

# EXCHANGE RATE MANAGEMENT UNDER FLOATING REGIME IN BANGLADESH

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**Bangladesh Institute of Development Studies (BIDS)**

Providing basic research studies on the problems of development in Bangladesh,  
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## OBJECTIVES OF THE STUDY

- **To characterize the exchange rate policies in Bangladesh, 2000-2008**
- **To evaluate the appropriateness of such policies in light of both contemporary international financial conditions and domestic economic situations**
- **To provide some alternative policy options**



# OVERVIEW OF THE EXCHANGE RATE SYSTEMS

- **Pegged to Pound Sterling (£):1972–1979**
- **Pegged to a basket of major trading partners' currencies (£ as the intervening currency) 1980–1982**
- **Pegged to a basket of major trading partners' currencies (US\$ as the intervening currency): 1983–1999**
- **Adjustable Pegged System: 2000-2003**
- **Floating Exchange Rate: May 30, 2003- Present**



# EXCHANGE RATE MOVEMENTS: 2000-2008

Figure : Nominal Exchange Rate Movements

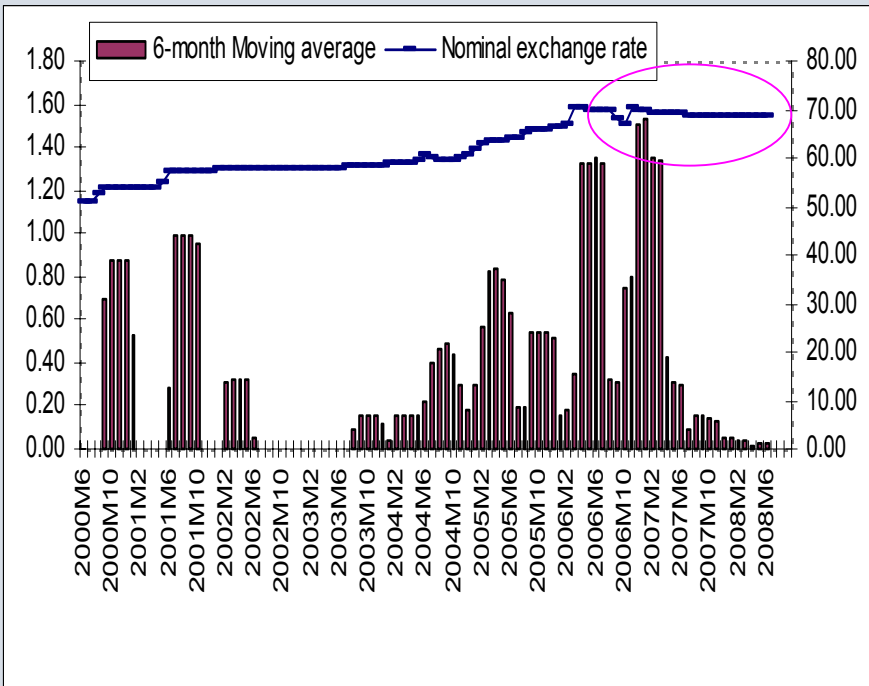


Table : Relative Volatility 2000-2008

	Volatility of Nominal Exchange Rate (Tk./\$)			Volatility of Reserve	Rel. Vol (ER/Res )
	Std. Dev.	Max.	Min.	Std. Dev.	
Jan 2000 - May 2003	2.65	57.9	51.0	0.02	132.5
Jun 2003 - Dec 2006	5.25	71.55	57.9	0.02	262.5
Jan 2007- June 2008	0.22	69.2	68.53	0.02	11.0

- Relative volatilities of the exchange rate, and reserves are found to be very low for the period 2007:1 – 2008:6-- indicating an active intervention activities in the foreign exchange market particularly after March 2006

# VOLATILITY COMPARISON

	Taka/US dollar	Taka/Rupee	Taka/RMB	Taka/Pound	Taka/Yen	Taka/Euro	Taka/Sing \$
Pre-Floating Regime (Jan 2000-May 2003) N=41	0.47	0.019	0.050	0.066	0.039	0.101	0.039
Floating Regime (Jun 2003-Feb 2006) N=33	0.50	0.065	0.057	0.075	0.055	0.069	0.065
Floating Regime (Mar 2006-Nov 2008) N=33	0.11	0.063	0.055	0.058	0.064	0.076	0.050

- Taka remained stable against Indian rupee and Chinese RMB, but showed greater volatility against the Japanese Yen, Euro and Singapore dollar during 2006-2008.



