

Nawazish Mirza¹, Bushra Naqvi², Syed Kumail Abbas Rizvi³

DYNAMICS OF EXCHANGE RATE REGIME IN SAUDI ARABIA

The exchange rate policies form a critical part of an economy's monetary policy and it has significant impact on the overall macroeconomic performance of a country. In this paper, we attempt to explore the rationale of a pegged exchange rate regime at KSA followed by its potential benefits and disadvantages. We also investigate the possible impact of this pegging on inflation and discuss the potential for a shift towards an alternate regime. It has been observed that SAMA's monetary policy seems to be ineffective in controlling inflation at KSA which is a natural consequence of having fixed peg regime, however, SAR-USD peg is quite successful in achieving its stated objectives of economy stabilization including the planned growth and curtailment of inflation by linking it with the USD inflation.

Keywords: exchange rate regime, flexibility, pegging, Saudi Arabia, KSA.

JEL Codes: E42, E58, F31; F33, F41.

Навазіш Мірза, Бушра Накві, Сід Кумаль Аббас Різві ДИНАМІКА РЕЖИМУ ОБМІННОГО КУРСУ В САУДІВСЬКІЙ АРАВІЇ

У статті показано, що політика режиму обмінного курсу — це важлива частина грошово-кредитної політики, яка має суттєвий вплив на макроекономічні показники країни. Досліджено обґрунтування режиму прив'язки обмінного курсу в Саудівській Аравії і його потенційні переваги і недоліки, можливий вплив прив'язки на інфляцію і можливості переходу до альтернативного режиму. Відзначено, що грошово-кредитна політика в Саудівській Аравії неефективна у контролюванні інфляції, це природний наслідок режиму фіксованого валютного курсу. Однак прив'язка до долара цілком успішна в досягненні поставлених цілей стабілізації економіки, включаючи плановане зростання і скорочення інфляції.

Ключові слова: режим обмінного курсу, гнучкість, прив'язка курсу валюти, Саудівська Аравія, KSA.

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В статье показано, что политика режима обменного курса — это важная часть денежно-кредитной политики, она оказывает существенное влияние на макроэкономические показатели страны. Исследовано обоснование режима привязки обменного курса в Саудовской Аравии и его потенциальные преимущества и недостатки, возможное влияние привязки на инфляцию и возможности перехода к альтернативному режиму. Отмечено, что денежно-кредитная политика в Саудовской Аравии неэффективна для контролирования инфляции, это естественное следствие режима фиксированного валютного курса. Однако привязка к доллару вполне успешна в достижении поставленных целей стабилизации экономики, включая планируемый рост и сокращение инфляции.

¹ Associate Professor, Lahore School of Economics, Pakistan.

² Assistant Professor, Lahore University of Management Sciences, Pakistan.

³ Assistant Professor, Lahore School of Economics, Pakistan.

Ключевые слова: режим обменного курса, гибкость, привязка курса валюты, Саудовская Аравия, KSA.

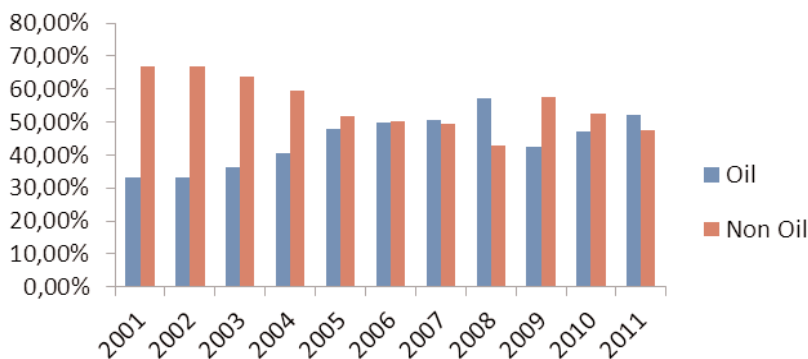
1. Introduction. The exchange rate policies form a critical part of the economy's monetary policy. Some common exchange rate regimes include float, managed float and pegged exchange rate system. These policies are adapted according to individual requirements of domestic economies. These requirements could largely vary on the basis of level of foreign exchange reserves, fiscal flexibility, structural management, trade situation and the probability of economic shocks. The earlier contributions on selecting an exchange rate regime are by Mundell (1961) and Kenen (1969). Mundell (1961) suggested the degree of labor mobility as a decisive factor for exchange rate policies, while Kenen (1969) focused on export diversification as a leading determinant. Laidler (1999) suggested that exchange rate regime should form a part of a monetary order to minimize the probable economic shocks. Another possibility that could derive the exchange rate decision is the political-economic factor of time inconsistency as proposed by Kydland and Prescott (1977). The time inconsistency could be problematic as it is aimed at achieving short-term objectives ignoring the long-term impacts.

