Global Financial Crisis and Credit Conditions in the UAE

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Abstract

The paper investigates the impact of the global financial cycle on domestic credit growth, capital flows growth and the real effective exchange rate growth in the UAE. It identifies several transmission channels of the global financial cycle to the domestic credit and financial flows. An increase in the global financial and monetary uncertainty leads to a delayed and persistent slowdown in the domestic credit and the capital flows. Meanwhile, the Effective Exchange rate of the Dirham appreciates in real terms inline with the appreciation of the Dollar reflecting an increase of markets' risk aversion and flight-to-safety. Given the UAE commitment to the fixed peg, the paper concludes with the need to i) create some scope for active liquidity management tools, ii) activate the existing macro-prudential tools to counter adverse exogenous shocks proactively, and iii) set-up a well coordinated policy framework in order to benefit from the synergy created among different policy tools and stakeholders.

JEL classification: E32, E37, E51, E58.

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> *The Trilemma misleads us by assuming that domestic monetary and financial conditions shaping the macroeconomic situation of a country can be conveniently summarized by this one single variable, the short-term interest rate.* Hélène Rey (2016).

1 Introduction

The choices between monetary policy independence, stable exchange rates and the free flow of capital is generally studied in the framework of the so-called "Financial Trilemma" which was first outlined by Mundell (1963). Its main message is that only two out of the three above-indicated objectives can be chosen by the policy-makers.

The main message of the Financial Trilemma came however under attack, with the recent research on the "Financial Dilemma" or "Irreconcilable Duo" by Rey et al. (2013) and Miranda-Agrippino and Rey (2015). According to this paradigm, even under a floating exchange rate regime, countries cannot achieve independent monetary policy through interest rate adjustment, if the capital account of the balance of payments is completely free. The thrust of the argument is that thanks to the scale of financial integration already achieved worldwide and the role of global banks in this regard, the financing conditions, particularly in the US, are setting the tone for the rest of the world, especially for Emerging and Developing Economies. Therefore, a floating exchange rate cannot shield the latter from the impact of the so-called global financial cycle, i.e., credit conditions in these economies are determined by and large by the monetary policy stance in the US and its impact on international financial markets.

Moreover, the impact on credit conditions is expected to be stronger in countries with pegged exchange rates where interest rates will have to be pegged as well. In a period of monetary easing in the US, as an example, low interest rates in these countries will further ease credit conditions, even if the domestic economy is in no

need for such easing, thereby fueling credit and asset bubbles. This is also a main finding of a recent IMF study by Obstfeld et al. (2017).

The remainder of the paper is structured as follows. Section 2 presents a concise literature review of global financial spillovers on Emerging Economies. Section 3 focuses on the impact of the global financial cycle on credit and cross –border flows in the UAE, given the free movement of capital under the fixed exchange rate peg. Section 4 contains econometric analysis. Section 5 contains the main conclusions and policy recommendations.

2 The global financial spillovers on Emerging Economies: A Literature Review

The Financial Dilemma or "The Irreconcilable Duo" paradigm is based on the premise of the existence of a global financial cycle, which originates in the Center (mainly the US). At the international level, the cycle translates into co-movements of flows in FDI, portfolio equity, portfolio debt, and bank credit (Rey et al. (2013), Miranda-Agrippino and Rey (2015)); with bank credit being the main characteristic of the cycle.

The proxies for the US monetary stance are: (1) the Financial Stress Index (FSI) developed by the St. Louis Fed, which is constructed so that zero indicates normal market conditions, a positive value indicates stress in the financial system, while negative values indicate below average stress that may warrant tighter monetary policy, and (2) the Effective Federal Funds Rate (EFFR) which is the observed rate in the Interbank lending Market, and whose decline below the long-term average indicates an expansionary monetary stance, and vice-versa.

Figure 1 shows moderate Financial Stress Index since early 1990 to 2003Q1, followed by a period of negative values until 2007Q2 when the sub-prime crisis led to

unprecedented stress, with the index reaching its peak in October 2008. A subsequent decline to reach normal conditions started in 2009Q3. The negative values of the index starting 2009Q4 may indicate, therefore, that a gradual increase in the Fed's policy rate may be warranted as the economy started to recover. The Fed hesitated instead before increasing its target FFR for the first time since the global financial crisis by 25 basis points in December 2015. This was followed by similar increases in December 2016, and March and June 2017, with the target FFR reaching the range 1 – 1.25%. As regards the EFFR, Figure 1 shows that this rate was below the period average of 2.5% during 2003Q2 – 2005Q1 and again starting 2008Q2.

Therefore, based on the two indicators, we can define the periods of monetary easing in the US, when either FSI is negative or the EFFR is below long-term average or both, as follows: 2001Q4 – 2007Q2 and 2008Q2 to present. These periods are expected to correspond to reduced global economic uncertainty and market volatility, as well as rapid global credit growth and cross – border flows to EMs in particular.

