Monetary Policy in the 21st Century: Challenges and Prescriptions.

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*These are my own personal views and not necessarily those of the Federal Reserve System.

Motivation

- The 21st Century has marked a turning point for the conduct of monetary policy.
- To understand how signification the changes have been it is perhaps useful to review some orthodox views from the end of the last century about monetary policy and financial regulation.

Orthodox views about Monetary Policy in 1999

1. Monetary Policy is a highly effective tool for macroeconomic stabilization.
2. The way to stabilize the macroeconomy is to manipulate a narrow short-term overnight interest rate to produce a stable inflation rate of about 2 percent.
3. The Great Moderation demonstrates that this policy is so effective that business cycles are largely a relic of the past.
4. Inflation risks are asymmetric. The biggest risk facing central bankers is the risk that expectations become unanchored and high inflation results.
5. Currency pegs always fail. The Asia crisis could have been avoided if e.g. Thailand had never tried to control the exchange rate.

Orthodox Views About Lender of Last Resort in 1999

- The risk of a financial crises in the U.S. and UK is very remote.
- Commercial banks are well regulated and deposit insurance means that the risk of a bank run is remote.
- Markets for the provision of other financial services are highly competitive and light regulation of investment banks, life insurance companies and other financial intermediaries is appropriate.
  - Competition encourages innovation and growth.
  - Private arrangements for dealing with failure (changes in management, M&A, bankruptcy) are adequate for incentivizing shadow banks to do the right thing.
- Fear of contagion. Decision of the NY to orchestrate a bailout of LTCM in 1998 rather than to let it fail established a precedent that proved unsustainable.

Japan's Experience Was Special and Not Viewed as Relevant for the U.S. or Europe.

- The excesses of Japan's bubble economy and the banking problems that followed reflected weak regulatory oversight.
- Japan's experience with deflation and slow growth reflected:
  - A reluctance on the part of the monetary authority to grow monetary base enough. (The Quantity Theory of Money is well and alive.)
  - A breakdown in the monetary transmission mechanism due to delays in recapitalizing and restructuring banks.

Enter the 21st Century

- Great Moderation has been replaced by a Great Recession or perhaps a Great Stagnation?
- Biggest concern of central bankers is preventing deflation.
- Massive increases in monetary base have little or no effect on the price level.
- Central bankers are discovering that it is considerably more difficult to stabilize the economy when the policy rate is zero.
- Exchange rate management is back in fashion (Switzerland).
- Fear of contagion and bank runs is even more pronounced now than in 1998.

Plan For my Talk

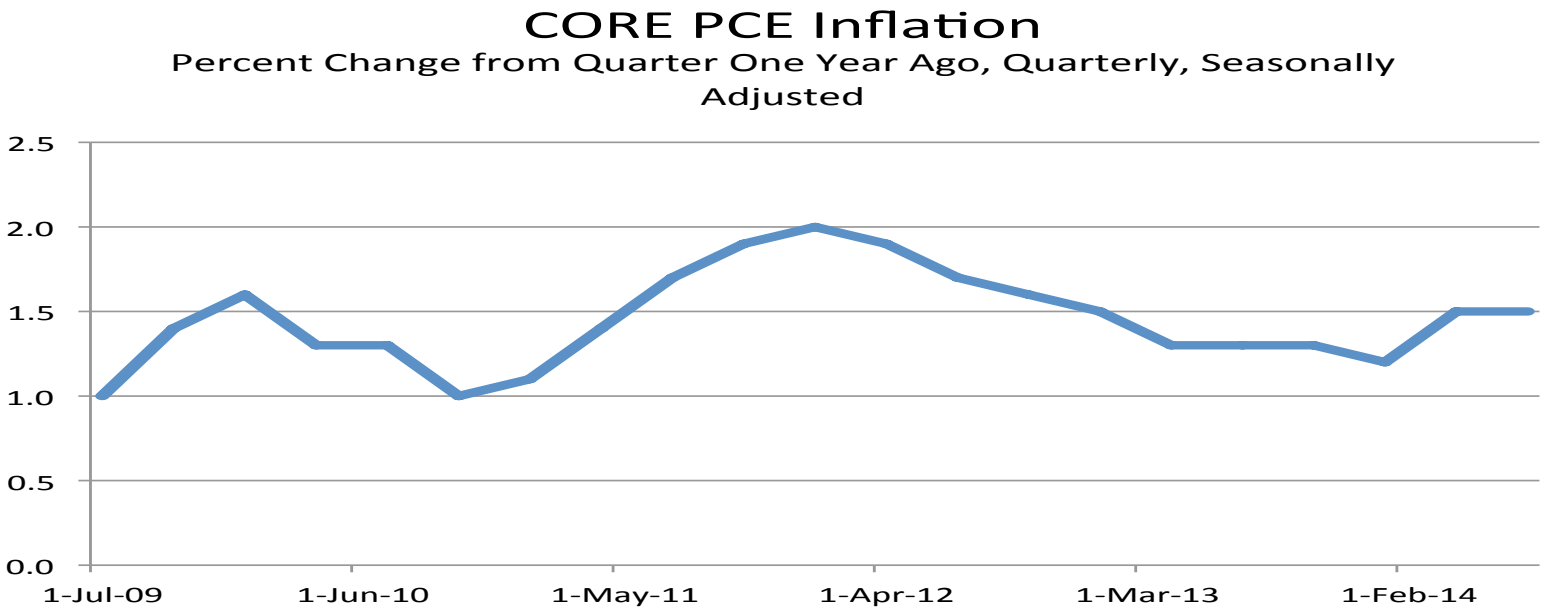
- Start with a discussion of the U.S.
  - Monetary Policy
    1. When to exit.
    2. How to exit.
    3. How to conduct monetary policy post exit.
  - Regulation of financial Intermediaries
    1. Mitigating the risk of bank runs in formal and shadow banking sector.
    2. Too big to fail.
- I will then make some general comments about recent developments in other countries.