# DE FACTO EXCHANGE RATE REGIME IN BANGLADESH

## Definitions of De facto Classification

	$\sigma_e$	$\Delta\sigma_e$	$\sigma_r$
Inconclusive	Low	Low	Low
Flexible	High	High	Low
Dirty Float	High	High	High
Crawling Peg	High	Low	High
Fixed	Low	Low	High

Source: Levy-Yeyati and Sturzenegger (2002)

Period	$\sigma_e$	$\Delta\sigma_e$	$\sigma_r$	Comments
Jan 2000-May 2003	0.33 (L)	1.28 (H)	4.56 (H)	Adjustable pegged
June 2003-April 2004	0.22 (L)	0.31 (L)	1.15 (L)	Inconclusive
May 2004 – Dec 2006	1.05 (H)	1.23 (H)	3.65 (H)	<b>Dirty Float</b>
Jan 2007 – June 2008	0.15 (L)	0.18 (L)	5.97 (H)	<b>Fixed</b>

► The behavior of the nominal exchange rates and reserves for the first ten months of the *de jure* floating regime was puzzling as volatilities of all the three variables were fairly low, which cannot be explained from the text-book context.

► The period 2004:5 to 2006:12 was characterized by high nominal exchange rate volatility with high reserve volatility— **dirty float**.

► The recent period (2006:3-2008:6) is identified as **fixed (pegged) system**.



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# WHY INTERVENTION IS REQUIRED?.....

Table 5 Estimates of inflation pass-through (2000-2008)

	Changes in internal prices	Changes in US prices	Changes in Indian prices
$\gamma$	0.87 (0.14)***	1.26 (0.15)***	0.95 (0.09)***
Constant	2.96	6.37	3.61
ECT (Error correction term)	-0.02 (0.005)**	-0.03 (0.01)**	-0.04 (0.02)**

\*\*\*, \*\* indicate significance at 10 percent and 5 percent level respectively.

- Long run Pass-through Equation

$$p = \ln(\alpha) + \gamma f$$

## Exchange Rate Pass-through:

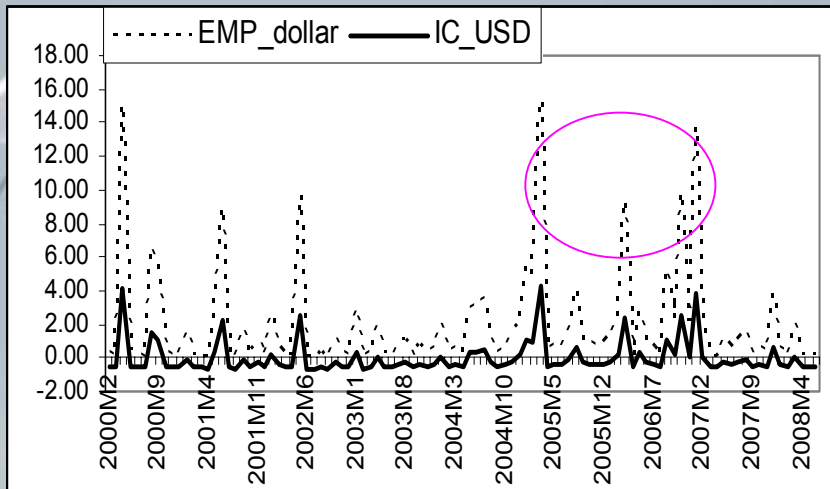
► The long run pass-through coefficient is very high and significant for Bangladesh

► It is 0.87 for international price, 1.26 for the US price and 0.95 for the Indian prices, which indicates that a change in international or US or Indian prices will almost completely translate into a change in domestic prices.

