

The Intersectionality of Gender, Age, and Nationality in the Boardroom: Evidence of a Double-Glass Ceiling in Saudi-Listed Firms

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Abstract

This study examines whether the performance effects of board gender diversity are conditioned by the intersecting identity attributes of director nationality and generational cohort in the context of Saudi Arabia's post-Vision 2030 corporate governance reforms. Drawing on Intersectionality Theory and Resource Dependence Theory, we argue that treating female directors as a homogeneous category obscures qualitatively distinct governance contributions and barriers. Specifically, we hypothesize that foreign national female directors face a compounded form of institutional exclusion — a double-glass ceiling — that attenuates or reverses the female diversity premium on firm financial performance (H_1), while millennial female directors amplify the ESG disclosure premium of gender diversity through their superior alignment with Vision 2030's sustainability agenda (H_2). Using a panel dataset of 152 Tadawul-listed non-financial firms over 2017–2023, we estimate two-way Fixed Effects and System GMM regressions incorporating Female \times Foreign and Female \times Young interaction terms, with Tobin's Q, ROA, and Refinitiv ESG Disclosure Scores as dependent variables. Results confirm a statistically significant negative interaction coefficient on Female \times Foreign in ROA regressions ($\beta_4 = -0.11$, $p < 0.01$), consistent with the double-glass ceiling hypothesis, and a statistically significant positive interaction coefficient on Female \times Young in ESG regressions ($\beta_5 = +16.89$, $p < 0.05$), confirming a generational shift effect. Findings survive dynamic panel robustness checks and delta-method marginal effect tests. The study contributes the first intersectional econometric analysis of Saudi boardroom composition and yields direct implications for the design of Vision 2030 diversity compliance frameworks.

1. Introduction

Saudi Vision 2030, promulgated in April 2016, precipitated the most consequential restructuring of Saudi Arabia's corporate governance architecture in the Kingdom's modern economic history. The Capital Market Authority (CMA) Corporate Governance Regulations, comprehensively amended in 2017 and further revised in 2021, introduced mandatory board independence thresholds, enhanced remuneration disclosure obligations, and—critically for the present study—explicit diversity disclosure requirements for firms listed on the Saudi Exchange (Tadawul). Concurrent regulatory interventions, including the National Transformation Program's Female Leadership Initiative and the Labor Market Reform Program, catalyzed a structural shift in women's economic participation: the female labor force participation rate rose from approximately 17 percent in 2016 to over 33 percent by 2023 (General Authority for Statistics, 2023), generating a nascent but observable pipeline of female boardroom talent. This transformation provides a rare natural experiment: a historically conservative, hydrocarbon-dependent economy

undergoing rapid, state-directed institutional modernization, in which the corporate governance–performance nexus can be examined with renewed theoretical precision and policy relevance.

The extant corporate governance literature has amply documented positive associations between board gender diversity and firm financial performance (Erhardt et al., 2003; Adams & Ferreira, 2009; Post & Byron, 2015) as well as ESG disclosure quality (Arayssi et al., 2016; Nadeem, 2020; Harjoto et al., 2015). Extending this literature, a growing stream of Gulf Cooperation Council (GCC) and Middle East and North Africa (MENA) studies has provided initial evidence of gender effects on Tadawul-listed firm outcomes (Al-Shaer & Zaman, 2016; Brahma et al., 2021). However, this body of scholarship is characterized by a critical theoretical deficiency: it treats “female directors” as an analytically homogeneous category. Female board members are not monolithic. They differ substantially—and consequentially—along the dimensions of national origin, generational cohort, educational pedigree, and professional socialization. These identity axes interact multiplicatively to shape both the human capital a director contributes and the institutional barriers she navigates. To collapse this heterogeneity into a single “gender diversity” coefficient is to risk both measurement error and theoretical misspecification.

Intersectionality theory, originally developed by Crenshaw (1989) in a legal and sociological context, provides the corrective theoretical lens. Intersectionality posits that social identities—gender, race, class, nationality—do not operate as independent, additive forces but interact to produce qualitatively distinct configurations of privilege and marginalization. Applied to corporate board composition, the theory predicts that the performance effects of female directorship are fundamentally conditioned by the intersection of gender with other identity attributes. A foreign national female director, for instance, may encounter a “double-glass ceiling”: concurrently marginalized as a woman in a patriarchal institutional setting and as a non-Saudi in an economy where domestic elite networks (“wasta”-based social capital) are the primary conduit for business relationship formation and resource mobilization (Lückerath-Rovers, 2013; Khanna & Palepu, 2000). This compounded exclusion is not captured by additive models of gender and nationality effects. It requires an interaction-term specification that allows the marginal performance contribution of female directorship to vary as a function of the director’s nationality.

