



Fiscal Policy, Monetary Policy, and Their Interaction in a Monetary Union

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Outline of the Presentation



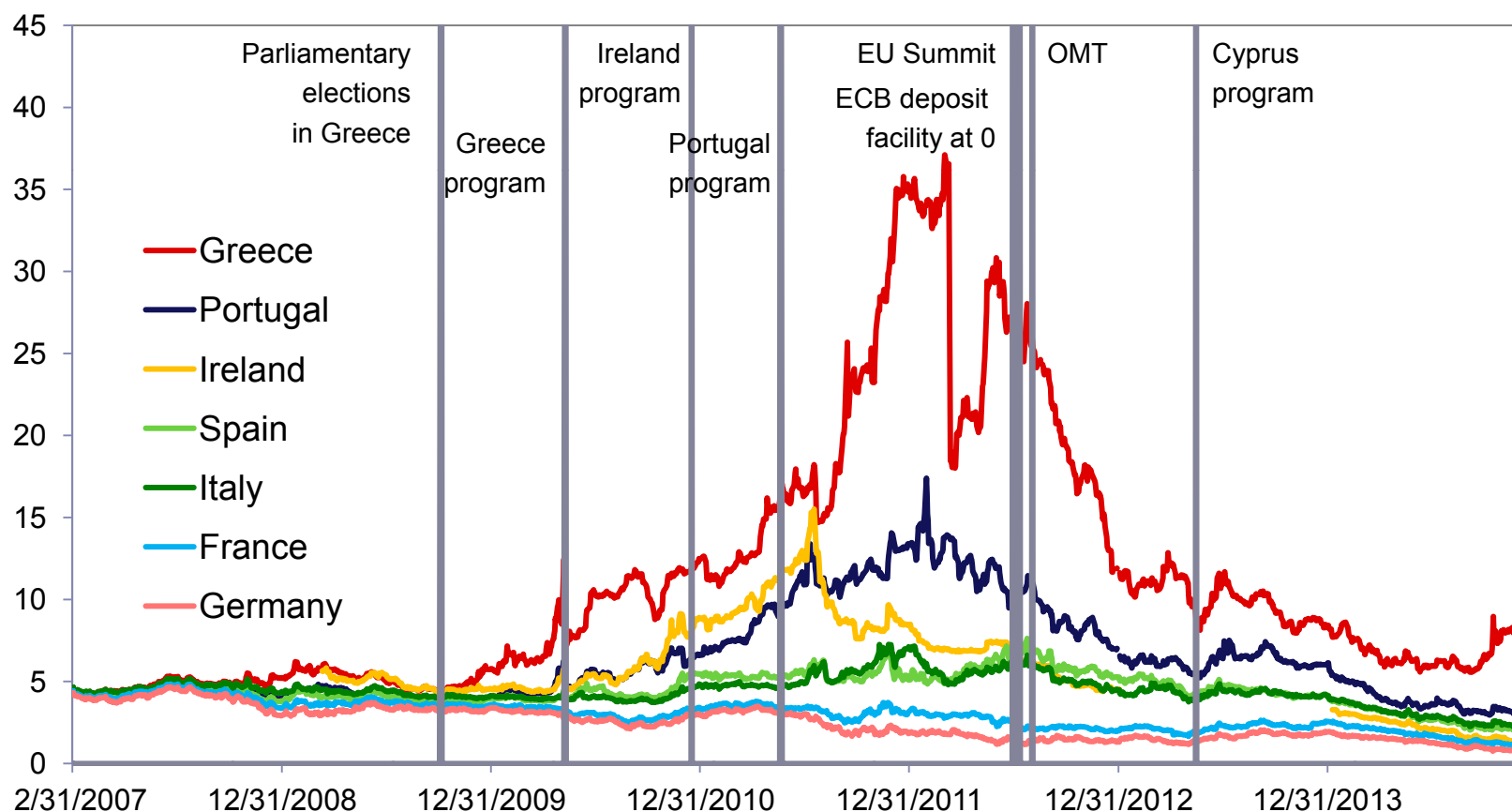
- 1. Crisis in the Euro Area**
- 2. Ongoing Challenges**
- 3. Fiscal and Monetary Policy at the Zero Lower Bound**
- 4. Conclusion**

1. Crisis in the Euro Area

1. Crisis in the Euro Area



Sovereign 10-year Bond Yields,
Daily yields, January 2007 to December 2014
(Percent)

