

Has the Degree of Financial Integration, Measured by Correlations and Betas Between GCC Equity Indices and Global Benchmarks, Undergone A Structural Shift Following Major Economic Shocks, Such as the 2014 Oil Price Collapse and the COVID-19 Pandemic?

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ABSTRACT: This paper examines the evolution of correlations between major Gulf Cooperation Council (GCC) equity indices, namely TASI of Saudi Arabia, DFM of Dubai, and QE of Qatar, and global benchmarks, specifically the S&P 500 and MSCI World, from January 2005 to June 2025. Using regressions on monthly returns, the study evaluates correlations and betas across three subperiods: the pre-oil crash period from 2005 to 2014, the post-oil crash period from 2014 to 2020, and the post-COVID period from 2020 to 2025. Results show that TASI and DFM became more correlated with global indices after 2014, but the evidence does not establish causality. The increase may have reflected broader reforms such as liberalization of foreign ownership rules, the inclusion of Saudi Arabia in MSCI Emerging Markets, and enhanced transparency. Post-COVID, correlations plateaued for TASI and declined for DFM, likely due to renewed domestic trading dominance and regional economic divergence from global recovery patterns. By contrast, QE exhibited persistently weak and statistically insignificant linkages with global benchmarks across all periods. These findings underscore the heterogeneity of GCC markets, the conditional nature of global integration, and implications for diversification, portfolio risk management, and policy design.

KEYWORDS: GCC equity indices; TASI; DFM; QE; S&P 500; MSCI World; oil price crash; COVID-19; financial integration; diversification.

1.0 INTRODUCTION

The integration of regional equity markets with global financial benchmarks is one of the most debated issues in international finance. For the Gulf Cooperation Council (GCC), equity markets such as the Tadawul All Share Index (TASI) in Saudi Arabia, the Dubai Financial Market (DFM) in the United Arab Emirates, and the Qatar Exchange (QE) in Qatar have historically been considered segmented from global financial cycles. This segmentation was attributed to their dependence on oil revenues, restrictions on foreign ownership, and relatively shallow trading volumes compared to advanced markets. While global investors could gain direct exposure to oil through derivatives or energy equities, GCC stock markets have provided a broader mix of exposures, including to regional banking systems, real estate, telecommunications, and consumer sectors, which are indirectly influenced by oil but not perfectly replicated by commodity instruments. As a result, GCC equities traditionally offered a form of regional diversification that complemented, rather than substituted for, oil-linked assets in international portfolios (Espinoza, Prasad, and Williams 2010).

In recent decades, however, several developments have challenged this assumption of partial insulation. The 2014 oil price collapse, which significantly reduced fiscal surpluses and exposed macroeconomic vulnerabilities, forced GCC economies to accelerate diversification agendas and deepen linkages with international capital. The COVID-19 pandemic further underscored the global interconnectedness of financial markets, as synchronized sell-offs and liquidity strains affected both advanced and emerging economies. Scholars argue that such co-movement may arise from two mechanisms. First, fundamental channels drove integration, since collapsing global demand, severe oil price declines, and capital outflows simultaneously affected GCC and international markets (Basher, Haug, and Sadorsky 2012; Baker et al. 2020).

Second, behavioural contagion magnified correlations, as investors engaged in panic selling, herding, and flight-to-safety behaviour, leading even relatively segmented markets to move together (Forbes and Rigobon 2002; Bekaert, Ehrmann, Fratzscher,

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and Mehl 2014). Liquidity shocks in March 2020, when margin calls and redemptions spread across asset classes, further reinforced these dynamics (Acharya and Steffen 2020).

Yet correlations declined again after 2020, reflecting the unwinding of panic-driven co-movement and the reassertion of structural differences. Regional recoveries became increasingly shaped by domestic factors such as the Saudi fiscal stimulus, UAE real estate expansion, and Qatar's World Cup-related infrastructure boom, none of which were mirrored in global equity benchmarks. Parallel to these shocks, structural reforms such as Saudi Arabia's inclusion in the MSCI Emerging Markets index, Dubai's liberalization of foreign ownership laws, and the growing global role of sovereign wealth funds facilitated a deeper opening of GCC financial systems. These reforms increased responsiveness to global flows during crisis episodes but also left room for divergence once local fundamentals reasserted themselves, highlighting the dual nature of GCC integration as both shock-driven and policy-led.