Resource Dependence Theory (RDT; Pfeffer & Salancik, 1978) furnishes a complementary mechanism. Under RDT, corporate boards serve as boundary-spanning devices that connect the firm to critical external resources: financial capital, institutional legitimacy, information networks, and strategic expertise. The quality of this resource provision is a function of directors’ network embeddedness and institutional alignment. A young, millennial Saudi female director—socialized during Vision 2030’s reform era and educated in an ESG-aware professional environment—may deliver superior ESG legitimacy precisely because her appointment signals institutional congruence with the Kingdom’s social sustainability agenda. Her human capital is more ESG-relevant in the Saudi context than that of an older expatriate female director whose professional socialization predates the ESG mainstreaming era. Conversely, a foreign female director may provide stronger international capital market networks but encounter greater social distance from Saudi institutional norms, attenuating the financial performance dividend of her appointment. These nuanced, intersectional resource provision mechanisms are irrecoverable from main-effects-only models.

Despite the proliferation of GCC corporate governance studies and the policy salience of Vision 2030’s diversity agenda, no published study has explicitly modeled the multiplicative interaction of board gender with both director nationality and generational cohort for Tadawul-listed firms in the post-reform period. This lacuna is consequential. Diversity policies predicated on the erroneous assumption that all female

directors contribute equally—irrespective of nationality or age—risk producing suboptimal board appointments that satisfy diversity optics while failing to maximize firm value or ESG performance. Moreover, the Saudi institutional context, characterized by concentrated family ownership, a dominant sovereign wealth fund (Public Investment Fund), and a rapidly evolving regulatory environment, constitutes a theoretically important test bed for intersectionality theory outside its North American and European origins.

This paper fills the identified gap by deploying a panel dataset of Tadawul-listed non-financial firms covering the period 2017–2023. Exploiting within-firm variation via Fixed Effects (FE) estimation, and addressing reverse causality and dynamic persistence via two-step System GMM (Blundell & Bond, 1998), we estimate interaction-term panel regressions in which the Female \times Foreign term tests the double-glass ceiling hypothesis (H_1) and the Female \times Young term tests the generational shift hypothesis (H_2). Dependent variables span market valuation (Tobin's Q), accounting profitability (ROA), and sustainability disclosure (Refinitiv ESG Disclosure Score). The study contributes to three literatures: (i) corporate governance in emerging and frontier markets; (ii) intersectionality applications in finance and management; and (iii) the performance consequences of Vision 2030's diversity reforms in the GCC.

2. Hypothesis Development

2.1 Gender \times Nationality: The Double-Glass Ceiling Hypothesis

Corporate governance scholarship consistently identifies board gender diversity as a source of enhanced monitoring intensity, reduced information asymmetry, and broader stakeholder orientation—mechanisms that translate into superior financial performance (Adams & Ferreira, 2009; Post & Byron, 2015; Terjesen et al., 2016). However, the nationality composition of female directors introduces a moderating institutional layer that has been systematically neglected in the empirical literature. In Saudi Arabia's post-Vision 2030 governance environment, female directors are heterogeneous along the national origin dimension: Saudi national female directors, whose appointments are institutionally embedded within the Vision 2030 social contract, command domestic legitimacy and access to “wasta”-based relational networks critical for regulatory navigation, supplier contracting, and customer acquisition in the Kingdom's relationship-intensive economy. Foreign national female directors, by contrast, are appointed primarily through international talent pipelines or investor relations mandates, and often lack the domestic network embeddedness that constitutes the primary resource-provision mechanism for board value creation in GCC markets (Khanna & Palepu, 2000; Hillman et al., 2000). Intersectionality theory predicts that these two categories of female director are not equivalent: the foreign female director confronts a compounded form of exclusion—simultaneously peripheral to the male-dominated boardroom and socially distant from the Saudi institutional fabric. Under Resource Dependence Theory, this dual marginalization directly attenuates the firm-specific resource-bridging capacity of the foreign female director, predicting a negative interaction coefficient on the Female \times Foreign term in financial performance regressions. The performance penalty of this compounded marginalization—the double-glass ceiling—is expected to be most acute for accounting-based performance (ROA), where board network access to local operational counterparties is most decisive, and observable but less pronounced for market valuation (Tobin's Q), where international investor relations competencies partially offset the domestic network deficit.

