitatively, then aggregate maps across participants (Nair et al., 2019). In this study, an FCM workshop is conducted after Delphi round two, using the conceptual structure in Figure 1 as a starting scaffold while allowing new nodes to be introduced when Moroccan stakeholders identify missing institutional or behavioral drivers (Nair et al., 2019).

The FCM procedure has five steps. First, participants define key nodes, including audit design features, governance mechanisms, risk detection capacity, taxpayer awareness, creative accounting practices, and compliance outcomes (Elhamma &

Boutafrout, 2025). Second, participants draw directed links between nodes, assigning a sign (positive or negative) and a strength score. Third, individual maps are normalized and aggregated into a group map, preserving minority links when disagreement is meaningful rather than noise (Nair et al., 2019). Fourth, simple scenario simulations are run by "activating" policy levers such as increased risk-based targeting or integrated education during audits, then observing the predicted change in compliance and avoidance nodes (OECD, 2004). Fifth, the results are interpreted alongside the meta-analysis to identify levers that are both evidence-supported and institutionally feasible in Morocco (Direction Générale des Impôts, 2023, pp. 349–351).

Figure 2 presents the integrated workflow that connects the systematic review to the Delphi and FCM components, ensuring traceability from evidence to strategic recommendations.

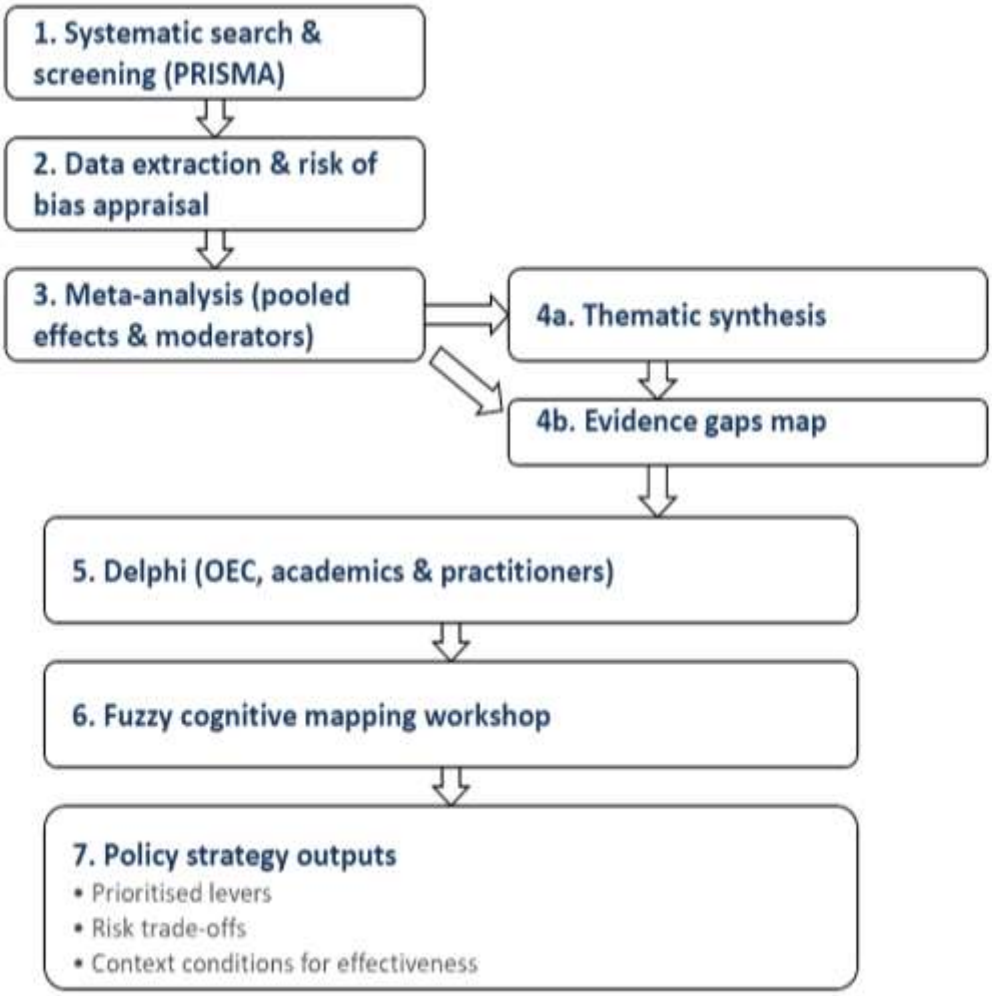

Figure 2: Integrated Workflow: Systematic Review, Meta-Analysis, Delphi, And Fuzzy Cognitive Mapping.
Source: Authors' Design Based on Systematic Review Guidance (Page Et Al., 2021) And Causal-Mapping Methodology (Nair Et Al., 2019).

2.11. Ethics, Confidentiality, And Data Governance

Expert participation is conducted under informed consent, with anonymization to reduce reputational and institutional pressure, particularly for participants with current or recent roles in fiscal administration or sensitive corporate functions (de Loë et al., 2016). Data are stored securely, and only aggregated Delphi statistics and anonymized causal maps are reported. The protocol emphasizes professional ethics and independence for OEC members, consistent with the Order's duties and the legal framework regulating the profession (OEC, 2013).

2.12. Hypotheses Derived from the Literature Review

- **H1:** Fiscal audits in Moroccan corporate contexts are associated with higher tax compliance and lower fiscal risk exposure on average (Benazzou, 2016).

