

# Should Monetary Policy Lean Against Asset Price Bubbles in Singapore?



Chow Hwee Kwan

Singapore Management University

Joint work with Choy Keen Meng  
Nanyang Technological University



# Motivation

---

- In the recent global financial crisis, the unchecked asset price bubbles were followed by a sudden collapse that led to financial turmoil & economic recession.
- These events revived questions about the appropriate policy responses during asset price booms:
  - 1 Is the pre-emptive tightening of monetary policy effective in limiting asset price bubbles?
  - 2 What are the costs associated with deflating a bubble in terms of slower economic growth & higher unemployment?



# Presentation Outline

---

- Two opposing views on the usefulness of monetary policy in containing asset price bubbles.
- Econometric methodology applied to Singapore data for an empirical investigation of this issue.
- Impact of a monetary policy shock on our residential property & stock price indices; as well as on economic output.
- Policy recommendations.

# Bubble Debate: To Prick or Not To Prick?



---

# Arguments Against Pre-emptive Leaning

- A bubble is characterized by a misalignment of an asset price
  - resulting from sharp increases not fully justified by fundamentals
  - but are caused by speculative activity, &
  - occurs mostly in periods of easy credit & high leverage.

## 1 Bubbles are difficult to identify:

No clear criteria for determining the level of asset price consistent with fundamental value. How do we estimate deviations to lean against?

# Arguments Against Pre-emptive Leaning

---

- 2 No “safe popping” with blunt tool of monetary policy:  
“I know of no instance where incremental monetary policy has diffused a bubble” Greenspan (2009)  
Given expectations of further increases in any rising asset price, the severe policy tightening required is disruptive for the real economy.
- 3 Too many objectives to be achieved by a single tool:  
Asset price fluctuations that don’t affect inflation within the CB’s forecast horizon should be ignored.  
Bernanke & Gertler (2001), Kohn (2006)

# Arguments For Pre-emptive Leaning

- 1 CB should extract information provided by asset price developments on the outlook for output & inflation in the medium term such as in a forward-looking flexible inflation targeting framework.

Cecchetti (2003) & Bean (2003)

- 2 Proactive monetary restriction as an insurance against the risk of real & financial disruption induced by a later bust. Uncertainty on sustainability of the boom is not per se a reason for inaction, no more than a homeowner needs to be certain his house will burn to take some fire insurance.

# Arguments For Pre-emptive Leaning

- 3 No need to calculate with accuracy fundamental value of assets: it suffices to be able to say that some developments seem significantly out of line with what the fundamentals might suggest.
- 4 Not leaning is even more harmful to the economy:
  - Rescuing the markets after the crash creates a moral hazard problem that exacerbate bubbles.
  - Tightening policy in upturn moderates severity of subsequent downturn.
  - Possible that credible statements of official concern & determination to act would already change private behaviour in a more stabilizing direction.

# Quote from Finance Minister Tharman Shanmugaratnam

- The recent crisis has shifted the dominant view from benign neglect to leaning against asset price booms.

“Bubbles occur frequently... They are prolonged, & can cause considerable economic damage when they burst. Bubbles & the mis-pricing of risk are not exceptional events, but part of the regular functioning of the financial markets.

But the lesson of the crisis must be that it is better to put the brakes on a credit-driven bubble, & accept that this can be done only imperfectly, than not to do so at all.”

