Supply Shocks, Inflation and Monetary Policy: Philippine Experience

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BANGKO SENTRAL NG PILIPINAS

Outline

A. Inflation: Recent trends

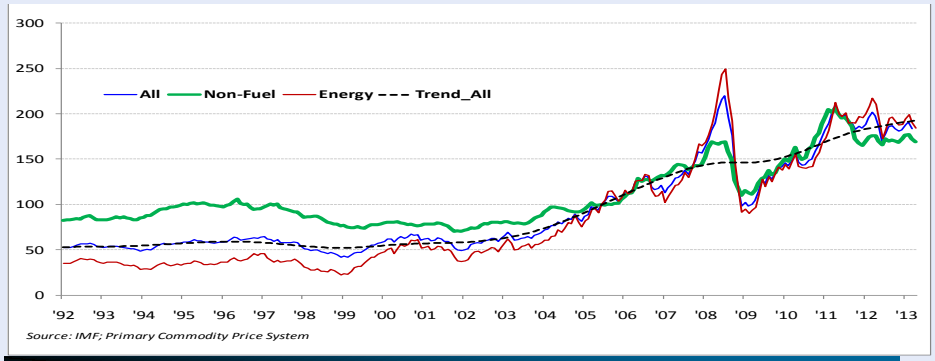
B. Dynamics of inflation

C. Monetary policy responses to supply-driven inflation pressures: Philippine experience

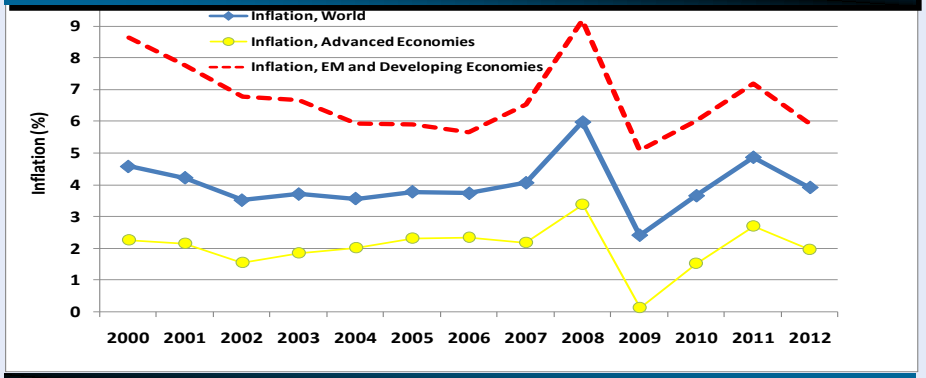
A. Inflation: recent trends

- Rise in commodity prices evident in 2000s; inflation peaking in 2008
- 2009: global commodity prices declined amid weak global activity
- 2011-2013 to-date: global commodity prices have been quite stable
- Philippine inflation dynamics broadly mirror global trends

