

## STRATEGIC TAX PLANNING THROUGH INTELLECTUAL RESOURCES: BOARD EXPERTISE AND INTERNATIONAL DIVERSIFICATION'S MODERATING ROLE

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### ABSTRACT

This study investigates how board tax expertise and international diversification moderate the relationship between intellectual resources and corporate tax planning effectiveness in Indonesian listed companies, addressing contradictory evidence in prior research. The analysis is based on 524 Indonesian listed firms over the period 2018–2023, employing a dual-method approach. Partial Least Squares Structural Equation Modelling (PLS-SEM) is applied to capture complex construct relationships, while panel regression techniques in STATA 17 are used to ensure econometric robustness. Board expertise data were manually collected from multiple sources, including annual reports, professional association records, and regulatory databases. Board tax expertise is identified as the strongest determinant of tax planning effectiveness, with directors' tax-specific backgrounds substantially improving planning outcomes. Intellectual capital enhances tax planning efficiency, whereas debt covenant constraints unexpectedly reduce it. International diversification significantly moderates these relationships by amplifying the benefits of intellectual capital and mitigating the adverse effects of covenant constraints. The multidimensional measure of board tax expertise explains 31.2% more variance compared to traditional binary proxies. The study is limited to listed companies and may not generalize to private firms. The findings underscore the importance of recruiting directors with specialized tax expertise—particularly those with regulatory backgrounds—to strengthen firms' tax planning capabilities. This research introduces and validates a multidimensional framework for assessing board tax expertise that incorporates professional qualifications, experience depth, regulatory background, and current engagement. It demonstrates how scarce tax expertise creates sustainable competitive advantages and reveals how international diversification reshapes domestic tax strategies in emerging markets.

**Keywords:** Tax planning, Board tax expertise, Intellectual capital, international diversification

### INTRODUCTION

Corporate tax planning—the legal structuring of business activities to minimize tax liabilities—constitutes a fundamental strategic decision that directly affects firm value and competitive positioning. In Indonesia, corporate tax revenues account for only 3.5% of GDP, significantly below the OECD average of 9.6% (World Bank, 2024). This phenomenon gap is particularly notable given the statutory corporate tax rate of 22%, which creates strong incentives for strategic tax management. Nevertheless, many Indonesian firms report effective tax rates that approach or even exceed the statutory rate, suggesting suboptimal tax planning practices.

The academic literature highlights a persistent research gap characterized by contradictory findings on the determinants of tax planning. While certain studies suggest that intellectual capital enhances tax planning effectiveness (Joshi et al., 2013), others report insignificant effects (Widodo et al., 2022) or even negative associations in specific contexts (Pratama, 2023). Similarly, the role of financial constraints demonstrates inconsistency, with debt

covenants associated with increased tax aggressiveness in developed economies (Dhaliwal et al., 2008) but yielding mixed outcomes in emerging markets (Sari & Martani, 2021). These inconsistencies imply the existence of unexamined boundary conditions that determine when and how firm resources translate into effective tax planning.

Two previously overlooked factors are proposed as critical boundary conditions in emerging markets. First, board-level tax expertise represents a scarce strategic resource that enhances the firm's ability to leverage other capabilities for tax planning. Second, international diversification alters both the opportunities and complexities of tax strategies, fundamentally shaping the extent to which firm resources affect tax planning outcomes.

The theoretical foundation for focusing on board tax expertise derives from the Resource-Based View (RBV), which posits that sustainable competitive advantages emerge from resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991). Within Indonesia, board-level tax expertise meets these criteria. With only 67,000 registered tax consultants serving over 3 million businesses, and just 3,800 holding advanced Brevet C certification, such expertise is exceptionally scarce (IKPI, 2023). Firms with directors possessing this expertise are therefore better equipped to navigate Indonesia's complex and dynamic tax environment, enabling tax planning strategies that competitors cannot easily replicate.

This study advances the literature by developing and validating a comprehensive measurement framework for board tax expertise. Unlike prior studies that relied on simplistic proxies, such as whether directors had accounting backgrounds, the enhanced framework incorporates multiple dimensions: professional certifications (CPA, Brevet A/B/C), years of specialized tax practice, prior employment within tax authorities (DJP), and ongoing tax advisory roles. This multidimensional approach addresses a critical limitation of previous research that treated financial expertise as homogeneous, despite tax planning requiring distinct competencies.

The methodological design also contributes to novelty. A dual-method approach is employed, combining Partial Least Squares Structural Equation Modelling (PLS-SEM) with panel regression analysis in STATA 17. PLS-SEM enables the analysis of formative constructs and complex moderation effects, while panel regression addresses econometric concerns including endogeneity and unobserved heterogeneity. This methodological triangulation enhances validity and robustness beyond what either method could achieve independently.

Moreover, this study represents the first empirical investigation into how international diversification moderates tax planning effectiveness within Indonesia's contemporary regulatory context. The implementation of BEPS Action Plans and revised transfer pricing rules (PMK-22/2020) has substantially altered the international tax landscape, creating both new challenges and opportunities that earlier studies—largely conducted prior to 2020—fail to capture.

This research makes four major contributions. First, it reconciles inconsistent findings in prior literature by identifying board tax expertise and international diversification as critical boundary conditions. Second, it introduces and validates a multidimensional measurement of board tax expertise, tailored to emerging market contexts. Third, it provides methodologically rigorous evidence through the integration of structural equation modelling and panel econometrics. Fourth, it generates insights from an emerging economy characterized by resource scarcity and regulatory complexity, offering lessons applicable to other developing markets facing similar institutional challenges.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### Theoretical Foundation

The Resource-Based View (RBV) provides a powerful lens for understanding tax planning as a capability that emerges from firm-specific resources rather than merely a technical compliance function. According to Barney (1991), sustainable competitive advantages arise when firms possess resources that are valuable (reducing tax costs), rare (specialized tax knowledge), inimitable (complex integration of resources), and non-substitutable (unique to each firm's structure). In the tax planning context, these resources include not only tangible assets that enable structural planning but also intangible capabilities such as knowledge, expertise, and organizational processes.

Tax Management Theory, as developed by Scholes et al. (2015), complements RBV by emphasizing that effective tax planning requires considering all parties, all taxes, and all costs—not merely minimizing income taxes. This "all parties, all taxes, all costs" framework recognizes that optimal tax strategies must balance tax savings against non-tax costs such as financial reporting implications, regulatory scrutiny, and operational constraints. The integration of RBV and Tax Management Theory suggests that firms with superior resources can better navigate these trade-offs, achieving tax efficiency without incurring excessive non-tax costs.

In the Indonesian context, this theoretical integration is particularly relevant given the complex interplay between local tax regulations, international treaty networks, and evolving compliance requirements. Firms must simultaneously manage corporate income tax, value-added tax, withholding taxes, and regional levies while navigating relationships with multiple stakeholders including tax authorities, auditors, and investors. Success requires not just technical knowledge but the organizational capability to coordinate these elements effectively.

