






“Determinants of corporate real estate financing choices in emerging Gulf and mature Asian markets”

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DETERMINANTS OF CORPORATE REAL ESTATE FINANCING CHOICES IN EMERGING GULF AND MATURE ASIAN MARKETS

Abstract

Corporate real estate financing is a channel through which macro-financial volatility, regulation, and strategic orientation affect firms' balance sheets. This study explains how firms in the United Arab Emirates, Saudi Arabia, and Singapore choose between leasing, owning, and hybrid property-financing structures and how these choices perform under uncertainty. The empirical framework combines Generalized Structural Equation Modeling with Monte Carlo simulation using macroeconomic and real estate data, latent constructs for strategic orientation, financial constraints, regulatory pressure, and perceived risk, and an outcome indicating the dominant property-financing structure. Measurement reliability is acceptable (Cronbach's alpha 0.77–0.82, composite reliability 0.83–0.87, average variance extracted 0.57–0.62). Structural estimates show that strategic orientation ($\beta = 0.36$) and financial constraints ($\beta = 0.41$) have significant effects on property-financing choices, and regulatory pressure also contributes ($\beta = 0.27$), and perceived risk reduces the likelihood of ownership ($\beta = -0.38$) while mediating strategic and regulatory influences (indirect $\beta = -0.13$ and $\beta = -0.17$). Country context significantly moderates the impact of financial constraints ($\beta = 0.12$) and perceived risk ($\beta = -0.10$). Simulation results indicate net present values of 3.75, 2.80, and 4.10 million USD for the United Arab Emirates, Saudi Arabia, and Singapore. The study concludes that property-financing structure is a strategic decision and that the combined structural-simulation framework is a useful tool for analyzing corporate decisions in heterogeneous markets.

Keywords

real estate, leasing, ownership, risk, regulation,
simulation, capital structure

JEL Classification

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INTRODUCTION

Corporate real estate (CRE) is a significant and largely irreversible component of the corporate balance sheet, locking firms into long-term commitments that affect liquidity, risk exposure, and strategic flexibility. Choices between leasing, owning, or adopting hybrid arrangements shape how organizations absorb macroeconomic shocks, respond to regulatory change, and pursue opportunities. In rapidly transforming economies such as the United Arab Emirates and Saudi Arabia, national development plans, Islamic finance, and evolving capital markets are reshaping the environment in which CRE decisions are made. By contrast, a mature financial hub such as Singapore offers deep REIT markets, risk-management practices, and relatively stable regulatory and macro-financial conditions. Across these heterogeneous settings, CRE financing structures form a channel through which institutional change and financial volatility are transmitted to balance sheets.

However, the mechanisms through which firms select between leasing, ownership, and hybrid CRE structures remain poorly understood. Classical capital-structure theories focus on the mix of debt and eq-

uity, treating real estate implicitly and paying limited attention to distinctive features of CRE, including asset indivisibility, location specificity, and exposure to regulatory and accounting regimes. Empirical studies often examine single countries, isolated sectors, or specific instruments such as REITs or sale-leasebacks, using static models that do not fully capture uncertainty, institutional heterogeneity, or behavioral factors such as managerial risk perception.

The scientific problem arises from this fragmentation: in institutional environments as diverse as the UAE, Saudi Arabia, and Singapore, it is not clear how strategic drivers, financing constraints, regulatory architectures, macro-financial volatility, and risk perceptions interact to determine whether firms lease, buy, or adopt hybrid CRE strategies, or how these intertwined determinants shape long-term financial outcomes.

1. LITERATURE REVIEW

Corporate real estate (CRE) financing has evolved from a narrow cost–risk calculation into a strategic decision that shapes organizational flexibility, competitiveness, and balance-sheet structure. Choices between leasing, ownership, and hybrid arrangements reflect how firms align long-term property commitments with strategic orientation, financial constraints, regulatory environments, and perceived risk. In this respect, the UAE, Saudi Arabia, and Singapore offer contrasting but complementary settings: the first two combine rapid transformation and state-led development with Islamic finance and evolving capital markets, while the latter represents a mature, globally integrated financial hub. This section synthesizes the literature on strategic drivers, capital access, regulatory-institutional influences, risk perception, and analytical methods, and uses that synthesis to derive a comparative conceptual framework for the present study.