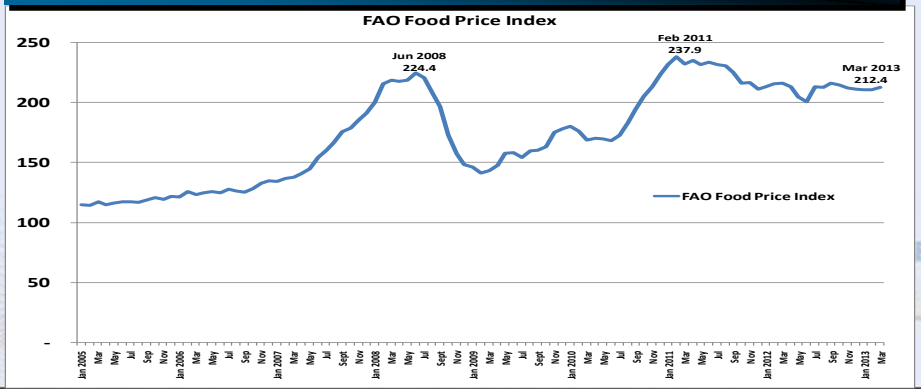
IMF Commodity Price Indices, 1992-2013



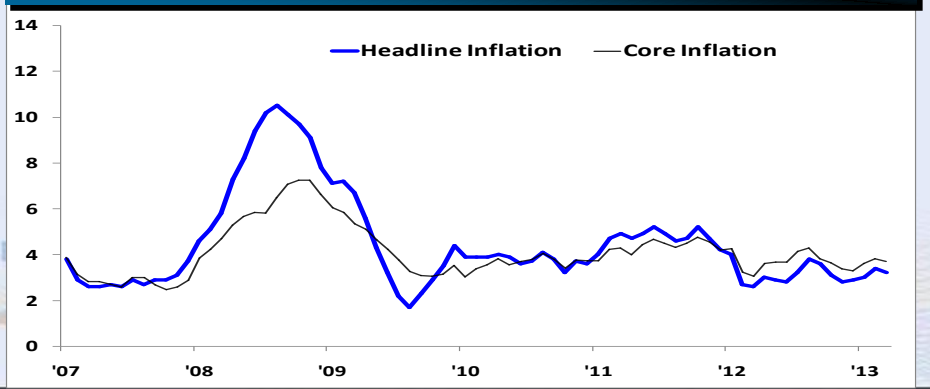
Global Inflation, 2000-2012



FAO Food Price Index



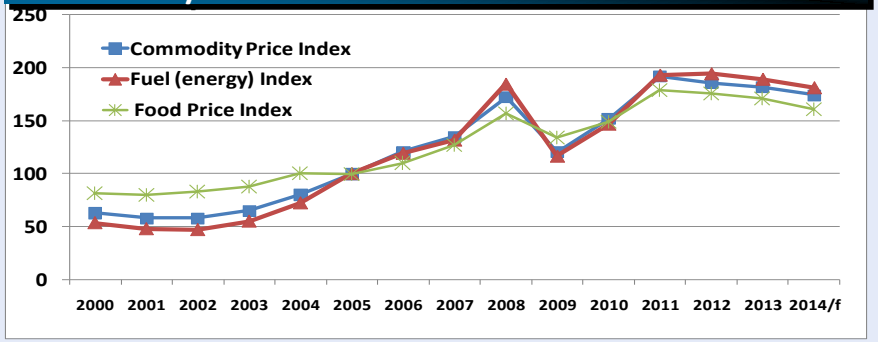
Philippines: Headline and Core inflation



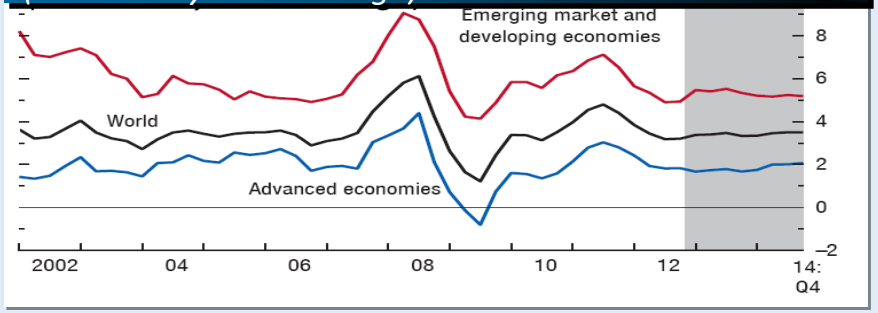
Looking ahead…

- Near-term outlook indicate broad declines in prices of major commodity groups against backdrop of weak activity and favorable supply
- If commodity prices remain benign, some CBs have policy space to support growth
- But this is an evolving situation: inflation dynamics could reverse (although not baseline scenario)

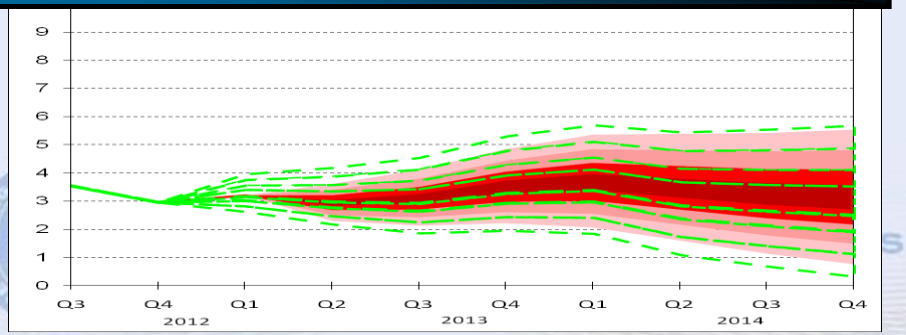
IMF Commodity Price Index 2000-2014/f



Global Inflation, actual and forecasts
(Year-over-year % change)