Against this backdrop, a central research question arises: **Has the degree of financial integration between GCC equity markets and global benchmarks structurally shifted around the time of these major economic shocks?** Specifically, have TASI, DFM, and QE become more correlated with the S&P 500 and MSCI World indices, thereby altering their role in global portfolio diversification and exposing them to systemic risks from global cycles?

While the analysis identifies structural breaks in correlations that coincide with the 2014 oil price collapse and the COVID-19 pandemic, these results establish temporal association rather than direct causality. It remains possible that the observed shifts reflect broader developments such as financial liberalization, increased foreign participation, and MSCI index inclusions, which occurred alongside these shocks.

The purpose of this study is to empirically evaluate these questions by analyzing return correlations and regression betas of the three GCC indices against global benchmarks over the period January 2005 to June 2025. The analysis is divided into four distinct intervals: the pre-oil crash period (2005–2014), the post-oil crash period (2014–2020), the post-COVID period (2020–2025), and the full sample. By comparing structural shifts in co-movement across these regimes, the study provides evidence on whether GCC markets have transitioned from segmented, oil-anchored systems toward more globally integrated equity markets.

The contribution of this research is threefold. First, it extends the literature on emerging market integration by focusing on the GCC, a region of growing importance in global capital flows yet underexplored in empirical finance studies. Second, it tests whether structural breaks in correlation coincide with macroeconomic shocks, thereby linking market co-movement to real economic vulnerabilities. Third, it provides practical insights for global investors and regional policymakers: if integration has increased, international diversification benefits may diminish, and systemic risks may amplify; if integration remains limited, the GCC may continue to serve as a partial hedge against global volatility.

2.0 LITERATURE REVIEW

2.1 Market Integration and Diversification

A central theme in international portfolio theory is that segmented markets provide diversification opportunities, while integrated markets converge toward global risk pricing (Bekaert & Harvey, 1995). In early emerging markets, limited cross-border capital mobility often resulted in low correlations with global benchmarks, thereby offering diversification benefits to advanced economy investors (Errunza & Losq, 1985). However, financial liberalization in the late twentieth and early twenty-first centuries increased cross-listings, global fund flows, and investor participation, producing a trend of rising correlations with benchmarks such as the S&P 500 and MSCI World (Karolyi & Stulz, 2003). These findings suggest that emerging markets gradually lose their diversification appeal as integration deepens.

2.2 Structural Features of GCC Equity Markets

The GCC equity markets are distinct from other emerging markets due to their heavy reliance on hydrocarbon revenues, concentrated ownership structures, and the prominent role of state-owned enterprises and sovereign wealth funds. Prior studies find that these features historically limited integration with global markets (Espinoza, Prasad & Williams, 2010). Domestic retail investors dominate trading activity, while restrictions on foreign ownership create barriers to global participation. Moreover, the lack of diversified corporate sectors reduced co-movement with global benchmarks, as energy-driven fiscal revenues anchored economic cycles more strongly than international financial flows.

2.3 Oil Price Shocks and Market Linkages

Oil remains a key macroeconomic variable influencing GCC equity markets. The 2014 oil price collapse was particularly significant,