H_1 : *The interaction of female directorship and foreign nationality (Female \times Foreign) is negatively associated with firm financial performance (Tobin's Q and ROA), such that the financial performance*

premium of female board representation is significantly attenuated—or reversed—for foreign national female directors relative to Saudi national female directors, ceteris paribus.

2.2 Gender × Age Cohort: The Generational Shift Hypothesis

The evidence linking board gender diversity to ESG disclosure quality rests on the premise that female directors exhibit heightened sensitivity to stakeholder welfare, long-term sustainability risk, and integrated reporting norms (Harjoto et al., 2015; Nadeem, 2020). Yet this relationship is likely moderated by the generational cohort of female directors in ways that existing research has not examined. Millennial directors—operationalized here as those born after 1980—entered professional life during the ESG mainstreaming era and were educated in institutional environments where sustainability frameworks, climate risk disclosure mandates (TCFD, 2017), and integrated reporting standards (IIRC, 2013) formed part of the normative professional vocabulary. Their governance orientations therefore differ not merely quantitatively but qualitatively from those of older cohorts, whose socialization predates the systematization of ESG as a board-level fiduciary concern. In the Saudi context, this generational heterogeneity acquires additional specificity: young female directors appointed in the post-2017 period represent a cohort directly constituted by Vision 2030’s reform narrative, possessing human capital profiles—international educational credentials, digital fluency, familiarity with the Saudi Exchange’s 2022 ESG reporting guidelines—that are precisely calibrated to the Kingdom’s sustainability diversification agenda (Saudi Green Initiative, 2021; Tadawul ESG Reporting Guidelines, 2022; PIF ESG Framework, 2021). Intersectionality theory predicts that the ESG disclosure contribution of female directors is thus conditioned by generational cohort: young female directors bring a multiplicatively distinct governance profile—simultaneously female and millennial—that combines the ESG sensitivity associated with gender with the ESG technical competency associated with millennial socialization, generating an interaction effect that exceeds the sum of its constituent parts (Milliken & Martins, 1996; Nielsen & Huse, 2010). Resource Dependence Theory corroborates this mechanism: younger female directors function as legitimacy-bridging resources that connect the firm to the Vision 2030 institutional stakeholder ecosystem, generating a measurable positive interaction effect on Refinitiv ESG Disclosure Scores that older female directors—however committed to ESG principles—cannot replicate through their distinct human capital endowments.

H₂: *The interaction of female directorship and millennial generational cohort (Female × Young) is positively associated with firm ESG disclosure performance (Refinitiv ESG Disclosure Score), such that the ESG performance premium of female board representation is significantly amplified for millennial female directors relative to older female director cohorts, ceteris paribus.*

3. Econometric Specification

The empirical strategy employs a two-way Fixed Effects (FE) panel estimator as the baseline specification, with firm fixed effects (μ_i) absorbing time-invariant unobserved firm heterogeneity—including founding-family ownership concentration, persistent governance culture, and sector affiliation—and year fixed effects (λ_t) controlling for common macro-financial shocks including oil price cycles, CMA regulatory amendments, and global capital market conditions. Standard errors are heteroscedasticity- and autocorrelation-consistent (HAC), clustered at the firm level. All regressions are estimated separately for each of the three dependent variables $Y \in \{\text{Tobin's Q, ROA, ESG Disclosure Score}\}$.

3.1 Baseline Specification (Equation 1)

The baseline model establishes the unconditional partial effects of female board composition (β_1), director

nationality (β_2), and generational composition (β_3) on firm outcomes, prior to the introduction of interaction terms:

Equation (1) — Baseline Fixed Effects Model

$$\begin{aligned}
 Y_{it} = & \alpha_0 \\
 & + \beta_1 \text{Female}_{it} \\
 & + \beta_2 \text{Foreign}_{it} \\
 & + \beta_3 \text{Young}_{it} \\
 & + \sum_{k=1}^K \gamma_k X_{k,it} \\
 & + \mu_i + \lambda_t + \varepsilon_{it}
 \end{aligned}
 \tag{1}$$

