



RESEARCH ARTICLE

Fintech Adoption and the Cost of Capital–Firm Value Nexus: Empirical Evidence from GCC-Listed Firms

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ABSTRACT

The growing emphasis on sustainable finance and digital transformation has fundamentally reshaped how firm value is created and assessed in emerging capital markets. In regions such as the Gulf Cooperation Council (GCC), where ownership concentration, information opacity, and evolving regulatory frameworks remain structural challenges, understanding the mechanisms through which the cost of capital translate into market value is of critical importance. This study addresses this need by examining whether cost of capital allocation enhances firm value and whether financial technology (FinTech) adoption strengthens this relationship. Grounded in Trade off Theory and Information Asymmetry Theory, the study highlights FinTech as a practical mechanism that improves transparency, credibility, and investor interpretation by reducing the WACC. Using a balanced panel of 242 non-financial GCC-listed firms from 2017 to 2024, firm value is measured by Tobin's Q, cost of capital measured by WACC and Fin Tech adoption measured by a firm-level textual analysis index. Employing the Least Squares Dummy Variable Corrected (LSDVC) estimator to address dynamic panel bias, the results show that cost of capital negatively affects firm value and that this effect is significantly amplified by Fin Tech adoption. The findings demonstrate that an optimal cost of capital generate valuation benefits only when supported by effective digital financial infrastructure. The study offers practical insights for managers, investors, and policymakers seeking to enhance firm valuation, attract long-term capital, and advance economic transformation in the GCC.

INTRODUCTION

The Gulf Cooperation Council (GCC) countries are undergoing a historic phase of economic transformation, driven by the urgent need to reduce reliance on hydrocarbon revenues and establish diversified, resilient, and knowledge-based economies. National development strategies such as Saudi Arabia's Vision 2030, the UAE's Centennial 2071, Kuwait Vision 2035, Oman Vision 2040, Bahrain Economic Vision 2030, and Qatar National Vision 2030 collectively reflect a regional commitment to modernizing economic structures, strengthening private-sector participation, and building globally competitive corporate environments. These long-term national plans highlight the importance of innovation, sustainability, financial transparency, and efficient capital markets as core foundations for future growth.

Within this broader transformation, the concept of firm value has gained renewed significance. Firm value is more than a financial metric; it represents a comprehensive indicator of an organization's

market performance, operational strength, investor confidence, and long-term viability. As GCC economies open further to international investment and deepen their capital-market reforms, the ability of firms to sustain and enhance their value has become a strategic priority (Elshareif et al., 2022). Policymakers increasingly view strong corporate performance as essential for attracting foreign capital, improving economic diversification, and elevating the global standing of GCC financial markets. Likewise, managers and investors recognize that firm value is shaped by the cost of capital.

Firm value represents a central concept in financial and strategic management, reflecting a firm's market-based valuation derived from its ability to generate future economic benefits. As a composite measure, it captures key aspects of profitability, operational efficiency, and long-term sustainability, and therefore serves as a guiding indicator for a broad spectrum of stakeholders, including corporate executives, investors, and policymakers. From the perspective of corporate management, the maximization of firm value constitutes a fundamental financial objective. It serves as a tangible measure of the success of managerial decisions, the effectiveness of capital deployment, and the competitiveness of the firm in dynamic market environments. A company with a strong valuation is generally perceived as financially stable, strategically viable, and well-positioned for growth. For investors, a firm's value functions as a core criterion in evaluating potential investments and allocating capital.

Beyond firm- and investor-level considerations, firm value plays a broader macroeconomic role as an indicator of private sector vitality and economic development. But despite the evolution and the significant indicators, progress in diversification has been uneven and challenging. Recent analysis has concluded that the institutional diversification strategies implemented so far have yielded limited success, as GCC economies remain deeply influenced by the hydrocarbon sector. Moreover, the GCC's economic base is still narrow, and sustainable development goals tied to diversification have not been fully realized. The need to invigorate the private sector and attract outside capital is increasingly apparent as countries strive to meet their vision targets.

High ownership concentration remains a defining structural challenge in GCC capital markets and directly undermines diversification efforts, as shown in Figure 1. Unlike dispersed ownership systems in advanced economies such as the United States (25%) or Australia (35%), GCC-listed firms often exhibit dominant block holdings of up to 75%, typically controlled by royal families, state entities, or founding family conglomerates. Although such concentrated structures can provide stability and privileged access to resources, they simultaneously create governance frictions, reduced transparency, weak board independence, and potential conflicts with minority shareholders that discourage foreign direct investment (Goldani Mahdi, 2023; Sweidan, 2025)

Empirical evidence further indicates that majority government ownership depresses firm performance, while moderate state holdings (15–50%) combined with family participation may reduce inefficiencies. Excessive family ownership is also associated with valuation discounts due to investor concerns about entrenchment and limited disclosure. Royal ownership can enhance performance through resource access yet still raises concerns for international investors seeking transparency and equal treatment.

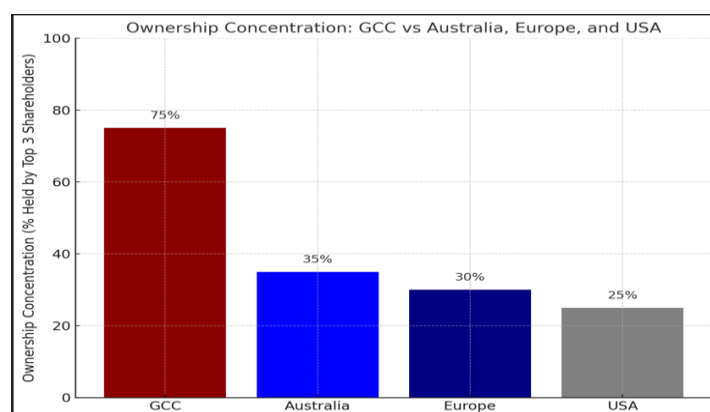


Figure Error! No text of specified style in document.. Ownership concentration of the GCC firms vs. other countries and regions

Source: Financial Times (www.ft.com)

Overall, ownership concentration in the GCC serves a dual purpose: it not only ensures continuity and strategic stability but also diminishes investor confidence, lowers firm valuation, and limits foreign capital inflows. This dynamic stands in tension with the region's broader diversification agenda, which depends on attracting global investors and fostering more open, competitive capital markets, and to reach this goal we need to see how the governments can accelerate the process of collecting the foreign direct investments.

Adoption of financial technology in the GCC's financial markets is accelerating, and it offers potential solutions to the dilemma outlined above by improving information transparency and expanding capital market efficiency. Several FinTech applications are particularly relevant. The transformative impact of financial technology (FinTech) on corporate finance is most visible in its ability to reduce information asymmetry thereby enhancing firm transparency. FinTech tools not only close informational gaps between market actors but also serve as functional mechanisms for determining the optimal cost of capital. Blockchain technology offers a decentralized, immutable ledger that ensures all parties access the same verified data, effectively reducing the informational advantage held by any single stakeholder. AI technologies, particularly machine learning, enable the real-time processing of complex and unstructured data sets, improving the flow and quality of financial and non-financial information. Open banking and inclusive green finance. Open banking policies that facilitate secure data-sharing through APIs eliminate informational monopolies held by traditional banks, thereby democratizing access to financial data (Huang, 2022). This transparency improves credit assessments, especially for SMEs, as shown in studies across the UK and EU (Nefla & Jellouli, 2025; Vasile & Manta, 2025). Through the above mechanisms, FinTech can help resolve the dilemma faced by GCC firms and policymakers. By enhancing transparency, fintech reduces uncertainty and builds trust, making investors more willing to invest at lower required returns for companies with solid sustainability profiles.