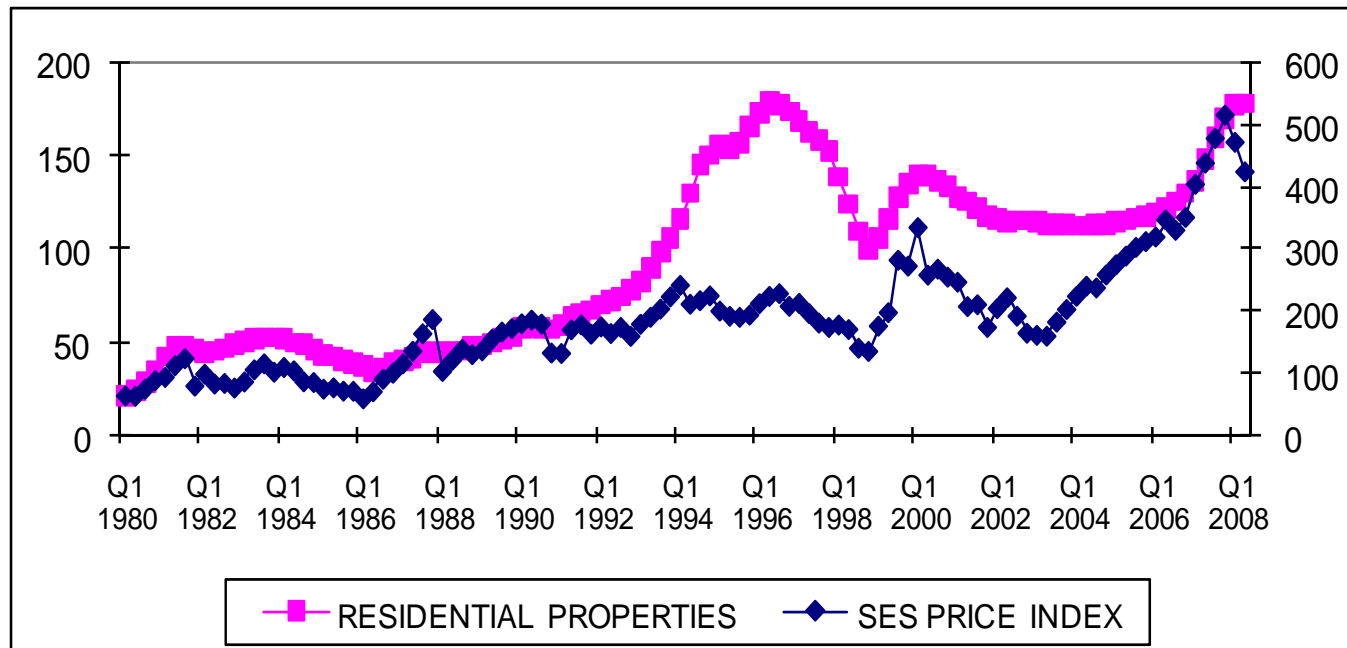
*The Straits Times, 21<sup>st</sup> Sept 2009*



---

# Data & Methodology

# Singapore Residential Property Price Index & Stock Exchange of Singapore Price Index



qoq growth rates (%) of	Mean	Minimum	Maximum
House prices	1.9	-12.6	21.6
Stock prices	1.7	-58.2	35.2

# House Price & Stock Price Cycles



- Upturns in house prices coincide with rapid economic growth & liberalization of housing finance sector (CPF regulations).
- Downturns in house prices coincided with economic recessions or implementation of anti-speculation measures (direct credit controls).
- Swings in house prices also partly attributed to rise & fall of foreign investor interest in local property market.
- Stock price cycles are related to the business cycles & the ebb & flow of foreign portfolio investment in local stock market. <sup>12</sup>

# Singapore Monetary Policy

## Framework

---

- Since 1981, MAS adopted an exchange rate centered monetary policy framework by managing the Singapore dollar under a basket-band-crawl system.
- Managed float system that allows various forms of adjustments to the Singapore dollar such as re-centering the policy band & a change to the slope of the crawl.
- Highly open & trade dependent nature of the economy means exchange rate is an effective tool in controlling inflation.
- Lack of control over interest rates due to our openness to capital flows & a very liberal policy towards FDI.