With 4 other countries of the region⁴, the Kingdom of Saudi Arabia (KSA) has pegged its currency (Saudi Riyal — SAR) at SAR 3,75 /USD and the exchange rate regime has not witnessed a major shift for decades, except for revaluation of pegged rate especially in the 1970s. This is not surprising for an economy where approximately 85% of the fiscal revenues and 52% of GDP stem from production and export of crude and refined oil. The onus of fixed exchange rate remains with Saudi Arabian Monetary Agency (SAMA) that has maintained stability in Saudi Riyal through preservation of financial soundness and, albeit minimum, foreign exchange interventions. Furthermore, SAMA regulates the circulation of foreign exchange in private sector by selling dollars through domestic banks. Lastly, 100% currency reserves, against circulating foreign exchange are very vital for the consistent fixed rate regime.

Having these measures in place, the only turbulence in the KSA exchange rate regime — mainly speculative — can originate from weakened oil revenues putting pressure on foreign exchange reserves. However, with range bound oil prices coupled with stable production complemented with an expected economic growth of 5%, we do not expect any stress on oil-based revenues which mitigates the possibility of any event that would warrant a considerable change in exchange rate dynamics. Similarly, with hydrocarbon revenues dominating the product mix of exports along with trivial economic diversification, the peg is beneficial and likely to continue for foreseeable future. Figure 1 represents the comparison of oil vs. non-oil contribution in GDP while Figure 2 represents the time series of SAR/USD exchange rate since 1975.

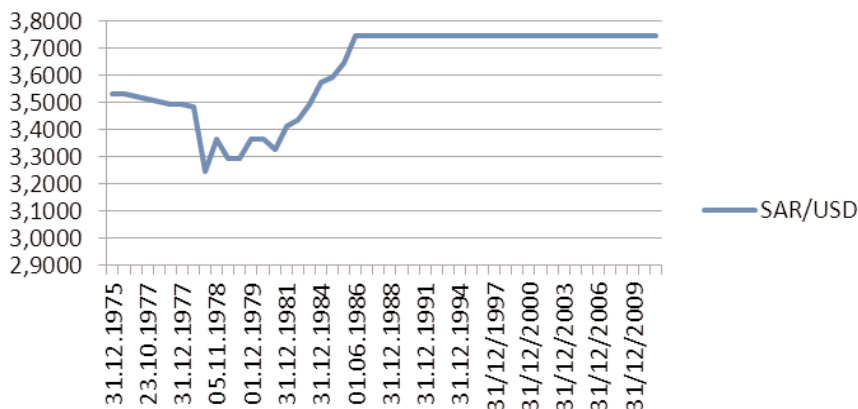
In this paper, we attempt to explore the rationale of a pegged exchange rate regime in KSA followed by its potential benefits and disadvantages. We also investigate the possible impact of this pegging on inflation and discuss the potential for a shift towards an alternate regime.

⁴ These include the UAE, Bahrain, Qatar and Libya.



Source: Central Department of Statistics and Information, KSA.

Figure 1. **GDP Contribution in %, Oil vs. Non-Oil**



Source: SAMA.