It is important to note that fintech is not a panacea on its own. Realizing its full benefits will require supportive regulation (for instance, regulations to integrate blockchain records into official disclosure regimes or investor protection in crowdfunding). There are also challenges around cybersecurity and technology infrastructure that need careful management. Nonetheless, the trajectory is clear: FinTech is becoming an integral enabler of sustainable finance in the GCC; it strengthens the links between optimal wacc and investor confidence by providing tools for truth and access.

This oversight is especially significant in the GCC, where institutional characteristics such as high ownership concentration, varying levels of disclosure quality, and differing stages of capital market maturity can intensify information asymmetries and distort valuation mechanisms. Understanding how FinTech adoption interacts with financing conditions is therefore crucial for capturing the realities of corporate behavior in the region.

The ideal practical scenario is one in which FinTech is fully integrated into corporate reporting. In such an environment, firms can deliver transparent, standardized, and real-time analysis that investors trust. This enhanced transparency would reduce perceived risk, and support higher firm valuation. Combined with more balanced ownership structures and clearer regulatory direction, such integration would also strengthen investor protections, accelerate FDI inflows, and contribute directly to the realization of national transformation visions such as Saudi Vision 2030 and UAE Vision 2050.

The consequences of failing to transition toward this model are substantial. Without improvements in transparency, governance, inclusivity, and FinTech-enabled data infrastructure, the region risks stagnation in capital formation and declining access to sustainable investment pools. Firms will continue facing valuation discounts and elevated funding costs, limiting their ability to grow, innovate, and compete globally. Meanwhile, governments may struggle to achieve diversification targets, and capital markets may fall short of becoming globally recognized investment destinations. Ultimately, persistent information asymmetry and entrenched ownership opacity threaten to undermine the GCC's potential to emerge as a leader in sustainable and technology-driven financial markets.

Drawing from the issues articulated in the problem statement, this study seeks to address key gaps related to sustainability performance, financing structure, and technological transformation within the GCC corporate landscape. Accordingly, this study is guided by the following research questions:

- 1. What is the effect of cost of capital affect firm value among GCC-listed firms?**
- 2. Does Fin Tech adoption moderate the relationship between the cost of capital and firm value among GCC-listed firms?**

By providing a roadmap for integrating optimality of cost of capital with technological transformation, the study empowers managers to design long-term value-creation strategies that are aligned with global investor expectations and emerging market trends. It emphasizes that firms which proactively adopt FinTech into their operational models are better positioned to gain competitive advantages, attract long-term institutional investors, and adapt to evolving regulatory landscapes.

The population of this study comprises all non-financial firms listed on the official stock exchanges of the six Gulf Cooperation Council countries, namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates, over the period from 2017 to 2024. From this population, the final sample consists of 242 publicly listed non-financial firms, generating a balanced panel of 1,936 firm-year observations after applying data availability and consistency criteria. The unit of analysis in this study is the individual firm-year observation, which allows for a detailed examination of changes in cost of capital, FinTech adoption, and firm value within the same firm over time. This study ensures that all variables are uniformly measured, accurately interpreted, and aligned with established academic standards, thereby strengthening the validity, reliability, and comparability of the empirical findings.

LITERATURE REVIEW

While theoretical models suggest a clear inverse relationship between the cost of capital and firm value, empirical evidence reveals a more nuanced and context-dependent dynamic. Numerous studies have examined how variations in financing costs, particularly through changes in equity and debt pricing, impact firm valuation across different markets and economic conditions.

Several studies find that a higher cost of capital erodes firm value. For example, Kurniasih et al., (2022d) indicate that the Cost Of Equity (COE) has a significant negative impact on firm value, while the cost of debt (COD) shows no significant effect. In contrast, the overall cost of capital (COC) a weighted combination of equity and debt exhibits a positive relationship with the firm. Similarly, it is concluded that a higher cost of capital reduces firm value in India and Nigeria. (Salehi et al., 2022) find that the cost of debt (a component of WACC) has a significantly negative effect on the market value of Iranian financial firms. In Italy, Santosuosso, (2014) reports analogous results for financial-sector firms. In short, these studies support the traditional view that raising discount rates or debt costs lowers valuation (net present value), yielding a negative relationship between cost of capital and firm value.

By contrast, other studies observe positive or counterintuitive effects of the cost of capital on value.. (Hasan et al., 2024) show that in Bangladesh's cement industry, higher leverage (implying a higher overall cost of capital) is associated with higher firm value. These findings suggest situations where a higher required return (or cost) coincides with a higher measured value, perhaps due to growth opportunities or capital structures that shift cash flows. In all, a non-negligible body of evidence finds a positive cost-of-capital-value linkage. A recent empirical study examining firms in Indonesia's consumer goods and agricultural sectors (2011–2020) by Rindi Hariyanur et al. (2022) assessed the impact of investment decisions, funding decisions, dividend policies, and the cost of capital on firm value. Using multiple linear regression analysis, the findings revealed that, while investment and funding decisions did not significantly affect firm value, the cost of capital had a significant positive effect.

Many studies report *mixed results* or no clear effect. For instance, Akanji (2025) finds that the cost of debt has no significant impact on Nigerian firms' valuation. In practice, regression estimates often show coefficients of mixed sign or low significance. Overall, many cross-industry and cross-country studies emphasize that the cost-of-capital effect varies by model and sample, some find both positive and negative coefficients, and some find the association vanishes statistically. In Bangladesh, an

analysis of cement companies listed on the Dhaka Stock Exchange from 2016 to 2022 found that the cost of capital did not significantly influence firm value or profitability. Instead, the total debt ratio negatively impacted profitability but had a positive effect on firm value, indicating a complex relationship (Njonge, 2023). A comprehensive study of 769 companies listed on the Vietnamese stock market from 2012 to 2022 revealed that capital structure has a significant impact on firm value. However, the relationship varies depending on the specific measures of capital structure and firm value used, indicating a nuanced interaction (Bui et al., 2023).

Recent GCC studies generally support this view. For example, S. Khan et al., (2023) Note that firms seek an optimal financing mix to minimize the cost of capital and thereby maximize value. By contrast, none of the identified GCC studies report a direct *positive* effect of higher cost-of-capital on firm value. Instead, lower financing costs (or reforms that reduce cost-of-capital) are associated with stronger valuations. In Saudi-listed firms, higher leverage (which raises a firm's cost of capital) is found to *depress* firm value. (Nadeem Fatima, 2023) use Tobin's Q as a measure of value and find that the capital-structure ratio (debt/equity) has a significant negative effect on Tobin's Q. In all model specifications, more debt-financing corresponds to lower firm value, consistent with the idea that increased borrowing raises the firm's WACC and thus lowers its valuation. Relatedly, a Saudi study of accounting reforms shows that improved transparency lowered firms' cost of capital: adoption of IFRS in 2018–2020 cut firms' average cost of capital by about 1.2%. (Though this study does not directly measure value, lower financing costs and narrower bid-ask spreads imply higher market valuations.) In sum, evidence from Saudi firms points to a negative link: higher financing costs or debt burdens erode firm value, while reductions in cost-of-capital (via better disclosure) tend to boost value (Sharawi, 2024).

A recent study of all Qatari listed firms (2010–2019) finds a clear negative correlation between the cost of capital and firm value using Ohlson's valuation framework. Tahat Ibrahim, (2022) shows that firms with higher calculated cost of capital have lower market prices and book values. In his words, "The result indicated a negative correlation among the cost of capital and both firms' book values and share market prices". This implies that Qatari firms with higher financing costs (reflecting higher risk) are valued more cheaply, consistent with standard valuation theory.

No recent empirical study explicitly measuring cost-of-capital versus value in Bahrain, Kuwait, or Oman. However, broader GCC evidence. Khaki & Akin (2020) emphasizes that capital structure impacts value through its effect on WACC. Overall, the GCC results are uniform: higher cost of capital tends to reduce firm value, and efforts that lower financing costs (through market reforms or governance) tend to improve valuations. There is no evidence of a robust positive effect of higher cost-of-capital on value in the literature. Some studies (e.g., on ownership and governance) imply that better practices reduce cost-of-capital and thereby raise value, indirectly supporting a negative cost-of-capital effect. Most GCC research focuses on publicly listed firms across industries; privately held firms have not been studied in this context.