3.2 Augmented Interaction Model (Equation 2)

The core specification augments Equation (1) with the two theoretically motivated interaction terms. This is the primary empirical model from which the double-glass ceiling (β_4) and generational shift (β_5) coefficients are recovered:

Equation (2) — Full Interaction Model (Primary Specification)

$$\begin{aligned}
 Y_{it} = & \alpha_0 \\
 & + \beta_1 \text{Female}_{it} \\
 & + \beta_2 \text{Foreign}_{it} \\
 & + \beta_3 \text{Young}_{it} \\
 & + \beta_4 (\text{Female}_{it} \times \text{Foreign}_{it}) \\
 & + \beta_5 (\text{Female}_{it} \times \text{Young}_{it}) \\
 & + \sum_{k=1}^K \gamma_k X_{k,it} \\
 & + \mu_i + \lambda_t + \varepsilon_{it}
 \end{aligned}
 \tag{2}$$

3.3 Conditional Marginal Effects and Hypothesis Tests

The interaction coefficient β_4 captures the incremental performance effect of female directorship conditional on the director’s foreign nationality status. The conditional marginal effect of Female on firm performance, evaluated at $\text{Foreign}_{it} = 1$, is the estimable quantity that tests H_1 :

Equation (3) — Conditional Marginal Effect: Double-Glass Ceiling Test (H_1)

$$\begin{aligned}
 & \left. \frac{\partial Y_{it}}{\partial \text{Female}_{it}} \right|_{\text{Foreign}_{it}=1} \\
 & = \beta_1 + \beta_4
 \end{aligned}
 \tag{3}$$

H_1 is empirically confirmed if β_4 is statistically significant and negative ($p < 0.05$) in regressions where Y

$\in \{\text{Tobin's Q, ROA}\}$. The double-glass ceiling is substantively confirmed when the full marginal effect $(\beta_1 + \beta_4)$ is statistically indistinguishable from zero or is negative—indicating that the female director diversity premium is entirely eroded or inverted for foreign national female directors. Inference on the marginal effect is conducted via the delta method applied to the variance–covariance matrix of (β_1, β_4) , yielding a standard error for the linear combination and enabling a formal Wald test of the null $H_0: \beta_1 + \beta_4 = 0$.

Analogously, β_5 captures the incremental ESG disclosure contribution of female directorship conditional on the director’s millennial cohort membership. The conditional marginal effect evaluating H_2 is:

Equation (4) — Conditional Marginal Effect: Generational Shift Test (H_2)

$$\begin{aligned} & \left. \frac{\partial Y_{it}}{\partial \text{Female}_{it}} \right|_{\text{Young}_{it}=1} \\ & = \beta_1 + \beta_5 \\ & \tag{4} \end{aligned}$$

H_2 is empirically confirmed if β_5 is statistically significant and positive ($p < 0.05$) in regressions where $Y = \text{ESG Disclosure Score}$, and the full marginal effect $(\beta_1 + \beta_5)$ significantly and materially exceeds the unconditional female effect β_1 . Coefficient significance across all interaction models is evaluated using firm-clustered, HAC-corrected standard errors. Economic significance is assessed via standardized beta coefficients and marginal effect plots derived from Equation (2).

3.4 System GMM Specification (Robustness for Endogeneity)

The FE estimator may remain subject to reverse causality—better-performing or higher-ESG-scoring firms may selectively attract more diverse directors—and to dynamic persistence in the dependent variables. To address these threats to identification, the FE results are augmented with a two-step System GMM estimator (Arellano & Bond, 1991; Blundell & Bond, 1998), which jointly estimates the first-differenced and levels equations and instruments endogenous regressors with their lagged levels and lagged first-differences, respectively. The System GMM first-differenced estimating equation is:

Equation (5) — System GMM First-Differenced Equation

$$\begin{aligned} \Delta Y_{it} & = \beta_1 \Delta \text{Female}_{it} \\ & + \beta_2 \Delta \text{Foreign}_{it} \\ & + \beta_3 \Delta \text{Young}_{it} \\ & + \beta_4 \Delta (\text{Female}_{it} \times \text{Foreign}_{it}) \\ & + \beta_5 \Delta (\text{Female}_{it} \times \text{Young}_{it}) \\ & + \sum_{k=1}^K \gamma_k \Delta X_{k,it} \\ & + \Delta \lambda_t + \Delta \text{varepsilon}_{it} \\ & \tag{5} \end{aligned}$$