# Large Panel Data Set

Panel dataset of domestic (89) & foreign (33) variables that are typically monitored by central banks:

- GDP & its components
- Gross value-added by sectors & sectoral indicators
- Trade series
- General price indices
- Labour market variables
- Monetary and financial series
- Foreign GDP, CLI & asset prices of major trading partners
- US technology cycle index; World oil price and global consumer prices



# Factor Model

---

- A factor model views all macroeconomic fluctuations as being driven by a small number of common shocks.
- The factor model is estimated using principal components analysis & 3 dynamic factors are identified using the Bai & Ng (2007) procedure.
- By incorporating these factors in the analysis, we adequately account for the information tracked by the CB while avoiding a proliferation of parameters.

# Factor Augmented VAR Model

- Apart from the 3 dynamic factors (exogenous variables), the FAVAR model used to trace Singapore's monetary transmission mechanism includes the qoq growth rates of:
  - 1 Real activity (gdp)
  - 2 Conventional price variable (cpi)
  - 3 Private residential property price index (hp)
  - 4 Stock Exchange of Singapore price index (sp)
  - 5 Nominal effective exchange rate, the monetary policy instrument defined so that an increase is an appreciation (twi)



# FAVAR Model Identification

---

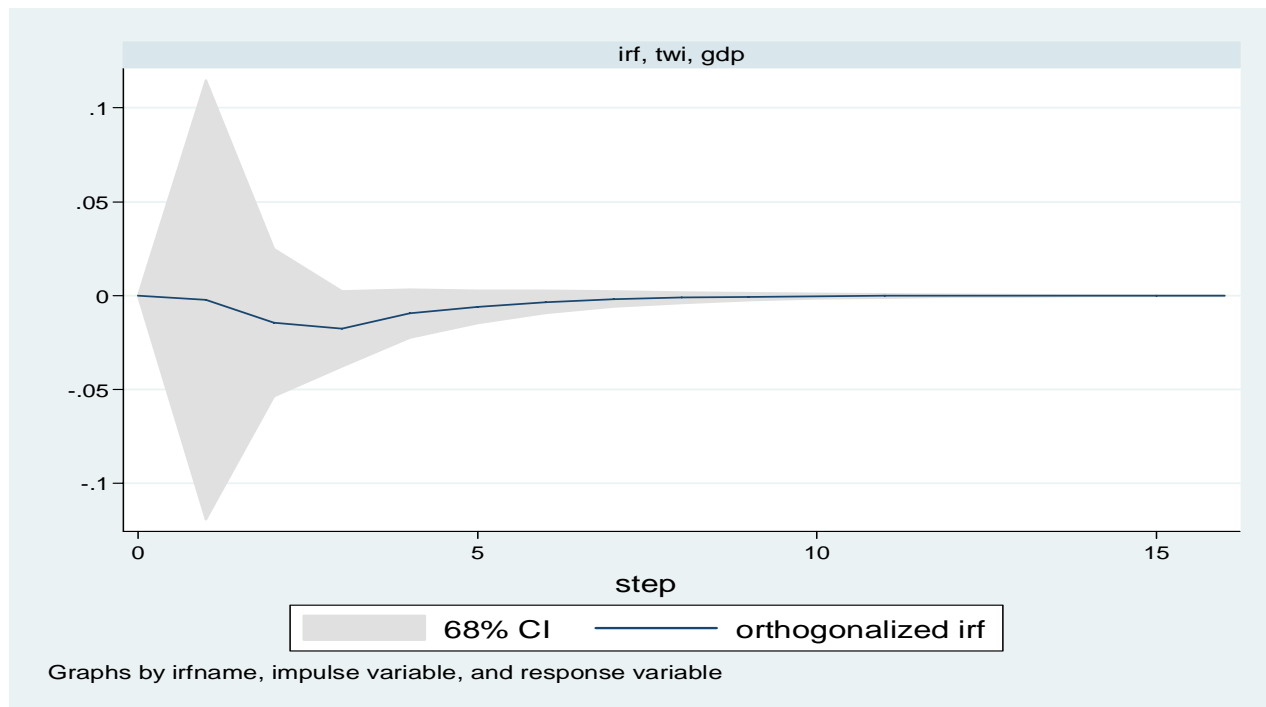
- Based on information criteria, we estimated a FAVAR model of lag 1.
- Causal ordering as determined by their level of exogeneity is gdp, cpi, hp, twi, sp. Order of exchange rate implies that output, consumer prices & house prices respond sluggishly to unanticipated policy shocks but stock prices react contemporaneously.
- Examine impulse response functions of variables to a 1 standard deviation appreciation, corresponding to a 1.2% rise in the qoq growth rate of twi.