The monetary stance in the US impacts global uncertainty and risk with a lag. The former can be proxied by The Baker, Bloom and Davis Global Economic Policy Uncertainty Index (EPUI), which has 3 components: (1) news coverage of policy-related economic uncertainty, (2) change in tax code provisions in the US, and (3) a policy-related uncertainty indicator that draws on the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters. Meanwhile, the proxy for risk aversion in the financial markets, is the VIX Index published by The Chicago Board Options. The VIX index reflects investors' sensitivity to uncertainty – that is, the perceived probability of large fluctuations in the stock market's value – as conveyed by stock index option prices. A low VIX Index signals "risk-on" periods, when investors venture into risky assets like stocks, corporate bonds, real estate, and currency carry trade, thereby leading to large flows to EMs, and vice – versa for "risk – off" periods.

As shown in Figure 2, the two indicators moved together until the VIX Index started declining in 2015 Q3, while the GEPUI continued to increase in tandem

Figure 1: Financial Stress Index and the Effective Federal Funds Rate (EFFR)

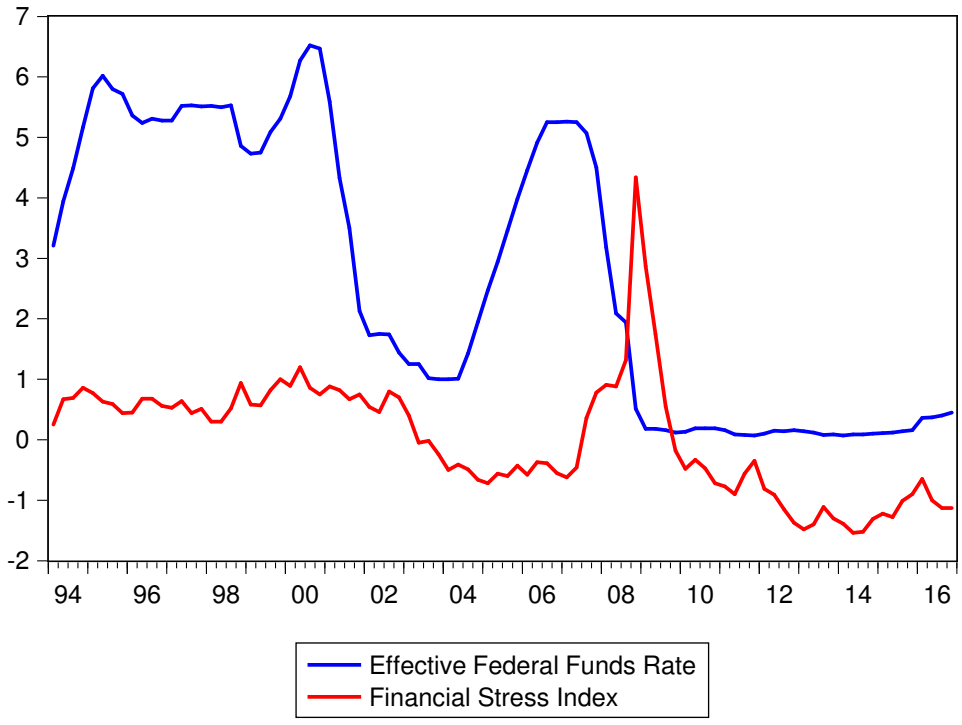
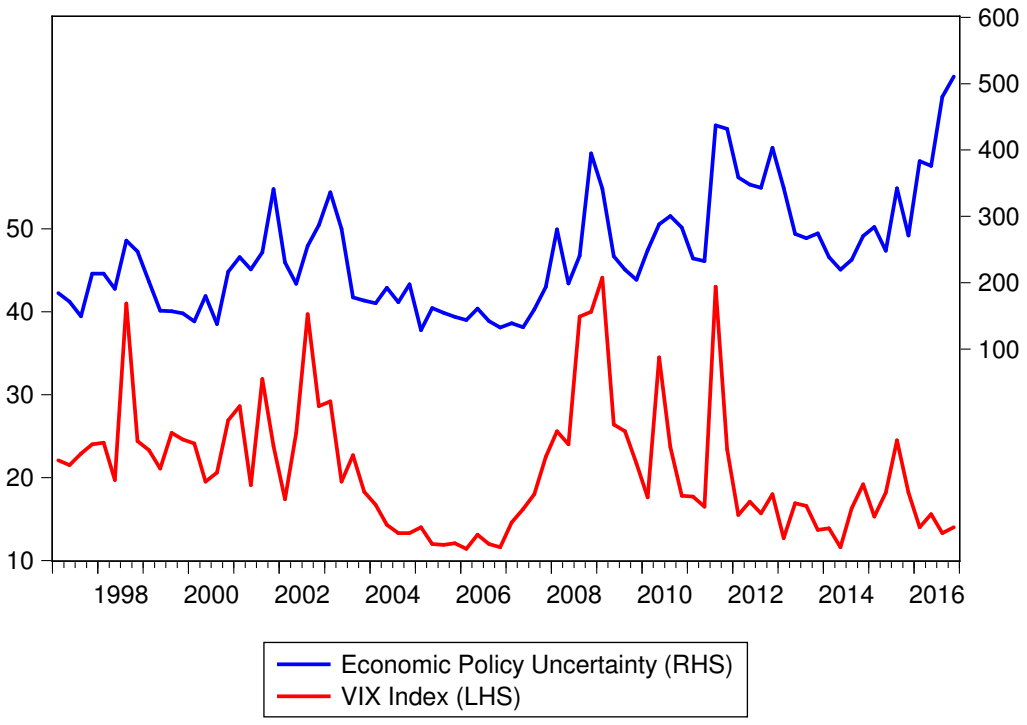