In sum, the empirical literature is conflicting: some studies find a negative cost-of-capital-value relationship (Faysal et al., 2020; Hussain Muhammad, 2024). Some find a positive relationship (Hasan et al., 2024; Saad, 2012), and some like (Kurniasih et al., 2022b) find mixed or no significant effects. These inconsistencies occur across different countries (Asia, Africa, Europe) and industries (financial firms, manufacturing, cement, etc.). Researchers attribute the mixed evidence to differences in measurement (e.g., WACC vs. components), model specification, corporate governance, and sample periods. In conclusion, no consensus emerges; some authors report that a higher discount rate damages firm value, others find the opposite, and still others report no clear effect.

Whereas in the GCC, Negative impact dominates: In both Qatar and Saudi Arabia, studies report that a higher cost of capital is associated with lower firm value. For example, (Tahat Ibrahim, 2022) finds that Qatari firms with higher financing costs have significantly lower market prices/Tobin's Q. Similarly, (Nadeem Fatima, 2023) show that increased debt-financing (which raises WACC) significantly reduces Tobin's Q for Saudi firms. Regulatory changes that lower cost of capital are linked to higher valuations. For instance, the adoption of IFRS in Saudi Arabia sharply reduced firms' cost of capital. While value was not directly measured, the narrower bid-ask spreads and lower required returns imply improved firm value under the new standards. However, rare studies report

that a higher cost of capital raises firm value. All empirical evidence points to either a negative effect or no significant effect. This is consistent with theory: increasing WACC (higher financing risk/cost) should not enhance value.

In summary, empirical GCC studies in the past five years overwhelmingly indicate a negative relationship between the cost of capital and firm value. Firms with lower financing costs tend to enjoy higher market valuations, while high costs of capital (often from heavy leverage or risk) erode value. These findings align with standard finance theory and with global evidence that lower WACC (through better governance or disclosure) correlates with higher firm value.

FinTech refers to technology-driven financial innovations (e.g., blockchain, digital lending, mobile payments) that enhance financial services. FinTech innovations include blockchain/cryptocurrencies, mobile/P2P payments, digital lending, and digital wallets (Kou & Lu, 2025). In corporate finance, firm value is inversely related to the cost of capital (e.g., via discounted cash flow models). Therefore the following hypothesis is formulated H_1 : *There is a negative relationship between the cost of capital and firm value among GCC-listed firms.*

Theoretically, FinTech can moderate this relationship by reducing financing frictions (information asymmetry, transaction costs) and thus lowering firms' effective cost of debt and equity. Established theories (Modigliani–Miller, trade-off, pecking-order) imply that a lower cost of capital increases firm value; FinTech may act as a technology that shifts these finance functions. For example, by improving transparency and credit scoring, FinTech reduces information asymmetry and financing constraints (Cachin & Vukolić, 2017; Murong Liu, 2025). In dynamic-capabilities terms, FinTech adoption can be seen as a capability that enhances firms' investment efficiency and liquidity management, potentially strengthening the impact of financial factors (e.g., liquidity, leverage) on profitability and value (Murong Liu, 2025).

The theoretical mechanisms include

1. **Information Transparency**, FinTech (AI analytics, blockchain) can reduce information asymmetry between firms and markets, lowering risk premiums (Murong Liu, 2025).
2. **Financing Constraints**: Digital finance expands access to credit (e.g., P2P lending), alleviating financing constraints. FinTech mitigates the negative effect of constraints on corporate liquidity (Fan et al., 2024a), enabling firms to fund profitable projects at lower cost.
3. **Transaction Efficiency**: Automated platforms lower transaction and monitoring costs. For instance, digital payment systems and smart contracts reduce intermediation fees, effectively lowering the cost of capital and increasing net cash flows.
4. **Governance and Risk**: FinTech can improve corporate governance (better data, transparency) and reduce perceived risk. Improved risk profiles (e.g., through blockchain security) can translate into lower required returns. Murong Liu, (2025) argues that FinTech adoption leads to a negative relationship with corporate financial risk (credit, market, liquidity risk) by bridging information gaps.

Taken together, theory suggests that FinTech strengthens the linkage between financing conditions and value. In effect, firms with high FinTech adoption may experience a smaller increase in cost of capital during shocks or may convert cost savings more directly into value. This conceptual role as a *moderator* implies that FinTech can amplify the positive effect of a low cost of capital (or mitigate the negative impact of a high cost of capital) on firm value, although formal empirical tests of this specific moderating role are still scarce.

Empirical studies from the last decade largely confirm that FinTech innovations influence firms' financing and valuation. Girardone et al., (2024a) analyze 3,491 non-financial firms in 38 OECD countries (2015–2021) and find that increased FinTech credit availability significantly lowers firms' financing costs. Specifically, a rise in FinTech lending is associated with about a 17% decrease in cost of debt and a 9.5% decrease in cost of equity, leading to roughly a 5.5% reduction in firms' weighted average cost of capital (WACC). The study uses panel regressions (with difference-in-differences around COVID-19) and shows that effects are largest for firms with stakeholder-oriented governance, in countries with concentrated banking sectors, and in innovative industries. This

evidence indicates that FinTech credit services (e.g., P2P lending, digital loans) effectively lower financing costs, which should, in turn, raise firm value.

Zhou & Li (2024a) examine Chinese listed firms (sample period not stated) and find that FinTech development accelerates firms' adjustment to their target capital structure. Using dynamic panel methods, they show that FinTech promotes more transparent information and higher bank competition, easing financing constraints and enabling firms to rebalance debt faster toward optimal levels. This implies FinTech indirectly affects the cost of capital (through capital structure) and hence value. Similarly, a study in China by Z. Lai & Luo (2022) finds that regional FinTech significantly reduces excess corporate leverage by alleviating financing constraints and improving stock liquidity, especially in private firms and less liberalized markets. Together, these studies highlight that FinTech use is linked with more prudent leverage and lower debt costs, which can boost valuations. Fan et al. (2024b) use a provincial FinTech development index and data on A-share manufacturing firms (2011–2020) to show that FinTech mitigates the negative effect of financing constraints on corporate liquidity. Firms facing tighter credit constraints typically have weaker liquidity, but greater FinTech development in their region cushions this effect. The effect is especially strong for non-state, young, and smaller firms, indicating FinTech's outsized role for SMEs. By easing cash-flow volatility and access to funds, FinTech thus indirectly supports firm value via more stable operations. Qi et al. (2024) study Chinese listed companies (2010–2020) and find that higher FinTech adoption leads to better corporate investment efficiency. Using panel regressions, they report that FinTech's positive effect is most evident in underdeveloped regions. The mechanism appears to be improved governance and financing: FinTech firms have a more efficient allocation of capital and lower idle cash. Enhanced investment efficiency generally raises expected future cash flows, thereby increasing firm value.

Sharma & Munjal (2024) examine blockchain adoption and firm performance using 4,994 firm-year observations (2017–2021). Through dynamic GMM estimation, they find that adopting blockchain significantly increases firms' Tobin's Q (market value). The effect on accounting metrics (ROE, ROA) is insignificant, suggesting the market values the future potential (intangibles) of blockchain use. They also show that the effect is stronger for firms with high intangible capital (e.g., R&D). This direct link between a blockchain-type FinTech and market-based firm value supports the idea that FinTech can boost investor valuation.