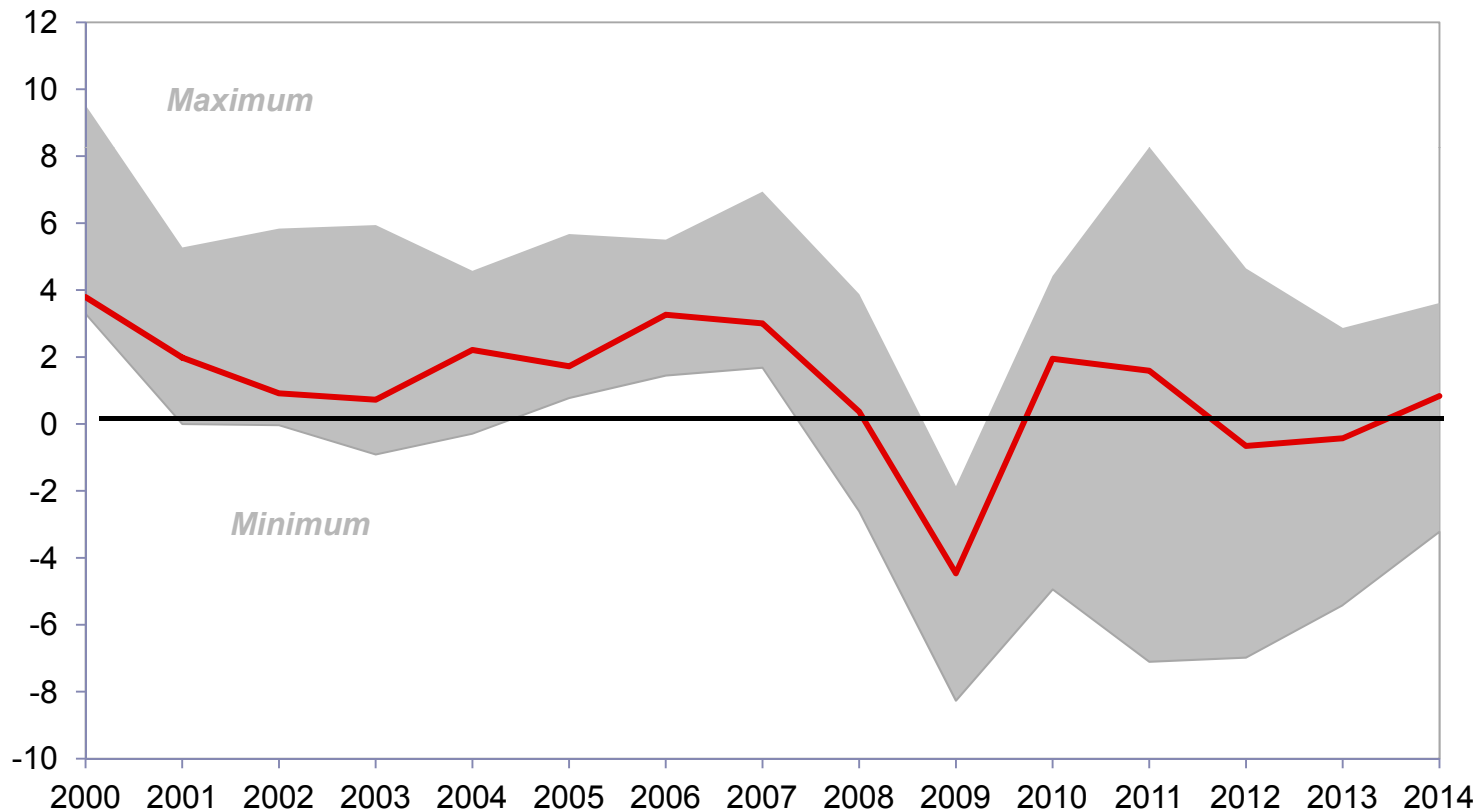


Source: Bloomberg. Latest observation December 8, 2014

2. Ongoing challenges

2. Challenges under the baseline: Weak recovery

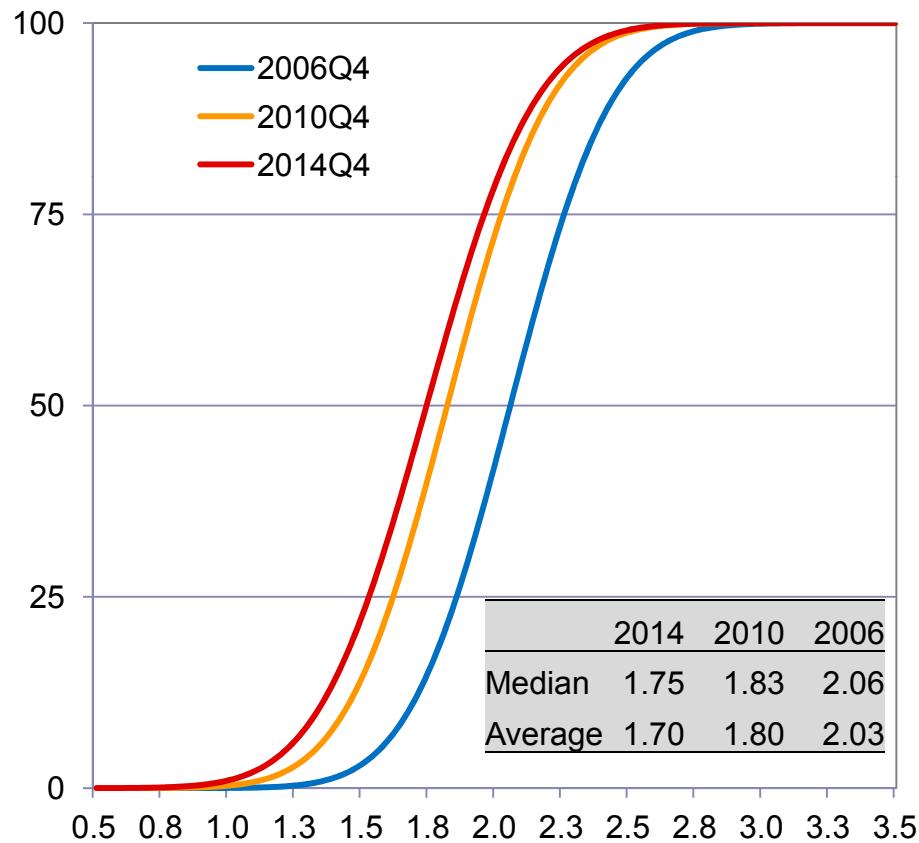
Euro Area: Real GDP Growth, 2000-2014
(Percent)



Source: IMF, *World Economic Outlook*, October 2014. Annual data. Maximum and minimum