Figure 2: Economic Policy Uncertainty Index and The VIX Index



with the policy announcements coming from the new US administration which have been "unreliable and difficult for investors to interpret" (Pastor and Veronesi (2017)). Meanwhile, Frankel (2017) attributed the declining VIX Index to investors' inability of properly assess risks. Nonetheless, the VIX Index remains the readily available proxy of financial market volatility and risks that we will refer to in this study. For the period under review 1990Q1 – 2017Q3, the VIX Index is below its average (of 19.5) for more than 3 quarters in a row during 1991Q3 – 1996Q3, 2003Q4 – 2007Q4, and 2012Q1 – 2017Q3.

As regards the main transmission channels of the global financial spillovers on credit conditions in EMs, the literature has documented three of them. The first is the so-called "interest rate channel" which states that that the Uncovered Interest Rate Parity (UIP), i.e., may not hold in the presence of a global financial cycle. , i.e., the difference between interest rates an emerging market economy and the center may diverge from the expected exchange rate change between their respective currencies. As an example, the global financial easing (tightening) leads to a decrease (increase) in the EM country risk premium, which encourages (discourages) the exogenous flows to this economy. In the case of Turkey, as an example, Baskaya et al. (2017) estimated a VIX – instrumented capital inflows regression, which showed a negative impact of these flows on nominal as well as real interest rates in Turkey (whereas a demand-driven capital inflow is expected to take place in tandem with increasing interest rates). In other words, periods of low global risk (low VIX Index) increases financial flows to Turkey while interest rates decrease which encourages borrowing.

Second, the so-called "risk-taking channel" which states that financial easing in the center (e.g., low EFFR, low VIX Index) encourages bank cross-border lending to EMs, where banks in turn loosen their credit conditions. The channel was empirically identified by Bruno and Shin (2015) and they found that adjustments in bank leverage act as the linchpin in the monetary transmission mechanism that works through fluctuations in risk-taking. In addition, they identified monetary policy spillovers on

cross-border bank capital flows and the US dollar exchange rate through the banking sector.

Third, the "exchange rate channel" states that for EMs with flexible exchange rates, the currency appreciation as a result of capital inflows raises asset and collateral values, which strengthen the balance sheet of the borrowers. As the perceived risk of their loan book decreases, borrowing increases. Under these conditions, instead of its the traditional role of shock absorber, the exchange rate plays rather a pro-cyclical role, boosting credit and asset prices in EMs.

As regards countries with the fixed peg, Obstfeld et al. (2017) conducted an empirical study that covered a set of 43 EMs over the period 1986 – 2013. The distinction between countries adopting a fixed peg as opposed to countries with more flexible arrangements, allowed the authors to conclude that for countries adopting a fixed peg exchange rate arrangement "are more prone to experience financial vulnerabilities such as rapid domestic credit and house price growth, and increases in bank leverage... [T]he response is magnified under fixed exchange rate regimes as compared to more flexible regimes. Thus, a one standard deviation increase in the VXO index implies about a 1 percentage point larger reduction in quarterly domestic credit growth, and about 2 percentage points larger reduction in real house price growth, in fixed exchange rate regimes relative to floats..."

The focus of the following section is how global financial spillovers affected credit conditions in the UAE under the fixed peg arrangement, particularly the periods of low EFFR and low VIX Index and the resulting excessive credit growth and asset bubbles.

3 The exchange rate peg and credit conditions in the UAE

The free capital movements consitute an integral part of the open economic system that was set up since the establishment of the UAE in 1971. In less than a year, the UAE joined the International Monetary Fund in September 1972, and in 1974 it accepted Article VIII of the IMF, which states that: "members shall not impose or engage in certain measures, namely restrictions on the making of payments and transfers for current international transactions, discriminatory currency arrangements, or multiple currency practices, without the approval of the Fund." Therefore, the free movement of capital has been the rule in the UAE since the establishment of the Currency Board in 1973, under a fixed peg arrangement of the exchange rate of the Dirham against the US dollar.

In 1980, the Currency Board was transformed into the Central Bank of the UAE, in implementation of Union Law No. 10, which was issued in the same year. Article 5 of the said Law mandated the Central Bank to "ensure the free convertibility [of the Dirham] into foreign currencies" and to maintain its stability, which was mainly achieved by keeping the fixed peg of the exchange rate against the US dollar, an arrangement inherited from the Currency Board, and which became a GCC consensus since early 2003.

Maintaining the fixed peg of the exchange rate of the Dirham to the US dollar in tandem with a fully open capital account of the balance of payments means that the Central Bank of the UAE needs to adjust its policy rate consistent with the Fed's decisions in this regard. Currently, the Central Bank of the UAE changes its interest rates on the Certificates of Deposit consistent with the FOMC decisions regarding the target Federal Funds Rate in the US. In the recent period, this happened in December 2015, December 2016, and in March and June 2017.

Global financial spillovers take place through cross - border bank borrowing from

abroad as well as domestic bank lending channels. In the UAE context, both foreign and national banks take a leading role in this regard; thanks to high capitalization, liquidity and freedom of access to foreign funding for the latter.