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as it sharply reduced government revenues, widened fiscal deficits, and triggered equity market volatility. Empirical research suggests that oil prices influence both domestic returns and correlations with global benchmarks. Basher, Haug, and Sadorsky (2012) show that oil shocks transmit through both direct fiscal and production channels and through investor sentiment, making GCC markets more responsive to international factors. Sectoral composition further explains the strength of this linkage. While the MSCI World Index has only about 3.5 percent of its weight in the energy sector (MSCI World Index Fact Sheet), GCC markets are considerably more exposed. In Saudi Arabia, the MSCI Tadawul 30 Index shows Saudi Aramco alone accounting for 13.90 percent of index weight, while the iShares MSCI Saudi Arabia ETF reports that the energy sector comprises roughly 11.12 percent of total holdings (MSCI Tadawul 30 Index Fact Sheet; iShares MSCI Saudi Arabia Capped ETF). By contrast, the Dubai Financial Market (DFM) has very limited direct representation of oil and gas companies, with its index composition dominated by banks, real estate, and transport services rather than energy producers (DFM Market Sector Distribution). This structural imbalance means that oil price movements exert a disproportionately strong influence on the Saudi market, while Dubai's co-movement with oil arises more indirectly through macroeconomic and fiscal channels. Consequently, structural breaks in oil markets may coincide with shifts in financial integration, as energy-heavy Saudi equities respond more sharply than diversified global benchmarks or Dubai's less oil-weighted index.

2.4 COVID-19 and Global Spillovers

The COVID-19 pandemic provided an unprecedented natural experiment in global financial integration. Research documents that the initial shock triggered synchronized sell-offs across advanced and emerging markets, with correlations spiking globally (Baker et al., 2020). However, recovery trajectories diverged depending on fiscal capacity, investor base, and exposure to global demand. For the GCC, COVID-19 not only depressed oil demand but also tested the resilience of equity reforms and diversification strategies implemented after 2014. This dual exposure: global contagion and commodity dependence, makes GCC markets an important case for examining post-COVID integration patterns.

2.5 Methodologies for Measuring Integration

Scholars typically measure integration using rolling correlations, cointegration tests, structural break tests, and regression models with dummy variables for crisis periods (Forbes & Rigobon, 2002). These approaches capture both long-run co-movement and regime-specific shifts. A well-documented finding is that correlations rise during crises, but whether they remain elevated in the aftermath depends on structural features of markets and the persistence of liberalization reforms. This methodological framework is particularly suited to the GCC, where sequential shocks (oil collapse, COVID-19) intersect with ongoing financial reforms and global index inclusions.

3.0 DATA AND METHODOLOGY

3.1 Data Sources

This study draws on publicly available monthly price data for GCC equity indices and global benchmarks from January 2005 to June 2025. The data sources are as follows:

- **Tadawul All Share Index (TASI)** – Saudi Arabia: Investing.com TASI Index
- **Dubai Financial Market General Index (DFMGI)** – United Arab Emirates: Investing.com DFM Index
- **Qatar Exchange Index (QE)** – Qatar: Investing.com QE Index
- **S&P 500 Index** – United States: Investing.com S&P 500
- **MSCI World Index** – Global Benchmark: CNBC MSCI World

Index price series were collected in local currencies where available. Monthly percentage returns were calculated as: $100 * ((P_{\text{new}} / P_{\text{old}}) - 1)$, where P is the monthly closing price.

3.2 Timeframe

The analysis covers the period **January 2005 to June 2025**, providing over 20 years of monthly observations. This timeframe was chosen to capture two structural shocks that significantly impacted GCC and global financial markets:

1. **Pre-oil crash period (Jan 2005 – Jun 2014):** Characterized by robust oil revenues, partial segmentation from global benchmarks, and limited foreign participation.
2. **Post-oil crash period (Jul 2014 – Feb 2020):** Marked by the decline in oil prices, fiscal adjustments, and market reforms aimed at attracting global capital.
3. **Post-COVID period (Mar 2020 – Jun 2025):** Defined by the pandemic shock, synchronized global sell-offs, and subsequent

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policy-driven recoveries.

4. **Full sample period (Jan 2005 – Jun 2025):** Provides a long-run benchmark for comparison across regimes.

3.3 Portfolio Construction

Unlike studies that simulate portfolios of individual stocks, this paper focuses on **index-level co-movement**. Monthly returns were calculated separately for each GCC index (TASI, DFM, QE) and the global benchmarks (S&P 500, MSCI World). No dividend adjustments were made, as consistent total return data were unavailable across all indices, and the focus of this study is on relative co-movement rather than absolute performance levels.