Philippine Inflation Fan Chart: 2013-14



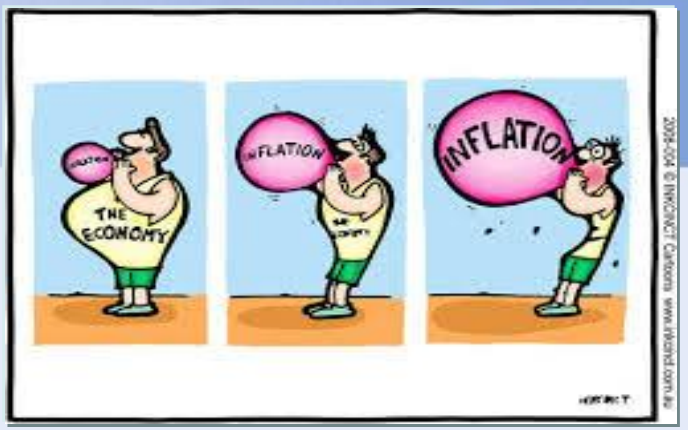
Reversal of trends: how big a risk?

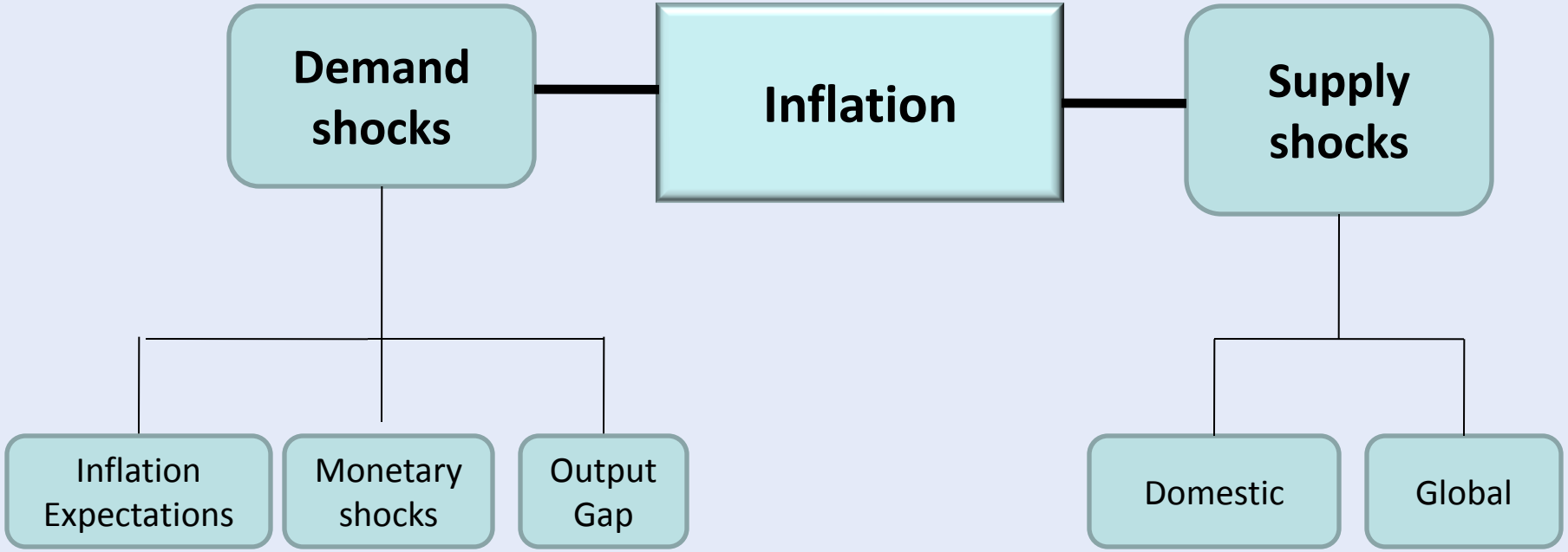
Inflation pressures can re-emerge:

- Strength of global economic expansion
- Accommodative monetary policies
- Structural and non-structural factors

Structural	Non-structural
Robust growth & strong demand in emerging and developing economies	Adverse weather patterns in major food-producing countries
Constraints to oil & agricultural production	Geopolitical tensions in oil producing regions
Financialization of commodities	