represent the highest and lowest values among euro area countries.

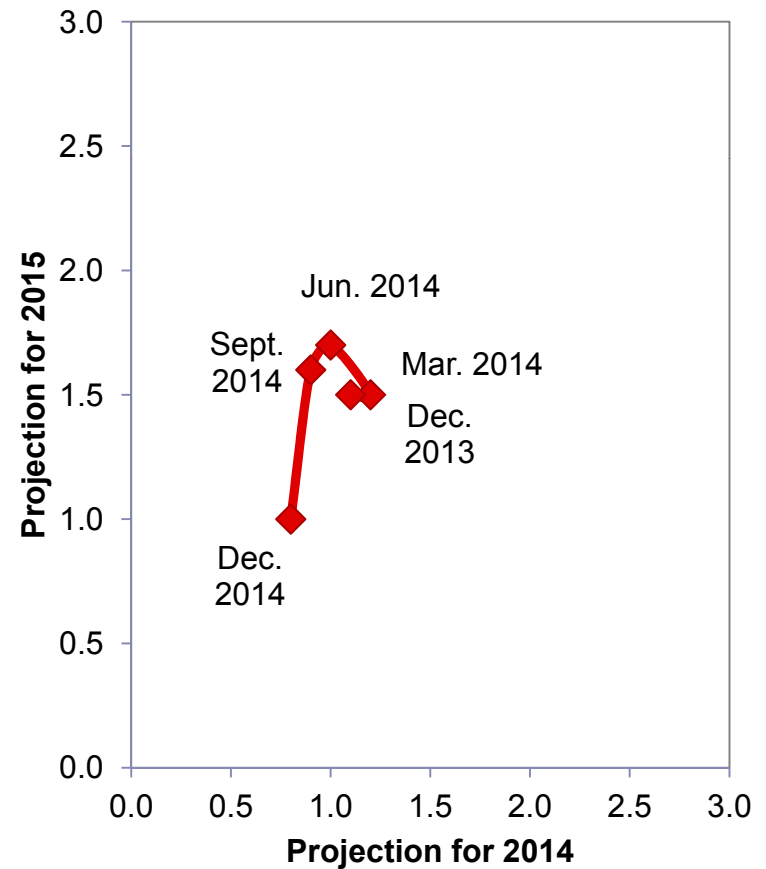
2. Challenges under the baseline: Downward revisions to growth

**Euro Area: Cumulative Distribution of
5y Ahead Real Growth Forecasts
(Percent)**



Source: European Central Bank Survey of Professional Forecasters; and IMF staff calculations.