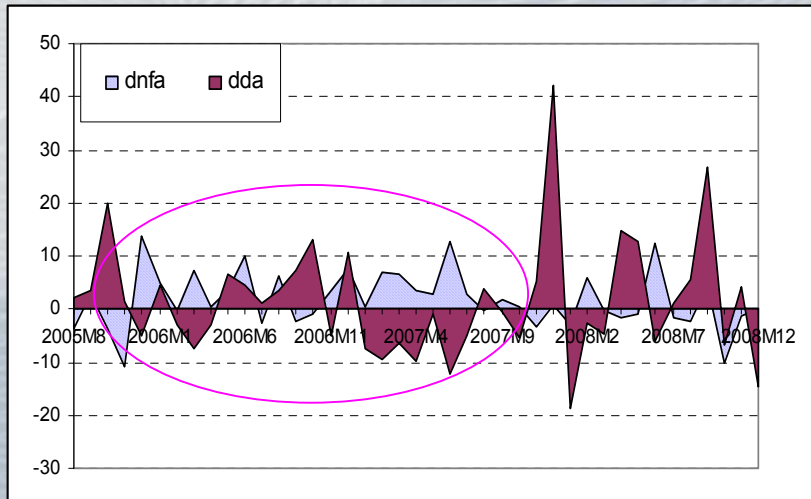
► Exchange rate pass-through has some role in explaining the low volatility (stability) of exchange rate particularly after March 2006, when the World was facing high inflationary episodes



# WHY INTERVENTION IS REQUIRED?



**FIGURE: Exchange Market Pressure**



**FIGURE: Sterilized Intervention**

► We have computed the EMP index by calculating the weighted sum of monthly changes in nominal exchange rate and monthly changes in the stock of international reserves scaled by monetary base.

► Exchange market pressure (EMP) is positive in Bangladesh, however, it appears from the index IC that shocks were more frequent and several times it crosses the crisis threshold during the period 2005-2007

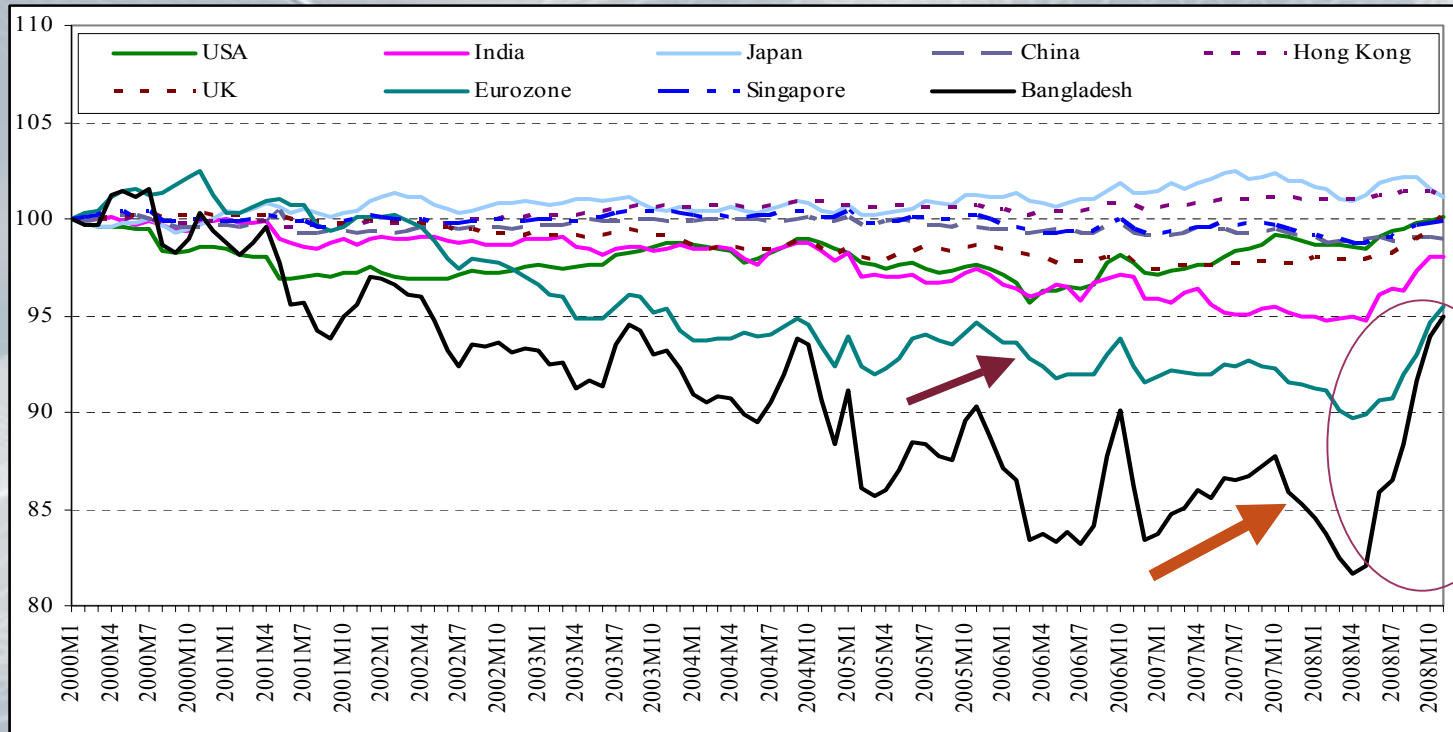
► An opposite movement between net foreign asset and net domestic asset generally indicates the case for sterilization

