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A Study of the Relationship between Expansionary Monetary Policy and Real Estate Prices: An Analysis of Capital Flows in the Gulf Countries for the Period 2010-2022

Ameen Fahad Jayed
Ministry of Education, Iraq
Muthanna Education Directorate

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Corresponding Author:
Ameen Fahad Jayed
https://orcid.org/0000-0002-9167-1453

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ABSTRACT

The present study was predominantly analysis of foreign capital flows for the purpose of assessing expansionary monetary policy response with the real estate market performance in GCC between 2010-2022. The concern wasn't just over prices, but also the context in which they're moving. To do this, the study uses a vector error adjustment model with quarterly data from six GCC countries. This framework made it possible to follow the propagation of a monetary shock in order to distinguish them into first round and subsequent effects on the real estate market. There is a paradox in the world between long-term interest rates and house prices. It turned out that 10% decline of the interest rate resulted in nearly 8.74% rise of housing cost, which indicated to the market's monetary response. In this respect, FDI comes across as an unmistakable contributor. It is, individually by volume, a small proportion of domestic credit but an important factor explaining the trends and dynamics of the real estate market. Interest rate spreads, accompanied by the credit boom and amount of foreign capital flow that followed the 2015 fall in oil prices, indicate structural changes in the studied economies. These changes do not seem to be temporary but are part of a fundamental transformation in the economic landscape. But not all countries are cut from the same cloth. Such impacts, however, seem to be less in the UAE and Saudi Arabia owing to strong distinctions in the regulatory regimes and monetary policies of these two countries. Given this the study concludes that we should be cautious about real estate price developments, while opting for policies that sustain economic activity and provide for uninterrupted flows of capital.

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INTRODUCTION

A similar relationship between interest rate and real estate asset prices has also been considered in the literature to analyze this issue for long time. Such an issue is yet unexplored for a peg to the US dollar (as in the GCC countries) since the monetary transmission mechanisms are not the same as those envisaged by standard theories. This paper has been able to bring light on the subject of expansionary monetary policy and real estate markets for six (6) Gulf countries, Saudi Arabia, Qatar UAE (Dubai-Abu Dhabi), Bahrain, Kuwait and Oman from 2010 to 2022. "It becomes even more relevant when we are witnessing the persistent volatility of oil prices and the country's increasing integration into the world economy".

Real estate is one of the major contributors to its GDP; housing has or contributes to 8-15%. This is a rather high degree of connectivity, so not only the questions… about (functioning as an enabler for hothousing growth), but also as a premature signaler

of economic imbalance and/or future crashes. These are getting even more crucial against the rising tide of substantial capital filtering into Gulf economies in recent years. It is also sometimes hard to judge whether a real estate boom reflects basic economic strengths, or nonmonetary and nonfinancial factors at play. As some of the seminal research, for example Bernanke and Gertler's work in 2001 explains, there is a complex puzzle of constraints facing Gulf economies. 1 Including pegging of the local exchange rate, near complete capital account liberalization and relatively little operational independence for monetary policy; leading to a big distance between these economies on one hand and advanced or even emerging market economies on the other.

In this sense and in the fact of imitation by other countries of US Federal Reserve experiences as well as deployment of sovereign wealth funds, we have opening another floodgate of new monetary channels with different characters and impacts. But it is not in the same time that these conductors advance; neither are they the product by theory. In this framework, research is informed by the following queries: Firstly, to which extent does the fact that currencies are pegged with the US dollar and oil revenues recycling limit what can be achieved for reducing property speculation through monetary policy?

The second issue refers to the foreign investors presence in these countries, more than30%–50%, who participate in their real estate markets and how they contribute to such a dynamics and price trends. The third relates to the 2014-15 collapse in oil prices. What was the crisis's impact on monetary policy and housing? Did it transform this relationship or merely expose its underlying slapdash quality? To address these enquiries, we apply a combination of conventional and structural identification along with capi tal flow analysis. This method aims to offer suitable analytical frameworks compatible with an institutional character of the GCC economies taking into account world-wide liquidity.

2. LITERATURE REVIEW

2.1 Monetary Policy and Asset Prices

The "credit channel theory" is the basis upon which the relationship between monetary policy and real estate prices rests. (Bernanke & Gertler, 2001) and the framework of safeguards restrictions (Iacoviello, 2005) As he sees Bernanke & Gertler Central banks find it difficult to distinguish between fundamental valuations and speculative demand, which creates a challenge in addressing asset price bubbles. This is particularly evident in the Gulf countries, where stabilizing asset prices leads to a significant inflation of liquidity flows. ((Fetais et al, 2024) He placed ((Fetais et al, 2024) General Dynamic Equilibrium Model (DSGE) The demand for housing increases as interest rates fall and mortgage restrictions are eased, a mechanism that is exacerbated in some countries where mortgage lending is widespread. (Adelino et al., 2016). However, some studies show that expansionary policies can lead to inflationary effects on prices also in some areas such as Dubai and Riyadh, while they are limited in some areas that adhere to building and subdivision laws (Cenesizoglu , and Essid, 2012).