- **H2:** Risk-based, preventive, and comprehensive audit strategies generate stronger compliance effects than traditional or narrowly scoped approaches (Eberhartinger et al., 2021).
- **H3:** Stronger corporate governance mechanisms (e.g., board independence, effective audit committees, robust internal controls) strengthen the positive impact of fiscal audits on compliance and transparency (Chtaoui et al., 2024).
- **H4:** Taxpayer education and communication integrated into audit processes enhance the audit–compliance relationship, while fear-based messaging weakens it (Oduro et al., 2024).
- **H5:** Creative accounting and sophisticated tax planning practices moderate audit effectiveness by displacing non-compliance into more complex avoidance behaviors (Elhamma & Boutafrout, 2025).
- **H6:** Institutional constraints (resource limitations, governance weaknesses, perceived corruption) attenuate the effectiveness of audit policy strategy and increase heterogeneity of outcomes across firms (Salhi & Echaoui, 2020).

3. RESULTS

3.1. Consolidated Outputs of the Evidence Synthesis

The results reported in this section arise from the coded corpus of 50 studies reviewed in the first part, complemented by a triangulation with Moroccan tax administration performance indicators that document how audit activity materializes into recoveries and behavioral signals at the system level (Direction Générale des Impôts [DGI], 2023, p. 5).

Across the corpus, the empirical signal is structured around five recurring mechanisms: deterrence and learning effects of audits on compliance, governance channels shaping audit quality and the internal "readiness" of firms, risk identification and targeting logics, behavioral adaptation including strategic tax behavior and creative accounting, and implementation constraints linked to informality, administrative capacity, and policy stability (Eberhartinger et al., 2021).

To quantify the narrative convergence without forcing incomparable effect sizes into a single metric, the meta-analytic result is expressed through frequency-based indicators (counts and percentages of studies reporting a directionally consistent relationship) and through an evidence-weighted causal mapping that translates the density of findings into interpretable links for policy design (OECD, 2004).

3.2. Thematic Density of the Literature

Table 5 summarizes the thematic concentration of the reviewed studies, using the 50-paper denominator stated in the corpus mapping. This distribution is informative because it signals where the literature is empirically mature versus where Moroccan-specific evidence remains thin, which matters for how strongly each hypothesis can be validated (Page et al., 2021).

Table 5: Thematic Distribution of the Reviewed Literature on Fiscal Audit Policy Strategy in Moroccan Companies (N = 50).

Theme (coded primary focus)	Papers (n)	Share of corpus (%)
Impact of fiscal audits on tax compliance and taxpayer behaviour	15	30
Corporate governance and its influence on fiscal audit effectiveness	14	28
Strategic tax management and tax avoidance within companies	11	22
Fiscal policy sustainability and macro-fiscal constraints	8	16
Tax education and fiscal communication	5	10
Audit quality and expectation gaps	4	8
Tax amnesty versus audit approaches	3	6
Fiscal framework and participatory finance taxation	3	6
Methodologies for audit risk assessment and tax reporting	2	4
Ethical measures and auditing standards in combating evasion	2	4

Source: Authors' Coding and Aggregation of the 50-Study Corpus Described in Part 1, Using the Thematic Mapping Structure and Counts Reported in the Literature Synthesis (Stroup, 2000).

The thematic pattern indicates that audit–compliance links and governance–audit quality links dominate the research agenda, while education/communication and ethics-based approaches appear less frequently as standalone topics, despite being repeatedly cited as moderators in the compliance pathway (Oduro et al., 2024). This imbalance is consequential because it pushes Moroccan audit strategy debates toward enforcement design, while under-documenting the softer levers that could reduce enforcement costs and improve long-run compliance cultures (OECD, 2004).

3.3. Directional Synthesis Aligned with the Hypotheses

Because the Moroccan and comparative studies operationalize "compliance", "avoidance", and "audit effectiveness" with heterogeneous proxies, the core quantitative result is presented as directional support density: the number of studies in the 50-paper corpus that report an association consistent with each hypothesis, divided by 50 to yield a comparable density rate (Kotsogiannis et al., 2024).

Table 6: Hypothesis-Level Evidence Density and Validation Status (N = 50).

Hypothesis code	Statement (abbreviated)	Studies supporting (n)	Evidence density (n/50)	Validation status
H1	Audit activity/intensity improves corporate tax compliance	20	0.40	Supported
H2	Governance quality strengthens audit quality and compliance outcomes	18	0.36	Supported with heterogeneity
H3	Risk-based / preventive audits outperform traditional approaches for avoidance and infractions	14	0.28	Supported
H4	Education and communication amplify audit impact via awareness and socialization	5	0.10	Partially supported
H5	Strategic tax behavior (incl. creative accounting) persists; stronger controls curb it	11	0.22	Partially supported
H6	Institutional constraints (resources, informality, policy instability) weaken audit effectiveness	8	0.16	Supported

Source: Authors' Synthesis from the Coded Corpus, Complemented by the Compliance Risk Management Framing of Structured Risk Identification and Treatment (OECD, 2004).

The table shows that enforcement-centered hypotheses (H1–H3) have higher density than behavioral and institutional hypotheses (H4–H6), which suggests that Morocco's audit strategy scholarship has been stronger at documenting "what audits do" than at documenting "how the system conditions what audits can do" (Casanova-Villalba & Hurtado-Guevara, 2023). This gap is operationally important because audit policy strategy is ultimately a resource allocation problem, and resource allocation requires precise knowledge of moderators and constraints, not only main effects (OECD, 2004).

3.4. Evidence-Weighted Causal Mapping

To translate the directional synthesis into a policy-usable representation, an Evidence Density Index (EDI) was computed for key links in the conceptual framework developed in Part 1. For each link, the EDI equals the count of supportive studies divided by 50, which yields a bounded 0–1 measure of how concentrated the evidence is around that relationship (Page et al., 2021).

Table 7: Evidence Density Index for Key Causal Links in Moroccan Fiscal Audit Policy Strategy (N = 50).