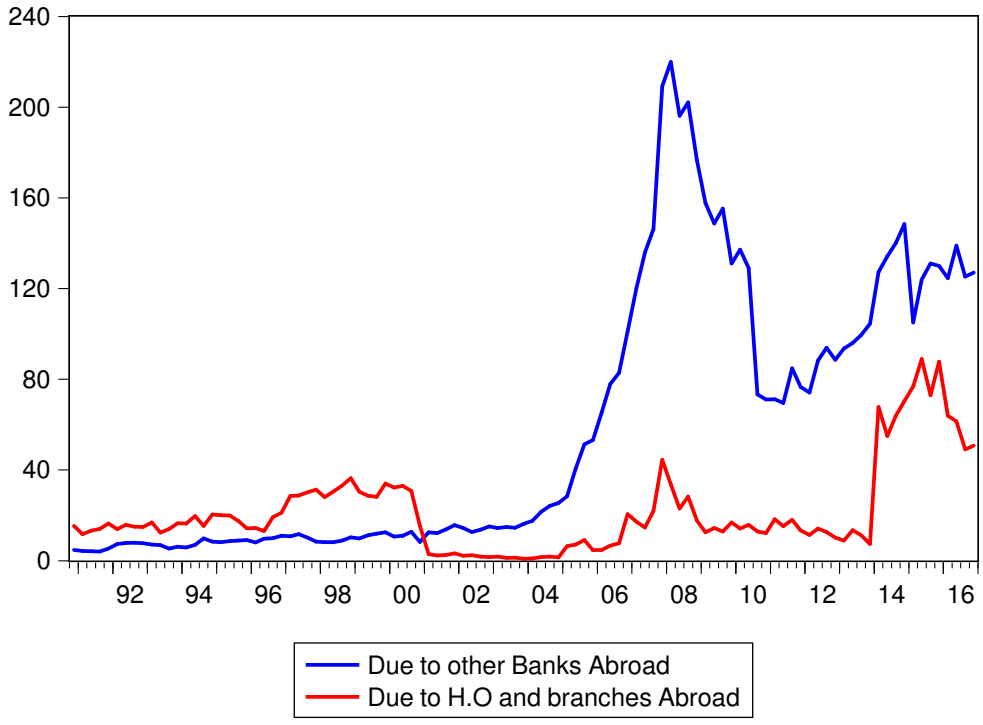
3.1 The cross-border bank borrowing channel

The cross-border bank borrowing channel could be traced through the foreign liabilities side of the aggregated balance sheet of the banks operating in the UAE. The 3 main components of the Cross-border borrowing (CBB) are: (1) "Due to Headquarters and/or Branches Abroad", which are basically foreign banks operating in the UAE getting short-term liquidity from the mother company abroad, (2) "Due to Other Banks Abroad", which is UAE banks' borrowing in US dollars, including Money at Call and Short – Notice, Nostro Balances, Bills and Lending under Repurchase Agreement, and Term Placements and Loans, and (3) "Capital Market Funding", which is medium-term funding from overseas.

As shown in Figure 3, the above-indicated periods of global monetary and financial easing are expected to be associated with high growth in CBB. During the period 1991Q3 – 1996Q3, foreign bank's Due to Headquarters and/or Branches Abroad increased by an average quarterly rate of 1.6%, while Due to Other Banks Abroad increased by 4%. The average quarterly increase was 27.6% and 14.7%, respectively, for the period 2003Q4 – 2007Q4, and 7.7% and 0.8%, respectively for the period 2012Q1 – 2017Q3.

Data on Capital Market Funding for banks operating in the UAE are available only for the recent period 2013Q4 – 2017Q3 when it increased by a quarterly average of 2.4%, i.e., an annualized increase of about 10%, which is roughly double the average annual increase in non-oil nominal GDP, during this period.

Figure 3: Banks Foreign Liabilities



3.2 The bank lending channel

Rajan (2015) pointed out that in the face of global monetary easing spillovers "exchange rate flexibility in recipient countries sometimes exacerbates booms rather than equilibrates." The exacerbation becomes almost the rule under a fixed peg arrangement, as risk - taking and leverage in the recipient countries are encouraged.

During the period of ultra-low policy rate in the US (2001Q3-2002Q4), Credit to Non-financial Sector in Emerging Markets, as reported by the BIS, increased by 10.7%, while in the UAE the increase was in the order of 27%. Likewise, as a result of the near zero policy rate in the US, from 2008 Q3 to the end of June 2014 Credit to Non-Financial Sector in Emerging Economies ballooned by 39%, while domestic credit in the UAE increased by 37%. This is despite the correction that took place in 2008 – 09 in the real estate and securities markets in the UAE, resulting in a dramatic decline of non-oil GDP growth.

The impact of the global financial cycle on credit conditions in the UAE will be the subject of an econometric analysis in the following section.