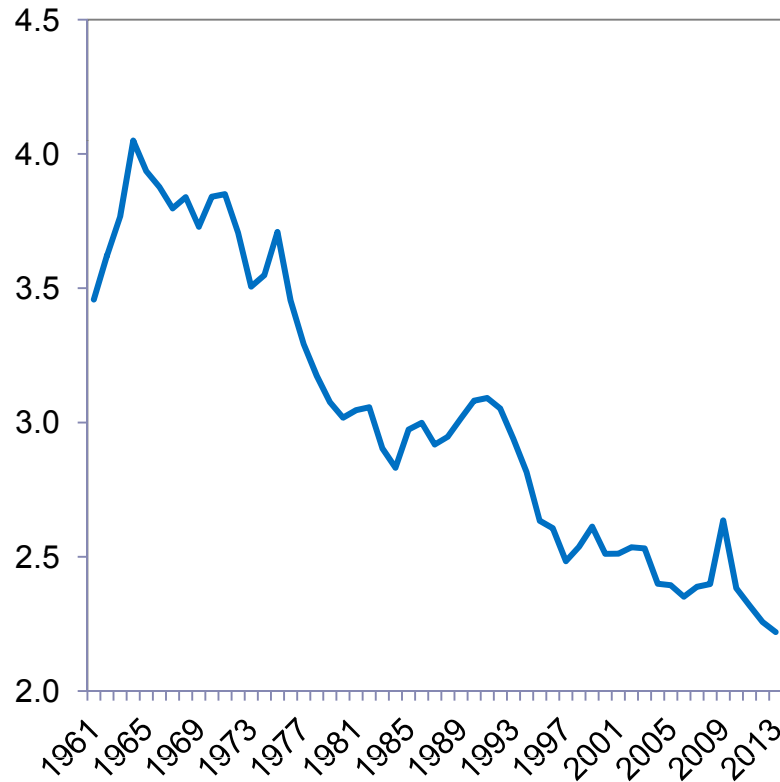
**Euro Area: Different Vintages of
ECB Growth Projections
(Percent)**