## Exchange Rate Management:

- ▶ Managed Floating Rate System.
- ▶ What is the target (or anchor) variable for exchange rate management?—Not clear
- ▶ Is exchange rate overvalued?

- ▶ REER—Real Effective Exchange Rate—is a popular index of international trade competitiveness
- ▶ Likewise Bangladesh Bank, we calculate the REER using the eight trade partners with due weights (2000=100)
- ▶ We also estimate the NEER as well as Equilibrium REER in order to estimate misalignment

## Figure : Behavior of the REER and bilateral RERs



- ◆ REER depreciates around 20 percent from the year 2000
- ◆ Real Euro moves in tandem with the REER. This has contributed to REER instability

# TRADABLE VS NON-TRADABLE

Figure : Relative Prices (CPI/WPI)

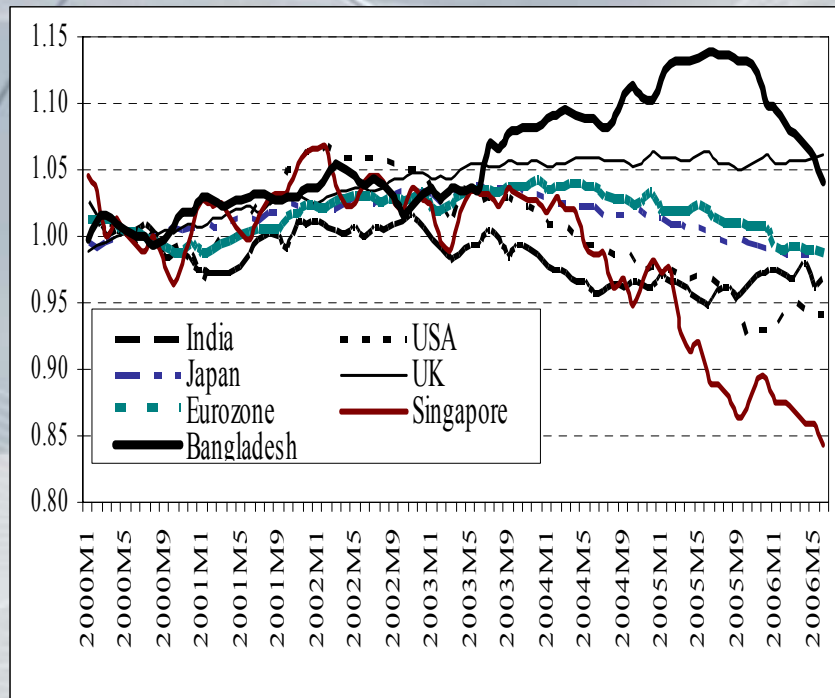
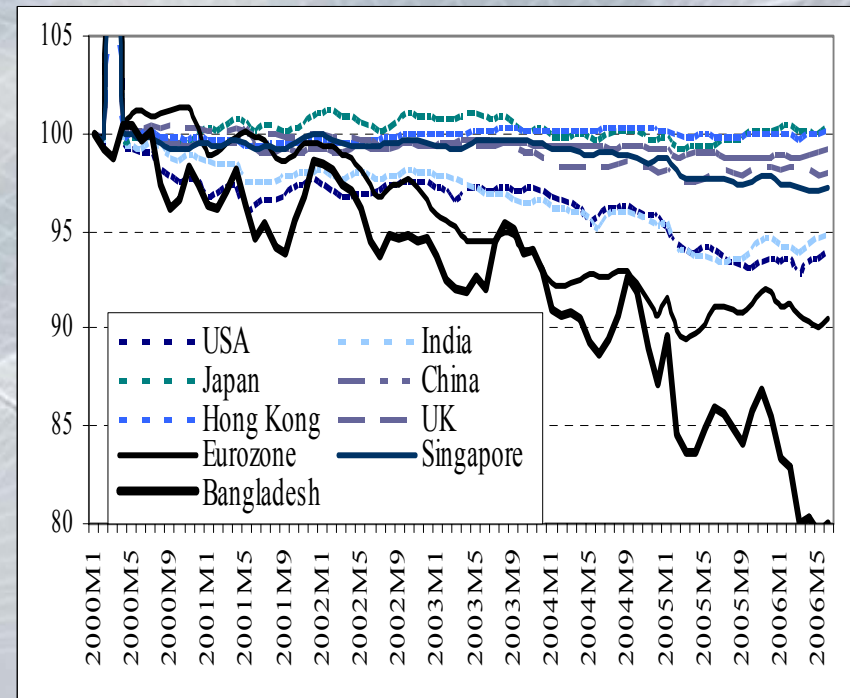