Strategic orientation is increasingly recognized as a primary driver of CRE financing decisions because it determines how real estate is used to support growth, agility, and competitive positioning rather than simply to house operations (Akin & Akin, 2025; Wiegelmann & Schwab, 2025). Traditional finance models emphasize minimizing cost and exposure, but more recent work shows that CRE can be managed as a strategic asset that enhances organizational agility and market signaling (Wiegelmann & Glauerdt, 2025). In the UAE, firms often frame CRE decisions within national growth plans and the rise of REITs, adopting leasing to maintain locational flexibility, support ESG commitments, and remain aligned with state-driven development agendas (Abdeen, 2025; Davis & Magee, 2024). In

Saudi Arabia, Vision 2030 has repositioned CRE as a strategic lever in large-scale developments such as NEOM, where firms must navigate Islamic finance structures, state incentives, and trade-offs between asset control and political alignment (Aldhobaib, 2025; Oreqat, 2021). Singapore provides a contrasting benchmark in which CRE choices are deeply integrated into broader financial strategy through the active use of REITs, sale–leasebacks, and tax-optimized leasing; here, a stable regulatory environment supports a proactive, financially engineered approach to CRE strategy (Ametefe et al., 2026; Shanmugam & Rosario, 2025). Together, these studies suggest that similar strategic aims – flexibility, value creation, and reputational signaling – can lead to different financing structures once filtered through distinct national development models.

Financial constraints and access to capital further shape CRE financing behavior and interact with strategic considerations. Firms facing liquidity pressures, weak credit ratings, or high opportunity costs of capital commonly rely on leasing to preserve cash flow and operational flexibility (Al-Muntasir, 2022; Mohamad Ariff et al., 2024). This tendency is amplified in volatile or emerging markets, where regulatory frictions, underdeveloped debt markets, and currency risk elevate the cost of ownership (Abdeljawad & Jaradat, 2025; Al Janabi, 2024). Comparative evidence shows that firms often adopt short-term leases or sale–leaseback arrangements in highly leveraged or interest-sensitive environments, thereby limiting long-term commitments while still gaining access to strategic locations (Morshed, 2025c). In jurisdictions where public-private partnerships or Islamic financing models are prevalent, financing options are further shaped by religious compliance, state-backed instruments, and limited private lending

channels (Cooke et al., 2022; Echeverri et al., 2021). Even in mature markets like Singapore, where REITs and deep capital markets expand the menu of ownership-based options, firms still face internal allocation trade-offs and may lease when real estate competes with core investment priorities (Cheong & Chan, 2024; Danila, 2025). Across the UAE, Saudi Arabia, and Singapore, financial constraints therefore operate both as firm-level limitations and as system-level features linked to market maturity and the architecture of capital access.

Regulatory and institutional frameworks add another layer of differentiation to CRE financing choices, especially in cross-country comparisons (Gupta et al., 2024). Institutional theory emphasizes that firms adapt financing strategies not only in line with internal objectives but also in response to tax policy, legal standards, and enforcement environments that define what is legitimate and efficient (Balzano et al., 2024; Morshed, 2024a). The adoption of IFRS 16 is a key example: by capitalizing most leases on the balance sheet, it raises reported liabilities, reshapes capital structure, and alters perceptions of risk, although the magnitude of these effects varies across jurisdictions (Aladwan, 2025; Morshed, 2024b). In emerging and transitioning markets, firms may be nudged toward leasing through state-backed programs, Islamic finance structures such as Ijara, or access to subsidized land within national development plans (Fadul et al., 2024; Shaban & Omoush, 2025). These instruments frequently embed compliance and political alignment into financing choices. In contrast, mature institutional environments like Singapore provide legal clarity, transparent enforcement, and scope for financial innovation, enabling strategic use of REITs, green bonds, and sale-leasebacks with relatively low regulatory ambiguity (Liow, 2022; Zeng, 2024). The literature, therefore, indicates that superficially similar CRE decisions – such as choosing to lease rather than own – may reflect very different underlying institutional logics in each country.

Risk perception functions as a behavioral bridge between these structural factors and actual financing outcomes (Alshammari & Al-Mamary, 2025). Beyond objective measures such as interest rates and inflation, perceived risk reflects managerial judgements about regulatory unpredictabil-

ity, macroeconomic volatility, and asset-specific uncertainties (Almansour et al., 2023). In higher-risk or rapidly reforming environments, managers may view long-term ownership as too rigid and instead favor leasing or hybrid structures that preserve optionality. Conversely, in more stable settings, ownership can be perceived as a way to secure cost control and benefit from capital appreciation (Gagné & Hewett, 2025). These perceptions are context-sensitive, shaped by institutional quality, policy enforcement, and sector dynamics (Seagraves, 2024). Behavioral and institutional perspectives underscore that risk perceptions, informed by prior experience and local market knowledge, mediate the way strategic orientation and regulatory pressure are translated into financing choices (Chen et al., 2023; Lathief et al., 2024). As a result, firms facing similar financial conditions may adopt different CRE structures when they differ in how they perceive and interpret risk.