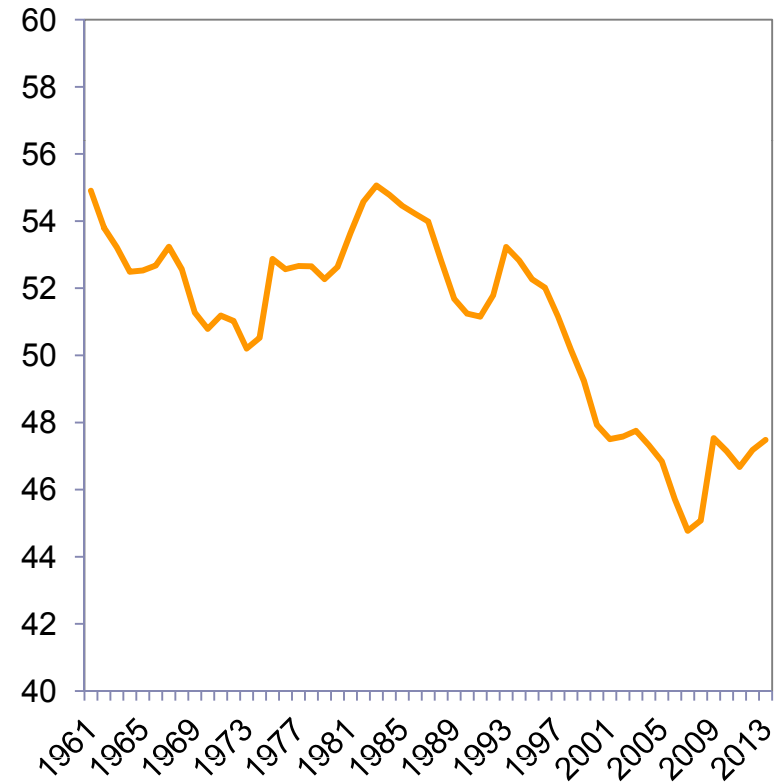
Source: ECB, quarterly projections

2. Challenges under the baseline: Declining Investment

**Euro Area: Public Investment,
1960-2013**
(Percent of GDP)



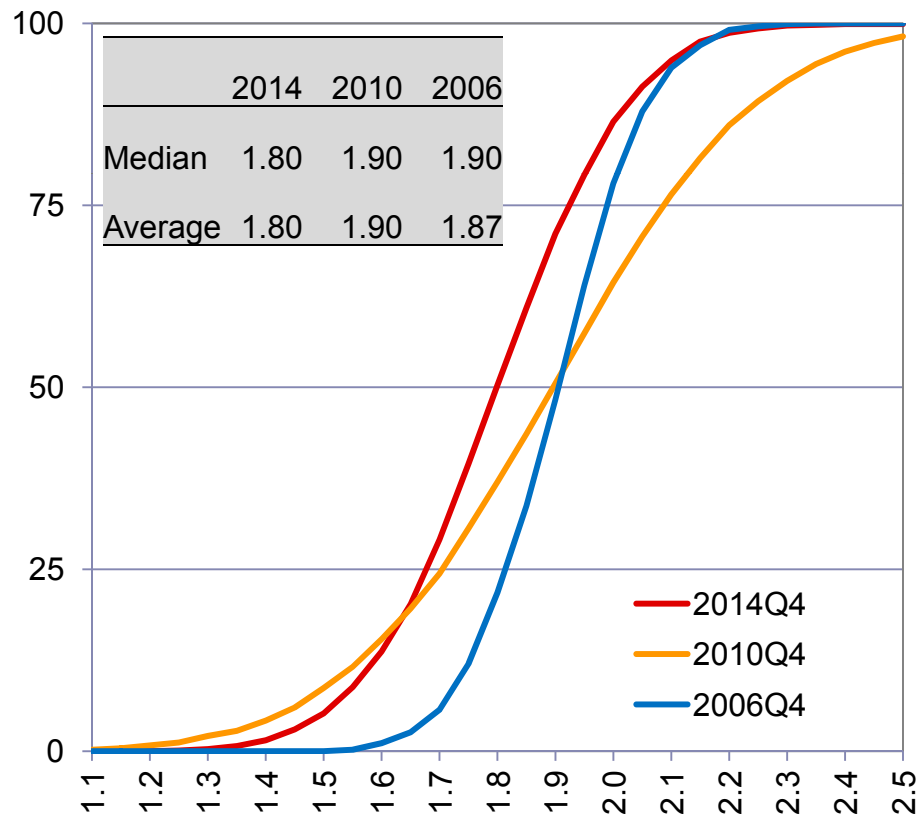
**Euro Area: Public Capital Stock,
1960-2013**
(Percent of GDP)



Source: Center for International Comparisons (2013); OECD; WEO; and IMF staff estimates

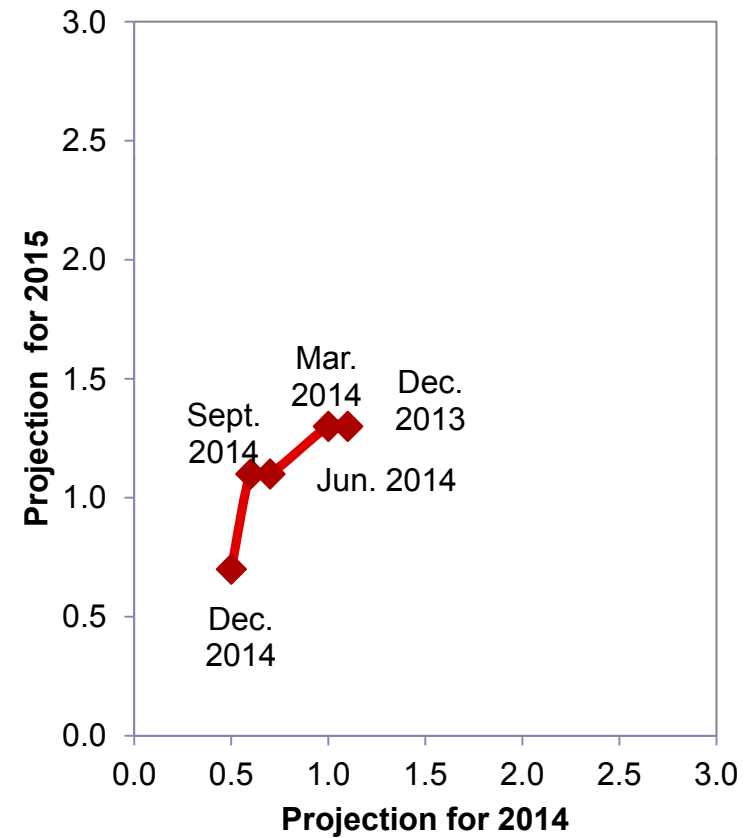
2. Challenges under the baseline: Low inflation for too long

Euro Area: Cumulative Distribution of 5y Ahead Inflation Forecasts
(Percent)



Source: European Central Bank Survey of Professional Forecasters; and IMF staff calculations.