Tang et al. (2025) analyze Chinese A-share firms and find that broader FinTech development increases corporate tax avoidance, which in turn raises firm value. Using econometric regressions, they show FinTech development correlates with higher after-tax income and more predictable cash flows (via optimized tax strategies). Lower tax risk and better use of tax preferences (facilitated by FinTech tools) mean firms enjoy higher net returns, increasing valuation. While this is an indirect channel, it demonstrates FinTech's role in improving effective profitability and value. Wu et al. (2024) study U.S. banks (top 300, 2015–2021) and find that banks with greater FinTech adoption create *less* traditional liquidity. Using a novel FinTech index and robust panel methods, they report a negative association between FinTech adoption and bank liquidity creation even during COVID-19. This suggests that as banks use more FinTech, they may shift away from conventional maturity transformation. While this is a supply-side finding, it implies that firms may receive liquidity through new channels (FinTech credit) rather than banks, affecting the traditional cost of capital dynamics.

Andri Helmi Munawar, (2025) analyzed 21 Indonesian banks (2018–2023) and explicitly tested FinTech's moderating role. Using moderated mediation regression, they find that FinTech strengthens the impact of leverage and liquidity on profitability. In other words, higher FinTech adoption amplifies how leverage and cash management translate into profits, which in turn increases firm value. Although focused on banking, this result directly illustrates FinTech acting as a moderator between financial factors and firm outcomes, a pattern likely relevant across industries.

Despite this progress, gaps remain. Few studies explicitly model FinTech as a moderator of the cost-of-capital–firm-value link (Milian et al., 2019). Most focus on one side (FinTech→cost of capital or FinTech→firm value). Empirically, payment systems and robo-advisors are understudied in this context. Geographic coverage is limited outside China and OECD regions; emerging economies in Africa, Latin America, and South Asia merit more research. Measurement heterogeneity (different FinTech indices) makes synthesis difficult. Therefore the following hypothesis is formulated :

H₂: There is a negative moderating role of FinTech in the relationship between the cost of capital and firm value among GCC-listed firms.

In summary, theoretical arguments and empirical evidence converge on the view that FinTech innovations reduce firms' cost of capital (through improved financing, lower risk) and enhance firm value (via efficiency and growth). As a moderator, FinTech appears to amplify the positive effects of low capital costs on value and cushion firms against high-cost environments, although more targeted studies are needed to fully map this moderating role.

METHODOLOGY

Trade-Off Theory offers the primary explanation for how a firm's cost of capital influences its value. According to Trade-Off Theory, firms seek an optimal capital structure that balances the benefits and costs of debt financing to minimize the overall cost of capital (A. Khan et al., 2021). Debt has a tax-shield benefit – interest payments are tax-deductible, which can lower a company's weighted average cost of capital and *increase* firm value by boosting the present value of future cash flows. However, taking on too much debt raises the probability of financial distress and bankruptcy costs, which erode firm value beyond a certain point.

Specifically, Fin Tech moderates the cost of capital–firm value relationship by enhancing the credibility and accessibility and by alleviating information asymmetry. value because a high cost of capital (due to high perceived risk or limited funding access) depresses firm value. However, a firm leveraging Fintech might mitigate some negative effects of a high cost of capital. Fintech platforms can broaden a company's financing options beyond traditional banks, for instance, through peer-to-peer lending, digital marketplaces, or crowdfunding, potentially reducing dependence on expensive capital and lowering the effective cost of funds. Fintech-based credit assessment tools use alternative data (e.g., transaction histories, online ratings) to evaluate borrowers, often resulting in lower borrowing costs for firms that were deemed high-risk under traditional models (Shehata et al., 2023). By reducing the information asymmetry in credit markets, fintech allows previously underserved firms to obtain financing at more reasonable rates (Philippon, 2017). This means that companies with strong Fintech adoption might sustain a lower cost of capital than their peers, all else equal, which would bolster their valuations.

This framework in Figure 2 below captures the interplay of cost of capital and Fintech in shaping firm value.

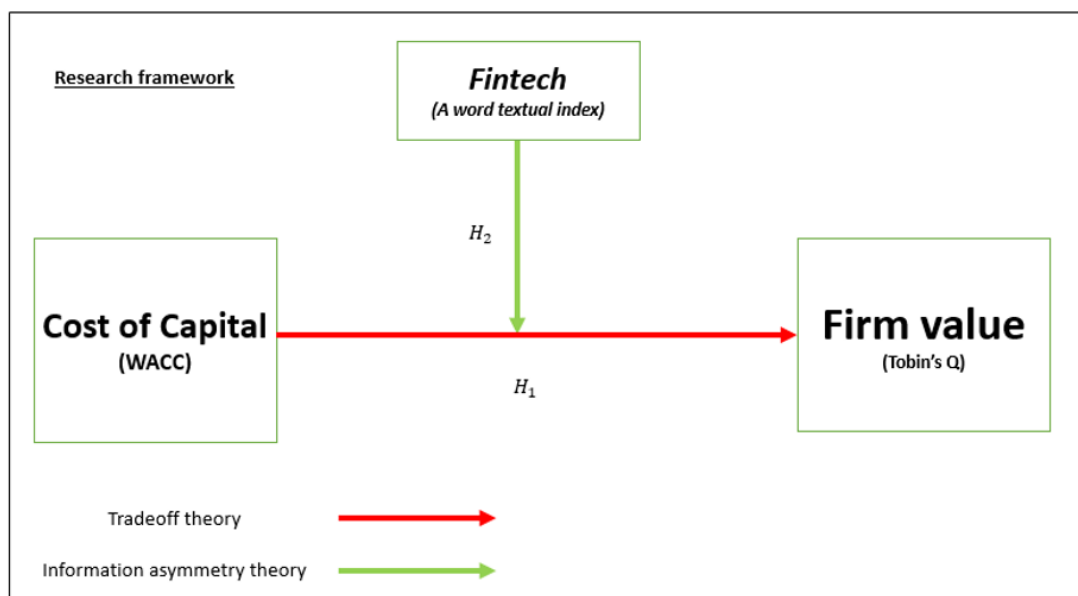


Figure 2. Theoretical framework

Source: Developed by the author (2025)

This study adopts a quantitative approach that integrates both descriptive and explanatory research elements. The descriptive component establishes the empirical characteristics of the dataset by summarizing the behavior of key variables such as cost of capital, Fin Tech adoption indicators, and

firm value through measures of central tendency, dispersion, and graphical exploration. These descriptive diagnostics not only provide foundational insights into the data but also act as preliminary checks for data quality, variation across firms, and potential distributional irregularities.

To ensure the reliability and robustness of the empirical analysis, firms were included in the final dataset only if they were established prior to 2017 and had complete, consistent, and high-quality annual data from 2017 to 2024. This period provides sufficient temporal depth to capture medium-term financial behavior and meaningful variation in capital structure indicators, FinTech adoption measures, and market valuation metrics. Firms that did not meet these criteria, such as those with missing financial disclosures, or late stock market entry, were excluded from the analysis. Additionally, a number of observations were removed due to the presence of extreme outliers that could distort parameter estimates or compromise the validity of econometric tests. Although the population of non-financial GCC-listed firms comprises 549 companies, the rigorous screening criteria described above resulted in a final analytical sample of 242 firms.

The research results are known to be as good as the data quality. Therefore, data for the study regarding the firm value and the Fintech will be obtained from the websites that contain annual financial reports and management and discussion reports of the nonfinancial companies listed in the financial markets. These websites provide information about the listed companies, market performance, and other relevant financial data like the WACC and Tobin's Q ratio. These websites are shown in Table 1 below.

