



Monetary Policy in Pakistan: The Role of Foreign Exchange and Credit Markets

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Background

- ❖ IGC has funded a program to develop an academically rigorous yet policy oriented model for monetary policy analysis at SBP.
- ❖ Developed a Dynamic Stochastic General Equilibrium (DSGE) model in collaboration with the staff at SBP.
- ❖ The model is based on the New Keynesian framework that is widely used at central banks and international agencies.
- ❖ Extended and modified the standard version to incorporate features specific to Pakistan's economy and meet the needs of SBP for policy analysis.
- ❖ Consider various monetary policy options and conduct analysis in response to domestic and external shocks.



Plan of the Presentation

- ❖ Main economic conditions in Pakistan
- ❖ Brief description of the model
- ❖ Conduct and effectiveness of monetary policy in Pakistan
- ❖ Concluding remarks



Main economic conditions in Pakistan

- ❖ Four broad economic challenges:
 - Volatile inflation and its persistence at a relatively high level.
 - Falling investment and low and stagnant GDP growth.
 - High fiscal deficits and a sharply rising public debt.
 - Low reserves and pressure on the currency.

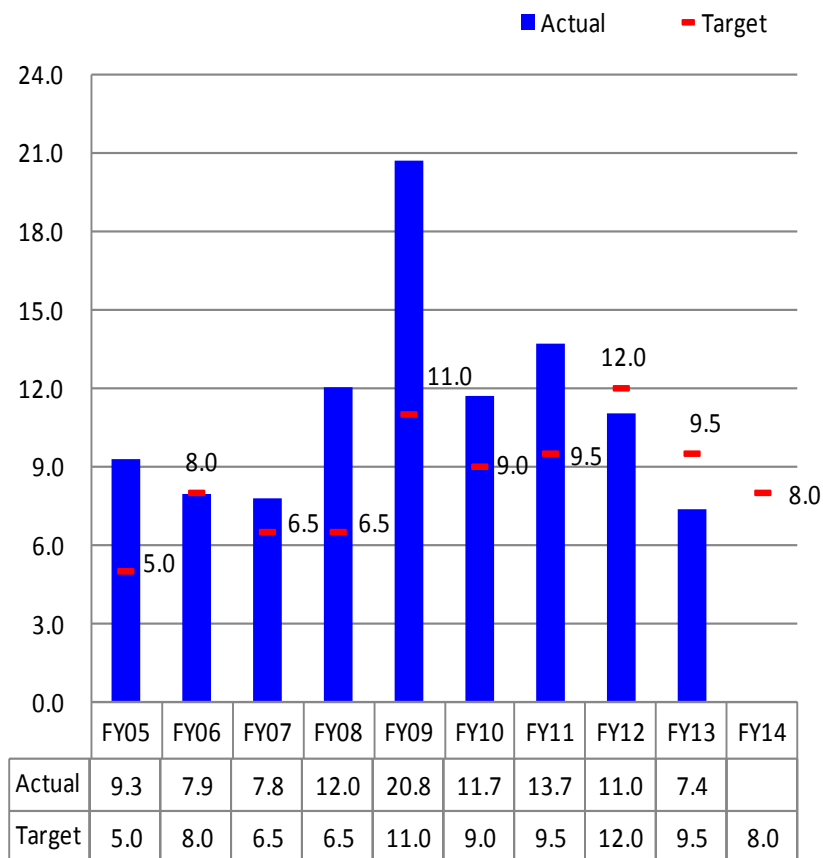
- ❖ At the same time, severe energy shortages and dismal law and order and security conditions have rendered the domestic economic environment least conducive for productive activities.

- ❖ Developments in the global economy are not that encouraging either from the perspective of international commodity prices and trade and financial flows.

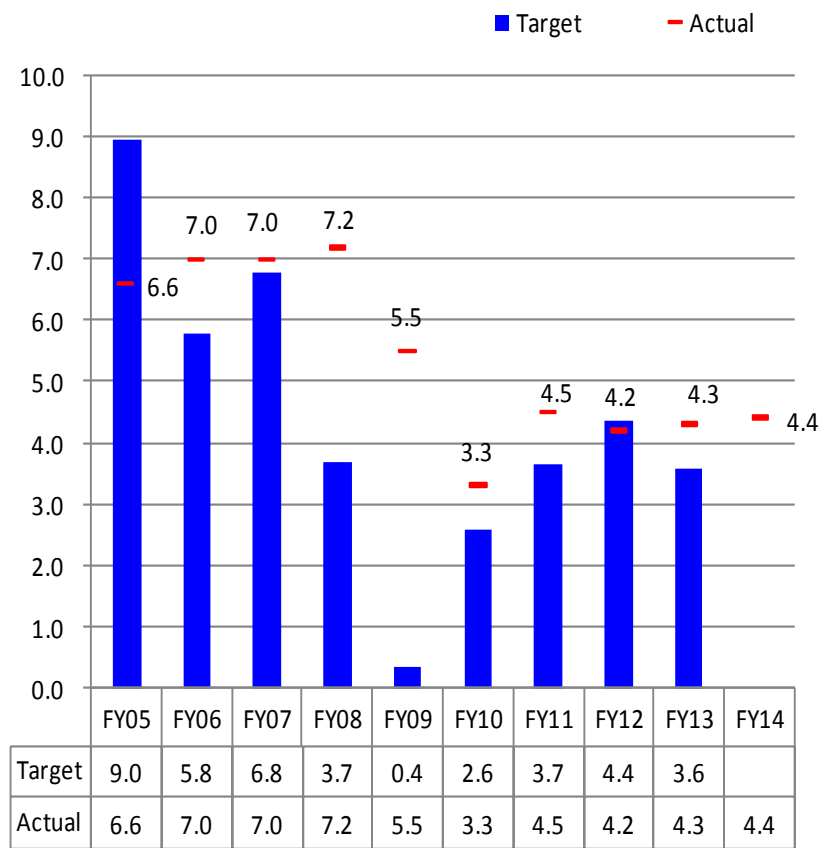


Inflation and growth performance in recent years

Average CPI Inflation (percent)