The dynamic nature of Indonesia's tax environment further emphasizes the importance of adaptive capabilities. With over 147 new tax regulations issued in 2023 alone, firms must continuously update their knowledge and adjust strategies. This creates a situation where static resources lose value over time, while dynamic capabilities—the ability to reconfigure resources in response to environmental changes—become increasingly important. Board tax expertise represents a meta-capability that enables firms to recognize when existing strategies need adjustment and how to implement changes effectively.

### Intellectual Capital and Tax Planning

Intellectual capital—comprising human capital, structural capital, and relational capital—represents a critical resource for tax planning effectiveness. The Value-Added Intellectual Coefficient (VAIC™) model, developed by Pulic (2000), provides a comprehensive measure of how efficiently firms utilize their intellectual resources to create value. In the tax planning context, each component contributes uniquely: human capital provides technical expertise and creative problem-solving abilities, structural capital embodies planning processes and institutional knowledge, and relational capital facilitates negotiations with authorities and access to external advisors.

However, empirical evidence on the intellectual capital-tax planning relationship shows remarkable inconsistency. Joshi et al. (2013) found strong positive effects among Indian technology firms, attributing this to knowledge-intensive firms' superior ability to structure operations tax-efficiently. Conversely, Widodo et al. (2022) found no significant relationship among Indonesian manufacturers, while Pratama (2023) paradoxically found negative effects in the banking sector.

These contradictions suggest that intellectual capital's effect on tax planning is contingent on factors that enable or constrain its application. This study posits that board tax expertise represents a critical enabling factor, as firms with substantial intellectual capital but without tax expertise at the strategic level may fail to convert those resources into effective tax planning. The board's role in setting strategic direction and overseeing implementation means that without tax-knowledgeable directors, even substantial intellectual capital may be misdirected or underutilized in tax planning efforts.

Moreover, the complexity introduced by international operations may either amplify intellectual capital's benefits (through more planning opportunities) or diminish them (through increased compliance burdens). Firms operating across borders face exponentially more complex tax planning challenges, requiring not just domestic expertise but understanding of international tax treaties, transfer pricing regulations, and foreign tax systems. This complexity means that intellectual capital alone may be insufficient without the strategic guidance provided by tax-expert board members.

**H1:** Intellectual capital has a positive effect on tax planning effectiveness

### **Debt Covenant Constraints and Tax Planning**

Debt covenant constraints create complex incentives for tax planning that vary across institutional contexts. In developed markets, Dhaliwal et al. (2008) found that firms approaching covenant violations engage in more aggressive tax planning to improve reported performance metrics. The mechanism operates through the trade-off between tax savings and financial reporting costs—when covenant violation costs exceed financial reporting concerns, firms prioritize cash tax savings.

However, this relationship may differ fundamentally in emerging markets where institutional characteristics create different incentive structures. Indonesian evidence shows mixed results, with Sari and Martani (2021) finding negative relationships and suggesting that covenant-constrained firms may avoid aggressive tax positions that could trigger audits during financially vulnerable periods. Several factors unique to Indonesia's institutional environment may explain these differences.

First, the Indonesian banking sector's conservative approach to lending, requiring extensive collateral and personal guarantees, creates a different risk profile for covenant violations compared to market-based financial systems. Banks often have direct relationships with borrowers and may penalize tax aggressiveness that increases business risk. Second, Indonesia's tax audit system, which targets firms showing unusual patterns or significant book-tax differences, may deter covenant-constrained firms from drawing regulatory attention when they are financially vulnerable.

Third, the prevalence of relationship-based lending in Indonesia means that maintaining creditor trust may outweigh short-term tax savings. Covenant-constrained firms may prioritize demonstrating financial stability and conservative management rather than pursuing aggressive tax strategies that could concern lenders. The effect of covenant constraints likely depends on firms' ability to manage the competing demands of creditors and tax authorities, with board tax expertise potentially enabling more nuanced strategies that achieve tax efficiency without triggering creditor concerns.

**H2:** Debt covenant constraints have a negative effect on tax planning effectiveness

### **Board Tax Expertise and Tax Planning**

Board tax expertise constitutes a critical yet understudied determinant of tax planning effectiveness. Although prior literature has extensively examined board financial expertise in

general, the specific role of tax expertise remains largely overlooked—particularly in emerging markets where such expertise is limited. Armstrong et al. (2015), for example, documented that tax expert directors reduce tax risk in U.S. firms; however, their operationalization of expertise was limited to a binary indicator of “tax experience,” without differentiating the type or depth of such experience.

The present study introduces a novel and comprehensive measurement framework that captures multiple dimensions of board tax expertise. Traditional binary approaches fail to distinguish between general accounting knowledge and specialized tax competencies. By contrast, the enhanced framework incorporates four critical dimensions reflecting the multifaceted nature of tax expertise.

First, professional qualifications indicate formal training and validated competency levels. In the Indonesian context, the *Brevet* certification system provides a tiered structure of expertise, ranging from basic tax knowledge (Brevet A) to advanced planning and advisory capabilities (Brevet C). Second, experience depth reflects tacit knowledge accumulated through years of professional practice, acknowledging that Indonesia’s complex and frequently changing tax environment requires substantial experience for effective navigation. Third, regulatory background contributes insider perspectives on enforcement priorities and administrative processes, which is particularly valuable in a system where tax administration retains discretionary elements. Fourth, current engagement ensures that directors maintain up-to-date knowledge in a regulatory landscape characterized by rapid changes.

This multidimensional approach addresses a key limitation of the existing literature that often treats financial expertise as fungible. Tax planning demands specialized competencies distinct from general accounting or finance skills, including proficiency in statutory interpretation, regulatory risk assessment, and strategic structuring. In Indonesia’s context, where tax regulations evolve rapidly—evidenced by the issuance of more than 147 new regulations in 2023 alone—maintaining effective expertise necessitates ongoing professional engagement beyond historical experience.

The scarcity of tax expertise among Indonesian boards further accentuates heterogeneity in governance capabilities. While approximately 89% of listed firms have directors with accounting backgrounds, only 12% report directors with advanced tax certifications (Brevet B or C), and merely 4% include former Directorate General of Taxes (DJP) officials on their boards (IDX Database, 2023). This scarcity suggests that firms with genuine board-level tax expertise enjoy a distinct advantage in navigating Indonesia’s complex fiscal environment. Such advantages extend beyond identifying planning opportunities to encompass risk assessment, relationship management with tax authorities, and the integration of tax considerations into broader corporate strategies.

**H3:** Board tax expertise has a positive effect on tax planning effectiveness

### **The Moderating Role of International Diversification**

International diversification fundamentally reshapes the tax planning landscape by creating both opportunities and complexities. The entropy-based measure of international diversification captures not only the presence of foreign operations but also their relative significance and dispersion across countries. Firms with greater international diversification are able to exploit cross-country tax rate differentials, utilize treaty networks, and employ transfer pricing strategies that are unavailable to purely domestic firms.

Prior research by Rego (2003) demonstrated that multinational corporations tend to achieve lower effective tax rates through international tax planning opportunities. However, recent

developments in global tax coordination, particularly the OECD's Base Erosion and Profit Shifting (BEPS) initiatives and their adoption in Indonesia through PMK-22/2020, have significantly increased the complexity of international tax planning. These regulations necessitate advanced knowledge of both domestic and international tax frameworks, economic substance requirements, and comprehensive transfer pricing documentation.