3.4 Regression Framework & Return Analysis

To measure the degree of financial integration, ordinary least squares (OLS) regressions were run for each GCC index against both global benchmarks using Excel's Analysis ToolPak. The baseline specification was:

$$R_{i,t} = \alpha_i + \beta_i R_{g,t} + \varepsilon_t$$

where $R_{i,t}$ is the monthly return of GCC index i (TASI, DFM, or QE), $R_{g,t}$ is the return of the global benchmark (S&P 500 or MSCI World), α is the intercept, β captures sensitivity to global returns, and ε is the error term.

From these regressions, the following metrics were extracted:

- **Correlation (ρ):** Pairwise correlation coefficient between GCC and global returns.
- **Beta (β):** Sensitivity of GCC returns to global benchmarks.
- **R²:** Proportion of variance in GCC returns explained by global benchmarks.
- **Intercept (α):** Captures excess returns unrelated to global factors.

We also used the monthly returns to calculate CAGR for each of the indices, as well as an approximation standard deviation as a measure of volatility. This, coupled with the average yield of a 3-month US T-Bill across the timeframe (as a proxy for risk-free rate) allowed us to measure the risk-adjusted returns for each index, allowing us to compare the true benefits of diversification.

3.5 Structural Break Analysis

To assess whether integration shifted around major economic shocks, regressions were run separately for each of the three subperiods, as well as for the full sample. This design allows for the identification of **structural breaks** in correlations and betas linked to the 2014 oil price collapse and the COVID-19 pandemic. While formal Chow tests, which are econometric procedures used to determine whether there is a structural break at a specified point in a regression model (Chow 1960), were not implemented, the subperiod regressions provide a clear comparison of co-movement patterns before and after each shock.

3.6 Methodological Limitations

The analysis is subject to certain limitations. First, the use of price indices without dividend adjustments may understate total returns, particularly for dividend-heavy markets such as the GCC. Second, reliance on OLS regressions does not account for potential endogeneity or volatility clustering, although monthly frequency mitigates some high-frequency noise. Finally, running regressions using Excel constrains robustness checks such as heteroskedasticity corrections or cointegration tests, though the results remain sufficient to detect broad shifts in market integration.

4.0 RESULTS

Tables 1–3 report correlations (ρ), betas (β), explanatory power (R^2), and intercepts (α) for TASI, DFM, and QE against the S&P 500 and MSCI World across the three subperiods and the full sample. Table 4 shows the average CAGR and Sharpe Ratio for each of the indices.

Table 1: TASI vs. S&P 500 and MSCI World (2005–2025)

Period	Correlation	Beta (β)	R ²	Intercept (α)	Period	Correlation	Beta (β)	R ²	Intercept (α)
Jan 2005 to Jun 2014	0.38	0.71	0.14	0.001	Jan 2005 to Jun 2014	0.39	0.67	0.15	0.002
July 2014 to Feb 2020	0.46	0.69	0.21	-0.01	July 2014 to Feb 2020	0.5	0.77	0.25	-0.007
Mar 2020 to Jun 2025	0.4	0.4	0.16	0.002	Mar 2020 to Jun 2025	0.42	0.42	0.17	0.002
Jan 2005 to June 2025	0.39	0.62	0.15	-0.002	Jan 2005 to June 2025	0.41	0.63	0.17	0

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TASI demonstrates consistently modest integration with global benchmarks, with correlations never exceeding 0.50. This confirms that Saudi equities remain only partially linked to international markets, which sustains their value as diversification tools for global investors. The post-oil crash period (2014–2020) shows a modest increase in correlations (0.46 with the S&P 500 and 0.50 with MSCI World), but this cannot be attributed to the oil shock alone. Broader reforms, including the relaxation of foreign ownership limits and Saudi Arabia's inclusion in the MSCI Emerging Markets index in 2019, increased foreign institutional participation and likely contributed to higher co-movement (Espinoza, Prasad, and Williams 2010; MSCI 2021).