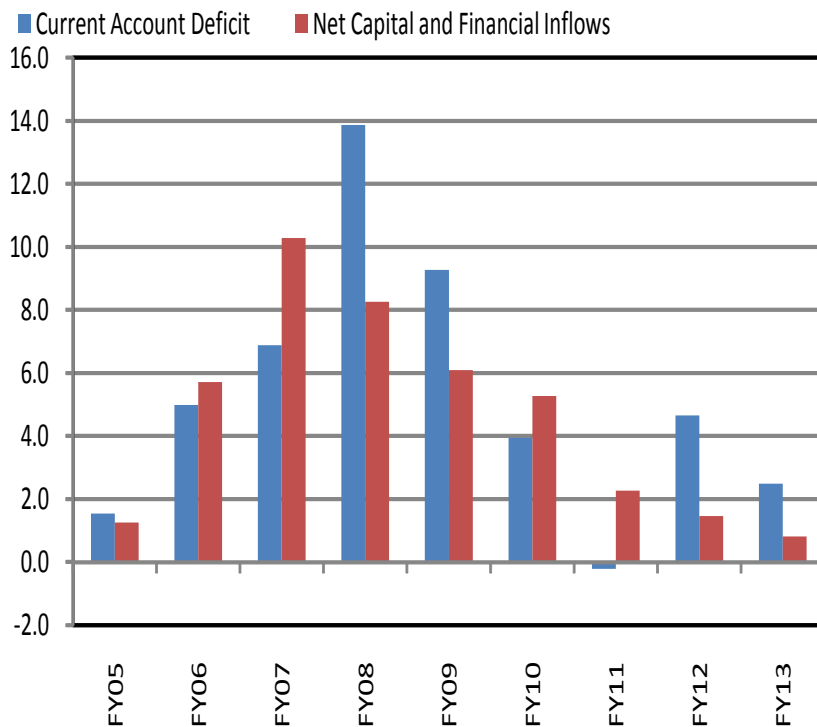
Real GDP Growth (percent)



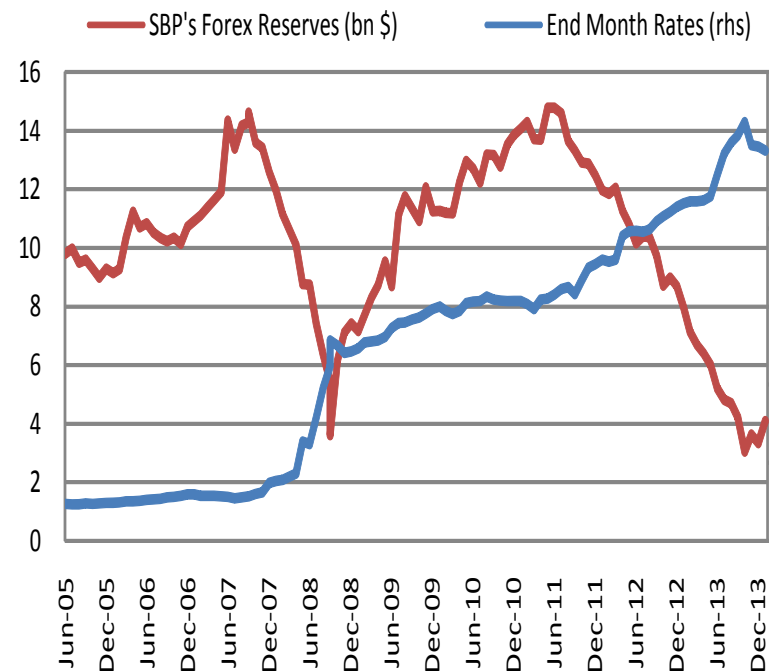


Balance of payments position

External Current Account and Financial Inflows (bn \$)