B. Dynamics of inflation





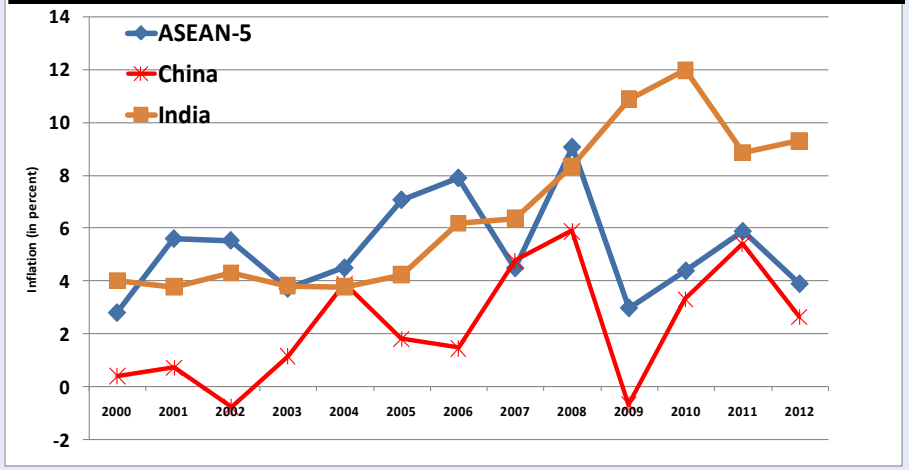
Supply shocks & inflation dynamics

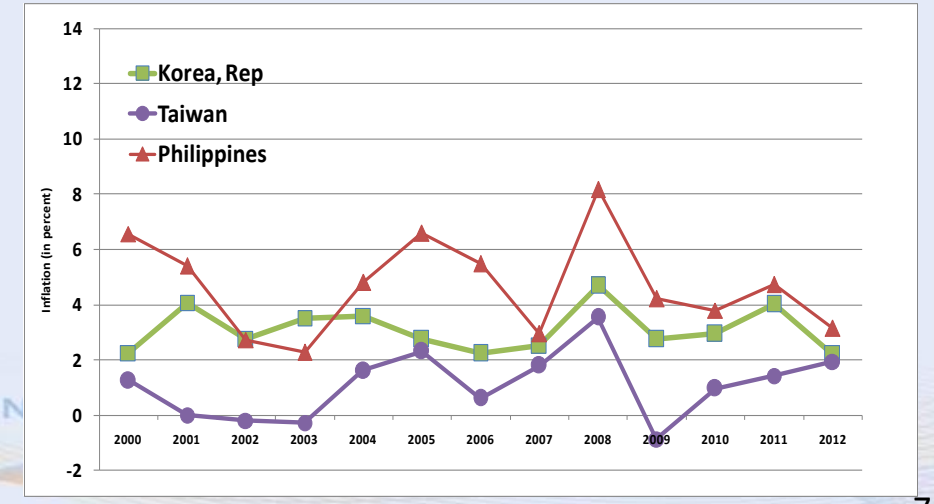
- Impact of supply shocks particularly strong where food & energy account for large share of CPI basket

Share of food & energy in the CPI basket			
		Food	Energy
China		31.8	10.0[c]
India		49.7[a]	7.6[c]
Indonesia		19.6	12.3
Korea, Rep.		12.7	10.9
Malaysia		28.9	14.9
Philippines		36.3	7.8
Singapore		22.1	15.5
Thailand		33.5	25.5[c]
Vietnam		39.9[b]	8.9

Source: CEIC, official statistical websites, Bloomberg
[a/] food, beverages and tobacco [b/]food and foodstuff
[c/]transportation and communication

Inflation 2000-2012





- Transmission of supply-side shocks to inflation varies in magnitude & timing

Magnitude

- Weight in CPI basket
- Dependence on imported oil & food
- Exchange Rate
- Fiscal subsidy

Timing

- Lag in transforming intermediate inputs into final goods

Some indicators of potential supply-side pressures

Production levels (of specific commodities)

- Global
- Domestic

Inventory Levels (of specific commodities)

- Oil
- Rice (anchor of inflation expectation in PHL)

Weather watch

- El Niño/La Niña events

Government policies

- Changes in trade policies e.g., export restrictions by major trading partners in key commodities

Enhancing forecasting techniques to account for supply shocks: some BSP tools

- Multiple equation models (workhorse models):
  - Indicators of agricultural pressure
  - Indicators of oil price inflation
  - Indicators of non-oil price inflation
  - Weather-related disturbances

- Semi-structural gap model

  -cost-push shocks embedded in the Phillips curve (include import price variable, effective exchange rate variable, international food/non-food commodity price gap)