Table 1. Website links for the stock exchange

Stock Exchange	Website Link
Abu Dhabi Securities Exchange (ADX)	https://www.adx.ae
Dubai Financial Market (DFM)	https://www.dfm.ae
NASDAQ Dubai	https://www.nasdaqdubai.com
Saudi Stock Exchange (Tadawul)	https://www.saudiexchange.sa
Qatar Stock Exchange (QSE)	https://www.qe.com.qa
Bourse Kuwait	https://www.boursakuwait.com.kw
Bahrain Bourse	https://www.bahrainbourse.com
Muscat Securities Market (MSM)	https://www.msm.gov.om

Fin Tech adoption is often measured through the extent of digital transformation in financial services. Hong et al. (2023) developed a firm-level indicator of Fin Tech adoption using textual analysis techniques. The approach relies on the idea that companies typically reveal important details about their operations, including the use of Fin Tech in their management and discussion reports (M&D Reports). Therefore, by examining how often Fin Tech-related terms appear in these reports, one can reasonably assess how much a firm has integrated Fin Tech into its business practices.

Tobin's Q is particularly valuable as it provides a forward-looking signal of investor expectations and confidence in a firm's future growth potential. In this study, we will use the latest. The metric is calculated as follows:

$$Tobin's\ Q = \frac{MV\ of\ equity + BV\ of\ debt}{BV\ of\ total\ assets}$$

FinTech adoption is often measured through the extent of digital transformation in financial services. The method developed by Hong et al. (2023), in which a firm-level indicator of FinTech adoption was measured using textual analysis techniques. The approach relies on the idea that companies typically reveal important details about their operations, including the use of Fin Tech in their financial reports. Therefore, by examining how often Fin Tech-related terms appear in these reports, one can reasonably assess the extent to which a firm has integrated Fin Tech into its business practices. This method captures the degree to which companies incorporate or report FinTech-related terms in their annual reports, signaling their level of technological engagement and transparency. These words are listed above in the previous section. We will choose these words to serve as an indicator for the fintech usage and adoption, investment in fintech, or the usage rate of fintech services among consumers. A comprehensive list of Fin Tech-related keywords can be used for textual analysis of

firm-level reports, particularly for measuring Fin Tech adoption. Here are all the 144 words that are in the fin tech keywords list:

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{fintech, financial technology, digital finance, digital transformation, digitization, digitalization, innovation,
techdriven, automation, efinance, efunds, smartfinance, techfinance, mobilebanking, onlinebanking,
internetbanking, ebanking, digitalbanking, paymentgateway, mobilepayment, epayment, contactless,
wallet, digitalwallet, ewallet, qrpayment, remittance, micropayment, paytech, digitalcard, applepay,
googlepay, samsungpay, ai, artificialintelligence, machinelearning, deeplearning, neuralnetwork,
predictiveanalytics, bigdata, datascience, analytics, intelligentautomation, chatbot, virtualassistant,
naturallanguageprocessing, sentimentanalysis, algorithmictrading, roboadvisor, blockchain,
distributedledger, ledgertechnology, smartcontract, tokenization, cryptocurrency, cryptoasset,
digitalasset, bitcoin, ethereum, stablecoin, defi, nft, mining, token, web3, metaverse, cryptoexchange,
cryptopayment, digitalcurrency, cbdc, regtech, complianceautomation, regulatorytechnology, aml,
antimoneylaundering, kyc, knowyourcustomer, frauddetection, cyberrisk, cybersecurity, dataprotection,
digitalidentity, identityverification, esignature, riskanalytics, sanctionmonitoring, cloud, cloudcomputing,
saas, paas, iaas, virtualization, infrastructure, datacenter, cloudbanking, apis, openapi, openbanking,
digitalplatform, apiplatform, finservplatform, ecosystemintegration, crowdfunding, peertopeer, p2p,
p2plending, digitallending, onlincredit, microfinance, microloan, altfinance, neobank, challengerbank,
digitalinsurer, insurtech, digitalinsurance, telematics, usagebasedinsurance, onlineloan, iot,
internetofthings, biometrics, facialrecognition, voicebanking, quantumcomputing, augmentedreality,
virtualreality, metaversefinance, blockchainai, fintechplatform, stcpay, dubaipay, tammipay, mada,
benefitpay, noqodi, fabmobile, emipay, qatarpay, omanpay, urpay, baraka, rainexchange, ahlibankdigital
}
```

These fintech words were compiled from peer-reviewed sources and a general FinTech taxonomy used in empirical research. A Python code is developed so that we can input the report of each company for each year, whether it's in Word or PDF format, and run the results to get the fintech index as an output in Excel. The formula used and the code are provided below.

$$FinTIndex_{it} = \sum_{k=0}^n \left(\frac{Frequency(keyword_j)}{Total\ words} \right) \times 100$$

Where:

- $FinTIndex_{it}$ = FinTech adoption score for firm i in year t
- $keyword_j$ = the j -th FinTech-related term from the predefined keyword list
- $Frequency(keyword_{j,it})$ = frequency count of the j th FinTech related term within firm's i annual report disclosures in each year t
- n = Total number of firms

Control variables are important in our study because they help us to measure the true effect of our key independent variable, ESG fintech, on the firm value, without bias from other influencing factors, and also, they will reduce omitted variable bias since excluding important variables that affect both the independent and dependent variables can lead to biased and inconsistent estimates. By using control variables, it will mitigate this bias. Moreover, it will improve model fit and precision and the R-squared, ensuring that any observed effects are not spurious or due to unobserved heterogeneity. The control variables are described below in Table 2.

Table 2. Control variables

Firm Size (Log of Total Assets)	Larger firms tend to have greater access to capital markets, better credit ratings. They also experience a lower cost of debt due to reduced information asymmetry and higher transparency.
Leverage (Total Debt / Total Assets)	Highly leveraged firms face greater financial risk, which raises their cost of debt. Such firms may also prioritize short-term financial performance over long-term sustainability.
Ownership Concentration	High ownership concentration is typical in Gulf firms due to state, family, or institutional ownership. This structure can weaken monitoring mechanisms

% of shares held by top 3 or 5 shareholders)	and reduce transparency, which affects capital costs, and investor perception of firm value. It may also reduce incentives for Fin Tech adoption.
Liquidity (Current ratio=Current Assets/Current Liabilities)	Liquidity plays a crucial role in influencing both the cost of capital and firm value. Firms with higher liquidity are generally perceived as less risky by investors and creditors, which can result in a lower required rate of return and, consequently, a reduced cost of capital (Brealey, Myers, & Allen, 2020). Additionally, high liquidity provides firms with greater operational flexibility and the ability to seize investment opportunities without resorting to costly external financing, thereby enhancing firm value.
Return on Assets (ROA = NI/TA)	ROA measures managerial efficiency in utilizing assets to generate profits, reflecting internal performance quality. Firms with higher ROA are typically more profitable and financially stable, which can enhance investor confidence and firm value.
Board Size (Number of Directors)	Board size represents the governance structure and diversity of expertise in decision-making. Larger boards may provide broader perspectives and enhance monitoring. However, excessively large boards could hinder coordination and reduce effectiveness, increasing agency costs. Thus, optimal board size is expected to positively influence firm value and negatively the cost of capital in the Gulf context.

Source: Developed by the author (2025)

ANALYSIS AND DISCUSSIONS

This chapter presents the empirical analysis and econometric findings of the study. Before proceeding to the econometric estimations, this section presents a comprehensive descriptive analysis of the dataset to characterize the fundamental properties of the sampled GCC firms and the variables included in the empirical models.

Table 3 presents the descriptive statistics for all variables employed in the empirical analysis, including measures of central tendency, dispersion, and distributional shape. Descriptive statistics provide an essential preliminary assessment of data quality, enabling detection of heterogeneity, outliers, and non-linearities that may influence model behaviour and subsequent econometric specifications (Wooldridge, 2016). The table reports the mean, standard deviation, minimum, maximum values for each variable, thereby offering a comprehensive view of the dataset's structure across the 1,936 firm-year observations. The notations for both models used are given below

- $Tobin_{q_{it}}$: Tobin's Q (firm value) for the firm i in year t
- $WACC_{it}$: weighted average cost of capital for the firm i in year t
- $FinT_{it}$: FinTech index for the firm i in year t
- Leverage (Total Debt / Total Assets)
- Liquidity: measured by the Current ratio
- Firm Size: measured by Log of Total Assets
- Ownership Concentration: measured by (% of shares held by top 3 or 5 shareholders).
- Return on Assets: measured by ROA (ROA = NI/TA).
- Board size: measured by the number of board committees.
- μ_i : firm fixed effect; τ_t : year fixed effect; ε_{it} : idiosyncratic error
- $Tobin_{q_{i,t-1}}$: captures persistence (dynamic panel; LSDVC corrects Nickell bias).

The models along with the hypothesis are

Model (1)

H₁: There is a negative relationship between the cost of capital and firm value among GCC-listed firms.

$$Tobin_{q_{it}} = \beta_0 + \beta_1 Tobin_{q_{i,t-1}} + \beta_2 WACC_{it} + \beta_3 LEV_{it} + \beta_4 LIQ_{it} + \beta_5 FirmS_{it} + \beta_6 OwnC_{it} + \beta_7 ROA_{it} + \beta_8 BoardS_{it} + \mu_{it} + \tau_t + \varepsilon_{it}$$

Model (2)

H₂: There is a negative moderating role of FinTech in the relationship between the cost of capital and firm value among GCC-listed firms.

$$Tobin_{q_{it}} = \beta_0 + \beta_1 Tobin_{q_{i,t-1}} + \beta_2 WACC_{it} + \beta_3 Fint_{it} + \beta_4 (WACC_{it} * Fint_{it}) + \beta_5 LEV_{it} + \beta_6 LIQ_{it} + \beta_7 FirmS_{it} + \beta_8 OwnC_{it} + \beta_9 ROA_{it} + \beta_{10} BoardS_{it} + \mu_{it} + \tau_t + \varepsilon_{it}$$

Table 3. Descriptive statistics of the study variables (2017–2024)

Variables	Obs	Mean	Std. Dev.	Min	Max
Tobin q	1936	1.013	.207	.612	1.6
WACC	1936	.101	.011	.08	.125
FinTINDEX	1936	34.196	20.302	1	95
leverage	1936	.47	.271	.004	3.15
CurrentRatio	1936	2.162	3.364	.011	19.575
firmsize	1936	9.511	1.057	5.15	13.888
OwnConc	1936	.085	.207	0	6.15
ROA	1936	.259	.259	-.073	7.15
boardsize	1936	9.923	3.004	4	26

The descriptive statistics reveal substantial heterogeneity across firms in firm value ,technological adoption, and capital structure. These patterns underscore the necessity of applying robust dynamic panel estimators, such as the LSDVC model, to effectively account for firm-specific heterogeneity and non-normal variable distributions.

Correlation analysis represents a crucial preliminary step in the empirical investigation, particularly within the context of panel-data modelling. Table 4 reports the Pearson correlation coefficients for all variables used in this study. From an econometric standpoint, the correlation matrix functions both as an exploratory descriptive tool and as an econometric diagnostic device that informs model specification and guides interpretation of subsequent estimation results.

Table 4. Correlation matrix of the study variable

Variables	(1) Tobin q	(2) WACC	(3) Fin INDX	(4) Leverage	(5) Current Ratio	(6) Firm size	(7) Own Conc	(8) ROA	(9)Boad size
(1) Tobin_q	1								
(2) WACC	-0.691	1							
(3) Fin TINDEX	0.712	-0.595	1						
(4) Leverage	0.119	-0.105	0.208	1					
(5) Current Ratio	0.089	-0.095	0.109	0.071	1				
(6) Firm size	0.128	-0.1	0.163	-0.049	-0.043	1			
(7) Own Conc	0.046	-0.045	0.067	0.209	0.022	-0.136	1		