US Current Developments

Liftoff decision guided by Dual Mandate

- Employment
  - Ample and broad-based evidence of steady improvement in employment conditions in 2014.
  - Conventional measure of unemployment has fallen from 6.7 percent in Dec. 2013 to 5.8 percent in Nov. 2014.
  - Reasons for caution.
    - Broader-based U-6 unemployment rate which, includes those working part-time for economic reasons and marginally attached, is still high (11.4 percent).
    - Employment relative to working population is also depressed.
    - 70.6 percent in October 2006
    - 68.8 precent in October 2014
    - Gap is 3.7 million working-aged people.

US Current Developments: Inflation



- Inflation: In January 2012 FOMC set a long run target of 2% inflation.
  - For past two years inflation has been well below this target.

A Conundrum

- Developments in labor market suggest real economic growth is above long run trend.
- Yet prices are not showing much evidence of firming.
- This combination of low unemployment and low inflation is puzzling.
- The FOMC has been specific that its decision on the timing of lift-off will be data dependent.
- Any case for liftoff in 2015 will require either a coherent narrative for the puzzling data on unemployment and inflation or a resolution of the conundrum as new data arrives.

How Will U.S. Liftoff Occur?

- Interest Rate on Excess Reserves (IOER) is the policy new instrument.
- Exit will be effected by raising the IOER.
- This allows the Fed to normalize policy in a way that sterilizes the size of its balance sheet.
  - A higher IOER increases the return from depositing excess reserves at the FED.
  - This in turn raises the reservation interest rate that a bank requires to lend reserves in Federal Funds (FF) market.
  - A higher IOER will be associated with a higher FF rate.

FF Rate Puzzle

- Previous logic implies that the IOER provides a floor for the FF rate. But, right now IOER is 0.25% and FF rate is at about 0.12%.
- Question: How much will IOER have to go up before FF rate rises?
- No arbitrage arguments suggest that FF (and other market rates) will rise with IOER.
- Transactions costs with arbitrage. At very low rates these transactions costs can be significant.
- If FF rate does not move up with IOER, reverse repo operations can be used to provide a more effect floor on the FF rate.

Fed Reverse Repo Operations

- NY Fed has been experimenting with reverse repos since September 2013.
- Fed sells U.S. Treasuries and promises to repurchase them at a future date at a pre-specified price.
- Can think of the Fed as offering a deposit rate for cash to qualified counterparties.
- Broader set of counterparties than FF market:
  - Banks and Savings and Loan Associations
  - Government Sponsored Enterprises
  - Money Market Funds
- In principal, demand can be very high.
- Size of Reverse Repo operations is currently capped at $300 billion per day.

Post Lift-Off Issues

- In an ideal world the FF rate would rise above the IOER after liftoff and live in a corrider that is determined by the IOER and Discount Window Lending rate.
- This won't happen until reserves are drained to the point where excess reserves disappear.
- It could take many years for this to happen.
- In the meantime the Fed will be implementing its interest rate policy by offering interest earning deposits to banks and other financial intermediaries if the reverse repo facility is heavily used.
- This is costly and will result in lower remissions to Treasury.
- Marvin Goodfriend of CMU has a provocative discussion of this issue.