The beta coefficients, which in this case represent the regression slope measuring how strongly TASI returns move in response to changes in the S&P 500 or MSCI World, provide further insight. Pre-2014, TASI displayed relatively high sensitivity ($\beta \approx 0.70$), but in the post-COVID period, betas fell sharply to around 0.40. This decline suggests that, once the pandemic-driven global sell-offs unwound, Saudi equities became less responsive to international shocks, consistent with the reassertion of domestic fundamentals such as Vision 2030 reforms, fiscal stimulus, and local consumption growth. The intercept (α) remained close to zero across all periods, indicating little evidence of systematic excess returns independent of global benchmarks. Meanwhile, the R^2 values, which measure the proportion of TASI's variation explained by global indices, rose from around 0.14–0.15 in the pre-crash period to as high as 0.25 in the 2014–2020 window, before falling back to 0.16–0.17 after 2020. This pattern shows that while global benchmarks explained more of TASI's variation during the oil crash period, domestic drivers regained importance in the post-pandemic years (Acharya and Steffen 2020; Baker et al. 2020).

Overall, TASI appears moderately integrated but not strongly dependent on global benchmarks.

Temporary increases in co-movement coincide with major reforms and crises, but the long-term picture is one of partial independence. For global investors, this means Saudi equities provide moderate diversification benefits, though their correlation profile has evolved in tandem with both structural reforms and episodic shocks.

Table 2: DFM vs. S&P 500 and MSCI World (2005–2025)

Period	Correlation	Beta (β)	R^2	Intercept (α)	Period	Correlation	Beta (β)	R^2	Intercept (α)
Jan 2005 to Jun 2014	0.31	0.81	0.09	0.007	Jan 2005 to Jun 2014	0.34	0.83	0.12	0.007
July 2014 to Feb 2020	0.56	0.92	0.32	-0.02	July 2014 to Feb 2020	0.62	1.03	0.38	0.007
Mar 2020 to Jun 2025	0.26	0.23	0.07	0.01	Mar 2020 to Jun 2025	0.27	0.24	0.07	0.01
Jan 2005 to June 2025	0.33	0.67	0.11	0.001	Jan 2005 to June 2025	0.37	0.73	0.14	0.002

The Dubai Financial Market (DFM) shows more variability in its integration with global benchmarks compared to TASI, with correlations ranging from as low as 0.26 in the post-COVID period to as high as 0.62 against the MSCI World during 2014–2020. Overall, correlations remain below 0.65, indicating that while DFM has at times been more globally integrated, it still retains only partial alignment with international markets. The post-oil crash period (2014–2020) marks the peak of integration: correlations rose to 0.56 with the S&P 500 and 0.62 with MSCI World, and betas approached or exceeded 1.0 ($\beta = 0.92$ for the S&P and 1.03 for MSCI). In this context, beta represents the regression coefficient measuring how much DFM returns change in response to movements in global indices. A beta near or above 1 suggests that DFM behaved almost like a global equity market during this period, likely reflecting increased foreign participation after liberalization of ownership laws and Dubai's efforts to position itself as a regional financial hub. The R^2 values also peaked at 0.32–0.38, indicating that global benchmarks explained more than a third of DFM's variance, much higher than in other subperiods.

However, this integration proved fragile. In the post-COVID years (2020–2025), correlations fell sharply to 0.26–0.27, and betas collapsed to around 0.23–0.24, showing that DFM became largely decoupled from global indices. The intercept (α) remained small and close to zero throughout, suggesting little evidence of persistent excess returns independent of global factors. The decline in integration post-2020 likely reflects the fading of panic-driven global contagion and the reassertion of domestic dynamics, such as Dubai's reliance on real estate, tourism, and regional capital flows, which followed different trajectories than global equity markets during the recovery (Bekaert et al. 2014; Acharya and Steffen 2020).