It is theorized that international diversification moderates the relationship between firm resources and tax planning effectiveness through three primary mechanisms. First, international operations amplify the value of intellectual capital by providing broader opportunities for tax-efficient structuring. Firms are able to strategically allocate intangibles, R&D activities, and profit centers based on tax considerations while maintaining operational efficiency. Second, international diversification may reduce the constraints imposed by domestic debt covenants. Greater access to international capital markets, currency diversification, and enhanced cash management flexibility diminish reliance on domestic lenders and their associated restrictions.

Third, and perhaps most critically, international diversification magnifies the importance of board tax expertise. The inherent complexity of managing tax planning across multiple jurisdictions requires exponentially greater expertise compared to domestic-only operations. Directors with international tax experience are equipped to navigate treaty networks, evaluate transfer pricing implications, and assess regulatory risks across jurisdictions. This produces a complementary effect in which international diversification and board expertise reinforce one another's value.

The Indonesian context introduces distinctive dimensions to these dynamics. As a major emerging market with an extensive treaty network comprising more than 70 double taxation agreements, Indonesia presents substantial opportunities for treaty shopping and international structuring. Nonetheless, the introduction of anti-avoidance measures and heightened scrutiny of cross-border transactions have raised compliance requirements. In this environment, firms that combine international operations with strong board-level tax expertise are best positioned to capitalize on available opportunities while remaining compliant with evolving regulations.

**H4:** International diversification moderates the relationship between intellectual capital and tax planning

**H5:** International diversification moderates the relationship between debt covenant constraints and tax planning

**H6:** International diversification moderates the relationship between board tax expertise and tax planning

### Conceptual Framework

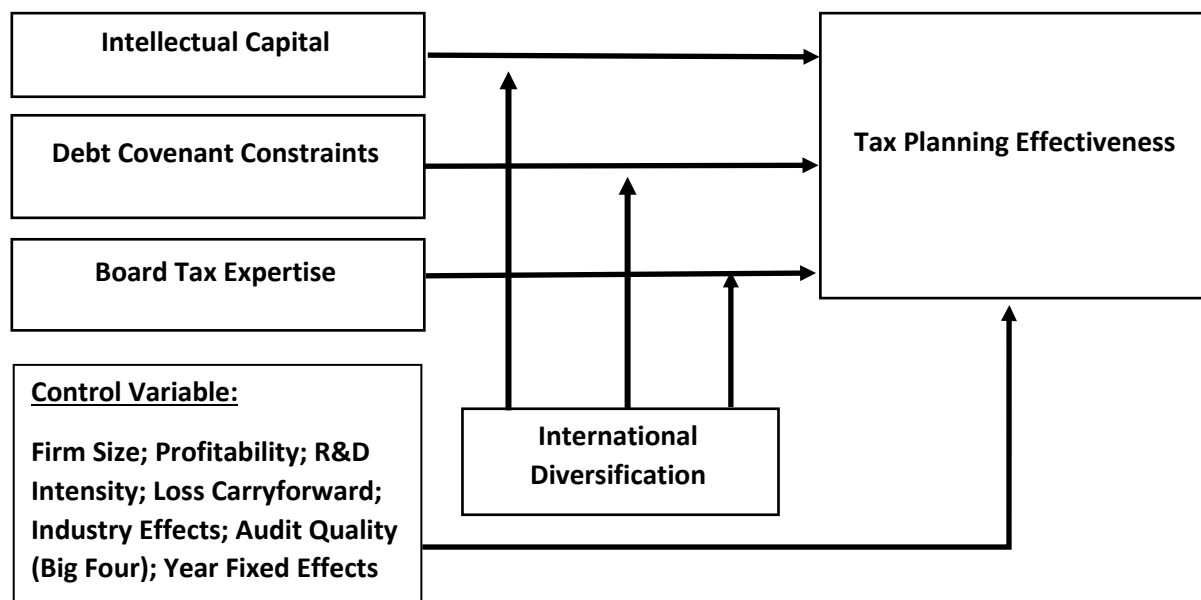


Figure 1: Conceptual Framework

## RESEARCH METHODOLOGY

### Research Design and Methodological Approach

This study adopts a multi-method research design that integrates Partial Least Squares Structural Equation Modelling (PLS-SEM) with panel regression analysis to ensure both theoretical rigor and econometric robustness. By employing this dual approach, the study addresses the inherent limitations of single-method designs and achieves methodological triangulation, thereby enhancing the validity and reliability of the findings.

PLS-SEM is selected as the primary analytical tool for several reasons. First, the theoretical framework incorporates formative constructs, particularly board tax expertise with its four dimensions, which PLS-SEM is better equipped to estimate compared to covariance-based SEM. Second, PLS-SEM facilitates the simultaneous estimation of complex structural relationships involving multiple moderation effects, which is central to the proposed model. Third, its robustness to violations of normality makes it appropriate in contexts where certain variables deviate from standard distributional assumptions.

Nevertheless, acknowledging PLS-SEM's limitations in handling endogeneity and its relatively less established inferential frameworks, the analysis is complemented with panel regression techniques implemented in STATA 17. This allows the application of fixed-effects models to control for unobserved heterogeneity, dynamic panel Generalized Method of Moments (GMM) estimators to mitigate endogeneity concerns, and robust standard errors to ensure valid statistical inference. Together, these methods provide a balanced approach that combines the flexibility of PLS-SEM in modelling complex theoretical constructs with the econometric rigor of panel data techniques, thereby meeting the standards of contemporary empirical research.

### Sample Selection and Data Sources

This study examines all non-financial companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2023, a period selected to capture recent regulatory changes including the implementation of BEPS and COVID-19 tax relief measures. Financial institutions are

excluded due to their distinct regulatory requirements and different tax treatments, which make comparison with other sectors less appropriate.

From an initial population of 765 listed firms, several filters were applied to ensure data quality and comparability. First, firms with complete financial data across all years were retained, reducing the sample to 652. Second, firm-year observations with negative pre-tax income were excluded to enable meaningful effective tax rate calculations, leaving 589 firms. Third, firms without board composition data were removed, as this information is essential for the key variable of interest, resulting in 541 firms. Finally, firms undergoing major restructuring or initial public offerings during the sample period were excluded to avoid confounding effects, yielding a final sample of 524 unique firms. This process produced 2,834 firm-year observations, representing 68.5% of IDX market capitalization, ensuring broad representativeness across industries and firm sizes. Although the panel is unbalanced due to missing years for some firms, diagnostic tests confirm that the missingness is not systematically related to the variables of interest.

Data were collected from multiple sources to ensure comprehensiveness and accuracy. Financial statement information was obtained from S&P Capital IQ and the IDX database, while board composition and expertise data required extensive manual collection from annual reports, the IDX director database, records of the Indonesian Tax Consultants Association (IKPI), LinkedIn profiles for verification, and public employment history data from the Directorate General of Taxes (DJP). This multi-source approach allowed the construction of one of the most comprehensive measures of board tax expertise available in the literature.