Analytical approaches to CRE financing have not always kept pace with the complexity highlighted in these studies. Many empirical contributions rely on static or linear models that do not fully capture uncertainty, non-linear interactions, or feedback effects. Simulation and structural modelling techniques offer more suitable tools for this task (Gong et al., 2024). Monte Carlo Simulation (MCS) allows researchers and practitioners to treat variables such as interest rates, inflation, and capital costs as stochastic inputs (Kim et al., 2024), generating probability distributions for indicators like Net Present Value (NPV) and Total Cost of Ownership (TCO) rather than single-point estimates (Ronyastra et al., 2024; Starr et al., 2021). Generalized Structural Equation Modeling (GSEM) complements this by linking observed financing outcomes (lease, buy, hybrid) to latent constructs such as strategic orientation and regulatory pressure, and by accommodating mediating and moderating effects within one integrated model (Yang et al., 2021). However, the literature indicates that these methods are usually applied separately and rarely combined in comparative studies of CRE financing in different institutional settings.

These empirical patterns point to deeper theoretical issues. Classical capital structure theories, including trade-off and pecking order frameworks (Pinillos et al., 2025). Explain firms' preferences

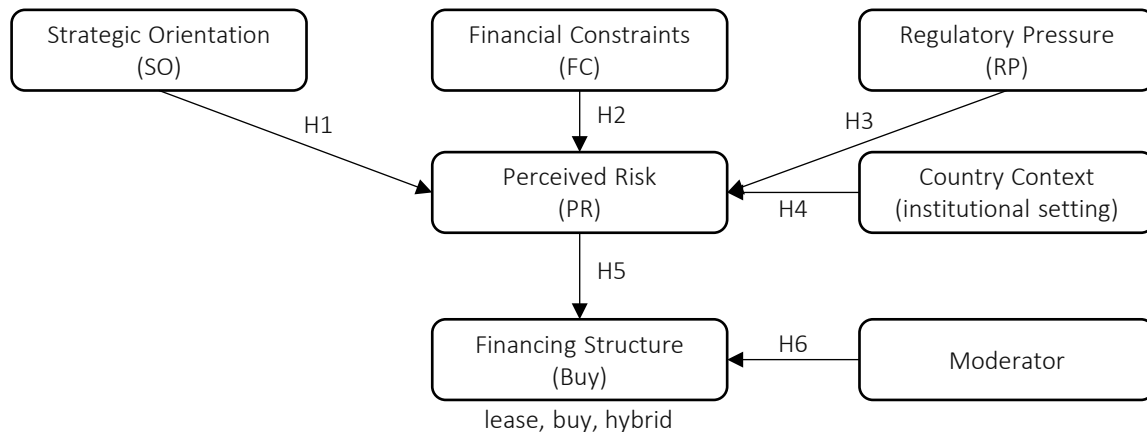


Figure 1. Conceptual framework

for debt versus equity but say relatively little about how firms choose between leasing, outright ownership, and hybrid forms in CRE markets, especially where assets are lumpy and strategically critical (Alghifari et al., 2022; Esghaier, 2024). Resource-Based View (RBV) theory brings a strategic lens by arguing that firms select financing modes that preserve and develop their core capabilities – for example, leasing to retain financial flexibility for innovation or owning to secure long-term control over strategic locations (Wang, 2024). Institutional theory extends this by highlighting how regulatory systems, cultural norms, and legal infrastructures shape financing practices and constrain or enable specific instruments (Feng & Wu, 2023; Morshed, 2025a). Yet, these perspectives are often examined separately, and behavioral insights about perceived risk are not fully integrated into models of CRE financing. The result is a fragmented understanding of how internal drivers, external pressures, and risk perceptions interact, particularly across countries with contrasting institutional architectures such as the UAE, Saudi Arabia, and Singapore.

In summary, the literature indicates that CRE financing decisions are shaped jointly by strategic orientation, financial constraints, regulatory-institutional environments, and managerial risk perceptions, and that these forces operate differently in emerging and mature markets. At the same time, existing research rarely integrates these drivers into a single comparative framework or applies advanced analytical tools such as GSEM combined with Monte Carlo simulation to model their complex interactions.

Accordingly, the purpose of this study is to develop and empirically test a hybrid conceptual framework that examines how strategic orientation, financial constraints, regulatory pressure, and perceived risk – moderated by country context – jointly determine corporate real estate financing structures (lease, buy, hybrid) in the UAE, Saudi Arabia, and Singapore using a combined GSEM-MCS approach.