Changing inflation dynamics

- Key inflation drivers in Asia have changed over time (REO Oct 2010)
  - Role of supply shocks has fallen while role of output gap has increased
  - Impact of monetary shocks has declined given clearer monetary objectives & flexible exchange rates
- Unlike past supply shocks in 70s/80s, recent rise in commodity prices due to shift in global demand along more steeply sloped aggregate supply curve
- Robust output growth amid rising commodity prices supports view that demand – not supply – is main driver of commodity prices
- Inflationary impact of commodity price shock could be more persistent as strength of second-round effects in Asia seems to depend on demand conditions

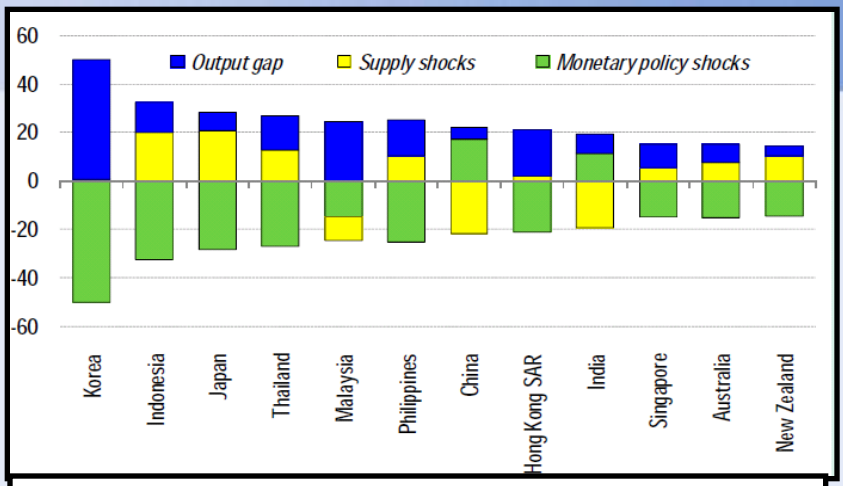
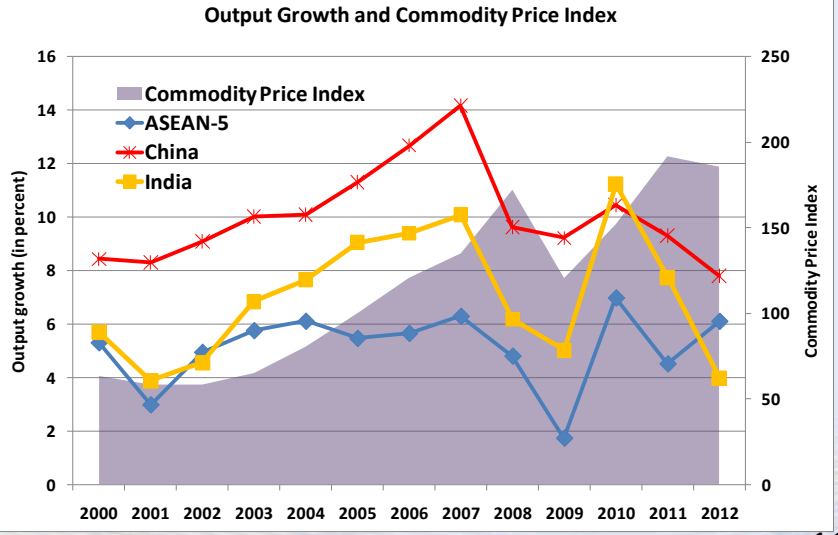


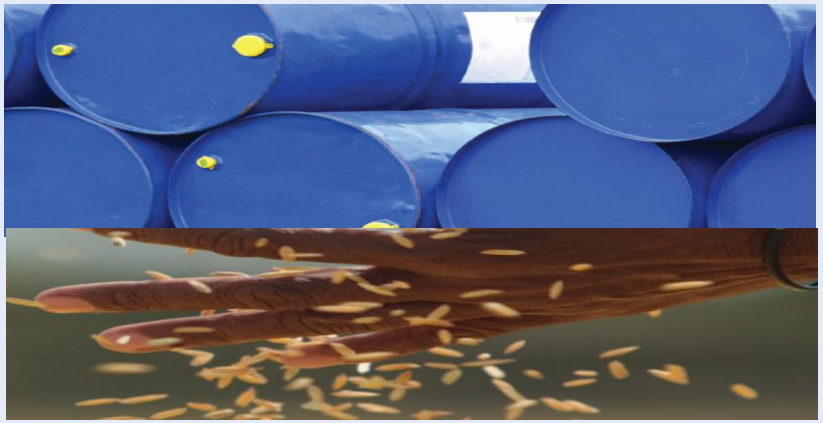
Figure 2.11 Change in the relative Contribution of shocks between 1986-99 and 2000-10. Adapted from the Asia Pacific IMF Regional Economic Outlook, October 2010. p. 46