Overall, DFM appears episodically integrated: it exhibited strong global sensitivity during the post-oil crash years but reverted to relative independence afterward. For investors, this suggests that Dubai equities may offer diversification benefits in the long run, but their short-term co-movement with global benchmarks can fluctuate sharply depending on both global shocks and local

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structural conditions.

Table 3: QE vs. S&P 500 and MSCI World (2005–2025)

Period	Correlation	Beta (β)	R^2	Intercept (α)	Period	Correlation	Beta (β)	R^2	Intercept (α)
Jan 2005 to Jun 2014	0.17	0.34	0.03	0.005	Jan 2005 to Jun 2014	0.15	0.28	0.02	0.005
July 2014 to Feb 2020	0.02	0.03	0	-0.01	July 2014 to Feb 2020	0.02	0.02	0	-0.005
Mar 2020 to Jun 2025	0.19	-0.18	0.04	0.01	Mar 2020 to Jun 2025	0.2	-0.19	0.04	0.008
Jan 2005 to June 2025	0.07	0.11	0.01	0.002	Jan 2005 to June 2025	0.07	0.1	0.005	0.002

The Qatar Exchange (QE) index exhibits persistently weak and statistically insignificant relationships with global benchmarks across all periods. Correlations with both the S&P 500 and MSCI World remain very low, ranging from 0.02 to 0.20, and none are significant even at the 10 percent level. This lack of significance suggests that co-movement between QE and global indices is not robust and that Qatar's equity market remains largely segmented from international financial cycles. The beta coefficients, which measure how much QE returns respond to changes in the S&P 500 or MSCI World, reinforce this conclusion. Betas remain close to zero throughout the sample, sometimes even turning negative in the post-COVID period ($\beta = -0.18$ against the S&P, -0.19 against MSCI). Such results imply that QE has virtually no systematic exposure to global equity market movements. Similarly, the R^2 values remain near zero (0.00–0.04 in subperiods, 0.005 overall), showing that global benchmarks explain almost none of the variance in QE returns. The intercept (α) is small but occasionally positive, though the lack of significance means there is little evidence of consistent excess returns.

The weak integration of QE is partly structural. Unlike Saudi Arabia, which lists energy giants such as Aramco, or Dubai, which has actively liberalized foreign ownership rules, Qatar's exchange is dominated by domestic banks, telecommunications, and industrials. These sectors are tied to domestic fiscal spending and large infrastructure projects, such as the World Cup 2022 build-out, rather than to global equity cycles (Espinoza, Prasad, and Williams 2010). Moreover, foreign investor participation in QE has remained relatively limited, reducing spillovers from international capital flows.

For investors, the implication is clear: QE offers strong diversification potential because of its statistical independence from global benchmarks. However, the same insulation reflects lower liquidity and limited accessibility, which may constrain its practical use in large international portfolios. In sum, QE stands out as the least integrated GCC equity market, with its correlations so weak and insignificant that it cannot be considered systematically tied to global financial conditions.

Table 4: CAGR & Sharpe Ratio for Indices (2005–2025)

Index	% CAGR	# Sharpe Ratio	% Risk Free rate
tasi	0.76%	-0.13	1.65%
dfm	3.56%	0.22	1.65%
qe	0.92%	-0.11	1.65%
s&p	8.55%	1.60	1.65%
MSCI	6.37%	1.06	1.65%

The compound annual growth rate (CAGR) results reveal a stark performance gap between GCC indices and global benchmarks. TASI and QE delivered very low annualized returns of 0.76 percent and 0.92 percent, respectively, while DFM performed somewhat better at 3.56 percent. By contrast, the S&P 500 and MSCI World generated substantially higher returns of 8.55 percent and 6.37 percent over the same period. This highlights that, from a pure growth perspective, GCC indices have not matched the wealth-building capacity of developed market benchmarks.