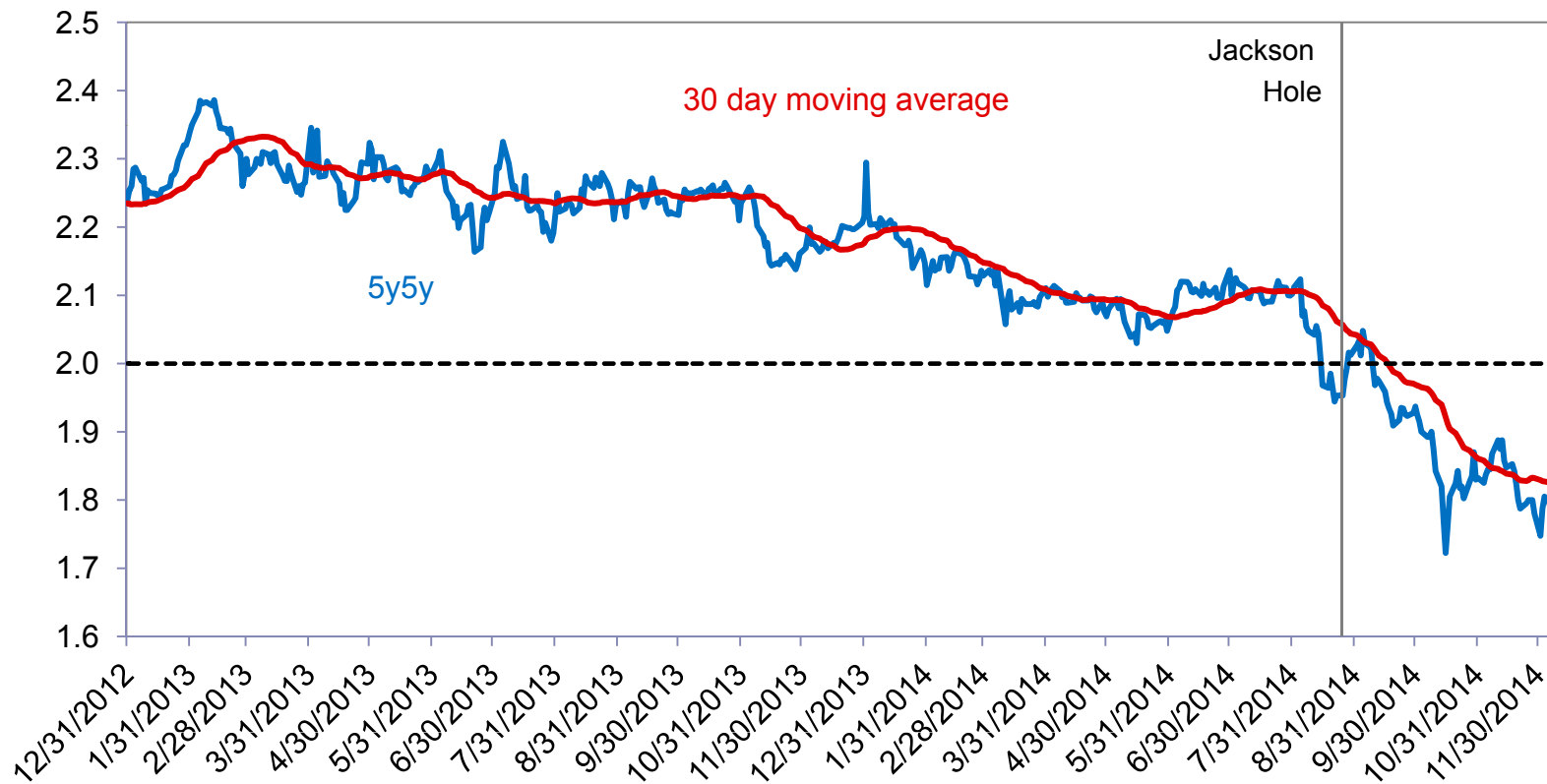
Euro Area: Different Vintages of ECB Inflation Projections
(Percent)



Source: ECB, quarterly projections.

2. Challenges under the baseline: Long-term inflation expectations falling

Euro Area: 5y5y Inflation Linked Swap Rate,
Daily rates, January 2013 to December 2014
(Percent)