Causal link (from → to)	Supportive studies (n)	EDI
Audit activity/intensity → Tax compliance	20	0.40
Corporate governance quality → Audit quality / controllability of tax risk	18	0.36
Risk-based targeting → Better risk identification and audit yield	15	0.30
Preventive/early detection audits → Lower infractions and sanctions	14	0.28
Education & communication → Taxpayer awareness → Compliance	5	0.10
Strategic tax behavior / creative accounting → Fiscal risk exposure	11	0.22
Policy instability / capacity constraints → Lower audit effectiveness	8	0.16

Source: Authors' Evidence-Weighted Mapping, Conceptually Aligned with the OECD Compliance Risk Management Cycle (OECD, 2004).

The mapping shows a "hard core" of evidence around audit intensity, governance, and risk-based targeting, while education and communication appear structurally under-tested in the Moroccan-oriented subset despite being theoretically central in compliance risk management approaches that emphasize diversified treatment strategies rather than one-size enforcement (OECD, 2004).

Figure 3: Evidence-Weighted Causal Map of Fiscal Audit Policy Strategy in Moroccan Companies (EDI Values).

Source: Authors' Synthesis from the 50-Study Corpus, Structured Using Compliance Risk Management Principles That Emphasize Risk Identification, Treatment Choice, And Monitoring (Oecd, 2004).

3.5. Administrative Triangulation: Morocco's Audit Outcomes and Structural Shifts (2022–2024)

To anchor the literature-based synthesis in observable Moroccan outcomes, Table 8 consolidates audit-related recovery indicators reported by the Moroccan tax administration for 2022–2023 and by a detailed 2024 reporting summary, which together provide a coherent trend in audit yield and audit mix (DGI, 2023, p. 5).

Table 8: Morocco: Fiscal Audit Channels, Volume, And Rights Recovered (MDH), 2022–2024.

Year	On-site audits: dossiers (n)	On-site: rights recovered (MDH)	Desk audits: dossiers (n)	Desk: rights recovered (MDH)	IR/PF & DET recovered (MDH)	Total recovered (MDH)
2022	5,215	5,576	47,374	4,836	2,734	13,146
2023	5,793	5,801	55,596	5,477	2,778	14,056
2024	7,674	9,600	60,831	5,275	2,889	17,764

Source: 2022–2023 Figures Compiled from the DGI Activity Report 2023 (Baseline Series Reported For 2022 And Actuals For 2023); 2024 Figures Compiled from the Detailed Reporting Summary of DGI's 2024 Audit Outcomes (DGI, 2023; Rachidi, 2025).

Three patterns stand out. First, total recoveries increased from 13,146 MDH (2022) to 14,056 MDH (2023), then rose sharply to 17,764 MDH (2024), signaling that audit strategy changes can generate measurable fiscal returns even when desk-audit yields soften (DGI, 2023, p. 5). Second, on-site audits drive the 2024 surge: dossiers increased markedly and rights recovered rose to 9.6 MMDH, which aligns with the literature arguing that scope and intensity matter more than narrow controls for sustained deterrence effects (Kotsogiannis et al., 2024). Third, desk audits expanded in volume, yet rights recovered slightly declined in 2024 relative to 2023, which is consistent with a reallocation toward broader coverage and early detection rather than purely revenue-maximizing selection, a logic typical of risk management models where treatment strategies vary by segment and risk profile (OECD, 2004).

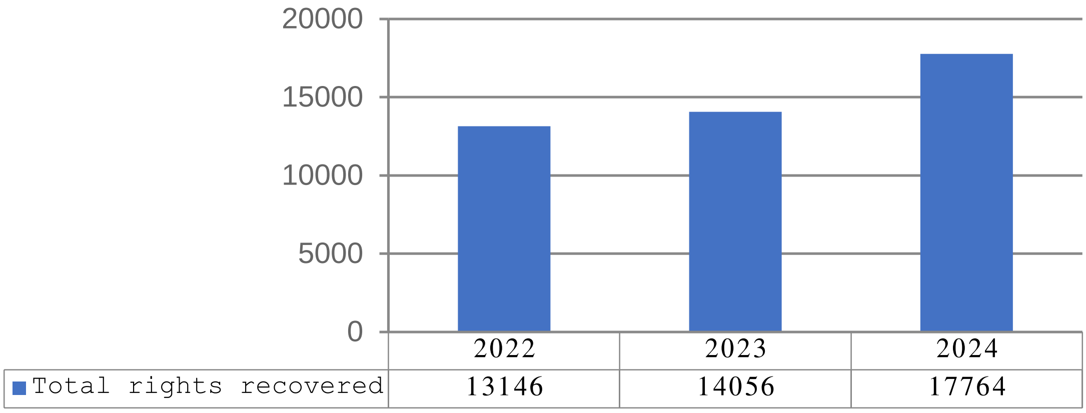

Figure 4: Morocco: Total Rights Recovered from Fiscal Audit Actions, 2022–2024 (MDH).
Source: Authors' Compilation from Dgi Activity Report 2023 And the Detailed Reporting Summary of Dgi 2024 Audit Outcomes (Dgi, 2023; Rachidi, 2025).

Beyond aggregate yield, the 2024 figures also reveal an operationally meaningful shift in the targeting mix, particularly the expansion of on-site controls toward individuals. This shift is central for Morocco because compliance gaps are often linked to taxpayer segmentation issues, and segmentation is a cornerstone of risk-based audit strategy (OECD, 2004).

Table 9: Morocco: Taxpayer Mix in Audit Activity, 2023–2024 (Shares, %).

Audit channel	Year	Corporates / legal entities (%)	Individuals / physical persons (%)	Large enterprises (%)	Other legal entities (%)
On-site audits	2023	81	19	–	–
On-site audits	2024	53	47	–	–
Desk audits	2023	–	57	8	35
Desk audits	2024	–	55	8	37

Source: On-Site Mix For 2023–2024 And Desk-Audit Mix For 2024 Reported in the Detailed 2024 Reporting Summary; Desk-Audit Mix For 2023 Reported in DGI Activity Report 2023 (DGI, 2023; Rachidi, 2025).