Risk-adjusted performance, measured by the Sharpe ratio, reinforces this picture. The Sharpe ratio captures excess return per unit of risk, with the 1.65 percent U.S. 3-month T-bill used here as the proxy for the risk-free rate. TASI and QE recorded negative Sharpe ratios (-0.13 and

-0.11), meaning their returns were below the risk-free rate once volatility is considered. DFM posted a slightly positive Sharpe ratio of 0.22, but this remains far below the S&P 500 (1.60) and MSCI World (1.06). This implies that GCC equities have not compensated investors adequately for the risks undertaken during 2005–2025.

For global investors, these findings underscore a key trade-off. GCC markets may provide diversification benefits due to their

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relatively low correlations with global indices (as shown in Tables 1–3), but this comes at the cost of weaker long-term and risk-adjusted performance. In other words, GCC equities function less as return-enhancing assets and more as hedging instruments that can lower portfolio volatility when combined with global benchmarks.

Investors allocating to these markets should therefore view them as diversification plays rather than as core growth drivers, while recognizing that episodic reforms or oil-linked shocks may still generate short-term opportunities.

5.0 CONCLUSION

This paper examined whether correlations between GCC equity markets and global benchmarks have structurally shifted around two major economic shocks: the 2014 oil price collapse and the COVID-19 pandemic. Using monthly returns for TASI (Saudi Arabia), DFM (Dubai), and QE (Qatar) against the S&P 500 and MSCI World from January 2005 to June 2025, regressions and performance metrics were analyzed across subperiods to identify changes in correlation, beta sensitivity, explanatory power, and risk-adjusted returns.

The findings yield four key insights. First, Saudi Arabia (TASI) shows moderate but persistent integration, with correlations rising after the oil crash and stabilizing post-COVID at around 0.40–0.42. Betas fell over time, indicating reduced responsiveness to global indices, while R^2 values remained modest. Second, Dubai (DFM) displayed the strongest evidence of episodic integration: correlations and betas peaked in 2014–2020, approaching unity with MSCI World, but collapsed after COVID as domestic factors such as real estate and tourism reasserted themselves. Third, Qatar (QE) remained consistently segmented, with correlations and betas statistically insignificant even at the 10 percent level. This underscores its independence from global cycles, although limited liquidity constrains its practical use for large investors. Fourth, the return and risk-adjusted performance metrics reinforce these findings. TASI and QE produced very low compound annual growth rates (below 1 percent) and negative Sharpe ratios, while DFM performed somewhat better but still lagged global benchmarks. In contrast, the S&P 500 and MSCI World generated superior returns and Sharpe ratios, highlighting that GCC equities have not been long-run return drivers but instead function primarily as diversification instruments.

From a theoretical perspective, the evidence shows that the GCC cannot be treated as a homogeneous bloc. Integration is heterogeneous, market-specific, and often conditional on global shocks or structural reforms such as MSCI index inclusions and ownership liberalization.

From a practical investment perspective, three conclusions follow. First, GCC equities should be viewed as diversifiers rather than growth assets, since correlations with global benchmarks remain modest while risk-adjusted returns are weak. Second, investors should distinguish across markets: Saudi Arabia offers moderate integration useful for exposure to a large, reform-driven economy; Dubai offers episodic integration that may benefit tactical allocations during reform or liberalization waves; and Qatar provides segmentation that can hedge global volatility, albeit with accessibility limits. Third, emerging market investors should recognize that GCC allocations play a different role than those of Asia or Latin America, contributing primarily to portfolio diversification rather than long-run outperformance.

Overall, the GCC is more globally connected today than before the 2014 oil crash, yet integration remains uneven and episodic rather than fully structural. Future research could extend this analysis by testing for volatility spillovers, sectoral linkages, and the role of sovereign wealth funds and global institutional flows in shaping the evolving dynamics of GCC financial integration.