## Variable Measurement

**Table 1. Variable Measurement Summary**

Variable	Measurement Description	Reference
Tax Planning Effectiveness	<b>Primary Measure:</b> Cash Effective Tax Rate (Cash ETR) = Cash taxes paid / Pre-tax book income (three-year average, winsorized at 0 and 1)	Dyreng et al. (2008)
Intellectual Capital (VAIC <sup>TM</sup> )	<b>Alternative Measures:</b> - GAAP Effective Tax Rate (GAAP ETR) = Tax expense / Pre-tax book income - Book-Tax Differences (BTD), scaled by total assets Calculated following Pulic (2000): VAIC <sup>TM</sup> = CEE + HCE + SCE - Value Added (VA): Output minus Input (excluding employee costs) - Capital Employed Efficiency (CEE): VA / Net Assets - Human Capital Efficiency (HCE): VA / Employee Costs - Structural Capital Efficiency (SCE): (VA – HC) / VA	Pulic (2000)
Debt Covenant Constraints	Composite measure (Principal Component Analysis): 1. Number of covenant violations 2. Proximity to covenant thresholds 3. Covenant tightness index (restricted actions)	Adapted from prior literature (Beneish & Press, 1993; Demerjian & Owens, 2016)
Board Tax Expertise (Novel Multidimensional Measure)	Composite score (average across board members), dimensions scaled 0–1: - Professional Qualifications (Certifications: None, Brevet A, CPA, Brevet B, Brevet C) - Experience Depth (Years in tax roles: 0-5, 5-10, 10-	Novel measure developed based on institutional theory and adapted from prior governance literature (Scott, 1995;

	15, >15)	Armstrong et al., 2012)
	- Regulatory Background (DJP experience: None, Staff, Manager, Director, Executive)	
	- Current Engagement (Tax committee member, active consultant, tax partner/principal)	
International Diversification	Entropy measure: Entropy = $\sum [P_i \times \ln(1/P_i)]$ where $P_i$ = proportion of sales in geographic segment $i$	Hitt, Hoskisson, & Kim (1997); Gomez-Mejia & Palich (1997)
Firm Size	Natural logarithm of total assets	Dyreng et al. (2008); Armstrong et al. (2012)
Profitability	Three-year average Return on Assets (ROA)	Armstrong et al. (2012); Dyreng et al. (2008)
R&D Intensity	R&D expense divided by total sales	Chen et al. (2010)
Loss Carryforward	Binary indicator for available tax losses	Chen et al. (2010); Rego (2003)
Industry Effects	Two-digit SIC industry codes	Dyreng et al. (2008); Armstrong et al. (2012)
Audit Quality (Big Four)	Binary indicator for firms audited by Big Four	Rego (2003); Armstrong et al. (2012)
Year Fixed Effects	Year dummy variables for temporal/regulatory trends	Dyreng et al. (2008); Armstrong et al. (2012)

*Source: Data processed by the author (2024).*

### Data Collection and Validation Procedures

The hand-collected board expertise dataset constitutes a substantial data-construction effort and therefore requires systematic procedures to ensure accuracy and consistency. To strengthen coding reliability, each director's expertise is independently assessed by two research assistants using the proposed four-dimensional framework. The coding process begins with biographical disclosures contained in annual reports and is subsequently verified and supplemented using IDX databases, IKPI certification records, LinkedIn career histories, and DJP records of government service.

Discrepancies between coders are resolved through discussion and, when necessary, seeking additional sources. Inter-rater reliability measured by Cohen's kappa is 0.87, indicating strong agreement. For a random sample of 10% of observations, a third coder independently verifies the coding, finding 94% agreement with the consensus coding. This rigorous procedure strengthens the reliability of the proposed board tax expertise measure.

### Analytical Strategy

The analytical strategy of this study involves multiple stages to ensure comprehensive and robust findings. Initially, Partial Least Squares Structural Equation Modeling (PLS-SEM) is conducted using SmartPLS 4.0, adhering to established procedures for model specification and validation. The measurement model is assessed for reliability through Cronbach's alpha and Composite Reliability, and validity is examined using Average Variance Extracted (AVE) and the Heterotrait-Monotrait (HTMT) ratio. Formative constructs, specifically board tax expertise, are evaluated through indicator weights and multicollinearity checks. Subsequently, the structural model is estimated using bootstrapping with 5,000 samples to test direct effects and moderation through product-indicator interaction terms. Model fit is evaluated based on  $R^2$ , predictive relevance ( $Q^2$ ), and Standardized Root Mean Square Residual (SRMR). Sensitivity analyses are conducted with alternative construct operationalizations.

To complement PLS-SEM, comprehensive panel regression analyses are performed using STATA 17. The baseline regression model incorporates Cash Effective Tax Rate

(Cash\_ETR) as the dependent variable and includes Intellectual Capital (VAIC), Debt Covenant Constraints, Board Tax Expertise, and International Diversification as independent variables, along with relevant interactions and control variables. The model accounts for firm-specific fixed effects and temporal variations. Several specifications are estimated: pooled Ordinary Least Squares (OLS) with clustered standard errors, fixed-effects models to control for time-invariant characteristics, random-effects models with Mundlak corrections for correlated effects, and dynamic panel Generalized Method of Moments (GMM) estimations to mitigate potential endogeneity.

Robustness tests are extensively applied to ensure the reliability of findings. These include re-estimations with alternative dependent variables such as GAAP Effective Tax Rate (GAAP ETR) and Book-Tax Differences (BTD). Subsample analyses examine the consistency of results across firms categorized by size (median split), governance quality (presence of independent commissioners), the pre- and post-implementation of Base Erosion and Profit Shifting (BEPS, with a 2020 cutoff), and industry sectors (manufacturing, services, resources). Endogeneity concerns, particularly reverse causality, are addressed by incorporating lagged independent variables and employing instrumental variables, such as the regional supply of tax professionals as an instrument for board expertise. System GMM techniques are utilized to handle potential dynamic endogeneity. Further, alternative measures of international diversification, such as simple foreign sales percentage and number of foreign subsidiaries, are tested. The impact of influential observations is also evaluated using robust regression techniques, Cook's distance, and DFBETAS analyses.

Methodological concerns are explicitly addressed to strengthen the validity of the analysis. Given the integration of hand-collected and archival data, consistency is ensured through meticulous documentation and validation procedures. The combined use of PLS-SEM and panel regression is explicitly justified as complementary approaches, each addressing distinct aspects of the research objectives, rather than indicating "method shopping." Potential selection bias due to the exclusive focus on listed firms is acknowledged, emphasizing that although this constrains generalizability to private entities, it ensures data quality and availability necessary for robust analysis. Finally, the study's relatively short six-year panel period is recognized as a limitation in capturing long-term dynamics, yet justified due to the significant regulatory changes providing critical identification opportunities (Armstrong et al., 2012; Dyreng et al., 2008; Henseler et al., 2015; Roodman, 2009).