U.S. Financial Regulation: Guided by Concerns about Bank Runs and Contagion

- Regulators are very focused on shadow bank bank runs.
  - In 2007 breakdown in the tri party repo market and Reserve Primary Fund breaking the buck are perceived to have played a central role in creating and propagating the financial crisis.
  - Prime institutional MMFs will have mandatory net asset values and redemption gates from 2016.
  - Concerns that if reverse repo operations by FED are not capped, this could increase the risk of bank runs by MMFs.
  - Fed is a safe haven for cash in times of financial market duress.
  - Large counterparties including: companies, hedge funds and etc. are being told by banks we don't want your deposits!
  - From Jan. 1 banks will have to hold reserves ranging from 40 - 100 percent for large deposits that are considered to be "hot."

Too Big to Fail

The costs of being labeled a Systemically Important Financial Intermediaty SIFI (too-big-to fail) are large and increasing.

1. International accord to impose capital surcharges of SIFI of 2.5%. Peak surcharges in U.S. could be as high as 4.5 percent for those heavily reliant on short-term wholesale funding.
2. Stress testing is a very time consuming and costly process.
   - SIFI's submit capital plans and illustrate that that capital ratios remain above regulatory thresholds under severe stressed scenarios produced by the Fed and developed in house.
   - Stress tests have bite. If the capital plan is rejected dividends can not be paid.

Pushback Against New Regulations

- Regulatory reforms of MMFs were narrow. Lots of MMFs will continue to promise a NAV of 1 dollar.
- Dodd-Frank "Prohibition Against Federal Government Bailouts of Swaps Entities" is about to be removed.
- Swaps and derivative trading desks will be allowed to trade in OTC products in entities that have FDIC protection.

Prescriptions for Monetary Policy in the 21st Century

- Situation in Europe and Japan is distinct from U.S.
- Real economic growth is anemic or negative.
- Inflation is much further below target and falling.
- Three policy responses.
  1. Negative policy rates
  2. Managed exchange rates.
  3. Loans to banks.
  4. QE