Figure : WPI-based REER



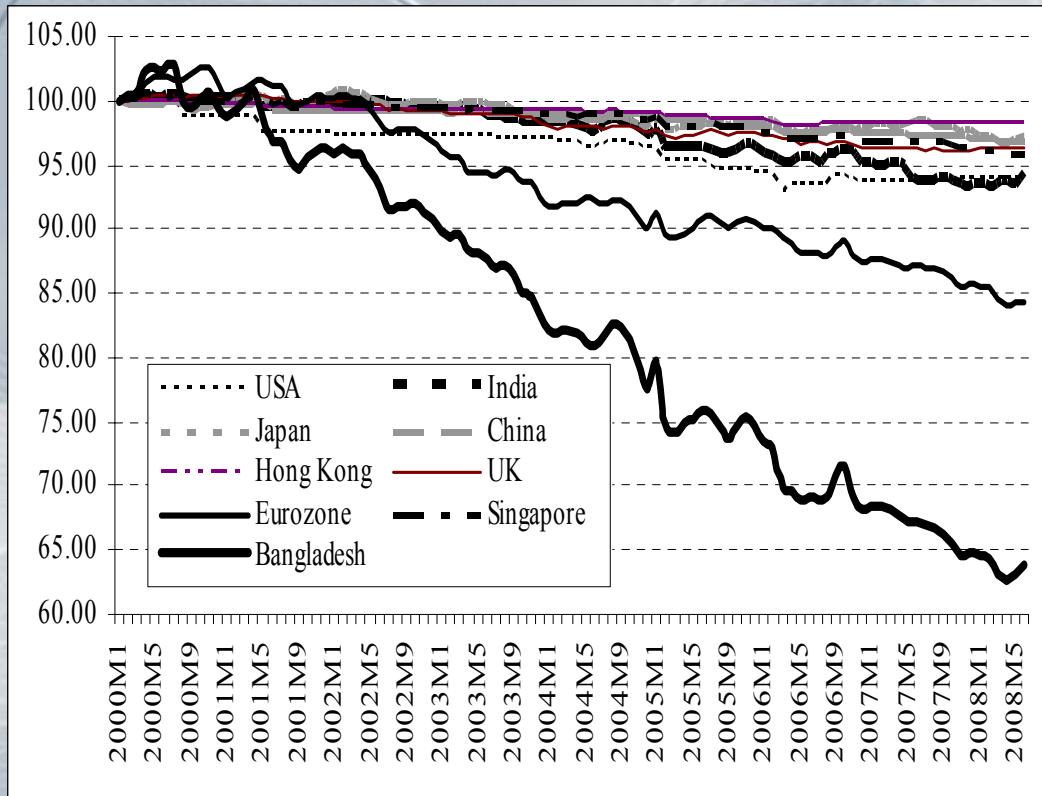
Source: IFS, 2008 and Bangladesh Bank

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- WPI based REER shows much depreciating trend
- There is no evidence of the Balassa-Samuelson effect.