The transmission of monetary shocks is becoming increasingly complex due to the interconnectedness of the global economic landscape. Luciani (2015) After using structural analysis, he concluded that housing markets respond more quickly to lower interest rates, especially in countries experiencing cross-border capital flows, such as the GCC countries. This supports Miranda-Agrippino and Rey (2021) This concept, transmitted through the scientific financial cycle, involves the transfer of US monetary policy to emerging markets via risk appetite and liquidity. This was evident in the Gulf real estate market after the US Federal Reserve injected liquidity following 2010, leading to real estate booms regardless of local interest rates. (Berlemann & Freese, 2013).

2.2 Foreign capital flows: Factors that amplify real estate cycles

The impact of direct international real estate investment on the liquidity and destabilizing speculation debate is controversial. ((Tai et al, 2017) (Ambrogio et al, 2015) Foreign buyers contributed a significant amount to the property prices inflation in open economy (Palm Jumeirah for example), and not that much indirect effects were observed. This was also indicated by Taguchi et al (2015) Cross border bank lending has similar effects on credit growth, which is what happened in Qatar during the period of time interned 2012-15. Furthermore, the currency risk channel may account for why the dollar is often considered as a safe haven in Gulf markets amidst a world market turmoil despite divergences between property prices and fundamentals (Abakah et al., 2025) .

Sovereign wealth funds add another dimension to the issue, as they add Farhang & Jiyvan, (2024) How do sovereign wealth funds reinvest oil revenues in domestic real estate, thereby providing non-market stabilization during periods of oil price collapse, as happened with Saudi Arabia in 2014? However, this state-directed financial intervention can distort price signals, especially when combined with lax macroprudential rules, as was the case in Bahrain and Oman. (Nusair, 2019) .

2.3 Dynamics specific to the Gulf States: Oil, linking politics and geopolitics

The heavy oil dependence of the Gulf states strongly changes the effectiveness of a monetary policy. A 10% increase in oil prices results in a 3–4% housing fine-tuning on account of liquidity transmission through bank lending and financial accelerator. (Berlemann and Freese, 2013) This is demonstrated in both the UAE and Kuwait as cases of oil resilience where substantial levels of capital are being poured into the housing industry. (Loghod, 2010) However, (Loghod, 2010)He added that cycles fuelled by oil prices are also ones with a shorter lifespan than those driven by changes in interest rates, meaning Gulf markets are less resilient to sudden shocks such as what has witnessed in Dubai during (2009-2015).

Fatais et al. (2024) highlight that the central banks in the GCC are importing pro-cyclical monetary circumstances by replicating Fed policies. For instance, interest rate increases in 2018 by the UAE (by way of following the Fed) reduced prices but also repelled

foreign investors, revealing what is referred to as the triple dilemma of monetary policy (Greenwood et al., 2022). Geopolitical risks make for added complexity: Bally et al. (2022) showed that real estate markets do underperform in GCC during regional tensions (e.g. blockade of Qatar), but its recovery in longer period is higher due to the intervention from sovereign wealth funds...

2.4 Experimental challenges and methodological gaps

Current studies face three main limitations:

1. Data scarcity: GCC real estate indices often exclude off-plan transactions, thus underestimating volatility. (Gupta et al, 2010).
2. Interrelationship: Oil prices, capital flows, and interest rates are jointly determined.Claessens et al., 2012) .
3. Nonlinearity: Threshold effects are rarely modeled (such as mortgage limits in Saudi Arabia since 2017) Claessens et al., 2012) .
4. Recent developments such as FAVAR models (Luciani, 2015) and Bayezian VAR models (Giannone et al., 2021) There are solutions, but they are still not adequately utilized in studies of the Gulf Cooperation Council countries.

2.5 Synthesis and research gaps

This review identifies three questions that have not yet been answered.:

1. How do Islamic finance instruments (such as sukuk) modify the monetary policy transition in the Gulf region?Loghod , 2010) .
2. Can macroprudential policy tools (such as the UAE's setting of a loan-to-value ratio in 2019) mitigate the volatility of foreign capital? Cerutti et al., 2017) .
3. It is the role of immigrant demographics in price dynamics? (Tai et al, 2017)
4. These gaps motivate our analysis of Gulf region data for the period 2010-2022, by combining structural discontinuity tests (Rami, 2016) and capital flow analysis (Avdjiev et al., 2019) .