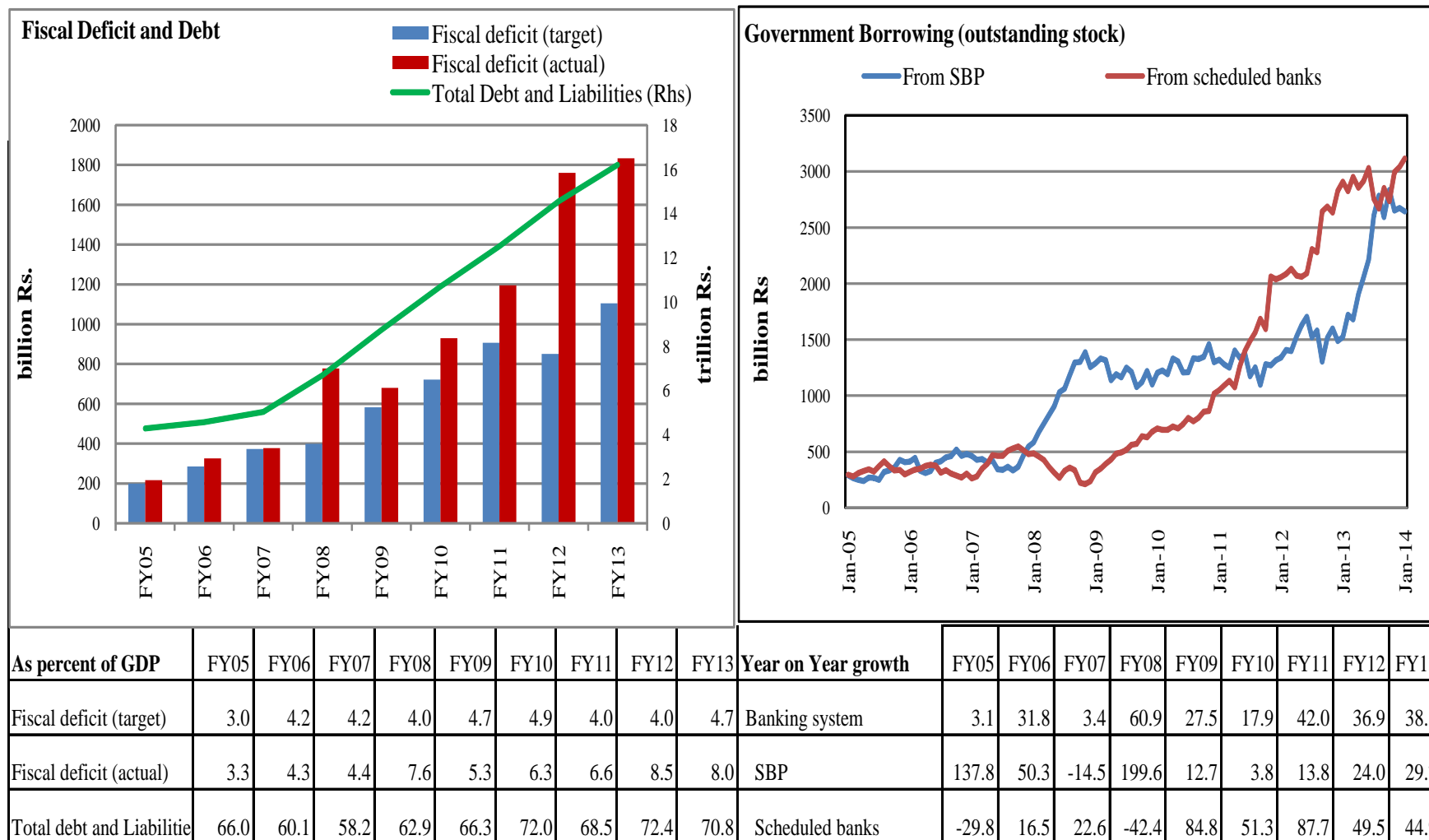
SBP's Foreign Exchange Reserves and Exchange Rate



As % of GDP	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13		FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13
Current account deficit	1.4	3.9	4.8	8.5	5.7	2.2	-0.1	2.1	1.1	Depreciation	2.5	1.0	0.4	11.6	16.0	4.7	0.5	9.1	5.1
Net capital and financial inflows	1.1	4.5	7.2	5.0	3.8	3.0	1.1	0.6	0.3	Res. adq. ratio (no. of week)	15.4	16.0	16.4	11.6	13.0	15.5	16.7	11.7	6.2