4 Global uncertainty shocks and Domestic Credit: An empirical analysis

An empirical analysis is conducted in order to study the impact of the global financial cycle on the domestic credit and capital flows in the UAE. A Vector Autoregressive (VAR) approach is considered where the global financial cycle is proxied by the volatility index VIX and the domestic financial sphere in the UAE is described by the Domestic Credit (DC), Capital Inflows (KI), Capital Outflows (KO) and the Real Effective Exchange Rate (REER). We aim to study the impact of a positive global uncertainty shock equivalent to an increase of the VIX index on domestic Credit dynamics, capital flows and the real effective exchange rate.

4.1 Econometric Methodology

The model is a stationary four-variate system of domestic credit growth $\Delta ln(DC_t)$, capital inflows growth $\Delta ln(KI_t)$, capital outflows growth $\Delta ln(DC_t)$ and real effective exchange rate growth $\Delta ln(REER_t)$. All endogenous variables are included in the model in their first differences in order to remove the unit root behavior of the observed series. The initial variables are non-stationary and integrated of order one[1]. The domestic credit and the capital flows are provided by the Central Bank of the UAE. The real effective exchange rate was collected from the Bank of International Settlement (BIS) database.

Since the UAE is a small open economy, the model is augmented with VIX index as an exogenous variable, turning it to a structural VAR-X model with parameters p and q referring to the number of lags of endogenous and exogenous variables, respectively. The VIX index was provided by The Chicago Board Options Exchange (CBOE) database and introduced in the model in level since it was stationary. The identification of the shocks is obtained using impact restrictions that allow the use of the Cholesky decomposition, as in Sims (1980) and Sims et al. (1986). The reduced form representation of the model is given by the following equation:

$$Y_t = \mu + B_1 Y_{t-1} + ... + B_p Y_{t-p} + \Theta_0 X_t + ... + \Theta_q X_{t-q} + e_t \tag{1}$$

With $Y_t = [\Delta ln(DC_t)\ \Delta ln(KI_t)\ \Delta ln(KO_t)\ \Delta ln(REER_t)]$ and $X_t = [VIX_t]$. μ is a 4×1 vector, matrices B_i are of size 4×4 for $i = 1 : p$ and all Θ_j are 4×1 vectors. The structural VAR-X form of the model is given by:

$$Y_t = \nu + C(L)\epsilon_t + \Lambda(L)X_t \tag{2}$$

with ν a 4×1 vector, each matrix of $C(L)$ is of size 4×4, and the "coefficients" of $\Lambda(L)$ are 4×1 vectors. $\epsilon_t = [\epsilon^T \quad \epsilon^{nT}]$ is the vector of structural shocks, where T

[1] An augmented Dickey-Fuller test was conducted on all variables (in log) and it concluded the rejection of the stationarity hypothesis on variables in level. However, the stationarity hypothesis was not rejected for variables in first difference at 5% error level.

and n are the number of observations and endogenous variables, respectively. The variance-Covariance matrix Σ is given by

$$\Sigma = C_0 C_0' \tag{3}$$

Σ is a symmetric and positive definite matrix. Following Sims (1980), the restrictions to be imposed ensure that C_0 is a triangular matrix, this allows to use the Cholesky decomposition of Σ to obtain the non-zero elements of C_0. This amount of restrictions account $4 \times (4-1)/2$ and make the model just identifiable. In addition, the presence of an exogenous variable doesn't change the identification of the structural shocks.

The data set used to estimate the model consists in quarterly observations of the five variables that range from 1991Q1 to 2016Q4. The only exception was the domestic credit which was not available in quarterly basis before 2008. Hence, the Cholette-Denton disaggregation approach was used for the period before 2008. Quarterly capital inflows and outflows were computed by taking the difference between quarterly economy's foreign liabilities and assets, respectively.

The lags p and q are chosen such that residuals (e_t) are not auto-correlated[2]. The tests indicate that two lags of the endogenous variables are necessary for obtaining non-auto-correlated residuals ($p = 2$), this result is independent of the lags of the exogenous variable. The choice of q was based on the value of q that maximizes the marginal density stemming from a Bayesian estimation of the model, while satisfying the residuals' desired conditions. The number q that makes the residuals e_t non-auto-correlated varies from 0 to 4. Then, the VIX index can be included either contemporary ($q = 0$) or with up to four lags ($q = 4$). After several regressions, the number $q = 1$ was preferred since the marginal density is the highest for the model VAR-X $(2, 1)$[3].

[2]The auto-correlation of the residual is tested whit Portmanteau tests at a 5% significance level. See Lütkepohl (2005)