Based on the above synthesis, the study tests the following hypotheses:

- H1: Strategic orientation is positively associated with the likelihood of selecting ownership over leasing.*
- H2: Financial constraints are positively associated with the likelihood of selecting leasing over ownership.*
- H3: Regulatory pressure is positively associated with the likelihood of selecting leasing over ownership.*
- H4: Perceived risk is negatively associated with the likelihood of selecting ownership.*
- H5: Perceived risk mediates the relationship between strategic orientation and financing structure.*
- H6: Perceived risk mediates the relationship between regulatory pressure and financing structure.*

H7: Country context moderates the relationship between financial constraints and financing structure.

H8: Country context moderates the relationship between perceived risk and financing structure.

Figure 1 shows the study's conceptual framework for corporate real estate financing choices (lease, buy, or hybrid), linking strategic, financial, regulatory, risk, and country-context factors across the UAE, Saudi Arabia, and Singapore.

2. METHODS

This study follows a multi-stage procedure that combines archival data collection, conceptual construct operationalization, Generalized Structural Equation Modelling (GSEM), Monte Carlo Simulation (MCS), and sensitivity analysis to examine corporate real estate (CRE) financing strategies in the United Arab Emirates, Saudi Arabia, and Singapore. The three countries were selected to represent contrasting institutional and market conditions: a dynamic, high-growth CRE environment with expanding REIT activity and green financing tools in the UAE (Morshed, 2024c; Pillai et al., 2021), an economy under transformation with Vision 2030, megaprojects, and Islamic-compliant instruments in Saudi Arabia (Marzuki & Newell, 2025), and a mature, transparent financial system with digital REITs and sustainability-linked instruments in Singapore.

In the first stage, macroeconomic and financial data were collected exclusively from secondary, publicly available sources. Interest rates, inflation, exchange rates, and corporate tax rates for each country were obtained from central banks, national statistical offices, and international databases such as the IMF, World Bank, and BIS. Real estate-specific indicators – including average rental rates, construction costs, yields, and typical lease terms – were extracted from annual reports of listed REITs and property companies (for example, Emirates REIT, Saudi REITs, Mapletree) and from market reports published by CBRE, JLL, Knight Frank, and similar agencies (Salhab et al., 2025). All monetary variables were converted into USD and adjusted for purchasing power parity (PPP) to

enable cross-country comparability. No firm-level confidential data or survey data were used.

In the second stage, the conceptual model was operationalized. Financing structure (FS) was defined as a categorical outcome representing the dominant CRE strategy: lease, buy, or hybrid. Strategic orientation (SO), financial constraints (FC), regulatory pressure (RP), and perceived risk (PR) were specified as latent constructs. Their indicators were derived from theory and sector-level benchmarks, such as leverage norms, availability of tax incentives, regulatory intensity, and macro-volatility characteristics. Country context (C) was coded using dummy variables for the UAE, Saudi Arabia, and Singapore. These constructs correspond directly to the conceptual framework and hypotheses H1–H8 formulated in the literature review.

In the third stage, a GSEM was specified and estimated to capture the structural relationships among the latent constructs and the categorical financing outcome. Let SO (strategic orientation), FC (financial constraints), RP (regulatory pressure), and PR (perceived risk) denote latent variables; FS the observed categorical financing structure; and C a vector of country dummy variables. Each latent construct is linked to its observed indicators through standard factor-loading equations, for example:

$$SO = \lambda_1 x_1 + \lambda_2 x_2 + \dots + \varepsilon_{SO}, \quad (1)$$

$$FC = \lambda_3 x_3 + \lambda_4 x_4 + \dots + \varepsilon_{FC}, \quad (2)$$

$$RP = \lambda_5 x_5 + \lambda_6 x_6 + \dots + \varepsilon_{RP}, \quad (3)$$

$$PR = \lambda_7 x_7 + \lambda_8 x_8 + \dots + \varepsilon_{PR}, \quad (4)$$

where x_i are observed indicators and ε_{SO} , ε_{FC} , ε_{RP} , ε_{PR} are measurement errors.

The core structural model links perceived risk to the exogenous latent variables and financing structure to perceived risk, the exogenous variables, and the country context. The equation for perceived risk is:

$$PR = \beta_1 SO + \beta_2 FC + \beta_3 RP + \zeta_{PR}, \quad (5)$$

where ζ_{PR} is the structural disturbance term.

Financing structure FS is modelled as a nominal categorical variable with three categories: lease ($j = 1$), buy ($j = 2$), and hybrid ($j = 3$). A multinomial logit specification is used with lease ($j = 1$) as the reference category. For each non-reference category $j \in \{2, 3\}$, the model is:

$$\log\left(\frac{P(FS = j)}{P(FS = 1)}\right) = \alpha_j + \gamma_{1j}PR + \gamma_{2j}SO + \gamma_{3j}FC + \gamma_{4j}RP + \gamma_{5j}C + \gamma_{6j}(PR \cdot C) + \gamma_{7j}(FC \cdot C) + u_j, \quad (6)$$

where u_j is the error term for category j . The coefficients γ_{2j} , γ_{3j} , and γ_{4j} capture the direct effects of SO , FC , and RP on financing structure; γ_{1j} captures the effect of perceived risk; and γ_{6j} and γ_{7j} capture the country-level moderation of perceived risk and financial constraints, respectively. This specification allows the study to test direct effects, indirect (mediated) effects via PR , and moderated effects in line with hypotheses H1–H8.