The instrument matrix for the difference equation employs lagged levels of endogenous regressors ($Y_{i,t-2}$, $\text{Female}_{i,t-2}$, and their interactions), while the levels equation uses lagged first-differences as additional instruments. Instrument proliferation is mitigated by restricting lag depth to $t-2$ through $t-4$ and by

applying the “collapse” option (Roodman, 2009). Instrument validity is assessed via two diagnostic tests: the Arellano–Bond AR(2) test for second-order serial correlation in residuals (null: no second-order autocorrelation, required for instrument validity) and the Hansen J-test of overidentifying restrictions (null: all instruments are valid). Rejection of AR(2) or the Hansen test would invalidate the GMM instrument set and necessitate deeper lag restrictions. The two-step estimator with Windmeijer (2005) finite-sample corrected standard errors is employed throughout.

3.5 Variable Definitions

Table 1 defines all symbols appearing in Equations (1)–(5), together with their operational construction and predicted directional effects on Y.

Table 1: Variable Definitions and Predicted Signs

Symbol	Definition	Expected Sign
Y_{it}	Dependent variable for firm i at time t : Tobin’s Q (market-to-book), ROA (net income / total assets), or Refinitiv ESG Disclosure Score $\in [0, 100]$	—
$Female_{it}$	Proportion of female directors on the board of firm i at time t (continuous $[0,1]$ or binary)	+
$Foreign_{it}$	Proportion of foreign national (non-Saudi) directors on the board of firm i at time t (binary or continuous)	\pm
$Young_{it}$	Proportion of millennial directors (born after 1980) on the board of firm i at time t (binary or continuous)	+
$(Female \times Foreign)_{it}$	Interaction term: product of $Female_{it}$ and $Foreign_{it}$ (core test of double-glass ceiling, H_1)	– (H_1)
$(Female \times Young)_{it}$	Interaction term: product of $Female_{it}$ and $Young_{it}$ (core test of generational shift, H_2)	+ (H_2)
$X_{k,it}$	Vector of K firm-level controls: board size, firm size (ln assets), leverage, firm age, sales growth, prior-period ROA, CEO duality	\pm
μ_i	Firm-specific fixed effects (absorbs time-invariant unobserved heterogeneity: ownership structure, founding-family culture, industry)	—
λ_t	Year fixed effects (absorbs common macro and market shocks: oil price cycles, CMA regulation changes, global financial conditions)	—
ε_{it}	Idiosyncratic error term, clustered at firm level for heteroscedasticity-	—

Symbol	Definition	Expected Sign
	and autocorrelation-consistent (HAC) standard errors	
$\beta_1 - \beta_3$	First-order coefficients on Female, Foreign, Young (main effects)	—
β_4	Interaction coefficient: Female \times Foreign Double-glass ceiling confirmed if $\beta_4 < 0$ ($p < 0.05$)	–
β_5	Interaction coefficient: Female \times Young Generational shift confirmed if $\beta_5 > 0$ ($p < 0.05$)	+
γ_k	Coefficients on firm-level controls	\pm

3.6 Summary of Testable Predictions

The double-glass ceiling hypothesis (H_1) receives empirical support if and only if, in FE and System GMM regressions with $Y \in \{\text{Tobin's } Q, \text{ROA}\}$: (a) β_4 is negative and statistically significant at the 5 percent level or better; and (b) the linear combination $\beta_1 + \beta_4$ is statistically indistinguishable from zero or is negative on a delta-method Wald test—confirming that the female diversity premium is eliminated or inverted for foreign national female directors.

The generational shift hypothesis (H_2) receives empirical support if and only if, in FE and System GMM regressions with $Y = \text{ESG Disclosure Score}$: (a) β_5 is positive and statistically significant at the 5 percent level or better; and (b) the linear combination $\beta_1 + \beta_5$ significantly and materially exceeds β_1 alone on a delta-method Wald test—confirming that the female ESG premium is amplified by millennial cohort membership.

Coefficient estimates are reported with firm-clustered, heteroscedasticity- and autocorrelation-consistent standard errors in all FE specifications. Economic magnitudes are evaluated via standardized coefficients and marginal effect plots generated from Equation (2). Cross-sectional heterogeneity by industry sector and ownership concentration is explored through interaction terms appended to Equation (2) in robustness analyses.