[3]See the appendix for details

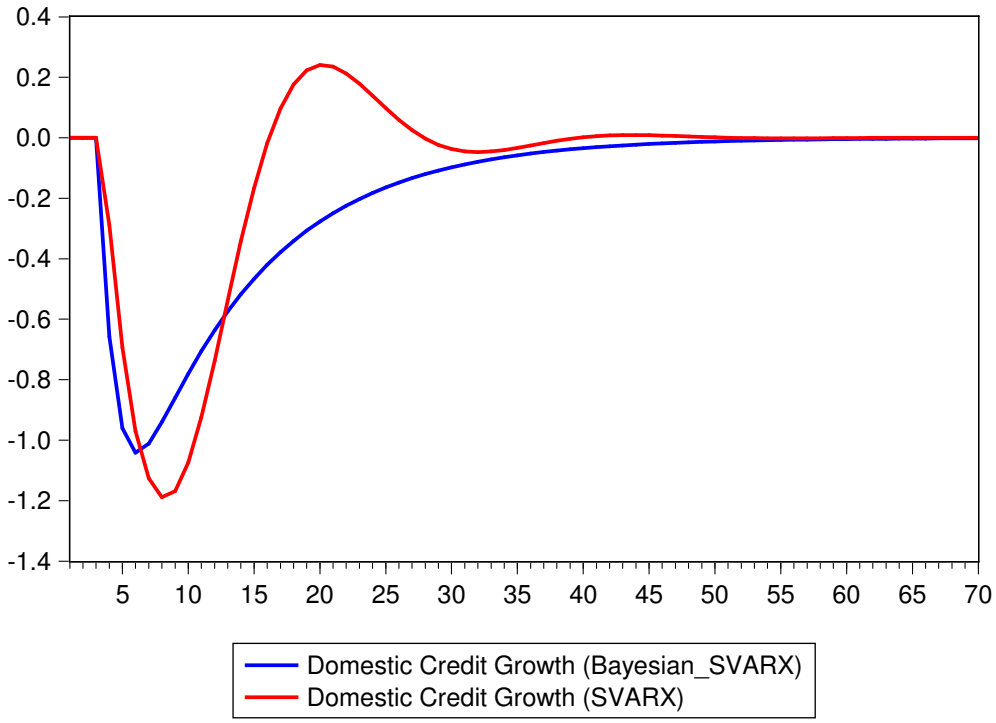
The model is estimated following two techniques. First, we estimated the model using the OLS method with impact restrictions. The second estimation was carried out by bayesian methods under the Minnesota priors along with the identification restrictions imposed on the first model, to obtain the parameters of the structural VMA-X representation of the model. Although, the number of lags for the exogenous variable q is obtained using the Bayesian method, it was applied also to the OLS method. Finally, the impulse response functions (IRFs) of the endogenous variables to a positive shock on the exogenous variable were extracted. The results are discussed in the next section.

5 Estimation Results

Our aim is to examine the impact of a a one standard error deviation shock to the VIX on domestic credit growth, capital flows growth and the real effective exchange rate growth in the UAE. The shock is interpreted as a positive global uncertainty shock given the advantage of the VIX index in summarizing the uncertainty surrounding the global financial cycle and associated risks. Rey et al. (2013) showed the co-movement of the VIX index with the global financial cycle in capital flows, asset prices and credit growth. The VIX index, apart from its important capacity to measure uncertainty and markets' risk aversion, is of a particular interest to the UAE since it is generated by the centre country of the anchor currency to which the Dirham is pegged (the United States). The recent findings stipulates that one of the determinants of the global financial cycle is monetary policy in the centre country, which affects leverage of global banks, capital flows and credit growth in the international financial system via the VIX index.

Figure 4 shows domestic credit response in the UAE to a one standard deviation increase in the VIX Index. As expected, credit growth slows down, reaching the trough in about 6 quarters in the Bayesian SVARX and about 8 quarters in the SVARX. Higher global uncertainty leads foreign banks operating in the UAE

Figure 4: Response of Domestic Credit Growth to a positive global uncertainty shock



to have less transfers from headquarters abroad while UAE-incorporated banks are expected to have less access to unsecured borrowing from abroad. As a result, an increase in domestic credit growth followed suit as global uncertainty and risks start to improve, reaching the pre-shock level in about 40 quarters after the shock. In addition, periods of credit slowdown in the UAE tend to witness reversal in government deposits - albeit with a lag - in order to support bank liquidity which shown by the SVARX result. The post oil price slump of 2014 is a case in point. Government deposits decreased gradually to reach a trough of 17% in March 2015. Then the government reversed course by increasing its deposits. At end of September 2017,

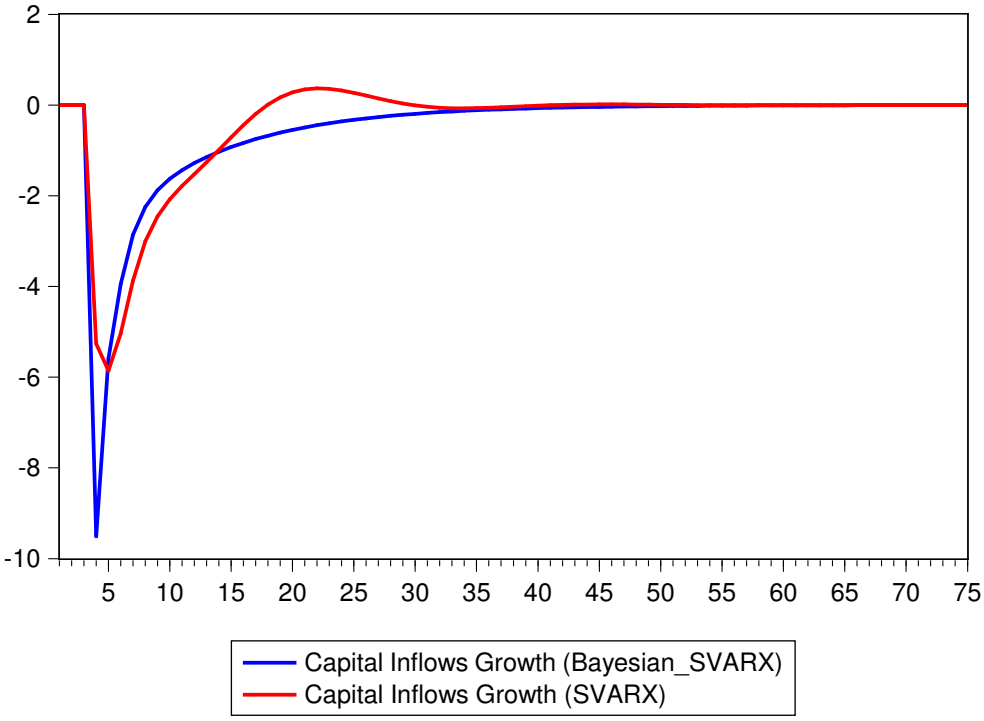
government deposits are 8% higher the June 2014 level. The decline of the domestic credit growth in response to an increase of uncertainty seemed to be quite persistent since it needs around 3 years to recover and reach the pre-shock level in the best case.