The GSEM was estimated using maximum likelihood with robust standard errors in STATA 17. Model adequacy was evaluated using information criteria (Akaike Information Criterion and Bayesian Information Criterion) and pseudo- R^2 measures appropriate for multinomial outcomes (Chanda et al., 2025). Direct, indirect, and interaction effects were derived from the estimated parameters. Mediation is assessed through the significance of indirect paths (e.g., $SO \rightarrow PR \rightarrow FS$; $RP \rightarrow PR \rightarrow FS$) and bootstrapped 95% confidence intervals. Moderation by country context is assessed via the interaction terms between C and key drivers (e.g., $FC \times C$, $PR \times C$). Hypotheses are considered supported when the corresponding path coefficients or interaction terms are statistically significant at conventional thresholds ($p < 0.05$, with stronger evidence at $p < 0.01$ or $p < 0.001$).

In the fourth stage, an MCS framework was developed to evaluate the financial performance of each financing strategy under uncertainty, using the collected data as calibration points. For each country and each financing option (lease, buy, hybrid), project cash flows were modelled over a planning horizon T . Let R_t represent rental payments at time t , M_t maintenance and operating costs, I_t the

time-varying interest rate, C_0 the upfront capital cost of a purchase, S_T the residual property value at the horizon, and r the discount rate reflecting risk and country conditions. Key inputs – including interest rates, inflation, rental growth, capital expenditure, maintenance costs, and residual values – were assigned normal or triangular probability distributions whose parameters were informed by historical macro and market data for each country.

The NPV of a lease strategy is defined as:

$$NPV_{lease} = \sum_{t=1}^T \frac{R_t + M_t}{(1+r)^t}, \quad (7)$$

while the NPV of a buy strategy is defined as:

$$NPV_{buy} = C_0 + \sum_{t=1}^T \frac{M_t}{(1+r)^t} - \frac{S_T}{(1+r)^T}. \quad (8)$$

Hybrid strategies combine elements of both structures (for example, partial ownership plus lease), with cash flows constructed as the weighted combination of leasing and ownership cash flows over time. For each country–strategy combination, 1,000 simulation iterations were conducted in Oracle Crystal Ball, generating empirical distributions of NPV and Total Cost of Ownership (TCO). For comparative analysis, the difference ($\Delta NPV = NPV_{lease} - NPV_{buy}$) and analogous differentials for hybrid strategies were calculated, allowing risk-adjusted comparisons across financing forms. A strategy is treated as financially attractive when its mean NPV is positive, and the associated dispersion (e.g., standard deviation or percentile range) is consistent with acceptable risk tolerance (Bader et al., 2025).

In the fifth stage, global sensitivity analysis was applied to the simulated outputs to identify the most influential input variables. Rank-order (correlation-based) sensitivity metrics and tornado charts were used to quantify the impact of each stochastic input – such as interest rates, inflation, rental growth, capital expenditure variability, and maintenance costs – on NPV outcomes (Salhab et al., 2025; Ahmad et al., 2023). This procedure highlights which macroeconomic and cost factors drive the relative performance of leasing, buying, and hybrid strategies in each country (Taqa, 2025).

In the sixth stage, the reliability and validity of the latent constructs in the GSEM were assessed. Measurement reliability and convergent validity are evaluated using Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE), with constructs deemed acceptable when $CR > 0.70$, $\alpha > 0.70$, and $AVE > 0.50$ (Vázquez-Parra et al., 2024). Discriminant validity is assessed using the Fornell–Larcker criterion, which requires that the square root of each construct's AVE exceed its correlations with other constructs. For the MCS component, convergence and stability of the simulated distributions are checked through repeated runs and inspection of NPV and TCO distributions to ensure that results are not driven by artefacts of the simulation procedure.

Finally, all modelling steps are conducted in compliance with ethical and transparency standards. The study involves no human participants or personal data, and therefore does not require formal ethics approval. All variables are drawn from publicly available databases, financial statements, and institutional reports, and all modelling assumptions are based on established theory and documented empirical ranges (Alshehadeh et al., 2023). Currency conversions and PPP adjustments are applied consistently across countries, and the full set of modelling assumptions and parameter ranges can be made available upon reasonable request to support reproducibility.