Figure 2. **Pegged Rate SAR/USD**

2. Macroeconomics of Pegged Regime.

Global, Regional and Economic Factors — Case for a Change. There has been a mix of economic, regional and global factors that are possible proponents of a floating regime. Latter (1996) argued that in the presence of a flexible system, speculators are discouraged from making profits at the cost of central banks, thus implying optimal usage of resources. Further Ilker et al. (2001) proposed that economies that adapt a flexible regime have a higher capacity to absorb economic shocks related to trade and interest rates. Lastly, Mishkin (1996) predicted sustainable financial systems with sovereign exposures in the presence of a floating exchange system. The deviation of Kuwait's peg from USD to a basket of trade currencies in 2007 was a key regional transformation that provoked the possibility of a floating SAR. This was further supported by the record hike in oil prices since 2003, consequently increasing the current account surplus resulting in upward pressure on SAR. Simultaneously, a weak USD in aftermath of the subprime crisis together with the recent downgrade of the US sovereign rating is weakening SAR against other trade transactions from the European Union, the UK, China, and India that could ignite import inflation. Lastly, as fixed

exchange rate regimes impede monetary independence, SAMA can have more flexibility in devising monetary measures in the presence of a floating SAR. However, we feel that with stable interest rates, increasing consumer and business spending, declining unemployment and progressing contribution of housing in GDP of the United States, USD is expected to strengthen, mitigating any possible fear of depreciation. Similarly, with steady oil prices at the current level for medium to long term, we do not expect any sizeable upward pressure on SAR.

SAR-USD Peg and Inflation. There is exhaustive empirical literature discussing the relation between a hard peg and inflation. An interesting finding is that of Bleaney and Fielding (2002) who reported that hard peg countries exhibit low inflation than their soft peg counterparts. Similar results were found by Bleaney and Francisco (2005) who noted that hard pegs constraints both money growth and inflation. Concerns regarding SAR-USD peg surfaced with an augmented significance and vigor when Saudi economy was hit by severe bouts of inflation in 2007-2008. The immediate concern was the SAR-USD peg warranting SAMA to intervene by reciprocating the US monetary policy by inducing sizeable reduction in interest rates soon after FED's action. However, while corrective actions were in progress, a sharp appreciation of SAR against USD was witnessed that took almost 2 quarters (end of 2007) to revert back to the pegged value owing to monetary intervention by SAMA to secure the parity.

3. Methodology. To examine the structural dynamics in KSA's economy we use the VAR (vector autoregression) model based on Saudi inflation, the US inflation, Saudi money supply, reverse repo rate, and the SAR-USD exchange rate. VAR was proposed by Sims (1980) almost 3 decades ago and it has gained popularity because of its simplified structure in which each dependent variable up to n is explained by not only its own lagged values but also the current and lagged values of the remaining variables. The approach is more realistic as it focuses on the description of actual data dynamics rather than to develop dynamics according to some imposed model. The lag operator representation of vector autoregressive (VAR) model can be described as:

$$A_0 y_t = B_0(L) y_{t-1} + \varepsilon_t \tag{1}$$

where A_0 is the matrix of contemporaneous coefficients, B_0 represents the matrix in the lag operator L , y_t is the $n \times 1$ vector of data variables, ε_t is the vector of $n \times 1$ serially uncorrelated structural disturbances and $var(\varepsilon_t) = \Omega$, where Ω is the diagonal matrix and diagonal elements are the variances of structural disturbances which are assumed to be mutually uncorrelated. Following reduced form model is usually associated with this structural model and after some manipulation in equation 2, the final version would be like equation 3:

$$y_t = A_0^{-1} B_0(L) y_{t-1} + A_0^{-1} \varepsilon_t, \tag{2}$$

$$y_t = G_0(L) y_{t-1} + u_t, \tag{3}$$

where $G_0(L)$ is the matrix polynomial in the lag operator

$$G_0(L) = A_0^{-1} B_0(L) \tag{4}$$

and u_t is the vector of serially uncorrelated residuals in the reduced form VAR termed as the unexpected movement in the variables or reduced form disturbances ($u_t = A_0^{-1} \varepsilon_t$)

with $\text{var}(u_t) = \Sigma$ (VAR reduced-form residuals (u_t) are not structural shocks (ε_t)).