Output Growth & Commodity Price Index 2000-2008



C. Monetary Policy Responses to Commodity-led Inflation Pressures

- More challenging for countries where commodity prices have stronger & longer-lasting effects on inflation due to high food & energy CPI shares & high pass-through from global commodity prices



- CBs typically accommodate first-round effects but respond to second-round effects to minimize impact on inflation expectations, which would be factored in wage & price-setting processes

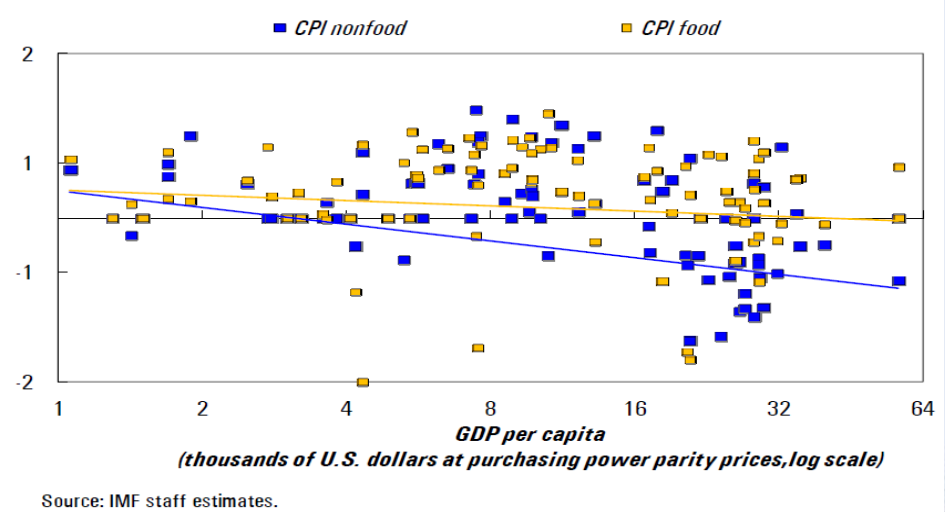
➢ Source of shock

- Demand-driven vs. supply-driven
  - Commodity price changes driven by demand factors tend to be more persistent and likely to have larger second-round effects, calling for firmer policy response
  - Global commodity price shocks may appear like external supply shocks (from domestic perspective) but could be demand-driven in nature
- Increased financialization of commodities
  - More liquidity in the system could fund use of commodities as hedging of inventory positions
  - Rising commodity prices may reflect price frothiness due to speculation associated with commodity market financialization

➢ Durability/persistence of price spikes

- Persistence of food inflation > persistence of non-food inflation
  If high volatility is accompanied by high persistence, large food price shocks will be experienced longer and can propagate to non-food prices
- Inflation persistence in both food and non-food items is larger in developing economies
- Response of non-food prices to food price shocks is stronger in developing economies

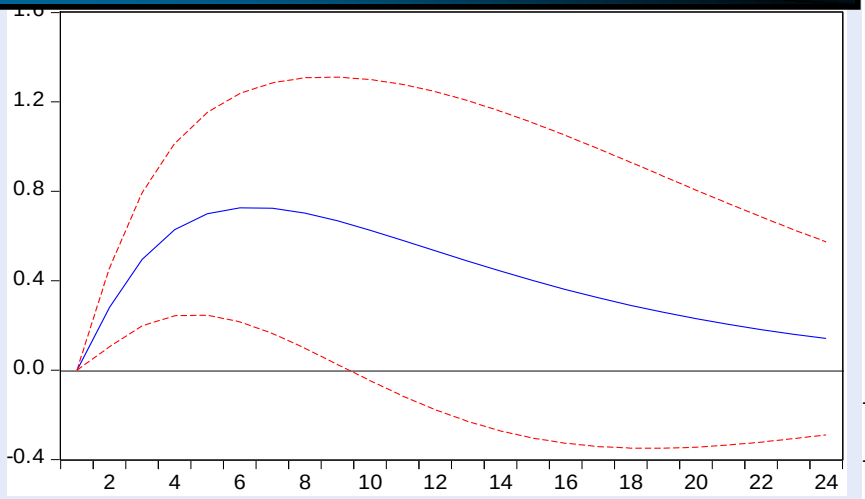
Persistence of Food and Non-food Inflation by GDP per capita, SARC measure