All data used in this study are public, non-confidential, and fully traceable to official or widely recognized international statistical providers. To ensure transparency and reproducibility, the complete research package – including the cleaned panel dataset, the variable codebook, a detailed source log with retrieval dates, and the full replication workflow for data harmonization and Monte Carlo simulation – has been deposited in Zenodo under DOI: 10.5281/zenodo.18270568. The dataset integrates macro-financial indicators from standardized international databases (e.g., World Development Indicators) and

governance measures (e.g., Worldwide Governance Indicators, used to operationalize and rescale the regulatory proxy to a 0–10 index), alongside real-estate market benchmarks and property-price indicators obtained from authoritative national agencies and reputable market reporting sources. All variables (Real Estate CapEx, Annual Lease Cost, Interest Rate, Inflation Rate, Regulatory Burden Index, and Perceived Market Risk) are documented with clear definitions, units, and transformation rules, enabling independent replication of the reported results.

3. RESULTS AND DISCUSSION

This section presents the empirical results obtained from the integrated GSEM–Monte Carlo Simulation framework. The findings are reported in a single sequence that begins with the assessment of the measurement model, followed by simulation consistency and sensitivity, descriptive statistics, structural estimates, and finally the simulation-based evaluation of financing outcomes across the UAE, Saudi Arabia, and Singapore.

To ensure the robustness of the latent constructs used in the GSEM, measurement reliability and validity were first examined. Composite Reliability (CR), Cronbach's alpha (α), and Average Variance Extracted (AVE) were computed for strategic orientation, financial constraints, regulatory pressure, and perceived risk. As shown in Table 1, all constructs exceed commonly used minimum thresholds ($CR > 0.70$, $\alpha > 0.70$, $AVE > 0.50$). Cronbach's alpha values range from 0.77 to 0.82, CR values range from 0.83 to 0.87, and AVE values range from 0.57 to 0.62, confirming strong internal consistency and convergent validity (Morshed, 2025b).

Discriminant validity was then assessed using the Fornell–Larcker criterion. Table 2 reports the square roots of AVE on the diagonal and inter-construct correlations off-diagonal. For each construct, the diagonal values (0.75–0.79) exceed the

Table 1. Reliability and validity

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Strategic Orientation	0.82	0.87	0.62
Financial Constraints	0.79	0.85	0.59
Regulatory Pressure	0.81	0.86	0.61
Perceived Risk	0.77	0.83	0.57

Table 2. Fornell–Larcker test

Construct	Strategic Orientation	Financial Constraints	Regulatory Pressure	Perceived Risk
Strategic Orientation	0.79	0.52	0.47	0.44
Financial Constraints	0.52	0.77	0.50	0.46
Regulatory Pressure	0.47	0.50	0.78	0.49
Perceived Risk	0.44	0.46	0.49	0.75

Table 3. Sensitivity ranking

Variable	Correlation with NPV outcome	Impact rank
Interest Rate	-0.71	1
Inflation Rate	-0.63	2
Rental Growth Rate	0.58	3
CapEx Variability	-0.45	4
Maintenance Cost	-0.39	5

corresponding correlations, indicating that the four latent variables are empirically distinct and that the measurement model is adequate for structural estimation.

For the Monte Carlo Simulation component, internal consistency and parameter sensitivity were evaluated through replication tests and convergence diagnostics. Simulated cost outputs (NPV and TCO) displayed stable distributions across repeated runs, supporting numerical robustness of the stochastic model. To identify the most influential drivers of NPV outcomes, a correlation-based global sensitivity ranking was conducted (Khrais & Alghamdi, 2025).

As reported in Table 3, interest rate and inflation rate have the strongest negative correlations with NPV (-0.71 and -0.63, respectively), whereas rental growth rate is positively associated with NPV (0.58). CapEx variability (-0.45) and maintenance cost (-0.39) also exert meaningful negative effects. Collectively, these results indicate that macro-financial conditions dominate downside exposure and provide a clear rationale for modeling financing performance under uncertainty.

Descriptive statistics were then generated to parameterize the simulations and to contextualize the GSEM estimation environment. Table 4 summarizes means and standard deviations for the primary inputs for each country (based on 1,000 simulations). Singapore records the highest real estate CapEx and annual lease costs, consistent with a mature high-cost market structure (Alsmadi & Alrawashdeh, 2025). Saudi Arabia exhibits the highest interest and inflation rates and the highest regulatory burden and perceived market risk, indicating comparatively greater macro-financial and institutional volatility. The UAE shows intermediate values across most indicators. These systematic cross-country differences support treating country context as a meaningful source of heterogeneity in financing environments (Hansen-Addy et al., 2025).