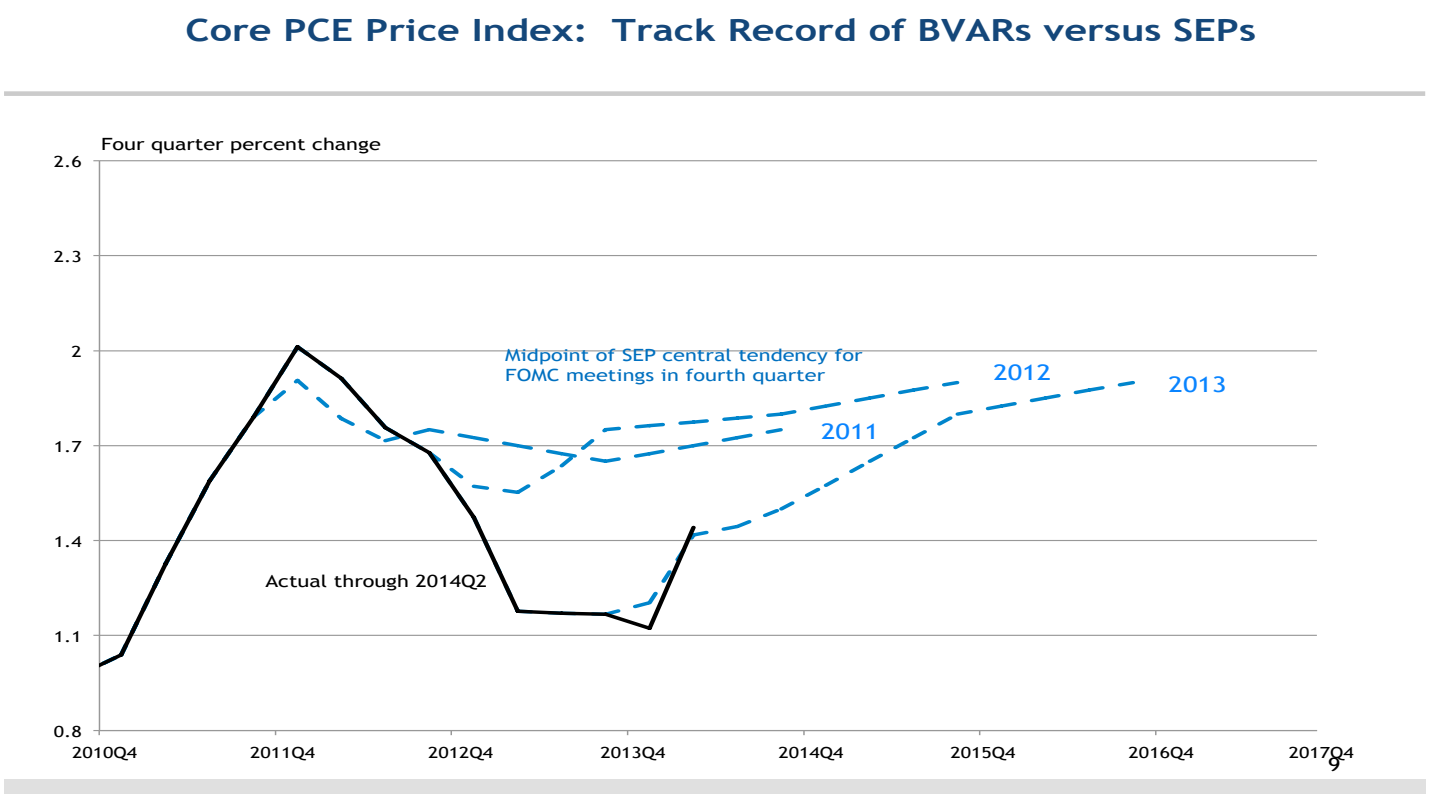
Negative Interest Rates

- Denmark, ECB and SNB have all set policy rates negative.
- Two rationales:
  1. Ease Monetary policy.
  2. Lower excess reserves.
     - Market rates are close too or on the floor of the corridor.
     - Lowering the floor is the more effective then lowering the ceiling.
- Limits on how negative you can go. People and banks can keep cash underneath their mattress instead.
- Rogoff has a solution. Ban large denomination notes.
- Replace of e-payment systems that are run preferably by the central bank.
- This allows the central bank to make interest rates more negative.

QE

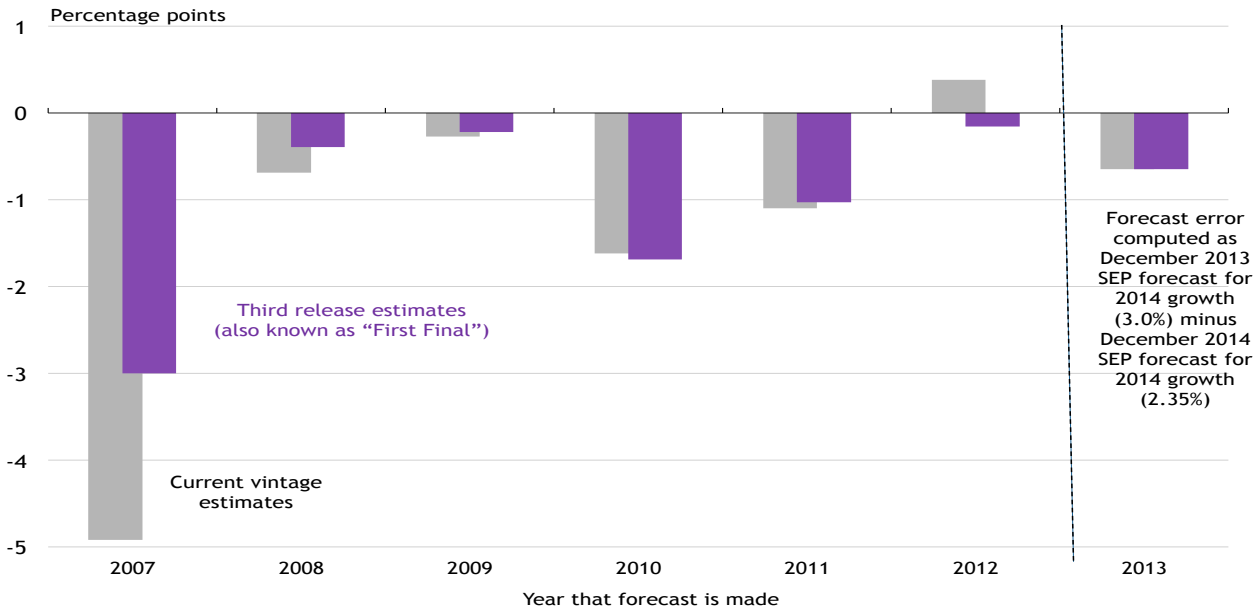
- Japan large scale asset purchases of government debt, RIETs and ETFs.
- Surprise factor wears off.
- Open ended purchases are constrained by available supply of the asset.
- Transmission to price level is indirect.