4. Results. The results of VAR analysis are reported in Table 1. In general, VAR analysis demonstrates that inflation can only partially be linked with the volatility of USD. The period of 2007-08 was marked with surging global food and commodity prices that spilled over to KSA and subsequent decline in inflation demonstrated that no structural issues were associated with the exchange rate pegging. The results also show that both Saudi and the US inflation are highly autoregressive in nature and the coefficients of lagged terms for both economies are significant. It is also observable that SAMA's monetary policy seems to be ineffective in controlling inflation which is a natural consequence of having fixed peg regime. Further support to this argument is provided by the significant value of lagged US inflation coefficient in the equation of SAR-USD exchange rate.

Table 1. Vector Autoregression Estimates

	CPI	CPI US	LN M1	REVERSE REPO	SAR USD
CPI(-1)	1.153139	0.097712	0.002171	-0.012190	-0.000888
	[9.49094]	[0.68292]	[0.45581]	[-0.25011]	[-1.36185]
CPI(-2)	-0.203326	-0.065618	-0.001168	-0.024887	0.000648
	[-1.71734]	[-0.47063]	[-0.25170]	[-0.52402]	[1.02022]
CPI_US(-1)	0.143516	1.423106	0.001535	0.103859	-0.000558
	[1.48798]	[12.5293]	[0.40609]	[2.68444]	[-1.07696]
CPI_US(-2)	-0.059619	-0.628759	-0.005049	-0.083187	0.001384
	[-0.57177]	[-5.12049]	[-1.23509]	[-1.98886]	[2.47281]
LN M1(-1)	7.539661	-1.879936	0.982789	-0.668005	-0.026768
	[2.20182]	[-0.46619]	[7.32114]	[-0.48632]	[-1.45605]
LN M1(-2)	-7.433466	3.152488	0.041368	0.536439	0.019487
	[-2.12201]	[0.76419]	[0.30124]	[0.38176]	[1.03615]
REVERSE REPO(-1)	-0.179121	0.266506	0.006862	0.880703	-0.001048
	[-0.56246]	[0.71063]	[0.54965]	[6.89423]	[-0.61315]
REVERSE REPO(-2)	0.204773	-0.027981	-0.002866	0.083589	-0.000649
	[0.64578]	[-0.07493]	[-0.23052]	[0.65717]	[-0.38147]
SAR USD(-1)	11.97667	13.59989	-0.916370	30.60910	0.211151
	[0.48958]	[0.47208]	[-0.95553]	[3.11925]	[1.60769]
SAR USD(-2)	-36.13567	-19.14481	-0.174287	3.937156	0.041540
	[-1.59341]	[-0.71686]	[-0.19604]	[0.43280]	[0.34118]
C	89.14704	4.076591	3.784466	-127.6604	2.900157
	[0.85949]	[0.03338]	[0.93074]	[-3.06835]	[5.20812]
Adj. R-squared	0.963349	0.905621	0.996528	0.991294	0.364820
F-statistics	184.9902	68.16931	2010.155	798.0831	5.020500

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On the basis of the overall results we can conclude that till present, SAR-USD peg is quite successful in achieving its stated objectives of economy stabilization including planned growth and curtailment of inflation by linking it with the US inflation.

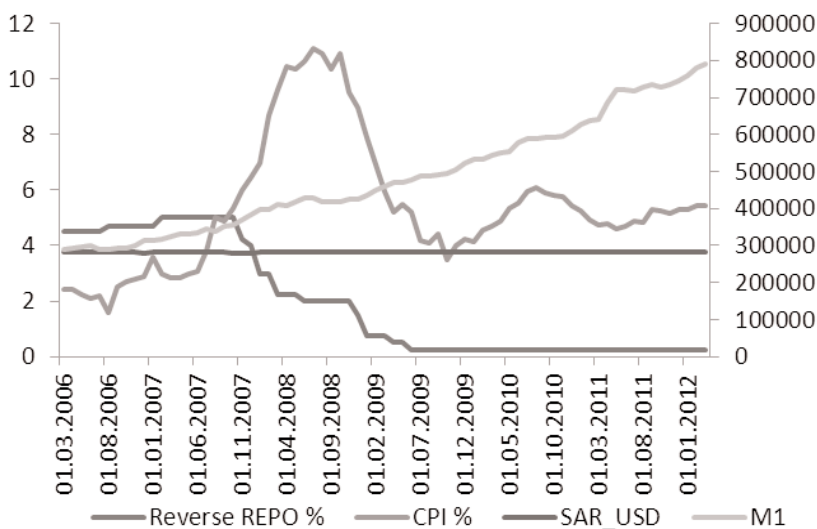
Drivers of CPI and Inflation. KSA economy is facing an average recent inflation of approximately 5.5% which has almost doubled from its last decade's counterpart.