---

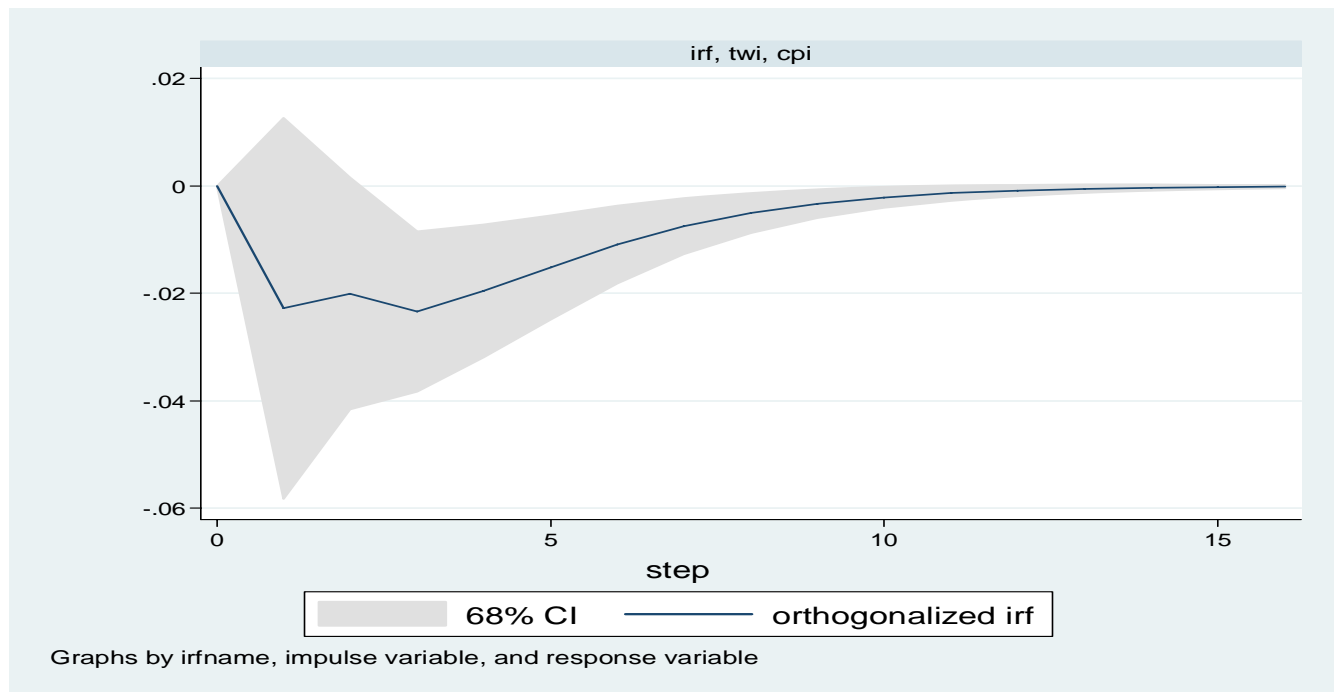
# How Potent is Monetary Policy in Curtailing Asset Prices?

# Impulse Response Function of GDP to a TWI shock



Negative but insignificant response from output growth. Contractionary effect is traced to a reduction in exports through a loss of competitiveness.