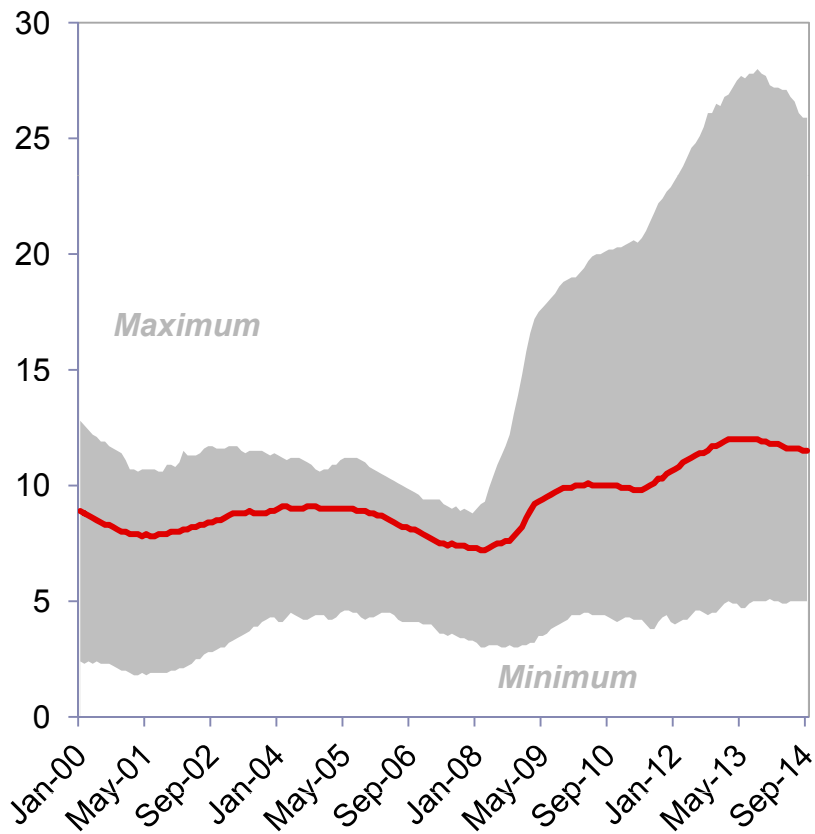


Source: Bloomberg. Latest observation December 8, 2014

2. Challenges under the baseline: Still high unemployment

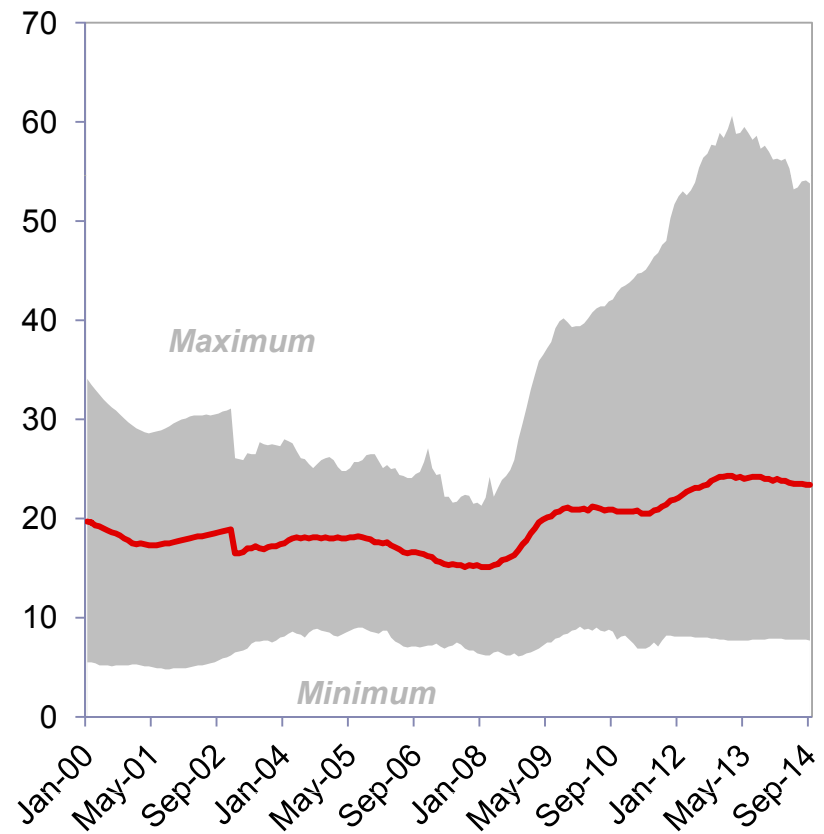
**Euro Area: Total Unemployment Rate,
2000-2014**

(Percent of labor force)



**Euro Area: Youth Unemployment Rate,
2000-2014**

(Percent of labor force)