(8) ROA	0.098	-0.062	0.192	0.22	0.057	-0.134	0.393	1	
(9) Board size	0.067	-0.077	0.134	0.022	-0.021	0.248	-0.016	-0.006	1

The correlation matrix in Table 4 reveals several strong and theoretically coherent relationships among the main variables. None of the pairwise correlations among the explanatory variables exceed the commonly referenced multicollinearity threshold of 0.80, indicating that multicollinearity is unlikely to bias coefficient estimates in the dynamic panel regression models. This observation strengthens confidence in the empirical identification strategy and supports the validity of incorporating wacc and FinTech simultaneously within the LSDVC framework.

This study employs the Least Squares Dummy Variable Corrected (LSDVC) estimator as the primary estimation technique for testing the two hypotheses. The choice of LSDVC is theoretically and econometrically grounded, particularly given the structure of the dataset and the dynamic nature of firm-value behaviour. Firm value exhibits strong persistence over time, as past performance influences current valuation through investor expectations, capital-market signalling, and cumulative firm-specific characteristics. Incorporating the lagged dependent variable (

Tobin's $q_{i,t-1}$) is therefore essential to capture this dynamic adjustment process. However, including lagged dependent variables in a fixed-effects model introduces the well-known Nickell bias, which becomes more severe when the time dimension ($T = 8$ years) is relatively small compared to the cross-sectional dimension ($N = 242$ firms). Traditional fixed-effects estimators (within estimators) are thus biased and inconsistent under these conditions (Bruno et al., 2005).

The LSDVC estimator is particularly appropriate for this study because the panel is large in N but small in T , which is the exact setting for which LSDVC was developed. With 242 firms over eight years (unbalanced), the estimator ensures efficiency gains relative to GMM approaches, which typically require larger time spans to stabilize the instrument matrix and avoid overfitting. LSDVC avoids the common pitfalls of GMM, such as instrument proliferation, weakened Hansen tests, and finite-sample distortions, making it the superior choice for corporate-finance panels of this structure.

This section sequentially reports and interprets the regression results for the hypotheses. The first model investigates the direct effect of the cost of capital on firm value, interpreted through the lens of tradeoff theory. Using Tobin's Q as the dependent variable and applying the LSDVC estimator to correct for dynamic panel bias, as shown in Table 4.18, the model yields a negative and highly significant coefficient on WACC ($\beta = -0.111$, $p < 0.01$). This result confirms Hypothesis 3, which posits a negative direct relationship between the cost of capital and firm value among GCC-listed firms. The inclusion of the lagged dependent variable reflects the well-documented persistence in firm valuation, as current Tobin's Q depends not only on contemporaneous financing conditions and firm characteristics but also on past performance. By employing LSDVC, the model addresses the Nickell bias inherent in short- T panel data and provides more reliable estimates of the true underlying effect of WACC on firm value. The negative sign and strong statistical significance of the WACC coefficient, therefore, indicate that, holding other factors constant, an increase in the cost of capital systematically erodes firm value in the GCC context.

Table 5. LSDVC results for model 1

Note: Blundell and Bond estimator is implemented through the user-written Stata command `-xtabond2-` by David Roodman, Center for Global Development, Washington, DC droodman@cgdev.org
 note: Bias correction up to order $O(1/NT)$

LSDVC dynamic regression
(bootstrapped SE)

Tobin_q	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
Tobin_q L1.	-.0661474	.0239595	-2.76	0.006	-.1131072	-.0191876
WACC	-.1107678	.0046257	-23.95	0.000	-.1198339	-.1017016
FinTINDEX	.5334575	.0127214	41.93	0.000	.5085241	.558391
Leverage	.0149734	.0160889	0.93	0.352	-.0165603	.046507
CurrentRatio	.0016073	.0008306	1.94	0.053	-.0000207	.0032354
Firmsize	-.0025901	.0025963	-1.00	0.318	-.0076789	.0024986
OwnConc	-.0072024	.0192861	-0.37	0.709	-.0450025	.0305977
ROA	.0094961	.0023691	4.01	0.000	.0048527	.0141395
Boardsize	-.0115588	.0032173	-3.59	0.000	-.0178645	-.0052531

The second model introduces the interaction term ($WACC \times \text{Fin Tech}$) (denoted by `inter1`) to test whether Fin Tech adoption strengthens the relationship between cost of capital and firm value. Using Tobin's Q as a forward-looking measure of firm value and correcting for dynamic panel bias through the LSDVC estimator, the specification introduces both the direct effect of WACC and its interaction with FinTech. The results reported in Table 4.19 show that the interaction term between WACC and FinTech ($WACC \times \text{FinTech}$) denoted by (`inter2`), is negative and highly significant ($\beta = -0.131$, $p < 0.01$), while the main effect of WACC becomes positive and significant ($\beta = 0.436$, $p < 0.01$). The results clearly indicate that *Fin Tech adoption weakens the negative effect of the cost of capital on firm value*. Specifically, when Fin Tech adoption is low, increases in the cost of capital have a stronger adverse impact on firm value. However, as firms adopt more Fin Tech solutions, this negative impact becomes less severe. In other words, Fin Tech helps firms better manage financing costs, reduce inefficiencies, and cushion the detrimental valuation effects associated with higher capital costs. This finding confirms Hypothesis 2 and demonstrates that Fin Tech plays a significant

moderating role in mitigating the negative relationship between the cost of capital and firm value among GCC-listed firms.

Table 6. LSDVC results for model 2

Note: Blundell and Bond estimator is implemented through the user-written Stata command `-xtabond2-` by David Roodman, Center for Global Development, Washington, DC dhoodman@cgdev.org
note: Bias correction up to order $O(1/NT)$

LSDVC dynamic regression
(bootstrapped SE)

Tobin_q	Coefficient	Std. err.	z	P> z	[95% conf. interval]	
Tobin_q L1.	-.0674139	.0231163	-2.92	0.004	-.1127211	-.0221067
WACC	.4359849	.0137951	31.60	0.000	.4089469	.4630228
FinTINDEX	1.862797	.0370221	50.32	0.000	1.790235	1.935359
Leverage	.0182606	.0161083	1.13	0.257	-.0133111	.0498322
CurrentRatio	.0016659	.0008331	2.00	0.046	.0000331	.0032987
FirmSize	-.0071902	.0027833	-2.58	0.010	-.0126453	-.001735
OwnConc	-.0104917	.0193333	-0.54	0.587	-.0483842	.0274008
ROA	.0087511	.0023772	3.68	0.000	.0040917	.0134104
Boardsize	-.0112598	.0032256	-3.49	0.000	-.0175818	-.0049379
inter2	-.1310823	.0039318	-33.34	0.000	-.1387885	-.1233762

Overall, the findings validate the moderating role of FinTech and confirm that the WACC–firm value relationship in GCC-listed firms is fundamentally conditioned by digital transformation. Firms equipped with FinTech capabilities are better positioned to manage an optimal cost of capital into superior market valuation, reinforcing the view that the WACC increasingly depends on complementary technological innovation.

CONCLUSION

The empirical results reveal a series of powerful practical implications that collectively reshape how financing efficiency, and digital transformation should be approached within the GCC's evolving corporate landscape. Above all, the study demonstrates that FinTech-enabled transparency and financial innovation are no longer optional enhancements but strategic necessities for overcoming the deep-rooted structural frictions that characterize GCC capital markets, namely, information opacity, concentrated ownership structures, and persistently high borrowing costs.

The findings show that when firms embed digital technologies such as AI-driven sustainability analytics, blockchain-based verification mechanisms, and technology-enabled financing platforms into their financial-reporting processes, they effectively convert these signals into credible, investor-relevant information. This reduces uncertainty, lowers financing frictions, and strengthens valuation outcomes, reflecting a transformation in how market participants interpret and reward the technology. In this way, digitalisation acts as a signalling mechanism to an economically meaningful driver of capital access and firm value.

The results also underscore the strategic importance of regulatory harmonisation. A coordinated regional framework that integrates cost of capital determination with FinTech regulatory infrastructures would generate stronger transparency, enhance investor protection, and facilitate cross-border financial flows. Such alignment directly supports national transformation agendas—including Saudi Vision 2030 and UAE Vision 2050—which prioritise both sustainability and digital innovation as pillars of economic competitiveness. By adopting unified standards and promoting open financial-data ecosystems, regional policymakers can accelerate the GCC's evolution into an attractive and credible global investment destination.

For market participants, the implications are equally significant. Firms that simultaneously excel in digital capability emerge as superior investment prospects, offering lower information risk, stronger financial resilience, and enhanced long-term value creation. These attributes are especially relevant in the growing landscape of sustainable and Sharia-compliant finance, where investors increasingly

demand demonstrable ethical governance, transparency, and technological readiness. The study thus provides a clear framework for investment screening, portfolio construction, and risk management in GCC markets.