REFERENCES

- 1) Acharya, Viral V., and Sascha Steffen. "The Risk of Being a Fallen Angel and the Corporate Dash for Cash in the Midst of COVID." *The Review of Corporate Finance Studies*, vol. 9, no. 3, 2020, pp. 430–471. Oxford Academic, <https://doi.org/10.1093/rcfs/cfaa013>.
- 2) Baker, Scott R., Nicholas Bloom, Steven J. Davis, Kyle Kost, Marco Sammon, and Tasaneeya Viratyosin. "The Unprecedented Stock Market Reaction to COVID-19." *The Review of Asset Pricing Studies*, vol. 10, no. 4, 2020, pp. 742–758. Oxford Academic, <https://doi.org/10.1093/rapstu/raaa008>.
- 3) Basher, Syed Abul, Alfred A. Haug, and Perry Sadorsky. "Oil Prices, Exchange Rates and Emerging Stock Markets." *Energy Economics*, vol. 34, no. 1, 2012, pp. 227–240. Elsevier, <https://doi.org/10.1016/j.eneco.2011.10.005>.
- 4) Bekaert, Geert, Michael Ehrmann, Marcel Fratzscher, and Arnaud Mehl. "The Global Crisis and Equity Market Contagion." *The Journal of Finance*, vol. 69, no. 6, 2014, pp. 2597–2649. Wiley Online Library, <https://doi.org/10.1111/jofi.12203>.

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- 5) Bekaert, Geert, and Campbell R. Harvey. "Time-Varying World Market Integration." *The Journal of Finance*, vol. 50, no. 2, 1995, pp. 403–444. Wiley, <https://doi.org/10.1111/j.1540-6261.1995.tb04790.x>.
- 6) Chow, Gregory C. "Tests of Equality Between Sets of Coefficients in Two Linear Regressions." *Econometrica*, vol. 28, no. 3, 1960, pp. 591–605. JSTOR, <https://doi.org/10.2307/1910133>.
- 7) Espinoza, Raphael, Ananthakrishnan Prasad, and Oral Williams. "Regional Financial Integration in the GCC." IMF Working Paper No. 10/90, International Monetary Fund, 2010, <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Regional-Financial-Integration-in-the-GCC-23777>.
- 8) Forbes, Kristin J., and Roberto Rigobon. "No Contagion, Only Interdependence: Measuring Stock Market Comovements." *The Journal of Finance*, vol. 57, no. 5, 2002, pp. 2223–2261. Wiley, <https://doi.org/10.1111/0022-1082.00494>.
- 9) iShares. iShares MSCI Saudi Arabia Capped ETF (KSA) Fact Sheet. BlackRock, 2021. <https://www.ishares.com/us/products/239667/ishares-msci-saudi-arabia-capped-etf>.
- 10) Karolyi, G. Andrew, and René M. Stulz. "Are Financial Assets Priced Locally or Globally?" *Handbook of the Economics of Finance*, vol. 1, 2003, pp. 975–1020. Elsevier, [https://doi.org/10.1016/S1574-0102\(03\)01027-4](https://doi.org/10.1016/S1574-0102(03)01027-4).
- 11) MSCI. MSCI Tadawul 30 Index (Saudi Arabia) Fact Sheet. MSCI, 2021. <https://www.msci.com/our-solutions/indexes/saudi-arabia>.
- 12) MSCI. MSCI World Index Fact Sheet. MSCI, 2021. <https://www.msci.com/our-solutions/indexes/world>.
- 13) S&P Dow Jones Indices. S&P 500 Fact Sheet. S&P Global, 2020. <https://www.spglobal.com/spdji/en/indices/equity/sp-500/>.
- 14) Dubai Financial Market. Market Sector Distribution. Dubai Financial Market, 2021. <https://www.dfm.ae>.
- 15) Investing.com. Tadawul All Share Index (TASI). <https://ca.investing.com/indices/tasi>.
- 16) Investing.com. Dubai Financial Market General Index (DFMGI). <https://ca.investing.com/indices/dfm-gi>.
- 17) Investing.com. Qatar Exchange Index (QE). <https://ca.investing.com/indices/qsi-historical-data>.
- 18) Investing.com. S&P 500 Index. <https://ca.investing.com/indices/us-sp-500>.
- 19) CNBC. MSCI World Index. CNBC Markets, <https://www.cnbc.com/quotes/.WORLD>.



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