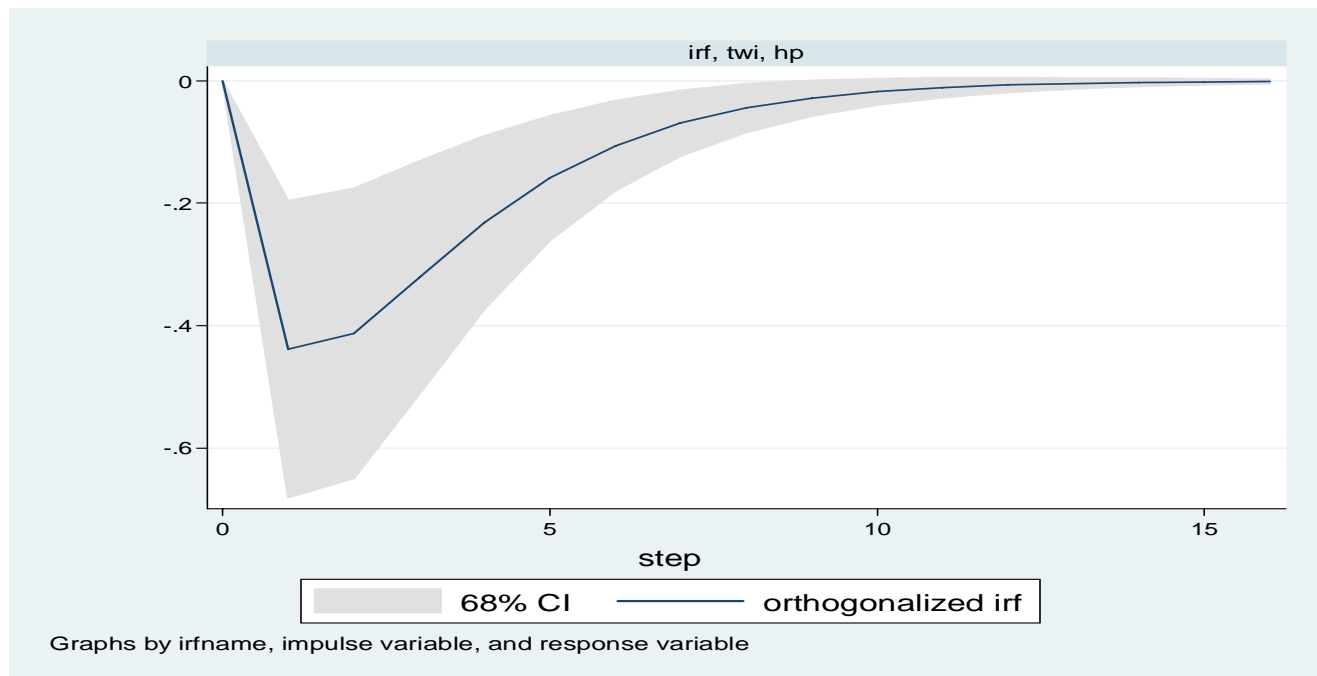
# Impulse Response Function of CPI to a TWI shock



Statistically significant fall (-0.02%) in inflation.