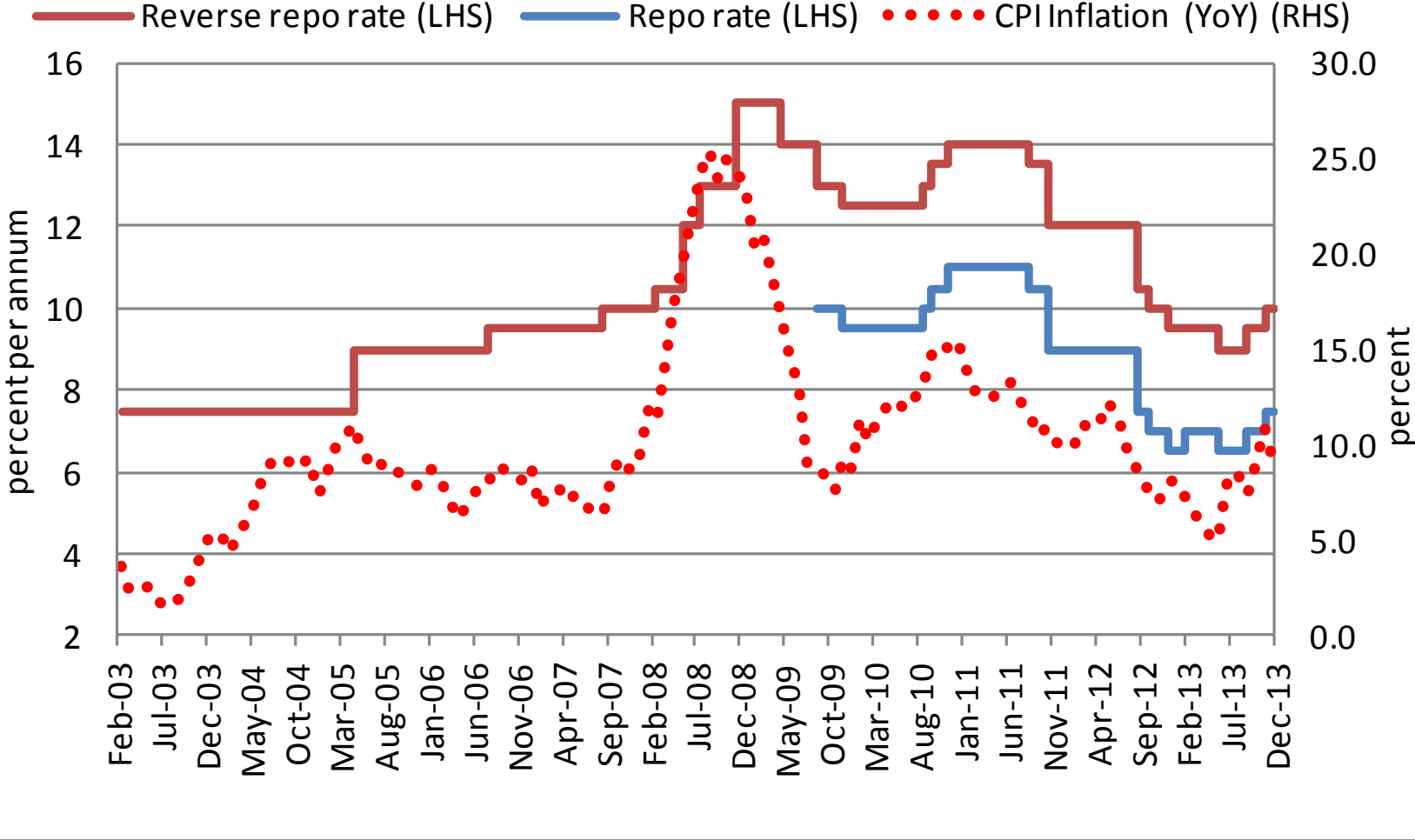
Fiscal deficit and its financing





Monetary policy stance in recent years

Changes in Policy Rate and Inflation





Brief description and key variations in the model

- ❖ Credit markets in Pakistan are less developed and borrowing costs do not respond quickly and/or adequately to changes in policy interest rate.
 - Low pass-through from policy rate to interest rate on bank loans has been observed in a number of low-income countries (Mishra et al., 2010)
- ❖ To incorporate this feature, we introduce inertia in setting the rate on bank loans (that are used to finance investment).
- ❖ Financial markets in Pakistan are not well integrated with global financial markets.
- ❖ There are significant departures from the interest parity relation (which states that the domestic interest rate equals the foreign rate plus the expected exchange rate change) in Pakistan.
- ❖ To incorporate such deviations, introduce transactions costs that increase as international borrowing /lending increases.



Other variations from the standard model

- ❖ To capture inertia in expectation formation, we introduce a combination of forward and backward looking expectations of inflation and exchange rate depreciation.
- ❖ Two types of households:
 - High-income households (who participate in the financial market).
 - Low-income households (who do not interact with financial markets and are liquidity constrained).
- ❖ Since the behavior of fiscal policy is not clear, we consider two possibilities:
 - Fiscal authority takes action to stabilize the debt at some target level.
 - Fiscal authority does not take responsibility to control debt level.
- ❖ These fiscal possibilities suggest two policy environments for monetary policy.
 - Weak Monetary Independence – central bank adjusts interest rate to control inflation while fiscal authority stabilizes debt.
 - Fiscal dominance – fiscal authority does not stabilize debt and central bank adjusts interest rate to influence both inflation and debt.



Model Calibration

- ❖ A number of model parameters have been calibrated to long-term data for Pakistan.
 - We are undertaking empirical work at SBP to evaluate the performance of the model in explaining the behavior of key macro and financial variables.
 - We are also developing data to estimate additional parameters and test model predictions.

- ❖ We assume that targets for inflation and debt are set to maintain recent levels.
 - Inflation target = 10% (annual CPI inflation)
 - Debt target = 60% of potential output

- ❖ Prices assumed to be less sticky than wages (as suggested by studies on frequency of wage-price change in Pakistan)



Policy Environment and Controlling Inflation

- ❖ Controlling inflation is generally viewed as the key objective of monetary policy; and Pakistan is no exception.
 - Other objectives include stabilization of output and the exchange rate.
- ❖ In most developed countries, central banks set and implement (implicit or explicit) inflation targets independently.
- ❖ In Pakistan, fiscal authorities announce an inflation target.
- ❖ However, since the fiscal authority continues to borrow from SBP (money creation) to finance its deficits, the government's inflation target reflects the inflation rate generated by money growth due to borrowing.
- ❖ In this sense, the policy environment for SBP can be described as *weak monetary independence* -- SBP cannot choose an inflation target independently, but is free to choose policies to implement the given target.



Interest Rate Control and Rules

- ❖ Inflation can be targeted by controlling either monetary aggregates or interest rates.
- ❖ SBP, like most central banks, uses interest rate control to implement its policy. Under this policy, SBP has no control over money growth (which is determined by the growth of money demand).
- ❖ In the model we assume that the interest rate is changed systematically in response to inflation deviations and other variables.
- ❖ A key requirement of the rule (Taylor principle) is that interest rate is changed more than in proportion to change in the inflation rate.
- ❖ This policy ensures that higher inflation leads to an increase in the real interest rate.



How Does Monetary Policy Work

- ❖ The real interest rate represents the key channel for the transmission of monetary policy effects.

- ❖ Higher real interest rate:
 1. decreases consumption by increasing the real return on saving.
 2. reduces investment by increasing the real cost of borrowing
 3. decreases exports and increases imports by causing a real appreciation (assuming international capital mobility)

- ❖ Aggregate demand decreases leading to lower output and inflation.