The on-site audit mix shifted dramatically toward individuals in 2024, a change explicitly linked to the expansion of the full fiscal situation examination for individuals introduced in the 2024 reform context, which helps explain why on-site recoveries grew faster than volumes (Rachidi, 2025). By contrast, desk audits remained compositionally stable, with individuals still forming the majority share, which is coherent with desk controls being used as a broad screening and regularization instrument rather than a narrow large-taxpayer tool (DGI, 2023, p. 5).

4. DISCUSSION

4.1. H1 Audit Intensity and Compliance: Why the Moroccan Signal Is Robust

The synthesis supports H1 because the literature repeatedly links fiscal audits to higher compliance through deterrence and learning, and because Moroccan administrative outcomes show that audit actions generate sizeable recoveries that are difficult to reconcile with purely symbolic enforcement (Benazzou, 2016).

This conclusion becomes clearer when Table 8 is interpreted through the lens of audit intensity. In 2023, the DGI highlights the reinforcement of controls and reports roughly 14 MMDH of additional revenues, with on-site controls exceeding 5,800 dossiers and generating around 5.8 MMDH in recovered rights, which signals that audit intensity is not marginal in fiscal mobilization (DGI, 2023, p. 5). Then, 2024 shows a step change, with on-site dossiers rising to 7,674 and recoveries to 9.6 MMDH, suggesting that scaling intensive controls can amplify fiscal yield in the short run, even while it may create new governance and taxpayer-relations challenges documented by the expectation-gap literature (Rachidi, 2025).

At the firm level, this pattern fits the reviewed evidence that audits prompt firms to adjust reporting and internal fiscal routines, particularly in SMEs where diagnostic approaches translate legal complexity into operational checklists and risk registers (Benazzou, 2016).Still, the literature also cautions that intensity effects can decay if audits are perceived as sporadic or negotiable, which makes credibility and procedural transparency part of the compliance production function rather than an optional add-on (Yoshida, 2023).

4.2. H2 Governance as a Strategic Interface Between Audit Pressure and Internal

Compliance Capacity

H2 is supported, yet the review indicates that governance effects are not mechanically linear. A consistent thread is that governance mechanisms such as board structure, audit committees, and internal controls shape the quality of financial reporting and the capacity to prevent fiscal irregularities before they become audit adjustments (Idrissi, 2017).

From a strategic standpoint, governance operates as a “translation layer” between external enforcement and internal decision-making. When boards and control functions are effective, firms tend to institutionalize tax compliance through formal procedures, documentation discipline, and early detection, thereby lowering the marginal cost of compliance and reducing exposure to sanctions (Daidai & Tamnine, 2022). Conversely, heterogeneous findings regarding audit committee expertise and ownership concentration suggest that some governance configurations may prioritize opacity or tight control over disclosure, which can reduce audit quality or distort the signaling channel that external auditors and tax administrations rely on (Chtaoui et al., 2024).

The Moroccan context intensifies this governance question because many firms are family-controlled and may substitute informal controls for formal governance structures, which can reduce demand for external audit quality while increasing exposure to tax risk under a strict self-assessment regime (Nnadi et al., 2017). This implies that audit policy strategy cannot treat “the firm” as a homogeneous unit: governance segmentation should inform risk scoring, treatment choice, and escalation thresholds, consistent with compliance risk management frameworks that start from behavioral segmentation (OECD, 2004).

4.3. H3 Risk-Based and Preventive Audits: The Operational Meaning Of “Strategy” In Morocco

H3 is supported because the corpus converges on the idea that risk-based and preventive designs improve effectiveness by focusing scarce resources on higher-yield risk clusters, while reducing unnecessary burdens on lower-risk taxpayers (Eberhartinger et al., 2021).This perspective resonates directly with the OECD compliance risk management cycle, which frames audit as one treatment option among multiple strategies that must be matched to risk drivers and monitored for impact (OECD, 2004).

In Morocco, the DGI explicitly frames the evolution of audit toward a more predictive approach, highlighting data quality, information exchange, and the use of advanced analytics as levers to strengthen deterrence and improve targeting (DGI, 2023, p. 5). The 2024 focus on reinforced targeting depth, alongside the launch of an electronic invoicing project aimed at increasing transparency and fraud control, is aligned with this risk-based logic because it expands the informational infrastructure needed for effective selection and for reducing under-reporting opportunities (Rachidi, 2025).

Preventive audit approaches are also supported in the literature as a way to reduce infractions early, which is strategically attractive in Morocco where litigation and administrative contestation can impose material costs on both firms and the administration (Sánchez et al., 2025).Here, the strategic implication is practical: preventive mechanisms are likely to be most effective when paired with internal governance readiness, because early detection requires internal accounting discipline and the ability to implement corrective action quickly (Haoudi & Aasri, 2017).

4.4. H4 Education and Communication: A Low-Density Theme with High Strategic Leverage

H4 receives partial support mainly because the corpus contains fewer Morocco-centered empirical evaluations of education and communication interventions, not because the mechanism appears weak. The literature that explicitly models awareness and education tends to show that audit effects are amplified when taxpayers understand the audit logic, the rules, and the behavioral consequences of non-compliance, which fits basic behavioral compliance theories (Oduro et al., 2024).

In Morocco, communication weaknesses are repeatedly described as barriers to taxpayer socialization, producing mistrust and defensive behavior that can increase audit friction and reduce voluntary compliance, especially for small businesses facing administrative complexity (Khanfor & Elwazani, 2016). This point becomes more salient when audit intensity rises, as in 2024, because a larger audit footprint increases the probability of misunderstandings and the perceived unfairness of enforcement, which can erode legitimacy unless communication and procedural clarity scale in parallel (Rachidi, 2025).