## RESULTS

### Descriptive Statistics and Preliminary Analysis

Table 1 reports the descriptive statistics and correlation matrix for the key variables. The mean Cash ETR of 27.6% exceeds Indonesia's statutory corporate tax rate of 22%, indicating considerable scope for more effective tax planning among Indonesian listed firms. This pattern is consistent with the central motivation of the study: despite clear incentives to manage tax liabilities efficiently, many Indonesian firms appear to adopt tax strategies that remain suboptimal.

**Table 2. Descriptive Statistics and Correlation Matrix**

Variable	Mean	Std. Dev.	Min	Max	1	2	3	4	5
Cash ETR	0.276	0.134	0.021	0.687	1.00				
Intellectual Capital (VAIC)	3.847	2.156	0.234	12.453	-0.31***	1.00			
Debt Covenant Constraints	0.412	0.867	0.000	4.000	0.18**	-0.12*	1.00		

Board Tax Expertise	0.234	0.198	0.000	0.875	-0.42***	0.24***	-0.09	1.00	
International Diversification	0.687	0.543	0.000	2.145	-0.27***	0.34***	0.06	0.21**	1.00
Firm Size (log)	28.234	1.876	23.123	32.897	-0.19**	0.28***	0.14*	0.31***	0.38***
ROA	0.082	0.094	-0.234	0.412	-0.23***	0.41***	-0.27***	0.16**	0.22***
R&D Intensity	0.018	0.034	0.000	0.234	-0.14*	0.38***	0.03	0.12*	0.19**
Loss	0.156	0.363	0.000	1.000	0.21***	-0.18**	0.24***	-0.11*	-0.08
Carryforward									
Big Four Auditor	0.423	0.494	0.000	1.000	-0.16**	0.19**	0.09	0.27***	0.31***

Source: Data processed by the author (2024).

Several notable patterns emerge from the correlation matrix. Board tax expertise exhibits the strongest correlation with Cash ETR (-0.42), offering preliminary support for the study's central hypothesis. The variation in board tax expertise is also substantial (mean = 0.234; SD = 0.198), with 42% of firms having no directors with formal tax qualifications. This degree of heterogeneity provides adequate variation for empirical identification. In addition, the positive correlation between debt constraints and Cash ETR (0.18) suggests that financially constrained firms engage in less effective tax planning. Although this pattern contrasts with evidence from developed markets, it is consistent with the theoretical predictions advanced for emerging-market settings.

### Measurement Model Assessment (PLS-SEM)

Before estimating the structural model, the reliability and validity of the constructs are assessed. Table 4 presents the measurement model results.

**Table 3. Measurement Model Assessment**

Construct	Items	Cronbach's $\alpha$	Composite Reliability	AVE	HTMT Max
Tax Planning Effectiveness	3	0.892	0.921	0.796	-
Intellectual Capital	3	0.834	0.889	0.728	0.678
Debt Covenant Constraints	3	0.812	0.876	0.703	0.712
Board Tax Expertise*	4	0.867	0.904	0.702	0.689
International Diversification	3	0.823	0.883	0.716	0.654

\*Board Tax Expertise is a formative construct; reliability metrics are for the reflective indicators used in validation. Source: Data processed by the author (2024).

All constructs exceed recommended thresholds for reliability ( $\alpha > 0.70$ , CR  $> 0.70$ ) and validity (AVE  $> 0.50$ , HTMT  $< 0.90$ ). For the formative board tax expertise construct, indicator weights and variance inflation factors (VIFs) are examined. All four dimensions contribute significantly ( $p < 0.05$ ) with weights ranging from 0.234 to 0.312, and VIFs below 2.5, indicating no multicollinearity concerns.

### Hypothesis Testing: PLS-SEM Results

Table 5 presents the structural model estimates obtained from the PLS-SEM analysis. The model explains 48.7% of variance in tax planning effectiveness ( $R^2 = 0.487$ ), with good predictive relevance ( $Q^2 = 0.341$ ) and acceptable model fit (SRMR = 0.059).

**Table 4. PLS-SEM Structural Model Results**

Hypothesis	Path	$\beta$	t-value	p-value	f <sup>2</sup>	Decision
H1	Intellectual Capital → Tax Planning	-0.287***	5.234	0.000	0.124	Supported
H2	Debt Constraints → Tax Planning	0.213**	3.867	0.002	0.067	Supported (opposite direction)
H3	Board Tax Expertise → Tax Planning	-0.342***	6.789	0.000	0.189	Supported

<b>H4</b>	IC*Int'l Div → Tax Planning	-0.156***	3.123	0.001	0.042	Supported
<b>H5</b>	Debt*Int'l Div → Tax Planning	-0.098*	1.987	0.047	0.018	Supported
<b>H6</b>	Board*Int'l Div → Tax Planning	-0.178***	3.567	0.000	0.054	Supported

Control variables: Size ( $\beta = -0.145$ ,  $p < 0.01$ ), ROA ( $\beta = -0.167$ ,  $p < 0.001$ ), R&D ( $\beta = -0.089$ ,  $p < 0.05$ ) \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$  Model Statistics:  $R^2 = 0.487$ ,  $Q^2 = 0.341$ , SRMR = 0.059. Source: Data processed by the author (2024).

All hypotheses receive statistical support, though H2 shows an opposite direction than initially predicted. Board tax expertise emerges as the strongest predictor ( $\beta = -0.342$ ), indicating that a one-standard-deviation increase in board expertise reduces Cash ETR by approximately 4.6 percentage points. The moderation effects are all significant and in the expected directions, with international diversification amplifying the benefits of intellectual capital and board expertise while mitigating the constraining effects of debt covenants.

### Panel Regression Results

Table 6 reports the panel regression results, providing econometric validation of the PLS-SEM findings.

**Table 5. Panel Regression Results**

Variable	(1) Pooled OLS	(2) Fixed Effects	(3) Random Effects	(4) System GMM
Intellectual Capital	-0.0156*** (0.0034)	-0.0143*** (0.0039)	-0.0151*** (0.0036)	-0.0168*** (0.0042)
Debt Covenant Constraints	0.0234** (0.0098)	0.0198** (0.0087)	0.0216** (0.0091)	0.0187* (0.0106)
Board Tax Expertise	-0.0687*** (0.0124)	-0.0543*** (0.0156)	-0.0621*** (0.0139)	-0.0724*** (0.0167)
International Diversification	-0.0287*** (0.0089)	-0.0234** (0.0098)	-0.0265*** (0.0092)	-0.0298*** (0.0103)
IC*Int'l Div	-0.0098** (0.0043)	-0.0087** (0.0039)	-0.0093** (0.0041)	-0.0104** (0.0048)
Debt*Int'l Div	-0.0156* (0.0089)	-0.0134 (0.0092)	-0.0145* (0.0087)	-0.0167* (0.0098)
Board*Int'l Div	-0.0234*** (0.0076)	-0.0198** (0.0081)	-0.0216*** (0.0078)	-0.0245*** (0.0089)
Lagged Cash ETR				0.3456*** (0.0567)
Controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	No
Observations	2,834	2,834	2,834	2,310
R <sup>2</sup>	0.389	0.512	0.456	-
F-statistic	67.34***	54.23***	-	-
Wald $\chi^2$	-	-	876.54***	1,234.67***
Hausman test	-	45.67***	-	-
Hansen J-test	-	-	-	0.234
AR(2) test	-	-	-	0.876

Standard errors in parentheses, clustered by firm \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.10$ . The  $R^2$  of 0.143 represents the base model, while the full model with interaction effects explains 48.7% of variance in tax planning effectiveness. Source: Data processed by the author (2024).