The GSEM was then estimated to evaluate the direct and indirect effects of strategic orientation, financial constraints, regulatory pressure, and perceived risk on financing structure (lease, buy, hybrid). The main structural paths are reported in Table 5. Strategic orientation has a positive and highly significant effect on financing structure (β

Table 4. Descriptive statistics

Variable	UAE Mean	UAE SD	KSA Mean	KSA SD	Singapore Mean	Singapore SD
Real Estate CapEx (USD M)	12.50	1.80	10.30	2.00	14.80	1.50
Annual Lease Cost (USD M)	4.10	0.60	4.70	0.50	5.20	0.40
Interest Rate (%)	3.20	0.40	4.10	0.50	2.60	0.30
Inflation Rate (%)	2.10	0.30	2.70	0.40	1.90	0.20
Regulatory Burden Index (0–10)	4.50	0.90	5.20	0.80	3.80	0.60
Perceived Market Risk (0–1)	0.42	0.07	0.47	0.06	0.35	0.05

Table 5. GSEM results

Path	Coefficient (β)	p-value
Strategic Orientation → Financing Structure	0.36	0.000
Financial Constraints → Financing Structure	0.41	0.000
Regulatory Pressure → Financing Structure	0.27	0.002
Strategic Orientation → Perceived Risk	-0.33	0.001
Regulatory Pressure → Perceived Risk	0.44	0.000
Perceived Risk → Financing Structure	-0.38	0.000

= 0.36, $p < 0.001$), indicating a higher likelihood of ownership-oriented arrangements (Morshed, 2024d). Financial constraints are also positively and highly significantly associated with financing structure ($\beta = 0.41$, $p < 0.001$), consistent with constrained firms favoring leasing or hybrid structures rather than capital-intensive ownership. Regulatory pressure is positive and significant ($\beta = 0.27$, $p = 0.002$), suggesting that higher regulatory demands are associated with shifts away from pure ownership. With respect to the mediator, strategic orientation significantly reduces perceived risk ($\beta = -0.33$, $p = 0.001$), whereas regulatory pressure significantly increases it ($\beta = 0.44$, $p < 0.001$). Perceived risk, in turn, exerts a negative effect on financing structure ($\beta = -0.38$, $p < 0.001$), lowering the likelihood of ownership and pushing firms toward leasing or hybrid models. The direction and significance of these relationships align with the expectation that perceived risk channels the influence of strategic and regulatory conditions into financing choices (Ning et al., 2025).

Mediation and moderation analyses provide further insight into the mechanisms underlying these effects. Table 6 reports the indirect and interaction effects. Perceived risk significantly mediates the relationships between strategic orientation and financing structure (indirect effect $\beta = -0.13$, $p = 0.004$) and between regulatory pressure and financing structure (indirect effect $\beta = -0.17$, $p = 0.001$). These negative indirect effects indicate that even when strategic orientation is strong or regulatory pressure increases, elevated perceived risk shifts preferences away from ownership toward leasing or

hybrid strategies. Country context also moderates key relationships: the interaction between financial constraints and country context is positive and significant ($\beta = 0.12$, $p = 0.019$), while the interaction between perceived risk and country context is negative and significant ($\beta = -0.10$, $p = 0.031$). This implies that the effect of financial constraints on financing structure is stronger in certain institutional environments and that the deterrent effect of perceived risk on ownership is more pronounced in more volatile contexts (Saeed et al., 2024).

Finally, Monte Carlo simulations were used to assess the cost-effectiveness of alternative financing strategies under uncertainty. Table 7 reports simulated NPV results (means, standard deviations, and ranges) for each country based on 1,000 iterations. Singapore yields the highest mean NPV (USD 4.10 million) and the lowest standard deviation (0.65), indicating comparatively stable and favorable outcomes. The UAE records a slightly lower mean NPV (USD 3.75 million) with moderate variability (0.85). Saudi Arabia exhibits the lowest mean NPV (USD 2.80 million) and the highest standard deviation (1.10), reflecting higher cost risk and wider dispersion in outcomes. These patterns suggest that ownership or hybrid strategies are more cost-viable in stable markets such as Singapore, whereas leasing may be relatively more attractive under higher volatility and downside exposure, as reflected in the Saudi context (Agarwal et al., 2025).