Figure 5 reports the response of capital inflows to the UAE to an increase by one standard deviation in the VIX Index. The growth rate slows down, reaching the trough in about 4 quarters in the SVARX while it is more pronounced and reaches the trough in about 5 quarters in the Bayesian SVARX. The slowdown could be explained by the risk-off behavior, which becomes dominant in developed economies, which constitute relative safe heavens (Obstfeld et al. (2017)). This limits financial flows to EMs in general and to the UAE in particular. Financial flows to the UAE start increasing after that to reach the pre-shock level in about 40 quarters in both the Bayesian SVAR-X and SVAR-X.

Similarly, capital outflows from the UAE witness also a slowdown in periods of higher global uncertainty and heightened risk, as shown in Figure 6, albeit at a lower pace than in the case of capital inflows. This means that residents in the UAE hesitate to transfer and invest abroad in periods of increasing global uncertainty and risks , contrary to the general case of EMs in Obstfeld et al. (2017) where the correlation between the VIX Index and outflows from EMs was positive.

As regards the exchange rate of the Dirham, while it is pegged to the US dollar, it changes vis-à-vis the currencies of other trading partners. In real terms, the effective exchange rate (REER) of the Dirham takes also into consideration the inflation differential between the UAE and the rest of the trading partners. Figure 7 simulates the impact of a one standard deviation increase in the VIX Index, which shows an appreciation in the REER reaching a peak in about 3 quarters. As previously-indicated, the increase in the VIX Index follows the increase in the Federal Funds Rate in the US, with a lag in the order of 5 to 11 quarters in Rey et al. (2013). Such an increase leads to an appreciation in the US Dollar with a lag of about 14 quarters according to Bruno and Shin (2015). As a result, the effective exchange rate of the

Figure 5: Response of Capital Inflows Growth to a positive global uncertainty shock



Dirham appreciates in both nominal and real terms. Consequently, the imported inflation decreases dampening the initial appreciation of the Dirham as suggested by the model. After 5 quarters, the Dirham depreciates slightly compared to the pre-shock level (0.15%).

Figure 6: Response of Capital Outflows Growth to a positive global uncertainty shock