Prime contributors to this hike include food prices coupled with massive government spending on infrastructure and development projects. The current share of machinery and equipment is almost 51% in imports and the estimated figure for the next 5 years planned spending is approximately 375 bln USD. If the prices of capital goods increase as per expectations, there will be definitely a surge in inflation. Further, toppings are also coming through the imports from non-US, particularly regional economies, whose contribution, albeit moderate, is continuously increasing over the years.

Monetary Policy in a Fixed Rate Regime. Recently, IMF has classified KSA exchange rate as a conventional peg with USD on both de jure and de facto basis. In a fixed exchange rate regime, it is obvious that SAMA has compromised independence in framing its own monetary policy. It will have to replicate the monetary policy stance of FED in its entirety and with immediacy to prevent speculators to take advantage of any arbitrage opportunity which may become existent due to divergence in the policies of two interest rate setting authorities. Keeping in view the lower indebtedness in economy, it seems very obvious that getting independence in interest rate settings is not of prime importance and SAMA would prefer maintaining its credibility by preserving peg for larger benefits to the real economy. Nonetheless, the increasing influence of indigenous factors in domestic inflation and the imported inflation through food and capital goods prices will eventually require SAMA to have some leverage in interest rate settings in order to address these idiosyncratic issues efficiently and effectively. On the basis of historical data, our VAR analysis suggests that though inflation in the economy is somewhat triggered by the increase in money supply which is typical recourse to ease selling pressure on USD mitigating a substantial appreciation in SAR. Nevertheless, in its basic structure inflation is primarily an autoregressive phenomenon that has little to do with the exchange rate dynamics at present. Figure 3 represents the trend of reverse repo, CPI, M1 and exchange rate for the last 6 years.

5. Saudi Riyal — Going Forward.

Fixed Exchange Rate and its Dividends. So far SAR-USD peg has remained beneficial by linking not only the domestic inflation with the US inflation but also by anchoring the expectations regarding future probable monetary policy stance. We do not have sufficient reasons to support a floating system in the short to medium term keeping in view potential costs that will outweigh potential benefits — primarily benefits originating from USD invoiced petroleum revenues. However, with structural changes in global economy including a wave towards financial openness and integration, the only concern SAMA would have to tackle is the so-called "Impossible Trinity" where peg, monetary independence and openness cannot be maintained simultaneously. Even if SAMA would agree to sacrifice its independence in interest rate setting, going forward there could be a possibility of currency mismatch and volatile capital flows that would make pegging an obstacle to achieve financial openness. The key to this decision will, inter alia, remain with the level of structural change KSA will prefer to adapt.



Source: SAMA.

Figure 3. Reverse Repo %, CPI, M1 and SAR-USD

Is There an Alternate to SAR-USD Peg? At some stage if KSA plans for fiscal flexibility, SAMA should not opt for an entirely different exchange rate by making SAR a free float. The managed float is a relatively better choice to let market forces determine the real worth of SAR along with prerogative of SAMA to intervene in any situation it deems inconsistent with the fundamentals. Levin (2001) identified a caveat in managed float that could yield instability because it is very difficult to differentiate between speculative and capital flows. This will also enable SAMA to mitigate any movement outside the pre established tolerance thresholds. China adapted a similar trend by lifting the peg from Renminbi in 2005 and is gradually moving towards more flexible side of exchange rate regime. It is likely that due to strong fundamentals of KSA economy, SAR would also appreciate once the peg is lifted. This appreciation could adversely affect oil based revenues which are being originated in USD and are converted into SAR for fiscal purposes yielding a huge foreign asset base loss. Therefore, in our opinion, as long as oil transactions are dollar denominated with lesser trade diversification in other currencies, the costs associated with alternate options are immense to reinforce SAMA to continue with peg in foreseeable future.

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