Taken together, the results provide a coherent empirical picture. The measurement model demonstrates satisfactory reliability and validity; the

Table 6. Mediation and moderation

Effect	Effect (β)	p-value
Strategic Orientation → Perceived Risk → Financing Structure	-0.13	0.004
Regulatory Pressure → Perceived Risk → Financing Structure	-0.17	0.001
Financial Constraints × Country Context → Financing Structure	0.12	0.019
Perceived Risk × Country Context → Financing Structure	-0.10	0.031

Table 7. NPV simulation results

Country	Mean NPV (USD M)	Std. Dev.	Min NPV	Max NPV
UAE	3.75	0.85	1.50	5.60
KSA	2.80	1.10	0.90	4.90
Singapore	4.10	0.65	2.20	5.30

structural estimates confirm that strategic orientation, financial constraints, regulatory pressure, perceived risk, and country context jointly shape financing structure; and the simulation evidence shows that macro-financial risk and cost dynamics condition the economic performance of leasing, buying, and hybrid corporate real estate strategies across the three institutional settings. Collectively, the structural, mediation, and moderation results support all eight hypotheses (H1–H8): H1–H3 are supported by significant direct effects of strategic orientation, financial constraints, and regulatory pressure on financing structure; H4 is supported by the significant negative effect of perceived risk; H5 and H6 are confirmed by significant indirect effects via perceived risk; and H7 and H8 are supported by significant interaction effects with country context, indicating systematic cross-country variation in the strength of constraints- and risk-driven financing responses.

The findings of this study demonstrate that corporate real estate (CRE) financing choices in the United Arab Emirates, Saudi Arabia, and Singapore are shaped by an interplay of strategic orientation, financial constraints, regulatory pressure, perceived risk, and institutional context. This integrated result confirms that CRE decisions are not purely financial but strategic and context-dependent. The positive relationship between strategic orientation and ownership ($\beta = 0.36, p < 0.001$) supports previous studies suggesting that firms with a long-term vision tend to treat property as a strategic resource rather than a cost item (Wiegelmann & Glauerdt, 2025; Wang, 2024). However, the finding that perceived risk mediates this relationship ($\beta = -0.13, p = 0.004$) extends prior research by revealing that even strategical-

ly oriented firms may prefer leasing when uncertainty is high. This aligns partly with Almansour et al. (2023), who highlighted the behavioral role of risk perception in financial decision-making (Ramadan & Morshed, 2024).

The significant effect of financial constraints on leasing preferences ($\beta = 0.41, p < 0.001$) corroborates the pecking-order and trade-off theories (Alshehadeh et al., 2025; Mohamad Ariff et al., 2024). Yet, the moderating effect of country context ($\beta = 0.12, p = 0.019$) adds new evidence that market maturity influences how firms respond to financial pressure – a pattern also observed by Hansen-Addy et al. (2025) in developing economies. In mature markets such as Singapore, access to capital allows more ownership-oriented strategies, while firms in the Gulf states rely on leasing to preserve liquidity.

Similarly, regulatory pressure ($\beta = 0.27, p = 0.002$) pushes firms toward leasing, supporting findings by Aladwan (2025) and Fadul et al. (2024) on the influence of IFRS 16 and Islamic finance compliance. The indirect effect through perceived risk ($\beta = -0.17, p = 0.001$) suggests that regulations can create uncertainty, discouraging ownership – a nuance absent in earlier studies.

Finally, the Monte Carlo simulations reinforce these structural results: Singapore's higher and more stable NPVs confirm ownership's financial advantage in stable settings, while volatility in Saudi Arabia makes leasing more viable. Collectively, these findings contribute to theory by integrating strategic, institutional, and behavioral explanations for CRE financing behavior across heterogeneous markets.

CONCLUSION

The purpose of this study was to investigate how strategic orientation, financial constraints, regulatory pressure, perceived risk, and institutional context influence corporate real estate (CRE) financing choices – specifically, leasing, ownership, and hybrid structures – in the United Arab Emirates, Saudi Arabia, and Singapore.

The results reveal that all five determinants significantly shape CRE financing decisions. Strategic orientation positively affects ownership and hybrid choices, confirming that strategically driven firms treat real estate as a long-term asset for control and competitiveness. Financial constraints and regulatory pressure, however, push firms toward leasing, consistent with pecking-order and institutional theories. Perceived risk serves as a behavioral mediator, weakening the ownership preference by transferring the effects of strategic and regulatory conditions to financing outcomes. Country context also moderates these relationships – stable and mature markets such as Singapore favor ownership-based strategies, while more volatile settings like Saudi Arabia encourage leasing to preserve flexibility and liquidity. The Monte Carlo simulations further show that ownership produces higher and more stable financial returns in predictable environments, whereas leasing remains advantageous under high uncertainty.

Overall, the study concludes that CRE financing is not merely a financial or accounting choice but a strategic and institutionally embedded decision process. By integrating Generalized Structural Equation Modelling with Monte Carlo Simulation, the study provides a robust methodological framework for evaluating how behavioral, strategic, and contextual factors interact under uncertainty. These insights guide managers and policymakers in aligning real estate financing strategies with firms' risk profiles, market conditions, and long-term objectives.

AUTHOR CONTRIBUTIONS

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