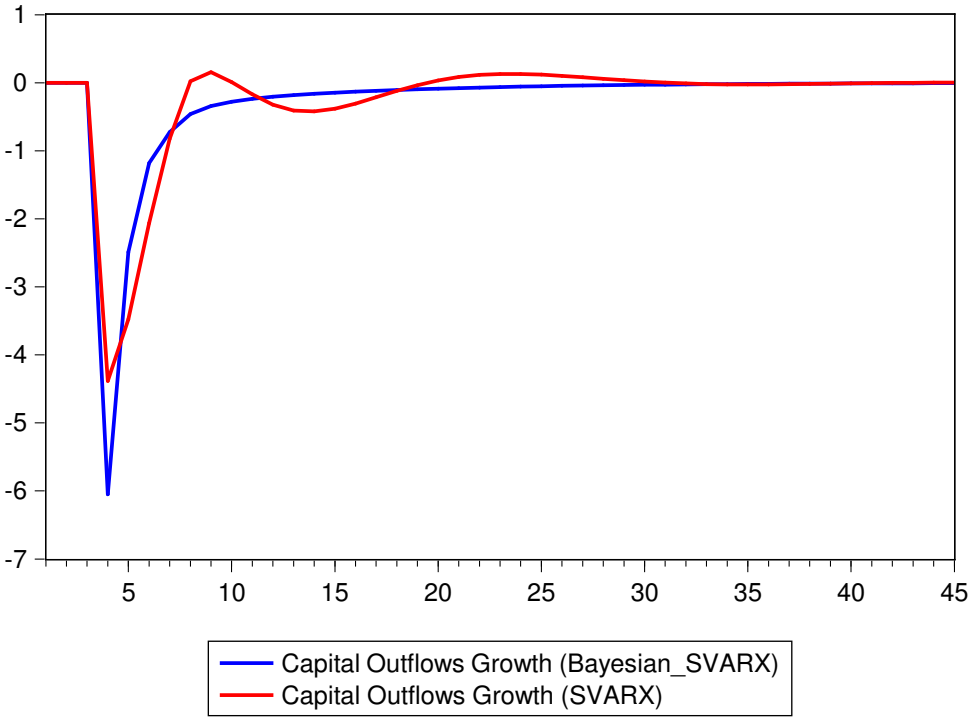
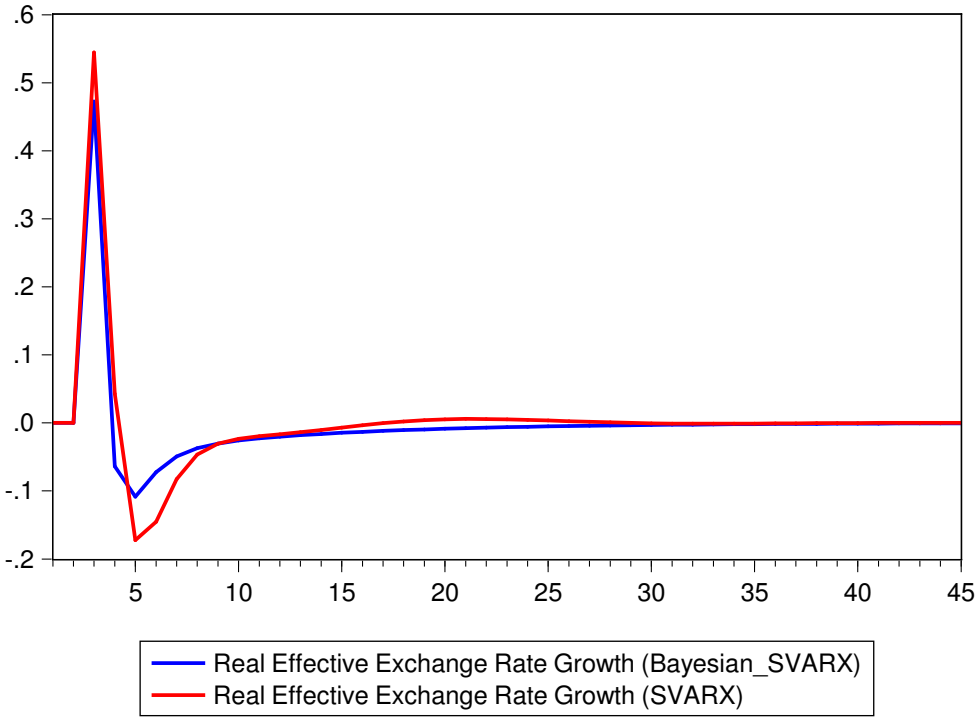


Figure 7: Response of Real Effective Exchange Rate Growth to a positive global uncertainty shock



6 Conclusion

The paper emphasizes the impact of the global financial cycle on the domestic credit dynamics, capital flows and the real exchange rate in the UAE. The fixed peg exchange rate arrangement in the UAE exacerbates the global monetary and financial spillovers, since both the domestic interest rate and the bilateral exchange rate with the non-dollarized trading partners are exogenously determined by the monetary stance in the US. Given the mismatch between the economic cycles in the UAE and the US, the boom – bust cycle is generally amplified which may lead to severe market corrections. Nonetheless, there is a rationale for continued commitment to the fixed peg, since the arrangement served well the UAE economy, and the country can credibly defend it, thanks to its ample financial buffers, composed of the Central Bank's foreign currency reserves and assets accumulated at the sovereign wealth funds.

Under these conditions, there is a need to create some scope for active monetary tools through liquidity management. To that end, the focus should be on tools to manage liquidity more effectively, notwithstanding constraints imposed on the interest rate. The central bank can affect the latter by increasing its capacity to proactively manage liquidity in the banking system through open market operations as part of a well established liquidity management framework.

Activating the existing macro-prudential tools should also take center stage in this regard. In line with IMF recommendations, the macro-prudential policy framework should encompass a system of early warning indicators and vulnerabilities diagnostics, a set of readily available tools that can be used when needed, and an institutional framework that ensures effective cooperation between concerned stakeholders.

Finally, there is a need to improve the legal framework to provide adequate financing to target sectors, like SMEs, in line with the "After Oil" federal strategy that aims at an innovation and knowledge – based and well diversified economy.

Appendices

A The Marginal Density and lag structure

The marginal density for the model described above is given by:

$$m_i(Y) = \frac{\Gamma_n(\frac{T-k_i}{2})}{\Gamma_n(\frac{T-k_i-n-1}{2})}|S_i|^{\frac{-n-1}{2}}\ C\ 2^{\frac{n(n+1)}{2}} \tag{4}$$

where $i = 1...4$: the number of lags that satisfy the desired the non-auto-correlation of residuals. k_i is the total number of regressors and is defined by: $k_i = (1 + np + m(q_i + 1))$. $S_i = (Y - Z_i\hat{\Gamma}_i)'(Y - Z_i\hat{\Gamma}_i)$. m is the number of exogenous variables which is equal to one in our case. The estimation of the marginal density for the four models gives the following results:

Table 1: Marginal Density

$m_0(Y)$	$m_1(Y)$	$m_2(Y)$	$m_3(Y)$	$m_4(Y)$
4.1234	4.1945	4.1893	4.1371	4.1629

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