# NOMINAL EFFECTIVE EXCHANGE RATES

Table : Aggregate and bilateral NEERs



- ▶ The NEER is a trade-weighted index without being adjusted for inflation.
- ▶ The behavior of the nominal effective exchange rate (NEER) also shows the same depreciating but unstable trend.
- ▶ This index has particular importance in stabilizing the pace of competitiveness particularly when the currencies of the trading partners are more volatile.

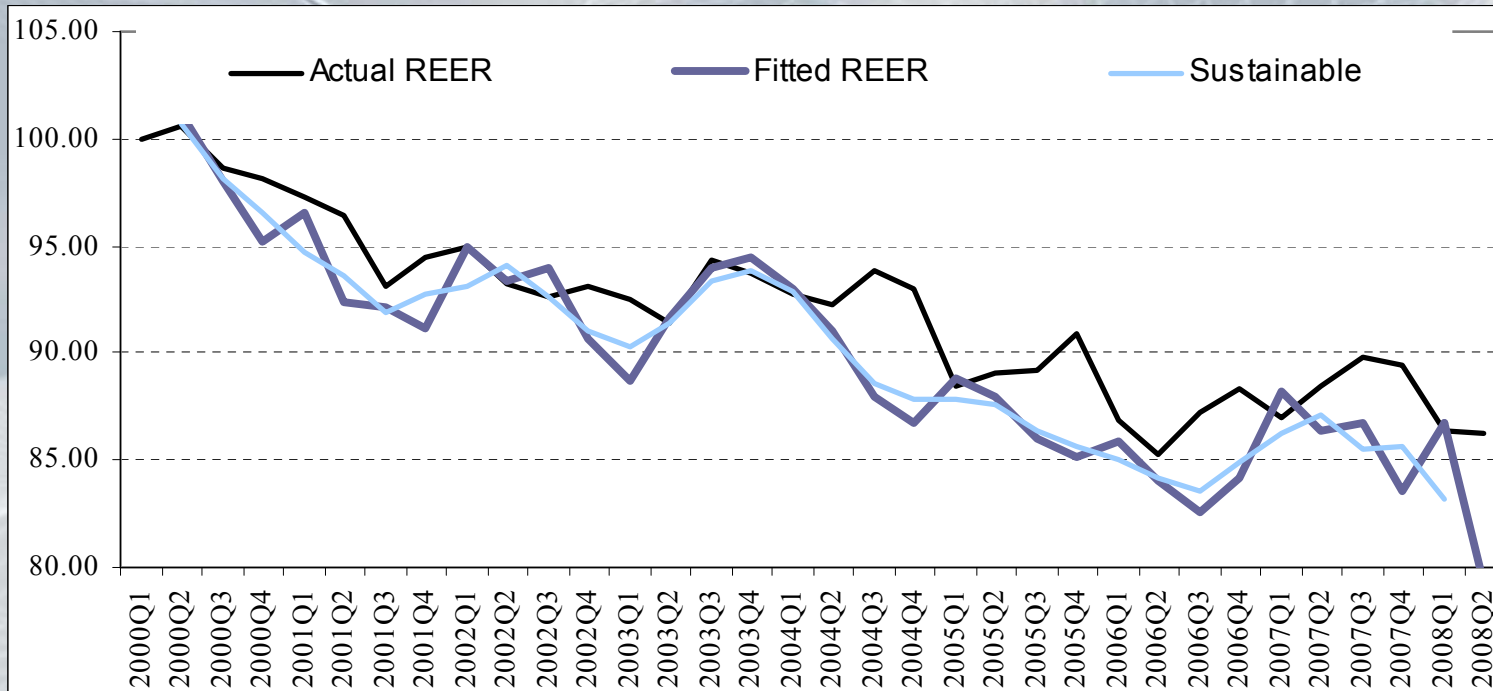
▶ Following Clark and MacDonald (1998) and Baffes, Elbadawi and O'Connell (1999), a simple reduced form equation is examined:

$$lreer = f(ltot, lnfa, rird, bd)$$

- ▶ Quarterly data are used.
- ▶ Cointegration and Vector Error Correction methods are used.
- ▶ A 1 percentage point increase in terms of trade is associated with 1.94 percentage point depreciation of the REER in the long-run
- ▶ One percentage point increase in net foreign assets will cause 0.04 percentage point appreciation in the REER in the long-run
- ▶ Bangladesh's fiscal deficit as a ratio of GDP leads to depreciation of the REER

# EXCHANGE RATE MISALIGNMENT

**Figure:** Actual and Equilibrium REER



- ◆ The observed real exchange rate seems to have been overvalued since 2004:Q2. For last two years from 2006, it appears that the REER is overvalued on an average 3 percent.
- ◆ **Given the low inflationary environment, there seems to have been some scope for depreciating the taka at around 3 percent**

# EXPORT PERFORMANCE AND EXCHANGE RATE.....

**Table:** Export Demand Functions (quarterly data: 2000Q1-2008Q4)—Cointegration Analysis

A. Total export to world	$x^{\text{total}} = 49.91 + 1.69 y^{\text{world}} - 13.32 \text{ tot}^{\text{world}}$ Std.error (0.375) (2.30) Chi-square (1.69) (9.60)***
B. USA Market	$x^{\text{USA}} = -0.07 + 0.02 y^{\text{USA}} - 0.016 \text{ tot}^{\text{USA}}$ Std.error (0.004) (0.0008) Chi-square (12.96)*** (1.20)
Knit Wear to USA	$x^{\text{USA-knit}} = -0.32 + 0.03 y^{\text{USA-knit}} - 0.012 \text{ tot}^{\text{USA-knit}}$ Std.error (0.006) (0.01) Chi-square (12.23)*** (1.20)
Woven to USA	$x^{\text{USA-woven}} = 0.05 + 0.01 y^{\text{USA-woven}} - 0.02 \text{ tot}^{\text{USA-woven}}$ Std.error (0.003) (0.006) Chi-square (9.67)*** (8.91)***
C. EU Market	$x^{\text{EU}} = 0.225 + 0.014 y^{\text{EU}} - 0.057 \text{ tot}^{\text{EU}}$ Std. error (0.0008) (0.019) Chi-square (9.88)*** (5.64)**
Knit Wear to EU	$x^{\text{EU-knit}} = -0.067 + 0.009 y^{\text{EU-knit}} + 0.012 \text{ tot}^{\text{EU-knit}}$ Std.error (0.006) (0.016) Chi-square (16.89)*** (0.53)
Woven to EU	$x^{\text{EU-woven}} = -0.22 + 0.002 y^{\text{EU-woven}} - 0.06 \text{ tot}^{\text{EU-woven}}$ Std.error (0.0008) (0.02) Chi-square (2.93)* (6.15)***