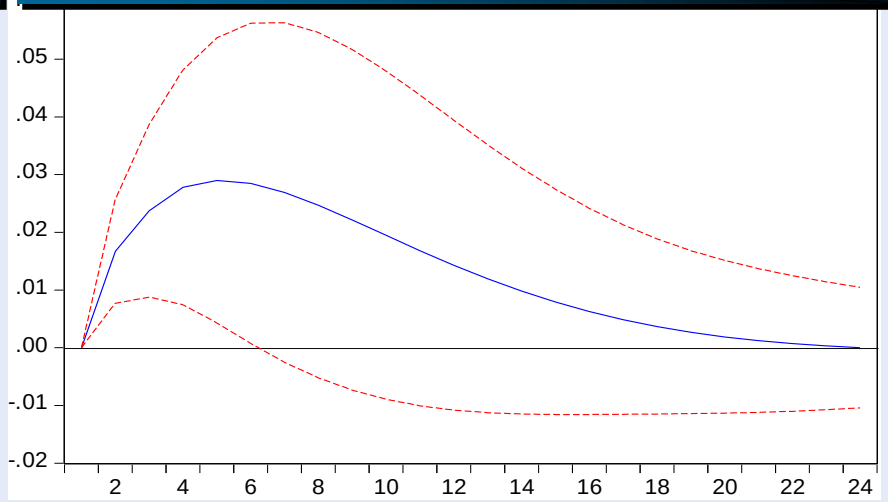
Source: IMF staff estimates.

- For Philippines, tests of persistence show commodity inflation tends to be protracted, with food inflation more persistent than fuel inflation

Response of Inflation to 1 ppt Shock to Food Inflation



Response of Inflation to 1 ppt Shock to Fuel Inflation



- Persistent commodity price swings are likely to be propagated in inflation expectations

- Increases in world fuel prices figure prominently in Filipino consumers' inflation expectations
- Same holds true for rice prices

Dependent Variable: INFEXP		
Variable	Coefficient	T-statistic
C	2.1075	2.8748 ***
INFEXP(-1)	0.6508	7.4212 ***
INF(-12)	0.0511	3.4561 ***
INFTARGET	0.1880	3.1500 ***
REALPOLICYRATE	-0.1020	-4.2213 ***
REER	-0.0221	-4.7860 ***
FAO FPI	-0.0033	-1.1796
DUBAI OIL (-2)	**0.0108**	**2.8755 *** **

*** Significant at 1% level

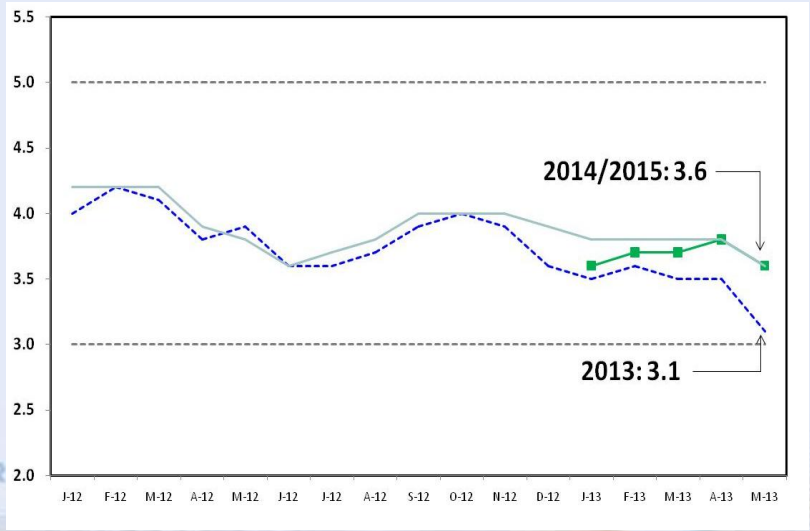
Pass-through/second-round effects on wages & prices

- Prolonged surges in food & energy inflation can spread to other goods & core inflation