Monetary Policy Effectiveness in Pakistan

- ❖ A number of factors could reduce monetary policy effectiveness in Pakistan.
 1. Inertia in expectations could weaken the link between nominal and real interest rates.
 2. Real borrowing cost may not fully adjust to real interest rate changes because of credit market frictions.
 3. Exchange rate stabilization by SBP may block the real exchange rate channel.

- ❖ To illustrate the differences between Pakistan and developed countries, compare the effects in:
 1. the model for monetary policy analysis in Pakistan (MPAP) with features relevant for Pakistan.
 2. the standard model with features suitable for developed countries.



The Standard and MPAP Models

	Standard Model	MPAP Model
Adjustment costs for bank loan rate	None	High
Transaction costs for international capital flows	Negligible	High
Expectations	100 % forward-looking	50 % forward-looking
Exchange rate stabilization	No	Yes

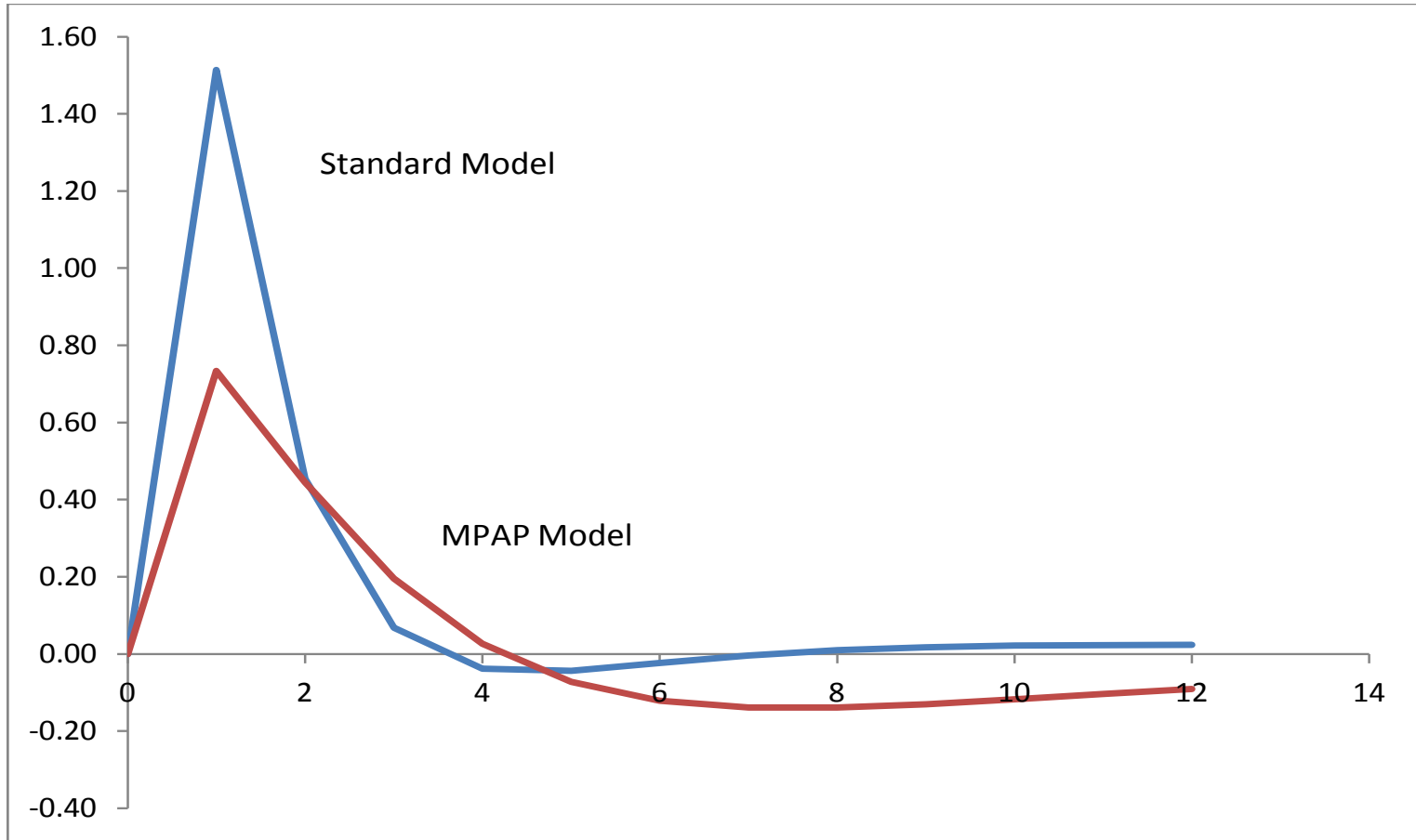


Assumptions for Model Simulations

- ❖ To explore monetary policy effectiveness, examine the dynamic effects of a temporary decrease in the interest rate.
 - Specifically, the interest rate is lowered by 1 % (annual rate) in quarter 1
- ❖ Except for this shock, monetary policy follows a rule with weak response to inflation and moderate interest rate smoothing.
- ❖ Inflation target is 10% (annual CPI inflation).
- ❖ Fiscal policy slowly adjusts taxes to stabilize debt at 60% of potential output.