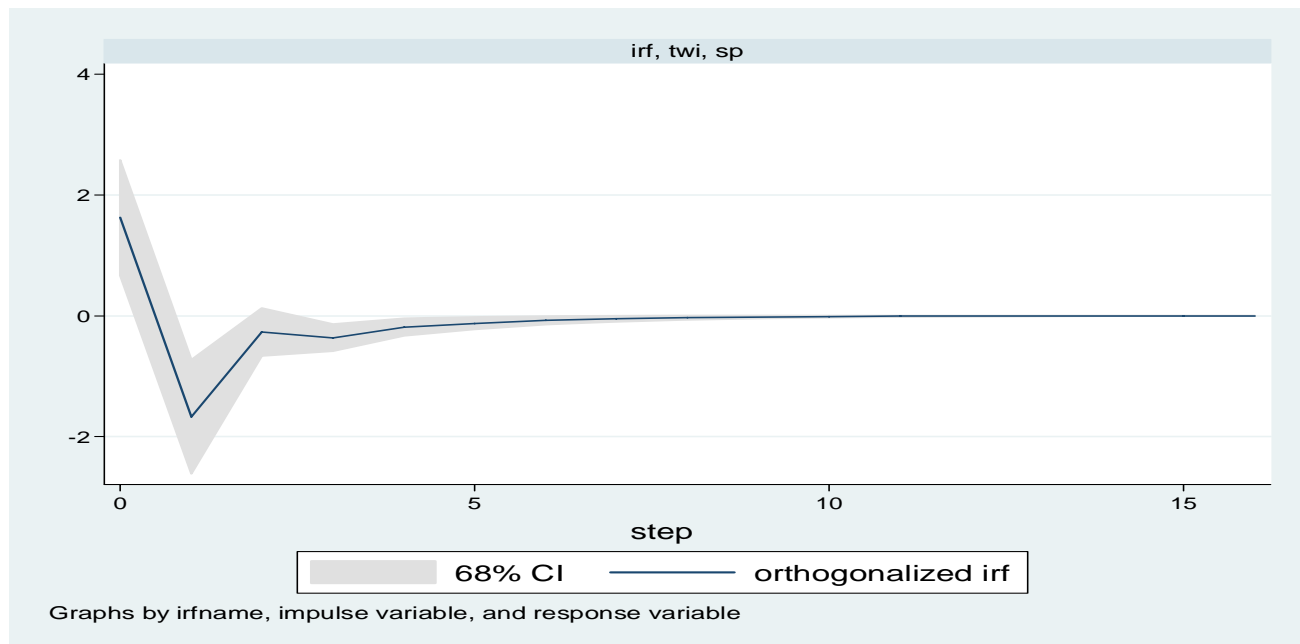
Deflationary impact: direct channel of lower imported inflation & indirect channel of reduced exports easing domestic cost pressures.

# Impulse Response Function of HP to a TWI shock



Immediate & substantial decline (-0.4%) in house price inflation.  
Relatively large & protracted response suggest influence of  
monetary policy over property prices.

# Impulse Response Function of SP to a TWI shock



Immediate & pronounced drop (-1.7%) in stock price growth.  
 Appreciation discourages financial portfolio inflows.  
 Both asset prices fall by a much greater extent than output growth & consumer price inflation.



# Conclusions from Findings

---

- Impulse response functions are broadly consistent with conventional results on the effects of monetary policy.
- It appears plausible to tighten monetary policy to dampen asset prices since the FAVAR analysis reveals that both house prices & stock prices are significantly influenced by exchange rate disturbances.
- This can be done without substantially depressing output or causing deflation since the growth rates of asset prices fall by a much greater extent than the declines in output growth & inflation.



---

# Policy Recommendations



# When Not to Lean?

---

- CB should not routinely target the price of assets in normal times. Rather, policymakers need to be discerning:
  - 1 if increases in asset prices can be attributed to productivity changes, interventions may not be warranted.
  - 2 if surges in asset valuations are concentrated in selective sectors, direct prudential policy is more appropriate.



# When to Lean?

---

- Linkages between asset prices, financial instability & monetary policy are complex as they involve tail probability events.
- CB needs to take a stance that involves some judgment over the probability of extreme events.
- Circumstances that warrant pre-emptive monetary restriction not deduced from macroeconomic indicators but involve imbalances in the balance sheets of the private sector & market expectations.



# When to Lean?

---

- While the buildup of risks can be mitigated by regulatory & other policies, there is no reason to believe that only these other policies should bear all the burden of adjustment.
- Financial instability is endogenous to monetary policy: Severity of financial crisis (unlike earthquakes) is determined by imbalances that have buildup in the boom phase, which in turn depends on the stance of monetary policy.
- Need for monetary policy to work in tandem with financial policies on regulation, particularly to reduce the procyclicality of credit cycles.



---

**Thank You**