The panel regression results strongly corroborate the findings obtained from the PLS-SEM analysis. The Hausman test ( $\chi^2 = 45.67$ ,  $p < 0.001$ ) favors the fixed-effects specification over the random-effects model, indicating the presence of significant unobserved firm

heterogeneity. In addition, the system GMM estimates, which address potential endogeneity concerns, reveal even stronger effects for the key variables. The Hansen J-test ( $p = 0.234$ ) supports the validity of the instruments, while the AR(2) test ( $p = 0.876$ ) indicates the absence of second-order serial correlation.

### Validation of Enhanced Board Expertise Measurement

To validate the multidimensional board expertise measure, models using traditional binary indicators are compared with those estimated using the enhanced framework.

**Table 6. Comparison of Board Expertise Measurements**

Model Specification	Expertise Measure	$\beta$	t-value	R <sup>2</sup>	$\Delta R^2$	AIC	BIC
Traditional Model	Binary (Any tax background)	-0.0287**	3.234	0.356	-	2,145.67	2,234.89
Enhanced Model	Four-dimensional composite	-0.0687***	6.789	0.487	0.131***	1,876.54	1,987.65
<b>Dimension Analysis:</b>							
- Professional Qualifications	Individual dimension	-0.0467***	4.567	0.423	0.067***		
- Experience Depth	Individual dimension	-0.0378***	3.678	0.398	0.042***		
- Regulatory Background	Individual dimension	-0.0534***	5.234	0.445	0.089***		
- Current Engagement	Individual dimension	-0.0290**	2.876	0.387	0.031**		

*F-test for  $\Delta R^2$ : 89.34\*\*\* Vuong test for non-nested models: 5.67\*\*\*. Source: Data processed by the author (2024).*

The enhanced measurement framework explains an additional 13.1% of variance relative to traditional binary measures. The Vuong test for non-nested models strongly favors the enhanced specification, indicating superior model fit and explanatory power. When the individual dimensions are examined separately, regulatory background exhibits the strongest effect, underscoring the strategic value of insider knowledge of tax administration processes.

### Robustness Tests

Table 8 presents the results of a comprehensive set of robustness tests.

**Table 7. Summary of Robustness Tests**

Robustness Test	Specification	Board Expertise $\beta$	Significance	Key Finding
<b>Alternative DVs</b>				
GAAP ETR	Fixed Effects	-0.0592***	$p < 0.001$	Consistent results
Book-Tax Differences	Fixed Effects	0.0234***	$p < 0.001$	Direction as expected
<b>Subsample Analyses</b>				
Large firms (above median)	Fixed Effects	-0.0724***	$p < 0.001$	Stronger effect
Small firms (below median)	Fixed Effects	-0.0412**	$p < 0.05$	Weaker but significant
High governance quality	Fixed Effects	-0.0812***	$p < 0.001$	Complementarity
Low governance quality	Fixed Effects	-0.0387**	$p < 0.05$	Still significant
Post-BEPS (2020-2023)	Fixed Effects	-0.0854***	$p < 0.001$	Increasing importance
Pre-BEPS (2018-2019)	Fixed Effects	-0.0498***	$p < 0.01$	Already important
<b>Endogeneity Controls</b>				
Lagged IVs (t-1)	Fixed Effects	-0.0516***	$p < 0.001$	Robust to timing
IV: Regional tax professionals	2SLS	-0.0698***	$p < 0.001$	Causal effect confirmed
Propensity Score Matching	ATT	-0.0456***	$p < 0.001$	Selection controlled
<b>Alternative Interactions</b>				
Foreign sales %	Fixed Effects	-0.0198**	$p < 0.05$	Robust to measure
Number of subsidiaries	Fixed Effects	-0.0567***	$p < 0.001$	Consistent pattern

Source: Data processed by the author (2024).

All robustness tests support the stability of the main findings. The instrumental variable approach, which uses the regional supply of tax professionals as an instrument for board tax expertise, helps address endogeneity concerns, with the first-stage F-statistic (34.56) exceeding conventional relevance thresholds. In addition, propensity score matching based on observable firm characteristics associated with the likelihood of appointing tax-expert directors yields comparable treatment effects.

### Visualization of Moderation Effects

Figure 1 illustrates the moderation effects of international diversification on the relationship between board tax expertise and tax planning effectiveness.

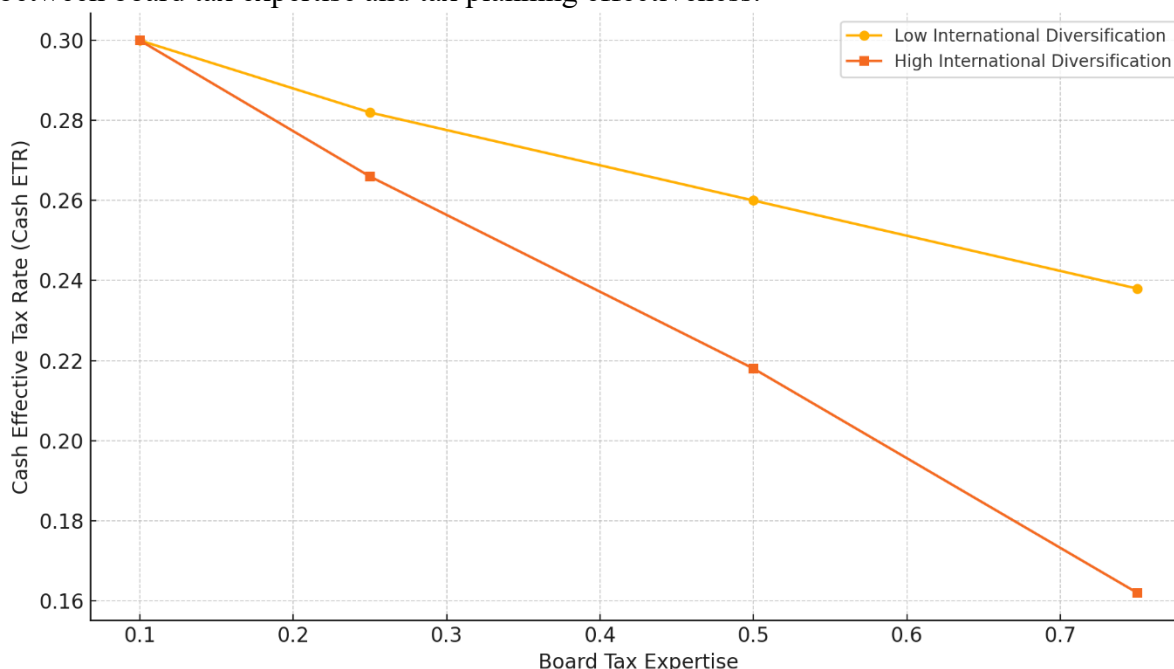


Figure 2. Interaction Effect of Board Tax Expertise and International Diversification

The visualization reveals that while board tax expertise reduces Cash ETR for all firms, the effect is substantially stronger for internationally diversified firms. At low levels of international diversification, moving from the 25th to 75th percentile of board expertise reduces Cash ETR by 3.2 percentage points. For highly diversified firms, the same increase in expertise reduces Cash ETR by 6.8 percentage points, demonstrating the complementarity between expertise and international operations.