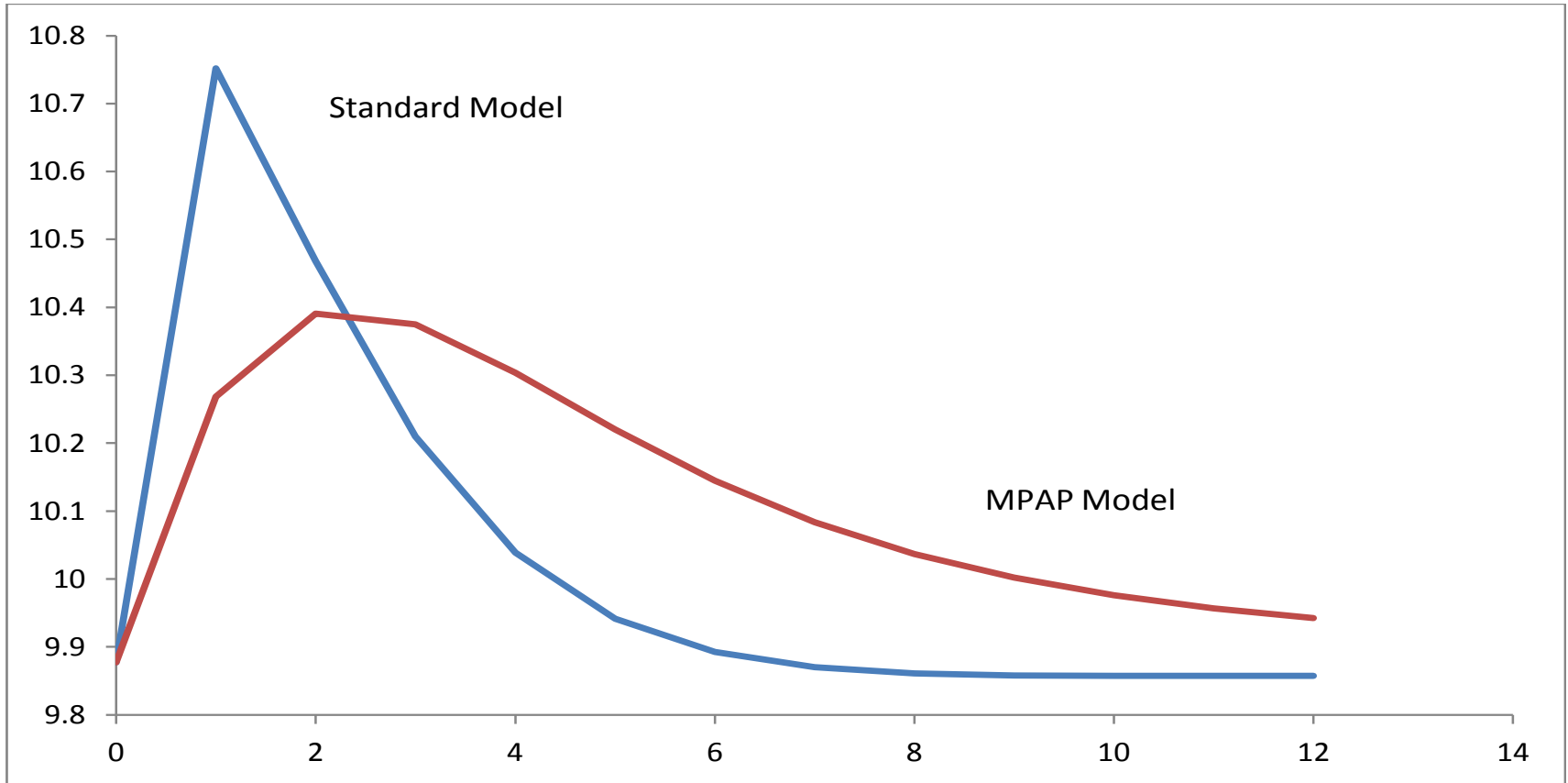


Effect on Output Gap (%)