Q.E. not as potent as FOMC Anticipated: Inflation Forecast Errors



Q.E. not as potent as FOMC Anticipated: GDP Forecast Errors

Forecast errors of 1-year ahead GDP growth projections from midpoint of central tendency of FOMC economic projections made in the fourth quarter of each calendar year



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Irrelevance of Open Market Operations at Zero Bound

- Why hasn't Q.E. been more effective?
- Important difference between QE and Friedman's helicopter drops of money.
- Neil Wallace provided a theoretical argument in 1981 for why this might be the case.
- Woodford has recently revisited this issue and shown that the Wallace argument is reasonably robust.
- Financial frictions mean the Wallace result will not hold exactly.
- Other extenuating factors.
  - Neither QE nor negative policy rates can force banks to lend.
  - New regulatory restrictions on banks make it more costly for banks to lend!

Forward Guidance: Theory

- Woodford argues that the best way for a central bank to stimulate the economy when interest rates are zero is to pre-commit to a future course of action.
- Example: Suppose a central bank closed its doors for business and posted a sign on the door that stated we will open again for business once the inflation rate hits three percent. If the public believed what was written on the sign this would stimulate the economy.
- Why? the central bank is promising not to tighten monetary policy at the first sign of inflation. People anticipate easy monetary policy in the future and this affects their decisions today.

Forward Guidance in Practice

- Recent actions by the Fed, ECB, Bank of Japan and other banks can be interpreted as efforts to pursue this suggestion. Some specific examples that we have seen:
  - Promises by central banks to keep the interest rate at zero until the inflation rate and/or unemployment rate hit particular threshold values.
  - Promises to pursue open ended purchases of government debt and other purchases until the inflation rate hits 2 percent.
- The credibility and thus effectiveness of these measures can be assessed by comparing them with the example I gave above.

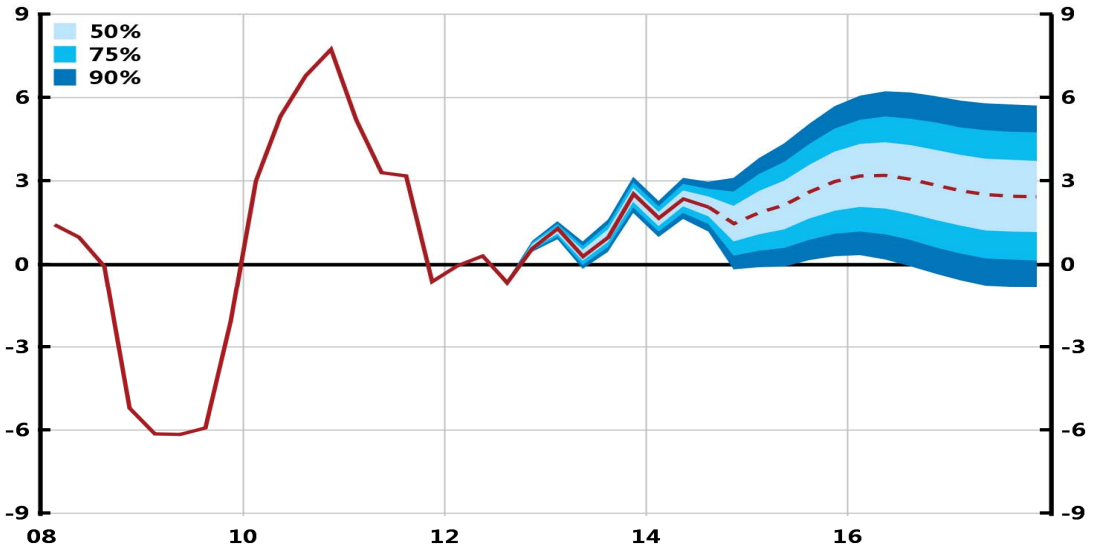
Real Estate Booms and Macroprudential Policy

- Confronting booms in real estate prices.
- Sudden collapse of real estate prices has strong negative effects on the economy.