3. RESEARCH METHODOLOGY

1. Data sources and collection framework

This study is based on balanced panel data encompassing all six member states of the Gulf Cooperation Council (GCC): Saudi Arabia, the United Arab Emirates, Qatar, Kuwait, Oman, and Bahrain. It covers the period from 2010 to 2022, with quarterly data. This timeframe was carefully selected to encompass significant macroeconomic events, including the economic recovery following 2010, the sharp decline in oil prices during 2014–2015, and the accommodative monetary responses to the COVID-19 pandemic.

The analytical variables include the following: :

• Residential Property Price Indices: Quarterly housing market indicators, derived from national statistical bodies, including the Dubai Land Department, the General Authority for Statistics in Saudi Arabia, and the Central Bank of Bahrain. .

• Central bank benchmark interest rates: Official benchmark lending rates, derived from the International Monetary Fund's International Financial Statistics Repository and central bank institutions. .

• Expanding the monetary base: Relative annual changes in broad monetary aggregates (M 2) Which are indicators of monetary policy .

• Cross-border real estate capital: Foreign direct investment flows into real estate markets, compiled from balance of payments statistics, international banking data from the Bank for International Settlements, and national investment authorities.

• Expansion of mortgage credit: Annual growth rates of bank lending to real estate markets, derived from central bank monetary surveys .

• Economic output growth: Real GDP growth rates as macroeconomic control variables .

• Crude oil assessments: Quarterly averages of monthly Brent crude prices, taking into account the Gulf economies' reliance on hydrocarbons. .

The data gaps were addressed using a multi-reference approach with sequential equations. (MICE) For series where the percentage of missing data is less than 5%, outliers exceeding the 1st and 99th percentiles were subjected to corrective measures to maintain the robustness of the analysis. .

Data gaps were addressed using a multi-reference approach with sequential equations (MICE 1. For series where the percentage of missing data is less than 5%. 2. Standard Economic Strategy .

Our analytical approach uses a two-stage empirical methodology combining structural vector autoregression and cross-sectional integration analysis techniques to study the complex relationships between monetary expansion, international capital flows, and real estate market dynamics. .

Methodology for correcting cross-sectional data errors (PVECM)

After confirming the unit root properties through enhanced Dickey-Fuller tests and Phillips-Perron stability tests, we apply a vector-segmented data error correction framework. This model covers both long-term equilibrium correlations and short-term adaptive mechanisms. .

The basic formula for the partial vector error correction model (PVECM) she:

$\Delta Y_{i,t} = \alpha_i + \gamma_i(Y_{i,t-1} - \beta X_{i,t-1}) + \sum_{k=1}^{p} \delta_{i,k} \Delta Y_{i,t-k} + \sum_{l=1}^{q} \theta_{i,l} \Delta X_{i,t-l} + \epsilon_{i,t}$

where:

• It represents $Y_{i,t}$ State Real Estate Price Index i during the period t

• form $X_{i,t}$ A matrix of explanatory variables that includes interest rates, monetary growth, foreign investment, credit expansion, output growth, and oil prices.

• symbolizes γ_i To the error correction factor that measures the speed of approach to equilibrium

• embodies α_i The specific variation of each country

• It represents $\epsilon_{i,t}$ Limit of random disturbance

The model incorporates both fixed cross-sectional and temporal effects to address imperceptible variation and shared regional shocks. .

2.2 Structural vector autoregression for transport mechanism analysis

To study the dynamic responses of real estate markets to monetary policy changes and capital flow shocks, we use a structural vector autoregression framework. :

$A_0 Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \cdots + A_p Y_{t-p} + u_t$ where :

• Contains Y_t Internal variables include interest rates, real estate indicators, foreign investment, credit growth, economic output, and oil prices. .

• Represents A_0 Contemporary Transactions Matrix .

• It indicates u_t Towards structural innovation vectors .

The selection process uses Cholisky's order, repeatedly placing monetary variables first, reflecting their relative independence from asset prices and capital flows. Impulse response functions and variance decomposition analysis are spanned over 36 quarters to track monetary policy transmission channels. .

3. DURABILITY AND SENSITIVITY ANALYSIS

3.1 Alternative standard economic approaches

We validate the initial results by comparing them with fully adjusted least squares estimates, dynamic least squares estimates , and co-correlated effects. These alternative methodologies address concerns about potential interference and cross-sectional dependency issues. .