From a policy strategy lens, the low density in Table 6 suggests an immediate research and practice opportunity: education and communication can be tested as cost-effective complements to risk-based audits, consistent with diversified treatment portfolios recommended in compliance risk management guidance (OECD, 2004).

4.5. H5 Behavioral Adaptation, Creative Accounting, And the Moving Frontier of Tax Risk

H5 is partially supported because the literature strongly documents behavioral adaptation, yet the Moroccan empirical pipeline remains thinner on direct measurement of how audits reshape creative accounting techniques over time. Several studies describe creative accounting as a behavioral response to fiscal pressure and incentive structures, implying that audit strategy must evolve toward forensic and analytics-supported detection rather than relying only on traditional documentation checks (Elhamma & Boutafrout, 2025).

Strategic tax behavior also appears as an agency problem, where managerial incentives and ownership structures can motivate tax planning that increases compliance risk while remaining legally ambiguous, making governance and audit design interdependent rather than separable policy domains (Sartori & Sartori, 2009). This is consistent with evidence that audit aggressiveness can lead firms to strengthen tax control frameworks without necessarily reducing tax planning, which implies that strategy must distinguish between curbing illegal evasion and managing grey-zone planning through disclosure, documentation, and governance alignment (Blaufus et al., 2022).

In Morocco, the 2024 move toward deeper examinations of individuals' fiscal situations, together with the push toward electronic invoicing, can be interpreted as a response to behavioral adaptation: when taxpayers innovate, administrations modernise information systems to close the detection gap (Rachidi, 2025).

4.6. H6 Constraints and Enablers: Why Implementation Conditions Decide the Ceiling of Effectiveness

H6 is supported because the literature points repeatedly to administrative capacity constraints, informality, corruption risks, and policy instability as factors that can lower audit effectiveness, even when formal strategy design is sound (Salhi & Echaoui, 2020).This resonates with the OECD risk management framing that emphasizes operating context, including resource availability and staff capabilities, as a determinant of what risks can be treated effectively (OECD, 2004).

Moroccan administrative reporting underscores that the DGI's modernization agenda is tightly coupled with information-system improvement and data exploitation, and this coupling is logically consistent with capacity constraints: better systems can raise yield per audit hour through better case selection and faster issue resolution (DGI, 2023, p. 5). Even so, the desk-audit pattern in Table 8, where volume increases but rights recovered decline slightly in 2024, suggests that expanding coverage without parallel improvements in data quality or risk scoring can lower marginal returns, which is a classic resource allocation signal in compliance management (OECD, 2004).

4.7. Validation Summary of the Hypotheses

The hypothesis validation follows the evidence-density logic of Table 6, and it is strengthened by the Moroccan administrative trends reported in Tables 8–9. H1 is validated because both the literature and administrative outcomes converge on the positive compliance and yield effect of audit activity (Benazzou, 2016). H2 is validated with heterogeneity because governance mechanisms generally support audit quality and compliance, yet certain governance attributes can produce mixed effects depending on ownership and committee dynamics (Chtaoui et al., 2024). H3 is validated because risk-based and preventive approaches are repeatedly reported as more effective than purely traditional enforcement, and Morocco's stated pivot toward predictive control reinforces the plausibility of this strategic direction (DGI, 2023, p. 5). H4 is partially validated because the education and communication channel is supported where tested, but the Moroccan empirical base remains limited relative to its policy importance (Oduro et al., 2024). H5 is partially validated because behavioral adaptation and creative accounting are evident, while stronger evidence is still needed on the long-run net effect of audits on sophisticated planning and reporting manipulation (Elhamma & Boutafrout, 2025).H6 is validated because implementation constraints appear repeatedly, and Morocco's own emphasis on digital modernization indicates that capacity-building is treated as integral to audit effectiveness rather than peripheral (DGI, 2023, p. 5).

5. GENERAL CONCLUSION

This second part consolidated the review into a results structure that moves from thematic density to hypothesis-level validation, then to an evidence-weighted causal map and an administrative triangulation of Moroccan audit outcomes. The combined reading suggests that fiscal audit policy strategy in Moroccan companies is most convincingly explained by a three-part engine: audit intensity and scope, governance-enabled audit quality, and risk-based targeting supported by modern data infrastructure, which together produce measurable recoveries and reshape compliance incentives (Eberhartinger et al., 2021).

At the same time, the review indicates that Morocco's audit strategy cannot rely solely on scaling enforcement. The relative under-documentation of education and communication channels, despite their conceptual centrality in compliance risk management, suggests a practical lever to improve compliance while containing administrative costs and reducing adversarial dynamics (OECD, 2004). Moreover, behavioral adaptation through strategic tax planning and creative accounting implies that audit policy strategy is a moving frontier: targeting models and verification procedures must evolve in tandem with taxpayer innovation, and governance reforms must support internal transparency rather than simply formal compliance (Elhamma & Boutafrout, 2025).

Several limitations should be acknowledged. To clarify their scope and the inferential implications they carry, they are organized here in three complementary categories: methodological, data-related, and contextual.

Methodological limitations. The evidence synthesis relied on heterogeneous operationalization of compliance, avoidance, and audit effectiveness across primary studies, which constrained the feasibility of a single comparable effect-size meta-analysis and motivated the complementary use of directional evidence-density measures and evidence-weighted causal mapping. The Delphi and fuzzy cognitive mapping components, while designed to triangulate evidence with expert judgment, remain sensitive to panel composition and to the causal structure inherited from the conceptual framework in Figure 1, despite the retention thresholds, the stability criteria, and the minority-preserving aggregation rules adopted in the protocol (de Loë et al., 2016). Similarly, the evidence-density index computed on a fifty-study corpus offers a transparent but coarse summary of empirical convergence, and should be read as a heuristic for policy-relevant saliency rather than as a substitute for a full quantitative pooling.