At the broader capital-market level, the convergence of FinTech and capital structure offers a systemic solution for addressing liquidity constraints, reducing financing costs, and improving market depth. As digital infrastructure expands and sustainability disclosure becomes more robust, GCC markets have the opportunity to transition from traditional, relationship-based financing to transparent, data-driven, innovation-led ecosystems aligned with global best practices. This shift is not merely operational but structural: it redefines how value is produced, evaluated, and rewarded across the region. Ultimately, this study offers a unified message: *The next frontier of corporate-value creation in the GCC lies in the convergence of financial efficiency, and technological innovation. Firms that embed financing architectures within digitally enabled governance will enhance transparency and strengthen stakeholder trust but also manage their cost of capital more effectively. By leveraging Fin Tech to reduce financing frictions and improve information flow, these firms achieve superior valuations while aligning with the GCC's broader vision of a resilient, transparent, and innovation-driven economy.*

REFERENCES

- Andri Helmi Munawar. (2025, May). *Do Determinants of Firm Value Influence Profitability? Exploring the Moderating Role of Financial Technology*. <https://doi.org/10.31000/jmb.v14i1.13787.g6092>
- Bruno, G., Bruno, & Giovanni. (2005). *XTLSDVC: Stata module to estimate bias corrected LSDV dynamic panel data models*. <https://EconPapers.repec.org/RePEc:boc:bocode:s450101>
- Bui, T. N., Nguyen, X. H., & Pham, K. T. (2023). The Effect of Capital Structure on Firm Value: A Study of Companies Listed on the Vietnamese Stock Market. *International Journal of Financial Studies*, 11. <https://doi.org/10.3390/ijfs11030100>
- Cachin, C., & Vukolić, M. (2017). Blockchain consensus protocols in the wild. *Leibniz International Proceedings in Informatics, LIPIcs*, 91. <https://doi.org/10.4230/LIPIcs.DISC.2017.1>
- Elshareif, E., Kabir, M., Contu, D., & Mujahed, M. (2022). Do Vaccines' Announcements Cure Stock Market Volatility? Evidence From the Gulf Cooperation Council (GCC) Markets. *International Journal of Economics and Management Journal Homepage*, 16(3), 365–381. <https://doi.org/10.47836/ijeam.16.3.07>
- Fan, C., Bae, S., & Liu, Y. (2024a). Can FinTech transform corporate liquidity? Evidence from China. *Innovation and Green Development*, 3. <https://doi.org/10.1016/j.igd.2023.100114>
- Fan, C., Bae, S., & Liu, Y. (2024b). Can FinTech transform corporate liquidity? Evidence from China. *Innovation and Green Development*, 3. <https://doi.org/10.1016/j.igd.2023.100114>
- Faysal, S., Salehi, M., & Moradi, M. (2020). The impact of ownership structure on the cost of equity in emerging markets. *Management Research Review*, 43, 1221–1239. <https://doi.org/10.1108/MRR-11-2019-0475>
- Girardone, C., Nieri, L., Piserà, S., & Santulli, R. (2024). Does FinTech credit affect firms' cost of capital and capital structure? *European Journal of Finance*. <https://doi.org/10.1080/1351847X.2024.2383643>
- Goldani Mahdi. (2024). *Economic Diversification and Social Progress in the GCC Countries: A Study on the Transition from Oil-Dependency to Knowledge-Based Economies*.
- Hasan, Md. M., Uddin, Dr. Md. H., & Khan, A. (2024). Impacts of Cost of Capital on Firm Value and Profitability: Insights from the Cement Industry in Bangladesh. *International Journal of Research and Innovation in Social Science*, VIII, 890–899. <https://doi.org/10.47772/ijriss.2024.801067>
- Hong, L., Nikbakht, E., & Zhou, T. (2023). Does product market competition affect the adoption of FinTech by non-financial firms? *Finance Research Letters*, 54. <https://doi.org/10.1016/j.frl.2023.103730>
- Huang, S. (2022). Does FinTech improve the investment efficiency of enterprises? Evidence from China's small and medium-sized enterprises. *Economic Analysis and Policy*, 74, 571–586. <https://doi.org/10.1016/j.eap.2022.03.014>

- Khaki, A. R., & Akin, A. (2020). Factors affecting the capital structure: New evidence from GCC countries. *Journal of International Studies*, 13, 9–27. <https://doi.org/10.14254/2071-8330.2020/13-1/1>
- Khan, A., Qureshi, M. A., & Davidsen, P. I. (2021). A system dynamics model of capital structure policy for firm value maximization. *Systems Research and Behavioral Science*, 38, 503–516. <https://doi.org/10.1002/sres.2693>
- Khan, S., Khan, H., Control, S. N.-M. and, & 2023, undefined. (2023). Utilizing the collective wisdom of fintech in the gcc region: A systematic mapping approach. *Journals.Sagepub.ComS Khan, HU Khan, S NazirMeasurement and Control, 2023•journals.Sagepub.Com*, 56(4), 713–732. <https://doi.org/10.1177/00202940221124130>
- Kou, G., & Lu, Y. (2025). FinTech: a literature review of emerging financial technologies and applications. In *Financial Innovation* (Vol. 11). Springer Science and Business Media Deutschland GmbH. <https://doi.org/10.1186/s40854-024-00668-6>
- Kurniasih, A., Rustam, M., Heliantono, & Endri, E. (2022a). Cost of capital and firm value: Evidence from Indonesia. *Investment Management and Financial Innovations*, 19(4), 14–22. [https://doi.org/10.21511/imfi.19\(4\).2022.02](https://doi.org/10.21511/imfi.19(4).2022.02)
- Kurniasih, A., Rustam, M., Heliantono, & Endri, E. (2022b). Cost of capital and firm value: Evidence from Indonesia. *Investment Management and Financial Innovations*, 19(4), 14–22. [https://doi.org/10.21511/imfi.19\(4\).2022.02](https://doi.org/10.21511/imfi.19(4).2022.02)
- Lai, Z., & Luo, H. (2022). How does intelligent technology investment affect employment compensation and firm value in Chinese financial institutions? *International Journal of Emerging Markets*, 17, 945–966. <https://doi.org/10.1108/IJOEM-03-2021-0391>
- Milian, E. Z., Spinola, M. de M., & Carvalho, M. M. de. (2019). Fintechs: A literature review and research agenda. *Electronic Commerce Research and Applications*, 34, 100833. <https://doi.org/10.1016/J.ELERAP.2019.100833>
- Murong Liu. (2025). The Impact of Fintech on Corporate Financial Risk: From the Perspective of Information Asymmetry. *Frontiers in Economics and Management*, 6(4).
- Nadeem Fatima. (2023). *Firm Value and Profitability of Saudi Arabian Companies Listed on Tadawul: Moderating Role of Capital Structure*.
- Nefla, D., & Jellouli, S. (2025). Emerging technologies in finance: challenges for a sustainable finance. *Cogent Business and Management*, 12. <https://doi.org/10.1080/23311975.2025.2495191>
- Njonge, T. (2023). *Influence of Psychological Well-Being and School Factors on Delinquency, During the Covid-19 Period Among Secondary School Students in Selected Schools in Nakuru County: Kenya. VII*, 1175–1189. <https://doi.org/10.47772/IJRISS>
- Philippon, T. (2017). *The FinTech Opportunity*. www.bis.org
- Qi, Y., Ouyang, L., & Yu, Y. (2024). The impact of FinTech adoption on corporate investment: Evidence from China. *Finance Research Letters*, 67. <https://doi.org/10.1016/j.frl.2024.105929>
- Rindi Hariyanur, Ratna Septiyanti, & Agus Zahron Idris. (2022). The effect of investment and financing decision, dividend policy and cost of capital on Indonesian firm value. *Asian Journal of Economics and Business Management*, 1, 74–81. <https://doi.org/10.53402/ajebm.v1i2.121>
- Saad, N. E. A. B. M. & N. B. M. (2012). *Cost of Capital-The Effect to Firm Value and Profitability Performance in Malaysia*. <https://Ideas.Repec.Org/a/Hur/Ijaraf/V2y2012i4p353-361.Html>
- Salehi, M., Zimon, G., Arianpoor, A., & Gholezoo, F. E. (2022). The Impact of Investment Efficiency on Firm Value and Moderating Role of Institutional Ownership and Board Independence. *Journal of Risk and Financial Management*, 15. <https://doi.org/10.3390/jrfm15040170>
- Santosuosso, P. (2014). Cost of Debt and Corporate Profitability. *International Business Research*, 7. <https://doi.org/10.5539/ibr.v7n2p13>
- Sharawi, Dr. H. (2024). The Impact of IFRS Adoption on Financial Transparency in Saudi Companies: A Theoretical Exploration. *African Journal of Biomedical Research*, 5350–5357. <https://doi.org/10.53555/AJBR.v27i4S.4238>
- Sharma, D., & Munjal, P. (2024). Determining the key drivers of FinTech adoption in India. *International Journal of Process Management and Benchmarking*, 16(4), 533–554. <https://doi.org/10.1504/IJPMB.2024.137146>
- Shehata, S. M., Abdeljawad, A. M., Mazouz, L. A., Aldossary, L. Y. K., Alsaeed, M. Y., & Sayed, M. N. (2023). Factors affecting customers' adoption of fintech in the gulf cooperation council countries. *Asian Economic and Financial Review*, 13(7), 463–477. <https://doi.org/10.55493/5002.V13I7.4800>

- Sweidan, O. D. (2025). Economic Challenges of Economic Diversification and Sustainability in the GCC Countries. *Review of Political Economy*. <https://doi.org/10.1080/09538259.2025.2493269>
- Tahat Ibrahim. (2022). *Correlation between Cost of Capital, Book Values and Shares Prices: Evidence from Qatar Stock Exchange*.
- Tang, M., Hu, Y., Hou, Y. (Greg), Oxley, L., & Goodell, J. W. (2025). Fintech development, corporate tax avoidance and firm value. *International Review of Financial Analysis*, 97. <https://doi.org/10.1016/j.irfa.2024.103765>
- Vasile, V., & Manta, O. (2025). Fin Tech and AI as Opportunities for a Sustainable Economy. *FinTech*, 4, 10. <https://doi.org/10.3390/fintech4020010>
- Wooldridge, J. M. (2016). *Wooldridge, J. M. (2016). Introductory Econometrics: A Modern Approach 6rd ed. Cengage learning*.
- Wu, Z., Pathan, S., & Zheng, C. (2024). Fin Tech adoption in banks and their liquidity creation. *British Accounting Review*. <https://doi.org/10.1016/j.bar.2024.101322>
- Zhou, R., & Li, J. (2024). Fintech and dynamic adjustment of capital structure. *Finance Research Letters*, 67. <https://doi.org/10.1016/j.frl.2024.105853>