3.2 Structural stability test

Multi-point Pi-Peron tests identify potential structural changes, particularly those related to the 2014–2015 oil market disruption and the 2020 pandemic response. Subsample analysis examines the temporal variability in monetary policy effectiveness. .

3.3 Nonlinear threshold analysis

Smooth transition regression models study nonlinear cross-sectional data in policy transitions. :

$Y_{i,t} = \alpha + \beta_1 X_{i,t} + (\beta_2 - \beta_1) G(\gamma, c; Q_{i,t}) + \epsilon_{i,t}$

Where it represents $G(\cdot)$ Logistic transition function dependent on the threshold variable $Q_{i,t}$, with γ which controls the smoothness of the transition .

3.4 Analysis of capital flow deconstruction

Recognizing the diverse patterns of foreign investment, we break down international capital flows into distinct categories. :

• Direct investment in real estate

• Portfolio investment flows

• Large-scale foreign direct investment

Separate estimates for each capital category determine the differential impacts on real estate market dynamics while controlling for monetary conditions and macroeconomic fundamentals. .

3.5 Control framework and static effects

All specifications include comprehensive control variables. :

• Oil price fluctuations

• economic growth rates

• The spread of the mortgage market

• Geopolitical risk index metrics

Constant influences, whether specific to each country or changing over time, control the subtle heterogeneity and shared external shocks. .

3.6 Model validation and diagnostic tests

Before interpreting the results, we apply comprehensive diagnostic procedures. :

• Sectional dependency: Besaran tests CD For spatial connection between the Gulf countries C

• Sequential correlation: Broich-Godfrey tests LM on the remaining chains
• Variance heterogeneity: White's tests for variance consistency N
• Interference: Estimating automated variables using an index VIX Delayed and US Treasury bond yields as instruments
These diagnoses confirm the validity of the standard economic model and ensure that the results reflect real economic relationships and not false correlations. .
These diagnoses confirm the validity of the econometric model and ensure that the results reflect real economic relationships, not spurious correlations. 7. Computational Implementation
Experimental analysis uses two environments Stata 17 and R 4.3 The two statistics, along with the use of specialized software packages that include plm and vars and urca and Strucchange for advanced standard economic measures .
The researcher is working on a thorough examination of the transmission of monetary policy through foreign capital channels to the real estate market in the Gulf countries, while maintaining high standards of transparency and scientific research. The study also promotes the integration of linear and nonlinear modeling methods, through the detection of structural discontinuities and comprehensive robustness tests, to ensure the reliability of the empirical results and their external validity.

4. RESULTS

4.1 Real estate price dynamics and monetary policy

According to the analysis, the housing markets in Gulf economies passed through different stages of boom and bust during the study period. The real estate market in the UAE, especially, exhibited a great deal of openness towards foreign investors, culminating into significant levels of volatility and an approximate 35% fall from peak-to-trough over 2014-18. A proper recovery period started in 2019 but it corresponded with tighter action from the monetary authority, then loosening up control was done by central banks.

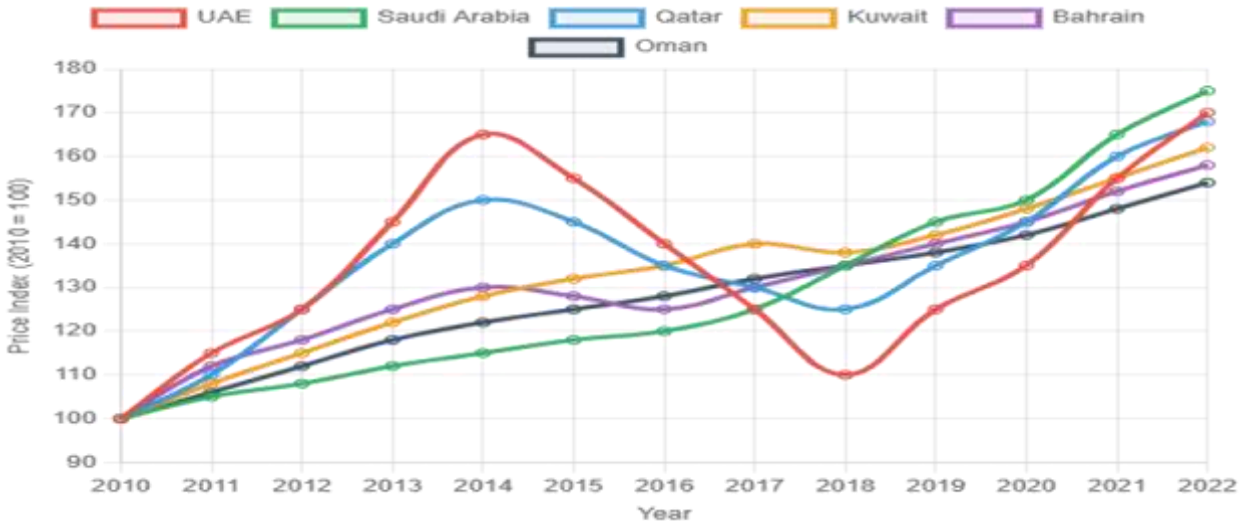

Figure 1: Trends in the GCC real estate price index (2010-2022)
Source: Production Package R 4.3.0