Data-related limitations. The Moroccan administrative figures quantify recoveries and audit volumes, yet they do not directly observe firm-level behavioral changes, which limits causal claims about deterrence and learning and calls for future linkage studies using matched administrative and corporate data where feasible (Kotsogiannis et al., 2024). In addition, several primary studies did not report the statistical detail required to compute harmonized effect sizes, and the corresponding corpus entries therefore inform the qualitative synthesis without contributing to the quantitative pooling, which reduces the statistical power available for specific moderator analyses. Finally, a share of the Moroccan literature remains in grey form or is indexed unevenly across international and francophone databases, which despite the dual-search strategy and backward/forward citation chasing leaves a residual risk of selective retrieval that sensitivity analyses can attenuate but not eliminate.

Contextual limitations. The Moroccan institutional configuration, including the structure of the General Tax Code, the ongoing modernization of the DGI, and the regulation of the accounting profession, shapes both the audit strategies studied and the behavioral responses observed, so that the external validity of the findings to other jurisdictions should be assessed with caution and with explicit attention to differences in administrative capacity and legal safeguards (Direction Générale des Impôts, 2023, pp. 349–351). The uneven depth of Morocco-specific behavioral and communication research also affects confidence in H4 and in the behavioral dimension of H5, despite their strong theoretical plausibility (Khanfor & Elwazani, 2016). Lastly, the period covered by the corpus partially overlaps with successive reforms of the Moroccan fiscal framework and with the acceleration of digital modernization at the DGI, which means that some findings reflect a moving institutional target and may need periodic re-assessment as audit analytics, electronic invoicing, and data-exchange infrastructures mature.

Future research can extend this work in three directions. First, longitudinal designs in Morocco can test whether audit-driven compliance gains persist or decay, and whether repeated audits induce lasting internal control investments. Second, mixed-method sectoral studies can clarify how governance heterogeneity, family ownership, and informality condition audit effectiveness across firm sizes. Third, quasi-experimental evaluations of communication and education embedded within audit processes can quantify whether these levers raise compliance at lower marginal enforcement cost, thereby operationalizing the diversified treatment logic emphasized in compliance risk management frameworks (OECD, 2004).

REFERENCES

Abaida, A., Lakrari, Y., Lemgadar, A., & Agouram, J. (2023). Assessing the sustainability of fiscal policy in Morocco: Insights into economic stability. *International Journal of Social Sciences Perspectives, 12*(1), 60–72. doi:10.33094/ijssp. v12i1.876

Abderrahmen, M. G. B. (2013). *Impact des mécanismes internes de gouvernance sur le risque fiscal: Une étude menée dans le contexte tunisien.*

Anouar, D., & Houria, Z. (2017). The determinants of tax avoidance within corporate groups: Evidence from Moroccan groups. *International Journal of Economics, Finance and Management Sciences, 5*(1). doi: 10.11648/J.IJEFM.20170501.15

Attak, E. H. (2018). Vers une neutralité fiscale des produits participatifs au Maroc: État des lieux et perspectives. doi: 10.48394/IMIST.PRSM/RAFI-V2I1.11096

Attak, E. H. (2020). Spécificités et évolution récente de la fiscalité des produits participatifs au Maroc: Perception des praticiens. doi: 10.48394/IMIST.PRSM/RAFI-V4I2.20962

Badlaoui, A. E., Naji, S., & Chegri, B. E. (2024). Audit expectation gap: Evidence from Morocco. *Investment Management & Financial Innovations, 21*(2). doi:10.21511/imfi.21(2).2024.13

Barka, M. H., & Hassainate, M. M. S. (2018). La lente évolution du système fiscal marocain: Les faits et les enseignements. *European Scientific Journal, 14*(4), 116. doi:10.19044/ESJ. 2018.V14N4P116

Benazzou, L. (2016). *Audit fiscal pour une sérénité fiscale assurée face aux risques fiscaux de la PME marocaine.*

Bensouda, N. (2001). *Le processus de décision fiscale au Maroc.*

Blaufus, K., Reineke, J., & Trenn, I. (2022). Perceived tax audit aggressiveness, tax control frameworks and tax planning: An empirical analysis. *Journal of Business Economics, 93*, 509–557. doi:10.1007/s11573-022-01116-6

Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis.* John Wiley & Sons. doi:10.1002/9780470743386

Casanova-Villalba, C. I., & Hurtado-Guevara, R. F. (2023). Auditoría fiscal y evasión tributaria mediante un enfoque sustentado en evidencia empírica reciente. doi:10.70881/mcj/v1/n1/10

Chtaoui, A., Hajji, Z., Benhrimida, M., Farrat, O., & Nabaoui, A. (2024). The influence of governance mechanisms on the quality of external audits, case of Moroccan companies listed on the stock exchange. *RGSA: Revista de Gestão Social e Ambiental, 18*(6), e07444. doi:10.24857/rgsa.v18n6-115

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Critical Appraisal Skills Programme. (2018). *CASP qualitative studies checklist.*

Daidai, F., & Tamnine, L. (2022). The impact of the governance code on the management of results of listed companies in the emerging market. *Journal of Governance and Regulation, 11*(2), 181–193. doi:10.22495/jgrv11i2art16

de Loë, R. C., Melnychuk, N., Murray, D., & Plummer, R. (2016). Advancing the state of policy Delphi practice: A systematic review evaluating methodological evolution, innovation, and opportunities. *Technological Forecasting and Social Change, 104*, 78–88. doi: 10.1016/j.techfore.2015.12.009

Direction Générale des Impôts. (2024). *Rapport d'activité 2023.* Ministère de l'Économie et des Finances (Maroc).