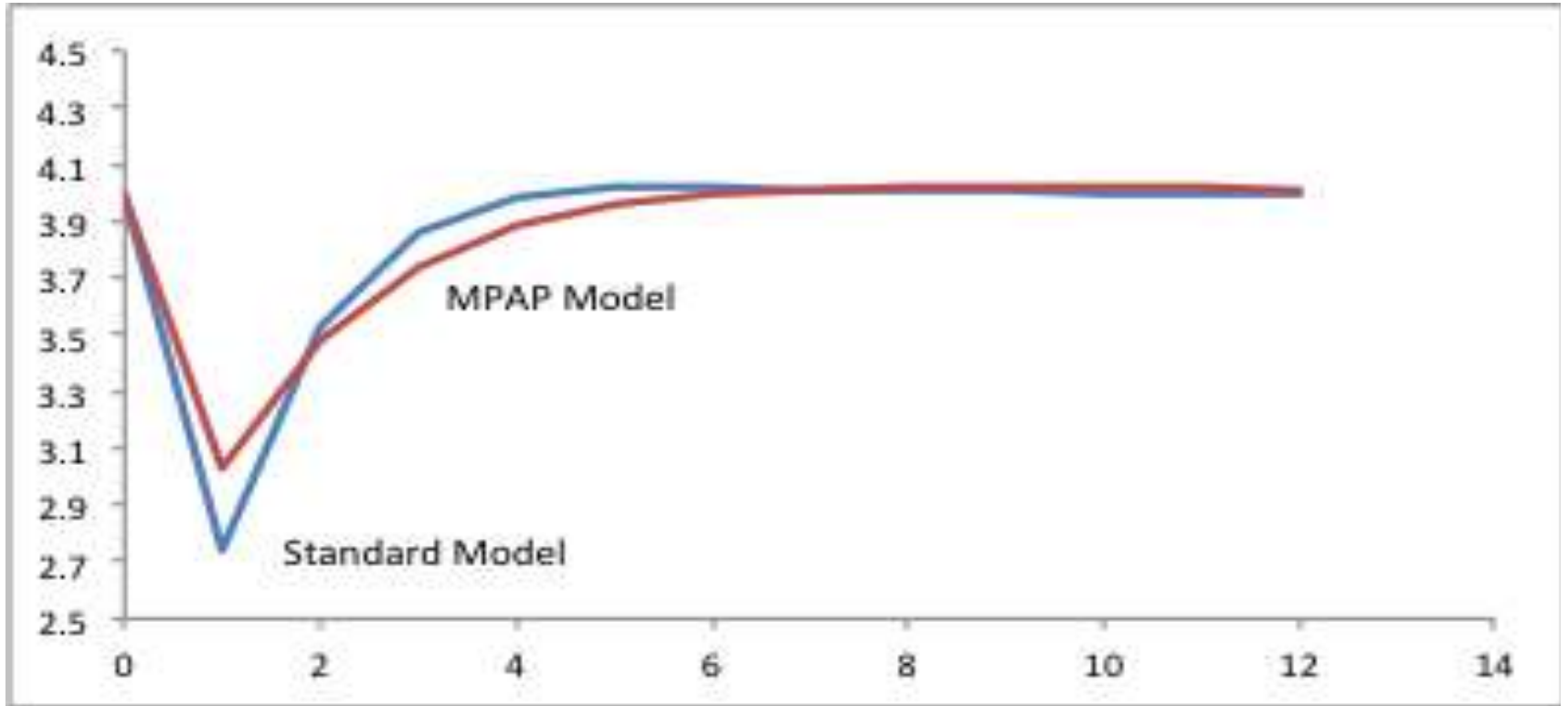


Effect on Inflation (annual rate %)



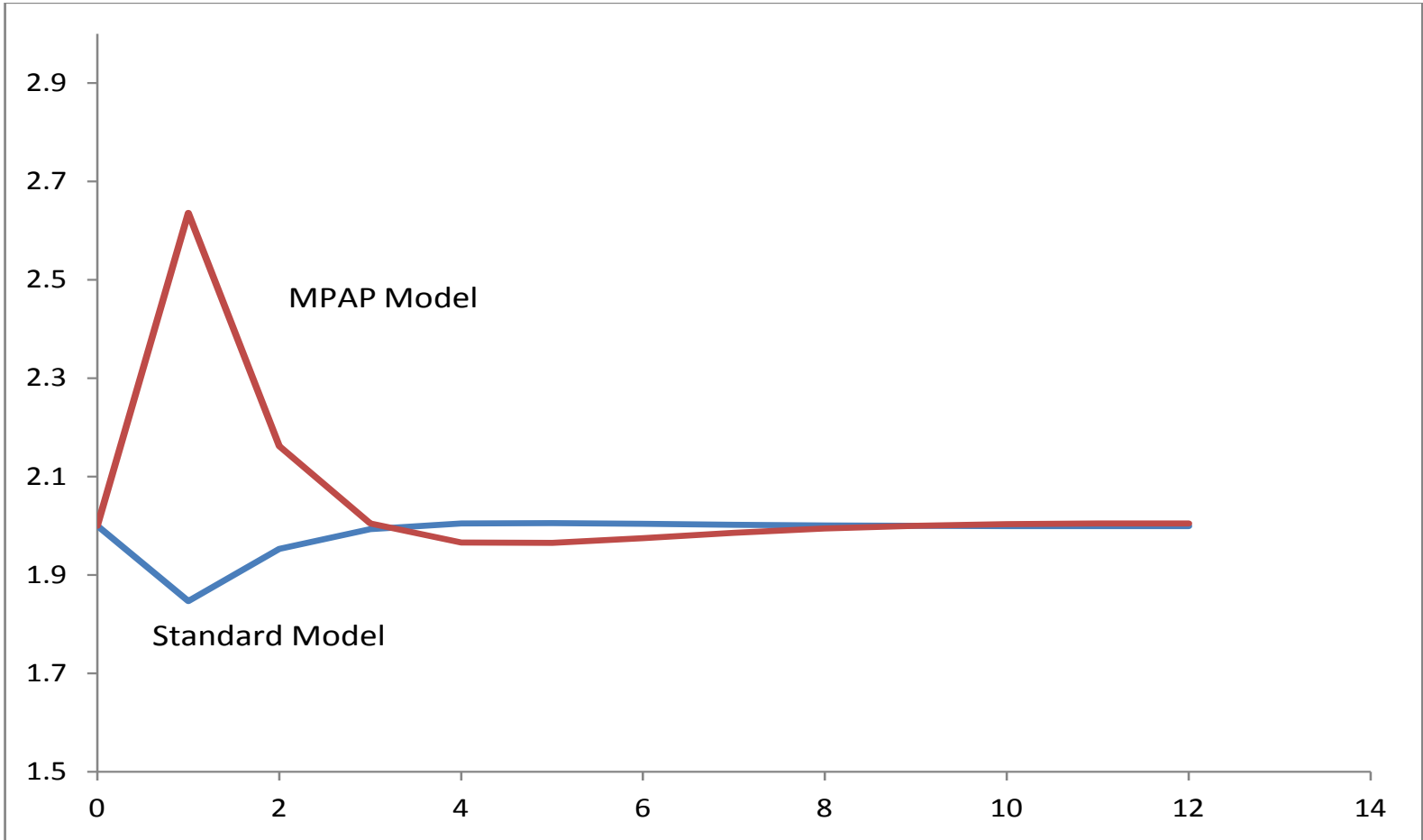


Effect on the Real Interest (annual rate %)