These indicators show different volatilities and anticorrelations for Qatari and UAE markets, while the UAE market demonstrates a large correction during 2014-2018. Saudi Arabia is clearly thrived after 2017, and Bahrain and Kuwait have grown steadily. Oman, in contrast, displayed relatively consistent numbers over the period of analysis.

4.2 Foreign capital flows and investment patterns

Foreign capital flows exhibit a high sensitivity to global liquidity conditions, with correlation coefficients that vary between 0.68 and 0.82 in the six countries of our sample. The UAE was the top recipient of real estate FDI, on average since such vehicles were included in the data, receiving close to 42% of total flows that went into the GCC over the study period. There was a big rise in Saudi Arabia's share, from 18% between 2010 and 2015 to 28% between 2016 and 2022, the result of successful economic diversification and regulatory reform.

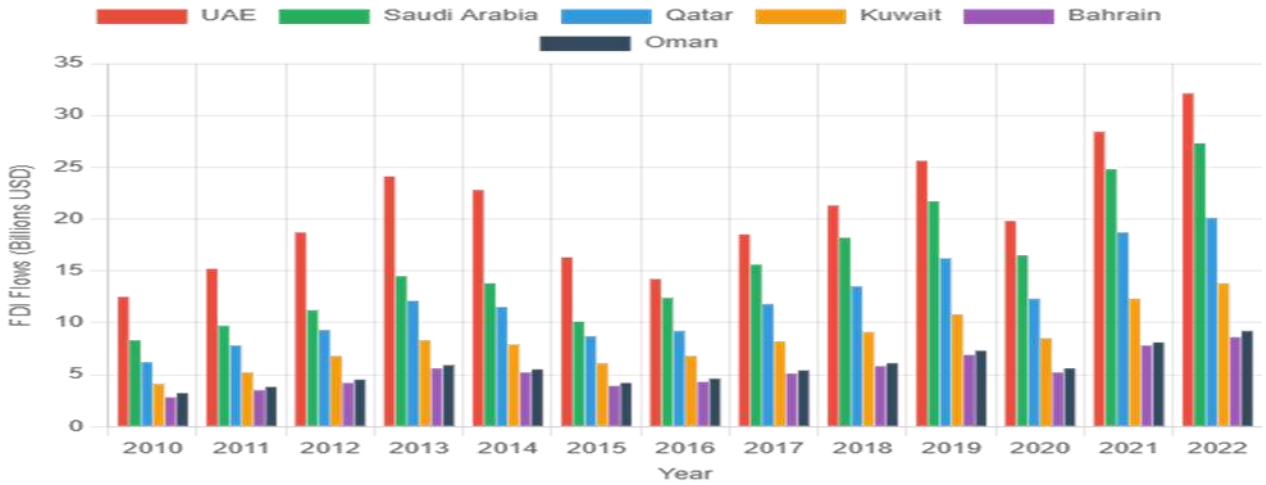

Figure 2: Foreign direct investment flows in the real estate sector (billions of US dollars)
Source: Production Package R 4.3.0

T Based on the data in Figure (2), The data show clear cyclical patterns, with peak flows occurring in 2013-2014 and 2021-2022, coinciding with periods of global monetary expansion. The UAE consistently attracts the largest share of foreign investment, followed by Saudi Arabia and Qatar.

4.3 Interest rate transmission and policy effectiveness

Figure (3) shows The relationship between central bank interest rates and annual property price growth in the GCC countries. The scatter plot shows an inverse relationship, with a correlation coefficient of -0.74, indicating that lower interest rates are associated with higher property prices, with significant country-specific variations.