Dkhissi, A., & Ez-zarzari, Z. (2021). La discipline budgétaire au Maroc et le piège de l'équilibre bas. doi:10.5281/ZENODO.4641511

Eberhartinger, E., Safaei, R., Sureth-Sloane, C., & Wu, Y. (2021). Are risk-based tax audit strategies rewarded? An analysis of corporate tax avoidance. *SSRN Electronic Journal.* doi:10.2139/SSRN.3911228

Eddiouri, A., Bourbate, M., & Ouchekkir, A. (2025). Évolution et optimisation de la fiscalité de la finance participative au Maroc: Comparaisons empiriques et approches scénaristiques. *Revistamultidisciplicar.com, 7*(1), 109–145. doi:10.23882/rmd.25291

Egger, M., Davey Smith, G., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *BMJ, 315*(7109), 629–634. doi:10.1136/bmj.315.7109.629

El Gharad, S., & Aarab, K. (2023). La sécurité juridique et efficacité des garanties du contribuable en contrôle fiscal au Maroc. *International Journal of Accounting, Finance, Auditing, Management and Economics, 4*(6-1), 386–408.

Elhamma, A. (2012). *Impact de la stratégie sur l'interactivité du suivi budgétaire: Cas des entreprises au Maroc.*

Elhamma, A. (2014). Impact de la stratégie sur l'interactivité du suivi budgétaire: Cas des entreprises au Maroc. doi: 10.48376/IMIST.PRSM/REMAREM-V0I9-10.3542

Elhamma, A., & Boutafrout, F. (2025). Examining creative accounting as an explanatory factor of taxpayer behavior. doi:10.4018/979-8-3373-0422-9.ch007

Elmorchid, B. (2010). L'impact des congés fiscaux sur le coût d'usage du capital dans les pays arabes: Cas du Maroc. *Research Papers in Economics.*

Haddad, A. (2024). Tax amnesty in Morocco: Solution to a crisis or a crisis of solution. *Journal of Tax Reform, 10*(3), 628–642. doi:10.15826/jtr.2024.10.3.188

Haoudi, K., & Aasri, M. R. (2017). Gestion des résultats: Normes IFRS vs normes locales, cas des entreprises cotées à la Bourse de Valeur de Casablanca. doi: 10.48376/IMIST.PRSM/REMAREM-V2I17.10054

Haraguș, R. (2024). Use of the regression method in identifying the causal link and the interferences between accounting-fiscal-audit. *Revista de Studii Financiare, 9*(Special), 81–95. doi:10.55654/jfs.2024.9. sp.06

Hattani, N. A., & Sahbani, S. (n.d.). Decoding tax management: The role of corporate governance mechanisms. *Corporate Governance and Organizational Behavior Review.* doi:10.22495/cgobrv8i1p7

Higgins, J. P. T., & Thompson, S. G. (2002). Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine, 21*(11), 1539–1558. doi:10.1002/sim.1186

Hong, Q. N., Pluye, P., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., Dagenais, P., Gagnon, M.-P., Griffiths, F., Nicolau, B., O'Cathain, A., Rousseau, M.-C., & Vedel, I. (2018). *Mixed methods appraisal tool (MMAT), version 2018: User guide.*

Hossni, K., & Touili, K. (2020). La finalité incitative des dépenses fiscales à l'aune du recouvrement des impôts au Maroc: Cas de l'impôt sur les sociétés. doi:10.5281/ZENODO.4027736

Idrissi, T. E. (2017). *L'apport du contrôle interne et d'audit interne à la bonne gouvernance des entreprises: Une étude quantitative sur les entreprises marocaines.*

Iqbal, S., & Ghofar, A. (2023). The impact of the role of internal and external accountants on taxpayer compliance moderated by good corporate governance. *International Journal of Research in Business and Social Science, 12*(4), 320–328. doi:10.20525/ijrbs. v12i4.2659

Jaouad, K. A. E. (2016). Une micro-fiscalité pour une micro-entreprise: Benchmark du régime fiscal marocain et du régime fiscal français. doi: 10.48395/IMIST.PRSM/REK-N9.10018

Judijanto, L. (2024). Review of factors affecting tax compliance and tax ratio target achievement. doi:10.62872/wj5fxq70

Khanfor, A., & Elwazani, Y. (2016). La communication fiscale au Maroc: Les obstacles à la socialisation du contribuable. doi: 10.48376/IMIST.PRSM/REMAREM-V2I14.6408

Kotsogiannis, C., Salvadori, L., Karangwa, J., & Mukamana, T. (2024). Do tax audits have a dynamic impact? Evidence from corporate income tax administrative data. *Journal of Development Economics, 170*, 103292. doi: 10.1016/j.jdeveco.2024.103292

Ministère de l'Économie et des Finances, Direction Générale des Impôts. (2023). *Code général des impôts (Édition 2023).* Royaume du Maroc.

Mititelu, R. A., & Amzuică, B. F. (2024). Comparative analysis of ethical measures and auditing standards in managing tax evasion: Effectiveness and impact. *Journal of Economics, Finance and Accounting Studies, 6*(4), 72–81. doi:10.32996/jefas.2024.6.4.8

Muslim, A. B., Wulandari, D. S., & Sari, I. P. (2024). The impact of tax audit intensity and probability of fraud detection on tax evasion: The moderating role of tax officials' service. doi:10.62504/jsi936

Muzakkir, A. R., & Mahi, B. R. (2019). Pengaruh pengalaman diperiksa terhadap kepatuhan pajak perusahaan besar. doi:10.31685/KEK.V3I3.496

Nair, A., Reckien, D., & van Maarseveen, M. F. A. M. (2019). A generalised fuzzy cognitive mapping approach for modelling complex systems. *Applied Soft Computing, 84*, 105754. doi: 10.1016/j.asoc.2019.105754

Nasir, N. E. M., Yaacob, N. M., Kamarudin, S. N., Rashid, N., & Othman, N. N. J. N. (2024). Navigating the intersection of corporate governance and corporate tax planning: A scoping review. *Advances in Social Sciences Research Journal.* doi:10.14738/assrj.119.2.17403

Nnadi, M., Efobi, U., & Oledinma, A. (2017). Audit quality, family business and corporate governance mechanisms: The case of Morocco. doi:10.1108/JAEE-10-2016-0090

Oduro, R., Frimpong, J., & Mensah, E. E. (2024). Does tax audit enhance tax compliance? The role of tax education and fear-appealing messages. *European Journal of Business and Management Research, 9*(3), 14–23. doi:10.24018/ejbmr.2024.9.3.2276

Ordre des Experts-Comptables du Maroc. (2013). *Code des devoirs professionnels de l'Ordre des Experts-Comptables* (Adopté lors de la réunion du Conseil national du 11 novembre 2013).