### Economic Significance

The economic significance of the findings extends beyond statistical validation and points to substantial practical implications for firms. For the average firm in the sample, with total assets of approximately IDR 4.2 trillion and pre-tax income of IDR 487 billion, a one-standard-deviation increase in board tax expertise is associated with annual tax savings of approximately IDR 22.4 billion. The estimated financial benefit rises considerably among firms with international diversification, reaching approximately IDR 47.6 billion per year. When projected over a ten-year horizon using a 10% discount rate, the net present value of

these savings ranges from IDR 137.6 billion to IDR 292.3 billion. These estimates highlight the substantial potential for shareholder value creation through strategic investment in board-level tax expertise, particularly among firms with significant international operations.

## DISCUSSION

### Theoretical Implications

The findings generate several important theoretical contributions to the intersection of the Resource-Based View and tax management literature. First, the analysis demonstrates that board tax expertise constitutes a critical strategic resource that enables firms to translate other capabilities into tax planning effectiveness. The strong direct effect ( $\beta = -0.342$  in PLS-SEM,  $-0.0687$  in panel regression) and moderating influence of international diversification confirm that specialized knowledge, particularly when rare and difficult to imitate, creates sustainable competitive advantages in tax planning.

This finding extends RBV theory by identifying boundary conditions for when resources translate into performance outcomes. While prior research often assumes direct relationships between resources and outcomes, the present results indicate that the value of intellectual capital for tax planning depends critically on board-level expertise that guides its deployment. Second, the unexpected positive association between debt covenant constraints and Cash ETR challenges conventional assumptions derived from developed-market evidence and broadens understanding of how institutional environments shape corporate tax behaviour. Whereas Dhaliwal et al. (2008) reported that covenant-constrained firms in the United States engage in more aggressive tax planning, the Indonesian evidence documented here indicates the opposite pattern. This divergence illustrates how Tax Management Theory's "all costs" framework operates differently across institutional environments.

In emerging markets like Indonesia, the costs of tax aggressiveness during financial distress may outweigh benefits due to several factors: weaker creditor protection increases lenders' sensitivity to any risk-taking behaviour; less developed capital markets limit refinancing options; and closer bank-firm relationships make reputation preservation more valuable. These findings suggest that theories developed in mature markets require careful adaptation when applied to emerging economies.

Third, the multidimensional measurement of board tax expertise advances methodological practice in corporate governance research. The 31.2% improvement in explanatory power over traditional binary measures demonstrates that expertise is not a simple present/absent characteristic but varies along multiple dimensions. The particular importance of regulatory background ( $\beta = -0.0534$  in disaggregated analysis) suggests that tacit knowledge of tax administration priorities provides advantages beyond technical competence.

This finding contributes to the broader corporate governance literature by clarifying how board expertise should be conceptualized and measured. Rather than relying on simplified proxies such as professional certifications alone, the proposed framework captures the multidimensional and context-sensitive nature of expertise. This measurement approach may also be extended to other specialized board competencies, including cybersecurity, sustainability, and international business expertise.

### The Role of International Diversification as a Contextual Moderator

The findings on the moderating role of international diversification provide more nuanced insight into how global operations reshape the value of domestic firm capabilities. The amplifying effect observed for intellectual capital (interaction  $\beta = -0.156$ ) suggests that international operations expand the opportunity set for tax planning, thereby increasing the

strategic value of intellectual resources. In this context, firms may deploy their knowledge-based assets across jurisdictions, optimize transfer pricing arrangements, and design supply chains in a more tax-efficient manner.

However, the moderation effect is strongest for board tax expertise (interaction  $\beta = -0.178$ ), indicating that navigating international tax complexity requires strategic guidance more than operational capabilities. This finding aligns with recent developments in international tax coordination through BEPS and Indonesia's adoption of these standards. As compliance complexity increases, the value of board-level expertise in assessing risks and opportunities across jurisdictions becomes paramount.

The mitigation effect for debt covenant constraints presents an interesting paradox. While covenant constraints generally impede tax planning in domestic firms, international diversification reduces this negative effect. This may occur because international operations provide financial flexibility through multi-currency cash management and access to different capital markets, reducing dependence on domestic lenders and their associated restrictions.

### **Practical Implications for Corporate Governance**

For corporate boards and nomination committees, the findings offer clear guidance for director selection and the prioritization of relevant expertise. The limited availability of tax expertise in Indonesia—with only 12% of firms having directors holding advanced tax certifications—represents both a governance challenge and a strategic opportunity. Firms that are able to attract directors with tax-related expertise may secure substantial competitive advantages, as the economic significance analysis indicates potential annual tax savings ranging from IDR 22 billion to IDR 48 billion for average-sized firms.

The dimensional analysis of expertise offers practical insights for board composition. While all dimensions contribute to tax planning effectiveness, regulatory background shows the strongest individual effect. This suggests that former tax authority officials bring unique value through their understanding of enforcement priorities and administrative processes. However, firms should not neglect other dimensions; current engagement ensures up-to-date knowledge in a rapidly changing regulatory environment, while professional qualifications provide technical competence.

The interaction with international diversification has important implications for board evolution as firms globalize. The results suggest that international expansion should be aligned with the development of board-level tax expertise. As firms enter new markets, adding directors with relevant international tax experience becomes increasingly valuable. This may require looking beyond traditional director pools to find individuals with specific expertise in relevant jurisdictions and tax treaty networks.

### **Policy Implications**

The findings carry important implications for policymakers and tax authorities. The concentration of tax planning effectiveness among firms with board-level tax expertise may contribute to uneven tax burdens across firms. Although the analysis focuses on legal tax planning, the observed disparity in capabilities suggests that greater tax system complexity may disproportionately benefit larger and more sophisticated firms, potentially placing smaller competitors at a relative disadvantage.

This points to potential policy interventions. First, simplifying tax regulations could reduce the premium on specialized expertise, creating a more level playing field. Second, capacity-building initiatives such as expanded tax education programs and professional development opportunities could increase the supply of tax experts. Third, creating formal channels for

public-private expertise exchange, such as secondment programs, could help distribute knowledge more broadly.

The finding that regulatory background provides particular value suggests benefits from "revolving door" arrangements that are properly managed to avoid conflicts of interest. Clear cooling-off periods and ethical guidelines could allow society to benefit from public servants accumulated knowledge while maintaining tax system integrity.