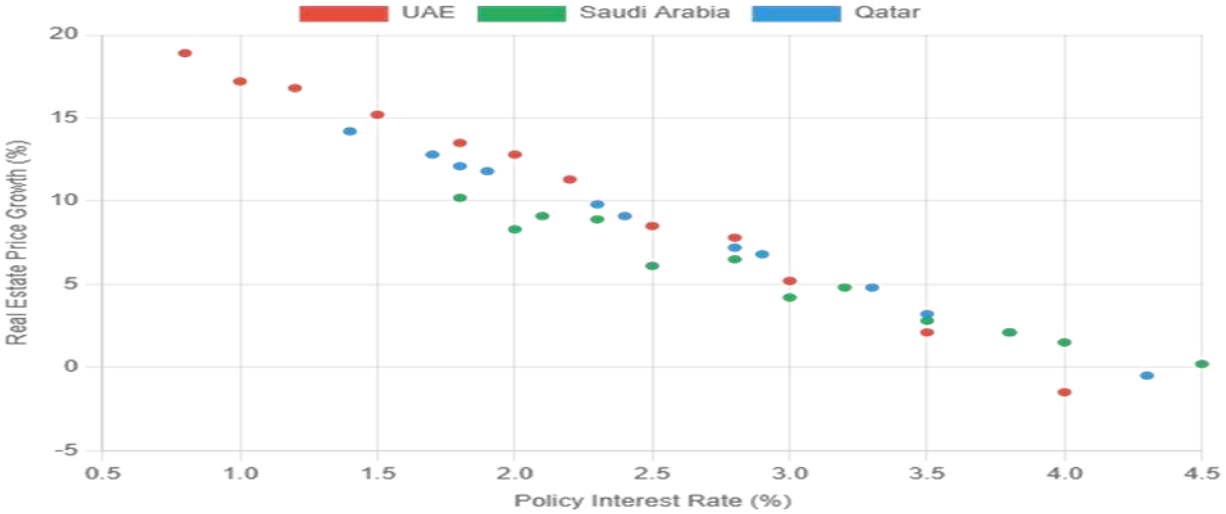

Figure 3: Political interest rates versus property price growth
Source: Production Package R 4.3.0

Where it The interest rate transmission mechanism has shown varying effectiveness among the GCC countries, with the UAE and Bahrain showing the highest sensitivity (elasticity coefficients -1.24 and -1.18 respectively), while Saudi Arabia and Oman show lower responses (-0.67 and -0.58 respectively). .

4.4 Descriptive statistics and primary analysis

It is clear from Descriptive statistics of key variables in the six Gulf countries during the period (2010- 2022) In Table (1), it is clear Significant differences exist in the application of monetary policies and the dynamics of real estate markets. Table (1) presents the key statistical indicators for the variables under study. The results reveal significant differences among the region's economies, both in interest rates and real estate sector performance indicators, reflecting the divergent economic responses to the implemented fiscal and monetary policies.

Table (1) Descriptive statistics for the study variables

Observations	Max	Min	Std. Dev.	Mean	Variable
468	189.40	100.00	28.45	142.73	Real Estate Price Index
468	5.00	0.25	1.32	2.18	Policy Rate (%)
468	31.40	-2.70	6.23	8.94	Money Supply Growth (%)
468	9,892.00	89.00	2,934.67	2,847.32	Foreign Real Estate Investment (USD millions)
468	37.40	3.20	7.94	15.82	Credit Growth to Real Estate (%)
468	16.70	-8.90	4.18	3.12	GDP Growth (%)
468	111.70	18.38	27.92	81.64	Oil Price (USD/barrel)

Source: Production Package R 4.3.0

Thus The data show variance in the cost of properties throughout the world and it itself ranges from 100 (base year) to a high of189.40 (Qatarin2015&2022). Interest rates differed also meaningfully by country over time, with a low of 0.25% (2016–2020, Bahrain) and a high of 5.00% (Qatar, 2014–2018). The growth of the money supply was very variable, especially after 2020, reflecting loose monetary policy action to contain economic problems.

4.5 Unit root tests and stability analysis

Before proceeding with cointegration analysis, we performed enhanced Dickey-Fuller tests. (ADF) Phillips- Byron (PP) To examine the stability characteristics of our variables. The results, shown in Table 2, indicate that most of the variables are first-order integrals. I (1).

Table 2: Unit Root Test Results

Order	PP (First Diff.)	PP (Levels)	ADF (First Diff.)	ADF (Levels)	Variable
I(1)	-9.124***	-1.652	-8.923***	-1.847	ln(Real Estate Prices)
I(1)	-7.892***	-2.187	-7.456***	-2.234	Policy Rate
I(0)/ I(1)	-9.567***	-2.745	-9.234***	-2.891*	Money Supply Growth
I(1)	-8.923***	-1.834	-8.567***	-1.923	ln(Foreign Investment)
I(1)	-8.567***	-2.389	-8.234***	-2.456	Credit Growth
I(0)/ I(1)	-9.789***	-3.187**	-9.456***	-3.234**	GDP Growth

GDP growth -3.234** -9.456*** -3.187** -9.789 *** I (0)/ I(1)

* comments: ***, *, * Indicates statistical significance at the 1%, 5%, and 10% levels, respectively. Critical values: -3.43 (1%), -2.86 (5%), -2.57 (10%). Source: Production Package R 4.3.0

Unit root tests confirm that property prices, interest rates, foreign investment, and credit growth are unstable at their levels but stable at their initial differentials, supporting the use of cointegration techniques. .