Surveillance of second-round effects on inflation

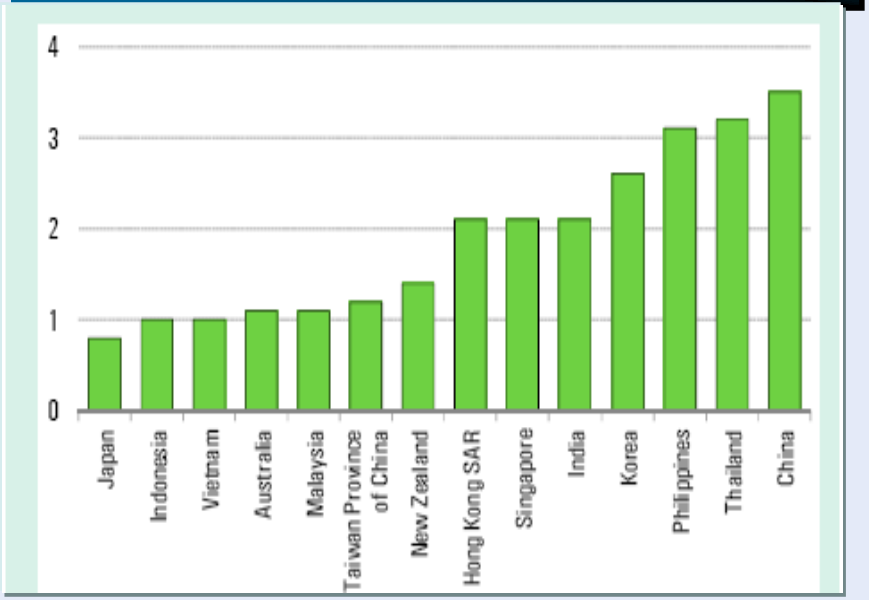
- impact on wage-setting behavior
- impact on transport fares
- consumer expectations
- business expectations
- private sector survey on inflation expectations

BSP Private Sector Economist
Mean forecast for full year, in percent



- Strength of second-round effects in Philippines/Asia appears to depend on demand conditions

Asia: Pass-Through from Global Energy Prices (in percentage points)



Asia: Pass-Through from Output Gap to Core Inflation (in percentage points)

	Estimated coefficients (1991:Q1–2010:Q2)[1]	
	Output gap	Interaction dummy of output gap with commodity price inflation
Australia	0.15 *	0.04 *
China	0.08 *	–0.04
Hong Kong SAR	0.02 *	0.40 *
India	0.37 *	0.31 *
Indonesia	0.36 **	0.10
Korea	0.19 **	0.12 **
Malaysia	0.02 **	0.02 *
New Zealand	0.29 **	0.22 **
The Philippines	0.07 *	0.38 *
Singapore	0.06 *	0.00
Taiwan Province of China	0.03 *	0.08 *
Thailand	0.04 *	0.10 *
Average	0.14	0.14

Source: April 2012 IMF REO

Credibility of CB in combating inflation

- Flexibility to undertake countercyclical MP with less output variability depends partly on CB credibility
  - If policy credibility is strong, only small adjustments in monetary policy needed as price setters are confident about inflation-fighting credentials of CB
  - If policy credibility is weak, inflation expectations could be dislodged by news of commodity price pressures
- CB communication is important tool in responding to commodity price pressures

  Good transparency practices in policy assessment and thinking behind MP actions aid in anchoring expectations

Coordination with other government agencies is a key response to supply shocks

In the Philippines, some agencies involved in supply-side/production related issues:

- National Price Coordinating Council
- Department of Trade and Industry
- Department of Agriculture
- National Food Authority
- Department of Energy

Corollary issue: headline vs. core inflation

- Most CBs set & communicate monetary policy via headline inflation
  - Easier for public to appreciate as its concern is stability of goods prices in whole consumption basket
  - Price index used for policy purposes, e.g., fiscal budget plans & administered wages
- Ignoring spikes in headline inflation & focusing on core inflation can cause inflationary pressures to build; second-round effects can increase & CB's credibility can weaken given lags in policy response
- For many countries in Asia, core inflation has tended to follow headline inflation suggesting that overall inflationary impact of changes in commodity prices has been persistent (October 2010 IMF REO)
  - Philippines: Granger causality test shows that change in headline inflation can influence change in core inflation with some lag
- However, by focusing on core inflation, CB avoids responding to transitory shocks & thus avoid overreaction that induces large output costs

- Failing to properly consider prolonged spikes in headline inflation due to food & energy inflation can cause MP actions to be reactive
- CBs need to act decisively & pre-emptively to ease impact of lingering inflation & output costs

Message: Policymakers need to look at both headline & core inflation as key reference indicators for the conduct of monetary policy.

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