Sweden:GDP Growth

Figure 2. GDP with uncertainty bands

Annual percentage change, seasonally-adjusted data



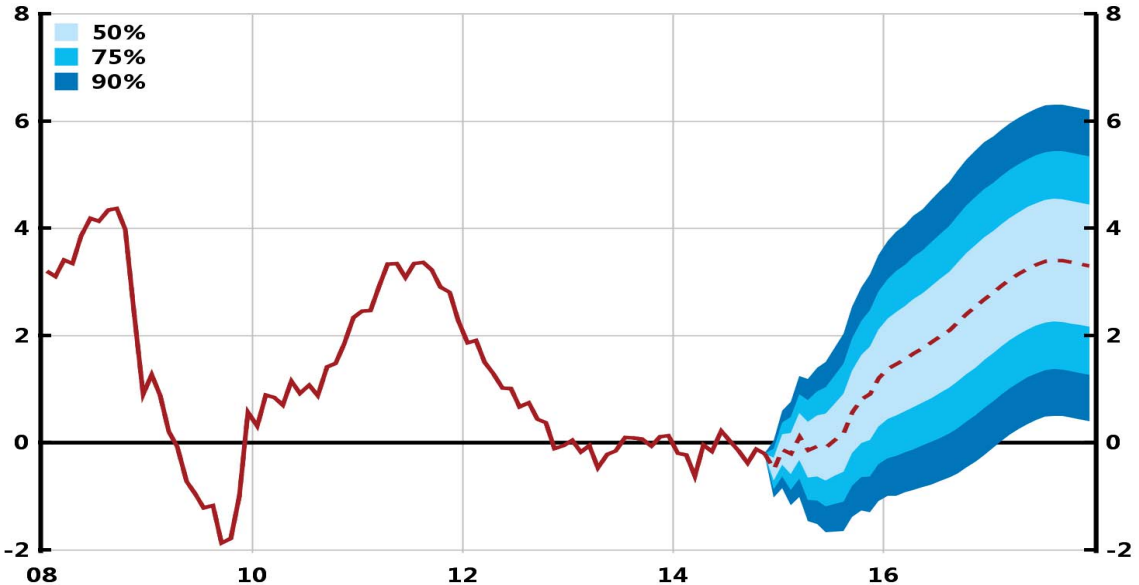
Note. The uncertainty bands are based on the Riksbank's historical forecasting errors. There is also uncertainty for the outcomes for GDP, as the figures in the National Accounts are revised several years after the preliminary publication.

Sources: Statistics Sweden and the Riksbank

Sweden: Inflation

Figure 3. CPI with uncertainty bands

Annual percentage change



Note. The uncertainty bands are based on the Riksbank's historical forecasting errors.