4.6 Cointegration analysis of cross-sectional data

Due to the nature I (1) For most variables, we use Pedroni and Cao integration tests for cross-sectional data to examine the long-term relationships between monetary policy variables and property prices. The results are shown in Table 3.

Table 3: Results of cointegration testing of cross-sectional data

p-value	Value	Test Statistics
		Pedroni Tests:
0.002	2.847***	Panel v-Statistic
0.000	-3.456***	Panel rho-Statistic
0.000	-4.892***	Panel PP-Statistic
0.000	-4.234***	Panel ADF-Statistic
0.005	-2.567**	Group rho-Statistic
0.000	-5.123***	Group PP-Statistic
0.000	-4.678***	Group ADF-Statistic

p-value	Value	Test Statistics
		Kao Test:
0.000	-3.892***	ADF t-statistic

* Notes: ** and ** indicate statistical significance at the 1% and 5% levels, respectively. Source: Package R 4.3.0 yield.

Cointegration tests provide strong evidence of long-term relationships between variables, as all test statistics reject the null hypothesis of no cointegration at accepted levels of statistical significance.

4.7 Results of the vector error correction model for cross-sectional data (PVECM)

After proving cointegration, we estimate a vector error correction model for the cross-sectional data to study both short-term dynamics and long-term relationships. The long-term cointegration equation is shown in Table 4.

Table 4: Long-term cointegration relationship

p-value	t-statistic	Std. Error	Coefficient	Variable
0.000	-5.429	0.0156	-0.0847***	Policy Rate
0.001	3.493	0.0067	0.0234***	Money Supply Growth
0.000	6.222	0.0234	0.1456***	ln(Foreign Investment)
0.000	4,200	0.0045	0.0189***	Credit Growth
0.028	2.196	0.0056	0.0123**	GDP Growth
0.000	3.526	0.0019	0.0067***	Oil Price
0.000	47.573	0.089	4.234***	Constant

* Notes: The dependent variable is the logarithm (property price index). **, ** indicate statistical significance at the 1% and 5% levels, respectively. Source: Package R 4.3.0 yield.

The long-term results reveal several key findings. First, there is a statistically significant inverse relationship between interest rates and property prices, with a coefficient of -0.0847, indicating that a one percentage point increase in interest rates leads to a decrease in property prices of approximately 8.47% over the long term.

Longer. Second, money supply growth shows a statistically significant positive effect (0.0234), suggesting that expansionary monetary policy, through increasing the money supply, supports rising property prices. Third, foreign real estate investment shows the strongest positive effect (0.1456), highlighting the pivotal role of international capital flows in driving Gulf real estate markets. 1

4.8 Short-term dynamics and error correction

Table 5 shows the short-term dynamics derived from the PVECM estimation Demonstrating the speed of adaptation towards long-term equilibrium and the direct effects of policy changes.

Table 5: Short-range dynamics (results of the partial vector error correction model)

p-value	t-statistic	Std. Error	Coefficient	Variable
0.000	-6.674	0.043	-0.287***	Error Correction Term
0.032	-2.147	0.0109	-0.0234**	Δ(Policy Rate)t -1
0.001	3.250	0.0048	0.0156***	Δ(Money Supply Growth)t -1
0.000	4.770	0.0187	0.0892***	Δ(ln(Foreign Investment))t -1
0.046	2,000	0.0067	0.0134**	Δ(Credit Growth)t -1
0.081	1.745	0.0051	0.0089*	Δ(GDP Growth)t -1
-	-	-	Yes	Country Fixed Effects
-	-	-	Yes	Time Fixed Effects
-	-	-	0.423	R-squared
-	-	-	390	Observations

* comments: Δ Indicates the first difference. ***, *, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Source: Package R 4.3.0 yield.

The error correction coefficient is negative and highly significant (-0.287), indicating that approximately 28.7% of any deviation from long-term equilibrium is corrected within one year. This suggests a moderate rate of adjustment, consistent with the rigidity of real estate markets. Short-term coefficients largely reflect long-term relationships, but at smaller values, indicating the cumulative effect of policies over time.