# REER VOLATILITY AND EXPORT (Vector Error Correction Estimates)

	Total Export	EURO AREA			USA		
	$\Delta x_t$	$\Delta x_t$ (Knit wear)	$\Delta x_t$ (Woven)	$\Delta x_t$ (Total export)	$\Delta x_t$ (Knit wear)	$\Delta x_t$ (Woven)	$\Delta x_t$ (Total export)
Error Correction Term	-0.19 (0.22)	-0.80 (0.33)**	-0.91 (0.24)***	-0.7 (0.30)**	-2.17 (0.43)***	-1.71 (0.26)***	-1.54 (0.27)***
$\Delta x_{t-1}$	- 0.43 (0.21)**	-0.03 (0.24)	0.01 (0.21)	-0.19 (0.29)	0.90 (0.30)***	0.38 (0.23)	0.42 (0.22)*
$\Delta x_{t-2}$		-0.30 (0.24)	0.81 (0.21)***	0.20 (0.24)	0.37 (0.21)**	0.55 (0.15)***	0.43 (0.15)***
$\Delta y_{t-1}$	0.51 (3.13)	-0.18 (0.22)	-0.01 (0.004)**	-0.002 (0.005)	-0.12 (0.09)	-0.12 (0.04)***	-0.13 (0.05)**
$\Delta y_{t-2}$		-0.003 (0.006)	0.004 (0.005)	0.002 (0.005)	-0.13 (0.09)	-0.15 (0.04)***	-0.12 (0.05)**
$\Delta \text{tot}_{t-1}$	2.16 (2.44)	-0.02 (0.02)	0.007 (0.01)	0.04 (0.01)**	-0.02 (0.03)	-0.02 (0.02)	0.02 (0.02)
$\Delta \text{tot}_{t-2}$		0.06 (0.01)***	-0.02 (0.01)**	0.04 (0.01)**	0.006 (0.03)	0.05 (0.01)***	0.03 (0.02)**
<b>Vol_reer</b>	<b>0.11 (0.04)**</b>	<b>0.00007</b>	<b>-0.0001</b>	<b>0.0003</b>	<b>0.000006</b>	<b>0.0002 (0.0002)</b>	<b>0.0003 (0.0002)</b>
<b>Vol_reer_USA</b>		<b>(0.0001)</b>	<b>(0.0001)</b>	<b>(0.0002)**</b>	<b>(0.0005)</b>		
<b>Vol_reer_EU</b>							
Constant	-0.08 (0.06)	0.0002 (0.0005)	0.0002 (0.0004)	-0.0003 (0.0004)	0.001 (0.001)	0.001 (0.0002)***	0.001 (0.005)

## EXPORTS and EX RATES

- Overall export from Bangladesh is found to be inversely related to international price.
- Impact of REER volatility is low but significant → Stabilization of the REER will bring more positive impacts on overall exports.
- Significant impacts of price and income are on woven and knitwear exports respectively.
- Our exports to the EU market were facing big hurdles recently— ONE reason could be the instability of the real euro.
- Exports of knitwear and woven items are expected to be less affected from current global recession due to low income elasticity



# FLEXIBLE EXCHANGE RATE SYSTEM: OPPORTUNITIES AND CHALLENGES

## Opportunities

- Independent monetary policy
- Adjustments to trade shocks
- Auto stabilizer of other real shocks
- Avoidance of speculative attacks
- Retention of seigniorage
- Boost to the export sector
- Higher GDP growth

## Challenges

- Proper management—timely decision
- Choice of proper anchor
- High ex rate volatility
- Higher inflation-- Inflation targeting policies
- External shock management
- Constant monitoring and analysis for implication of any ex. rate policy
- Accumulation of reserves
- Coordination
- Development of the financial sector



▶ **Managed Floating Ex Rate System**

*A managed floating exchange rate system with short term stability and long term flexibility might be appropriate for Bangladesh. Ex Rate should be allowed to move along the trend to certain extent, and intervention should be done to smooth the pace.*

▶ **REER Stabilization**

*The target of exchange rate management should be the REER stabilization.*

▶ **Revising REER basket**

*Since Bangladesh's most of the trades are dollar-denominated, we propose to create a REER basket of four major currencies including the US dollar, the Euro, the UK pound sterling and the Japanese yen with proper weights.*



## ▶ Stabilization of EURO

*In order to stabilize the REER, the bilateral real exchange rate of Euro must be stabilized following its movements against the US dollar.*

## ▶ Large Reserve Stock

*For managing floats, a sufficiently large stock of reserves is necessary. Therefore, exchange rate stabilization policies should be based on frequent and small adjustments rather than large and rare.*

## ▶ A Triggered Mechanism

*A triggered mechanism needs to be adopted for additional adjustments in the face of a real shocks.*

## ▶ Crisis Management

***In the face of a crisis, it is better to stabilize the NEER instead of the REER when other trading partner currencies are fluctuating against each other.***

## ▶ Constant Monitoring

***Constantly monitoring in terms of inflation, net foreign assets, government budget deficits etc.***

## ▶ Financial Development and Liberalization

***Finally, Bangladesh should work toward financial development with greater emphasis given to financial liberalization in order to sustain the managed floating regime.***



# THANK YOU



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