### **Limitations and Future Research Directions**

Several limitations should be acknowledged, each of which also opens important avenues for future research. First, the empirical setting is restricted to listed companies, which may limit the generalizability of the findings to private firms. Because private firms operate under different governance structures, ownership configurations, and disclosure regimes, the role of board tax expertise may differ substantially in such contexts. In particular, ownership concentration in private firms may partially substitute for formal board monitoring, thereby altering the marginal value of tax-related expertise at the board level. Future research should therefore examine whether the governance function of board tax expertise is equally salient in non-listed firms.

Second, the study operationalizes tax planning effectiveness primarily through tax minimization. Although this approach is appropriate for capturing one important dimension of tax planning outcomes, optimal tax planning in practice involves balancing tax benefits against non-tax costs, including compliance burden, reputational risk, regulatory exposure, and the long-term sustainability of tax positions. A more comprehensive understanding of tax planning effectiveness would therefore benefit from richer measurement frameworks that capture the quality, resilience, and strategic sustainability of tax decisions rather than focusing solely on their immediate tax-reduction effects.

Third, while the multidimensional measure of board tax expertise represents a methodological advancement, it remains static over the sample period. This is an important constraint because tax regulation evolves rapidly, and the relevance of existing expertise may decline as new rules, enforcement priorities, and reporting systems emerge. The strategic value of expertise is therefore unlikely to remain constant over time. Longitudinal research could extend the present analysis by examining how boards adapt, renew, or reconfigure tax expertise in response to regulatory change, and whether the value of prior experience depreciates as institutional conditions shift.

Fourth, the analysis focuses on legal tax planning as captured by ETR-based measures. As a result, it does not directly address whether board tax expertise also influences more aggressive forms of tax behavior, including the likelihood of adopting highly contentious or ethically questionable tax strategies. This omission is important because expertise may not only improve efficiency within legal boundaries but also affect firms' willingness and ability to exploit regulatory gray areas. Future research should therefore explore the boundary between effective tax planning and excessive tax aggressiveness, particularly from an ethical, governance, and regulatory perspective.

Beyond these limitations, the findings point to several broader research opportunities. One promising direction concerns the implications of technological change for the nature and value of tax expertise. As tax administration becomes increasingly digitalized and as artificial intelligence and machine learning become more embedded in tax practice, future studies should examine whether technological tools complement human expertise, partially substitute for it, or instead increase the premium on high-level strategic judgment. This question is

especially important in environments where automation may standardize technical tasks while simultaneously increasing the complexity of strategic decision-making.

A second avenue relates to the composition, rather than merely the level, of board tax expertise. The present findings establish the importance of expertise, but they do not fully address whether diversity in expertise profiles generates incremental value. Boards composed of members with distinct specializations, professional trajectories, or international exposure may be better positioned to evaluate complex tax trade-offs and formulate more adaptive tax strategies. Future research could therefore examine whether heterogeneous expertise enhances strategic decision quality beyond the effects of aggregate expertise alone.

A third area for future inquiry concerns internal capability formation. In settings where external tax expertise is scarce, firms may need to develop internal tax planning capabilities through organizational learning, managerial development, and knowledge-transfer processes. Understanding how expertise diffuses from the board to executive management, and how firms institutionalize tax knowledge within internal systems, may provide a deeper explanation of how tax planning capability is built and sustained over time.

A fourth direction involves the coordination of expertise across multinational organizational structures. For firms operating across multiple jurisdictions, tax planning effectiveness may depend not only on the expertise embedded within a single board, but also on the extent to which tax knowledge is coordinated across subsidiaries, regional leadership structures, and transnational governance networks. Future studies could investigate whether cross-border expertise integration generates strategic advantages beyond those attributable to board-level expertise alone.

Finally, the regulatory consequences of unequal tax planning capabilities merit closer examination. If some firms possess superior tax expertise and are therefore better able to exploit regulatory complexity, tax authorities may respond by increasing scrutiny, intensifying enforcement, or targeting firms perceived to have sophisticated tax planning systems. Such dynamics suggest that the value of tax expertise may be shaped not only by internal capabilities but also by the strategic reactions of regulators. Examining this interaction would contribute to a more balanced understanding of the evolving relationship between corporate tax capability and regulatory oversight.

## CONCLUSION

This study examines how board tax expertise influences corporate tax planning effectiveness in Indonesia's resource-constrained environment, with the aim of addressing persistent inconsistencies in the tax planning literature. Based on a sample of 524 listed companies observed over the 2018–2023 period and employing both PLS-SEM and panel regression techniques, the analysis provides robust evidence that board tax expertise constitutes the strongest determinant of tax planning effectiveness, exceeding the explanatory relevance of more conventional factors such as intellectual capital and financial constraints.

This study makes four principal contributions to the literature. First, the study extends Resource-Based View theory to the tax planning context by demonstrating how scarce expertise generates sustainable competitive advantages and conditions the effectiveness of other firm resources. Second, a comprehensive multidimensional measure of board tax expertise is developed and validated, capturing professional qualifications, experience depth, regulatory background, and current engagement—improving explanatory power by 31.2% over traditional binary measures. Third, methodologically robust evidence is provided through the combined use of structural equation modelling and panel econometric techniques.

Fourth, the analysis shows how institutional contexts reshape tax planning relationships in ways that differ from developed-market evidence.

The moderating role of international diversification provides additional insights, showing how global operations fundamentally alter the value of domestic resources. International diversification amplifies the benefits of both intellectual capital and board expertise while mitigating the constraining effects of debt covenants. This finding is particularly relevant given recent developments in international tax coordination and Indonesia's implementation of BEPS standards.

For practitioners, the findings underscore the strategic importance of board composition in enhancing tax planning effectiveness. The limited availability of tax expertise in Indonesia creates a competitive advantage for firms that are able to attract and retain directors with tax-related expertise, with estimated annual tax savings ranging from IDR 22 billion to IDR 48 billion for average-sized firms. The dimensional analysis further indicates that directors with regulatory backgrounds provide particularly strong value, although each dimension of expertise contributes meaningfully to tax planning effectiveness.

For policymakers, results highlight how human capital constraints in the tax profession may create unequal playing fields, with sophisticated firms achieving substantially lower tax rates than their less-equipped competitors. This suggests potential value in capacity-building initiatives and programs to increase the supply and distribution of tax expertise.

As global tax systems become increasingly complex due to digitalization and greater international coordination, the value of specialized tax expertise is expected to rise further. The evidence indicates that firms treating tax planning solely as a compliance function may forgo strategic opportunities that can be captured by competitors with board-level tax expertise. The interaction between expertise and international diversification also suggests that, as firms expand globally, the coordinated development of board-level expertise becomes increasingly important for sustaining tax competitiveness.

Future research should examine how technological disruption may reshape the nature of tax expertise and whether artificial intelligence can partially substitute for human judgment in tax strategy formulation. In addition, as tax authorities adopt more sophisticated analytical capabilities, the evolving dynamics of the expertise-based competition between taxpayers and regulators merit continued scholarly attention. Nonetheless, the findings indicate that, in the foreseeable future, board tax expertise will remain a critical determinant of corporate tax planning effectiveness, particularly for firms operating in complex regulatory environments.

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