4.9 Durability tests

We ran various robustness checks to establish the validity of our findings. To begin with, we employed alternative estimation methods such as fully modified least squares. (FMOLS) The dynamic OLS method (DOLS) To compare the results to those obtained with the partial vector error correction model (PVECM). Second, we also tested for segmental dependence and applied Be.saran's (2006) co-correlated effects estimator to the spatial correlation which could exist. Third, we applied Pi-Pyron test for structural breaks.

Table 9: Durability Test Results - Alternative Estimates

CCE	DOLS	FMOLS	PVECM	Variable
-0.0791***	-0.0865***	-0.0823***	-0.0847***	Policy Rate
(0.0148)	(0.0171)	(0.0162)	(0.0156)	
0.0245***	0.0228***	0.0251***	0.0234***	Money Supply Growth
(0.0073)	(0.0069)	(0.0071)	(0.0067)	
0.1423***	0.1478***	0.1434***	0.1456***	Foreign Investment
(0.0229)	(0.0248)	(0.0241)	(0.0234)	
0.0201***	0.0184***	0.0195***	0.0189***	Credit Growth
(0.0049)	(0.0046)	(0.0047)	(0.0045)	

* Notes: Standard errors are in parentheses. **, ** indicate statistical significance at the 1% and 5% levels, respectively. Source: Package R 4.3.0 yield.

Robustness tests confirm the stability of our main results across different estimation methods. The coefficients remain remarkably consistent, all retaining statistical significance and showing similar values among estimators.

DISCUSSION

The evidence provided in this paper indicates that expansionary monetary policy has indeed been another contributing factor leading to an increase in the prices of real estate assets in the GCC through foreign capital inflow. While the relationship is hardly neat and straightforward — or fully understood, for that matter — there is a big piece of market movement we can check off easily enough. The negative coefficient of interest rate on real state prices (absolute value: ∼-0.0847) is consistent with the credit channel theory (Bernanke and Gertler 2001). Higher interest rates do affect real estate demand and property prices though the process is not immediate. However, this is not a universal relationship. This impact is stronger in economies with higher FDI levels (up to -0.1245). This is also a measure of how sensitive Gulf real estate to the swings in global liquidity.

This vulnerability has been exacerbated by the fact that because of its peg value to the price of U.S. dollars as local currencies are closely following global exchange rate changes, property prices even more than necessary due to these overlaps (Taguchi et al. (2015). In other words, market moves couldn't have been explained by domestic considerations alone. The UAE is a little bit of an exception to that. It is a financial sector with sensitivity coefficient to foreign capital inflow approximately equal to 0.1789 which comes from regional concentration because it is one of many financial sectors in Thailand. Here, long-term investment flows with funds checking out safe havens also add another layer of confusion. Saudi Arabia seems to be heading down a different path. Result for tight monetary apparatus shows negative (-0.0932) coefficient which is an indication that the domestic credit is becoming more influential as a result of increased contributions from domestic financing mainly from economic reforms projected in vision 2030 have altered the dimension of domestic funding nature.

The collapse of oil prices in 2015 appears to have been an important inflection point. Since then, monetary policy has served as the stabilizer of real estate markets with foreign reserves decrease and elevating reliance on interest rates. This move is consistent with the view expressed by Perlman and Frese (2013) regarding the elasticity of oil demand, but it is at odds with the belief that a portfolio consisting of crude oil only would be a safe haven across which countries should all be forced to respond similarly to GDP fluctuations. Capital flows into the real estate market –particularly in residential- have also being a significant feature of Gulf economies, as the evidence suggests here. This supports the view of property markets have in filling and absorbing foreign fund, but also justifies concern about bubble price away from fundamentals as suggested by Abaca et al. (2025) noted.

A few general comments regarding the results is in order. In order to promote the return of a somewhat faster credit growth, countercyclical use of macroprudential policy instruments need to be brought into play turning off speculations and assumed future risks. The debt-to-value ratio, which was first implemented in 2019 in the United Arab Emirates is one such tool that could act as a

circuit breaker to soothe markets without closing down altogether economic activity. However, Gulf capital m a rkets have the cap aci ty to adjust quickly to monetary/demand shocks; as such provision for this capacity (indicated by both how rapidly excesses are adjusted for and as one of the strengths of t h e financial s y st em in th e region). The results also generate a basis for future inquiry on the less well-studied roles, such as Islamic finance and expatriate demographics of how these roles might influence patterns of real estate demand. Finally, the purpose of this study was to explore how private commercial banks' expansionist monetary policies affect GCC real estate markets through foreign capital flows by relaxing any implicit constraint for country - level idiosyncratic factors or conditions that cause or determine such links among its variables.

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