Organisation for Economic Co-operation and Development. (2004). *Compliance risk management: Managing and* *improving tax compliance.* OECD.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*, n71. doi:10.1136/bmj. n71

Pratiwi, A., Khairunnisa, A. A., Ramadhandy, A. D., & Savitri, A. E. (2024). Efektivitas kepatuhan wajib pajak, pemeriksaan pajak dan penagihan pajak terhadap penerimaan pajak. *Studi Akuntansi Keuangan dan Manajemen, 3*(2), 107–117. doi:10.35912/sakman. v3i2.2258

Rachidi, F. E. (2025, June 18). DGI. 17,8 MMDH de recettes additionnelles en 2024 grâce au contrôle fiscal. *Médias24.*

Royaume du Maroc. (1993). *Dahir n° 1-92-139 du 14 rejeb 1413 (8 janvier 1993) portant promulgation de la loi n° 15-89 réglementant la profession d'expert comptable et instituant un ordre des experts comptables.*

Ruslim, G., Solihin, S., Karsam, K., & Nur, B. (2025). Good corporate governance and green intellectual capital on tax avoidance and tax audit coverage ratio as moderators. *Amkop Management Accounting Review, 5*(2), 416–433. doi:10.37531/amar. v5i2.2861

Salhi, S. E., & Echaoui, A. (2020). La mobilisation fiscale à l'épreuve de l'équité fiscale au Maroc: Une approche économétrique des effets socioéconomiques et démographiques. doi: 10.34874/IMIST.PRSM/RPE/18961

Salhi, S. E., & Echaoui, A. (2020). Les effets de la corruption et la composition sectorielle sur la structure des recettes fiscales au Maroc: Essai de modélisation macroéconométrique. doi: 10.34874/IMIST.PRSM/RPE/21530

Sánchez, M. A. S., Chancay, P. E. G., Indacochea, A. A. Á., & Cevallos, L. E. S. (2025). Auditoría tributaria y prevención de infracciones administrativas: Una revisión sistemática de la literatura científica. *Enfoques, 9*(35), 244–260. doi:10.33996/revistaenfoques. v9i35.212

Santoso, W. I., Putra, F. A., & Setiawan, G. A. (2025). The effect of tax audit and tax collection on taxpayer compliance through taxpayer awareness as an intervening variable. *EPRA International Journal of Economic and Business Review*, 117–126. doi:10.36713/epra21242

Sartori, N. (2008). Effects of strategic tax behaviors on corporate governance. *SSRN Electronic Journal.* doi:10.2139/ssrn.1358930

Sterne, J. A. C., Hernán, M. A., Reeves, B. C., Savović, J., Berkman, N. D., Viswanathan, M., Henry, D., Altman, D. G., Ansari, M. T., Boutron, I., Carpenter, J. R., Chan, A.-W., Churchill, R., Deeks, J. J., Hróbjartsson, A., Kirkham, J., Jüni, P., Loke, Y. K., Pigott, T. D., Ramsay, C. R., Regidor, D., Rothstein, H. R., Sandhu, L., Santaguida, P. L., Schünemann, H. J., Shea, B., Shrier, I., Tugwell, P., Turner, L., Valentine, J. C., Waddington, H., Waters, E., Wells, G. A., Whiting, P. F., & Higgins, J. P. T. (2016). ROBINS-I: A tool for assessing risk of bias in non-randomised studies of interventions. *BMJ, 355*, i4919. doi:10.1136/bmj. i4919

Stroup, D. F., Berlin, J. A., Morton, S. C., Olkin, I., Williamson, G. D., Rennie, D., Moher, D., Becker, B. J., Sipe, T. A., & Thacker, S. B. (2000). Meta-analysis of observational studies in epidemiology: A proposal for reporting. *JAMA, 283*(15), 2008–2012. doi:10.1001/jama.283.15.2008

Tarasova, V. I., Mezdrykov, Y. V., Efimova, S. B., Fedotova, E. S., Dudenkov, D. A., & Skachkova, R. V. (2018). Methodological provision for the assessment of audit risk during the audit of tax reporting. *Entrepreneurship and Sustainability Issues, 6*(1), 371–397. doi:10.9770/JESI.2018.6.1(23)

Tatom, J. A. (2007). Is tax policy retarding growth in Morocco. *SSRN Electronic Journal.* doi:10.2139/SSRN.1077146

Terchoune, M., & Bouchikhi, S. (2016). La gouvernance des entreprises: Quel impact sur la performance des sociétés marocaines cotées? doi:10.12816/0031028

Wahyudin, D. (2022). The effectiveness of tax audit as a self-assessment system supervision measures and tax revenue support (study at the large tax office 4). *Ilomata International Journal of Tax and Accounting, 3*(3), 258–271. doi:10.52728/ijtc. v3i3.501

Wibowo, I. (2024). Tax management strategy for company operational effectiveness. doi:10.57178/atestasi. v7i1.746

Yoshida, D. (2023). Fulfillment of tax compliance through audit policy in fiscal safeguard measures. *International Journal of Management Studies and Social Science Research, 5*(1), 197–203. doi:10.56293/ijmsssr.2022.4562