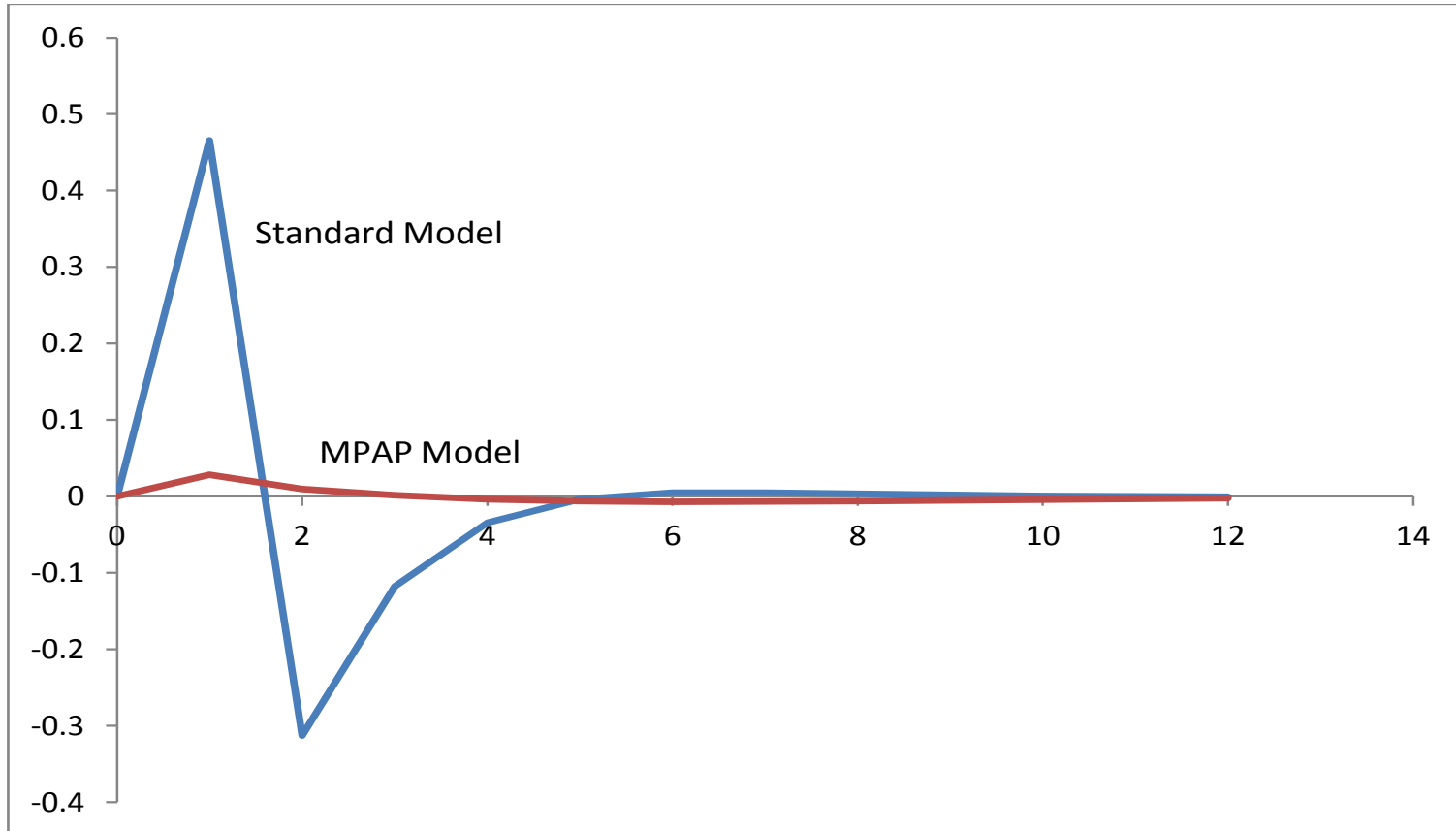


Effect on the Real Bank Loan Spread (annual rate %)





Effect on Real Depreciation (%)





Some key results and concluding remarks

- ❖ Interest rate changes have a weaker impact on inflation and output gap in Pakistan.
- ❖ Estimates of interest rate rule in Pakistan suggest that the inflation coefficient is low (around 0.15).
- ❖ Stochastic simulations of the model suggest that a larger coefficient could help reduce inflation variability.
- ❖ Fiscal authorities need to adjust taxes and/or expenditures to control debt levels. Without fiscal adjustment to control debt, the rate of borrowing would keep on increasing, making it infeasible to control inflation.
- ❖ If government does not control debt, central bank could attempt to stabilize it. (Benigno and Woodford, 2006, Kumhof et al. , 2008).
- ❖ In a previous project (Choudhri and Malik, 2012), we explored a policy rule where SBP adjusts interest rates to control debt. This policy would lead to high and volatile inflation and cause large welfare losses.
- ❖ Concerns regarding fiscal policy could lead to credibility problems which would worsen economic conditions. For instance, government commitment to stabilizing debt may not be credible; there may be a concern that the government would raise primary deficit permanently leading to higher long-run seignorage and inflation; there may be doubts about the central bank's ability to keep both long term debt and inflation at target levels
- ❖ Macroeconomic performance and the ability of SBP to control inflation can be improved considerably if fiscal policy takes the responsibility to stabilize debt.



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