Sources: Statistics Sweden and the Riksbank

Sweden: Housing Prices

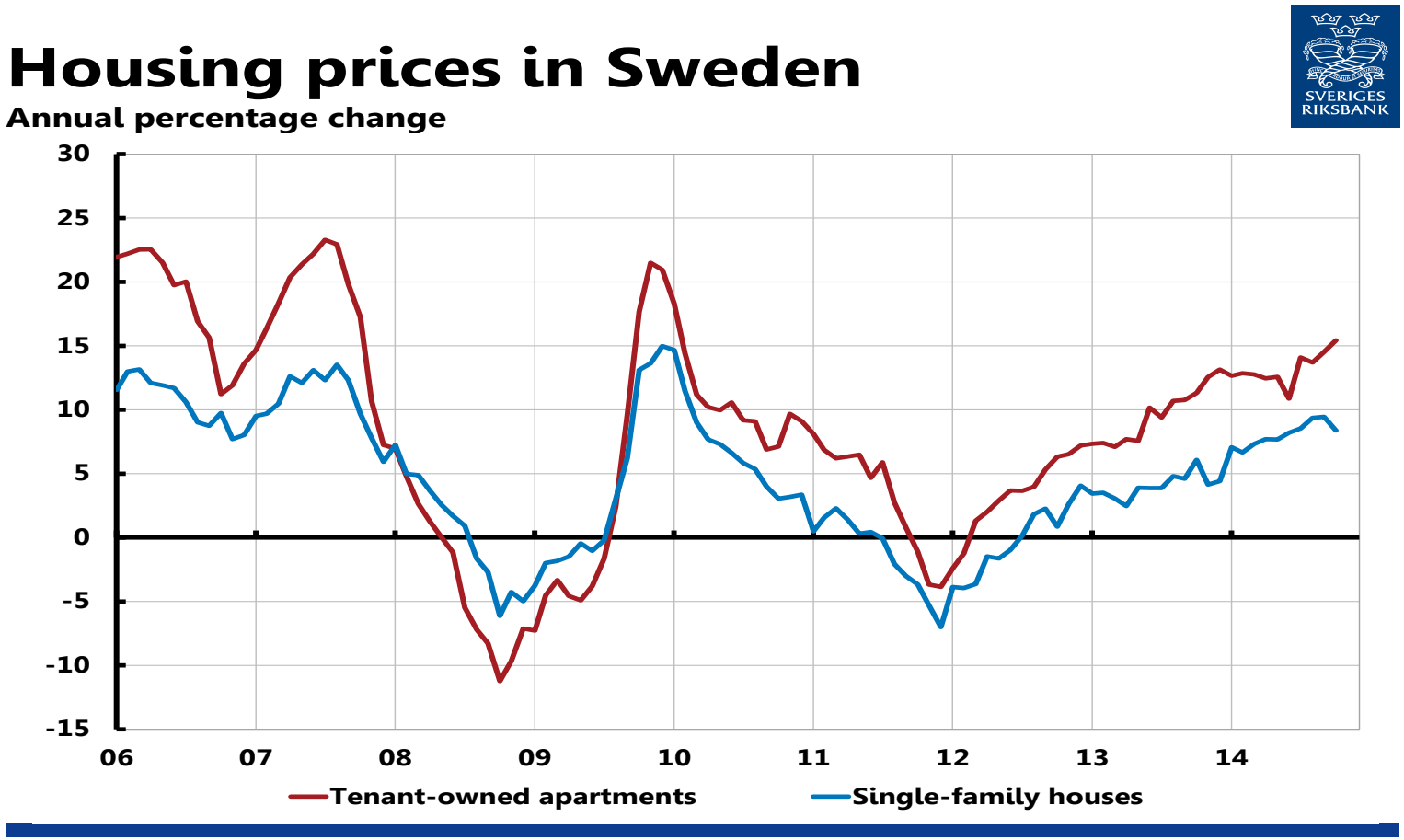


Chart 3:1

Source: Valueguard

Sweden: Household Debt

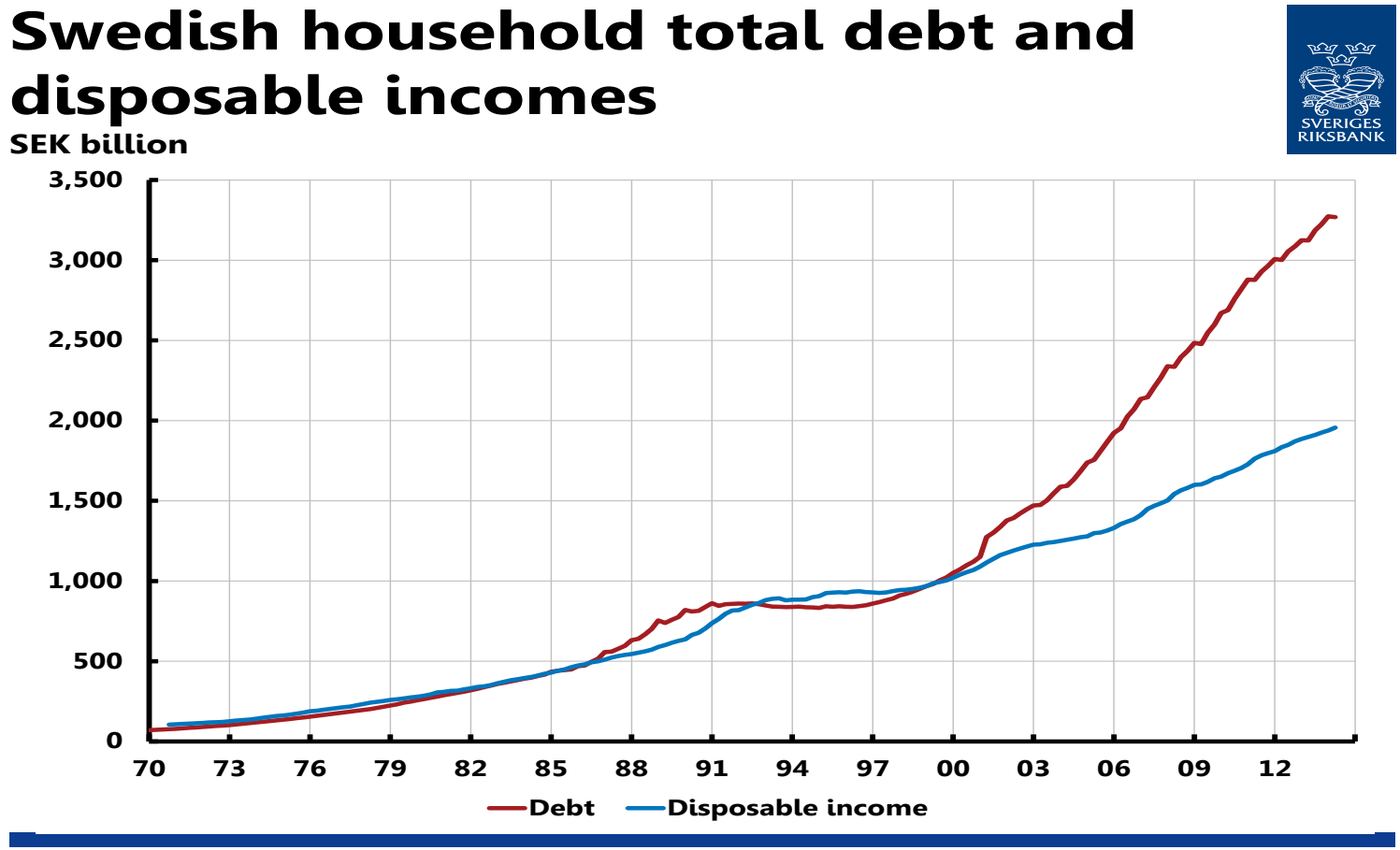


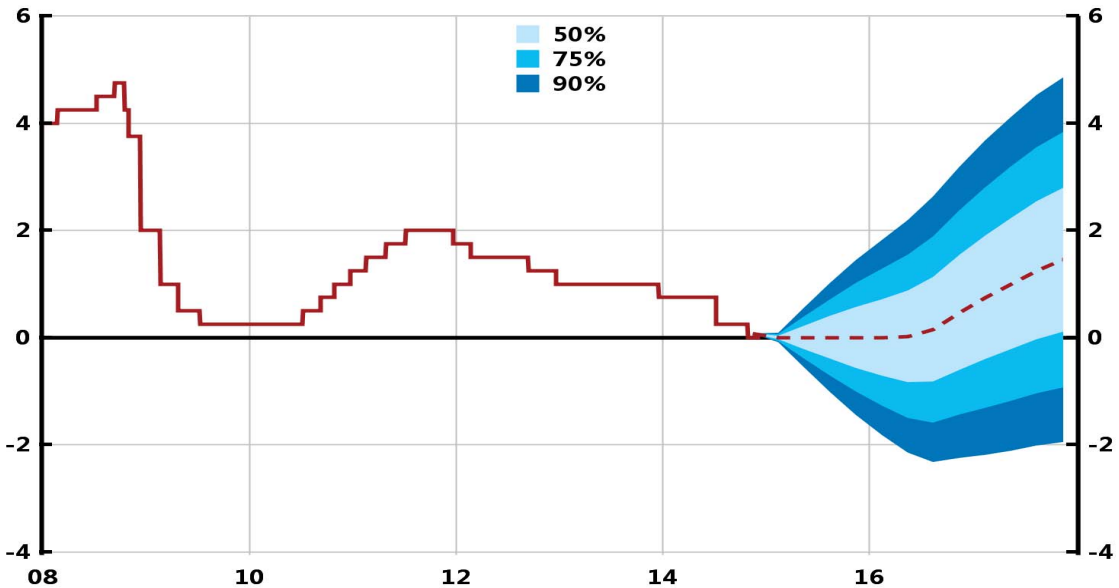
Chart 3:4

Sources: Statistics Sweden and the Riksbank

Sweden: Policy Rate

Figure 1. Repo rate with uncertainty bands

Per cent



Note. The uncertainty bands for the repo rate are based on the Riksbank's historical forecasting errors and the ability of risk-premium adjusted forward rates to forecast the future repo rate for the period 1999 up to the point when the Riksbank started to publish forecasts for the repo rate during 2007. The uncertainty bands do not take into account the fact that there may be a lower bound for the repo rate. Outcome data are daily rates and forecasts are quarterly averages.

Source: The Riksbank

Booms

- Does it make sense to raise the policy rate when inflation and GDP growth are low?
- Sweden (and Norway) have decided that the answer is no.
- They are now experimenting with macro-prudential tools Instead.
- Sweden Macro Prudential Measures
  1. Increased the LTV cap to 85% in 2010.
  2. Risk weight floor on mortgages increased from 15 to 25 percent effective Jan. 2015
  3. Countercyclical bufffer set at 1 percent effective Jan. 2015.
- These measures require coordination between central bank and other government agencies FSA, MOF.
- Reduces the independence of the central bank.
- How strong are these measures?
- What is the correct policy mix?

Concluding Remarks

Thank you!