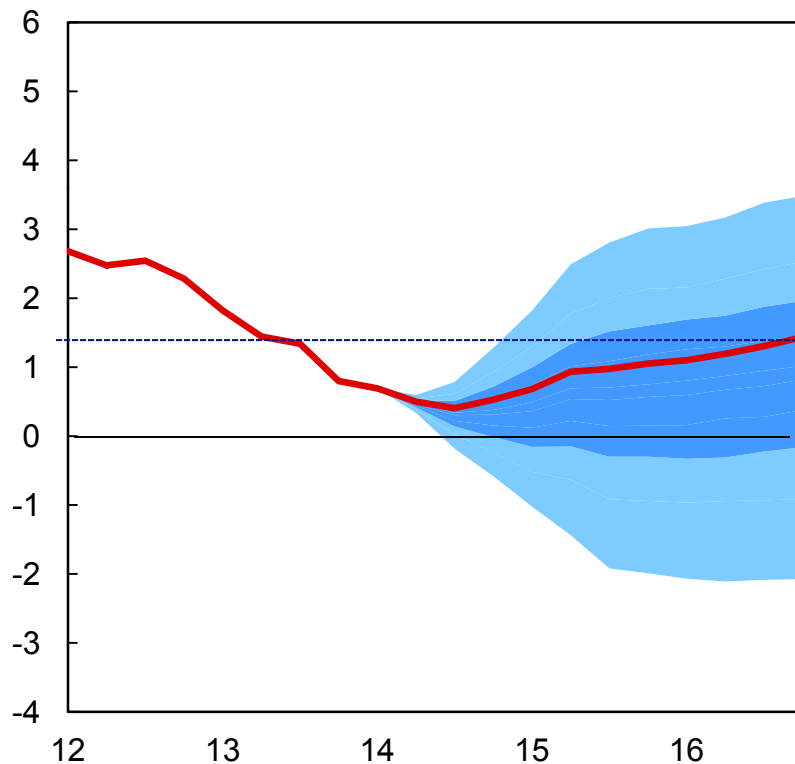


Source: Eurostat. Monthly data. Latest observation October 2014. Maximum and minimum represent the highest and lowest values among euro area countries.

2. Downside risks: Deflation, Lowflation

Euro Area: September 2014 Inflation Forecast

(up to 90 percent confidence bands)

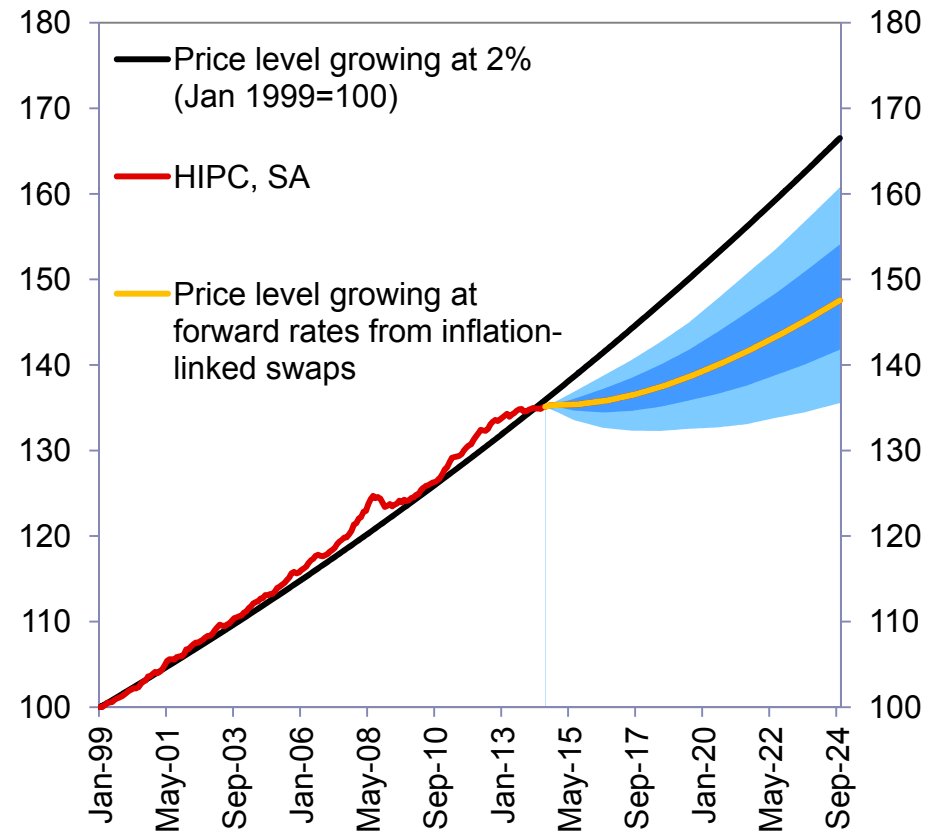


Note: Shaded area represent the 50 and 90 percent confidence intervals.

Source: IMF, *World Economic Outlook*, October 2014

Euro Area: Consumer Price Index and Inflation Linked Swaps

(Jan. 1999=100)



Note: Shaded areas represent one and two standard deviations computed from time series volatility.

Source: Bloomberg and IMF staff calculations, Dec. 8, 2014.

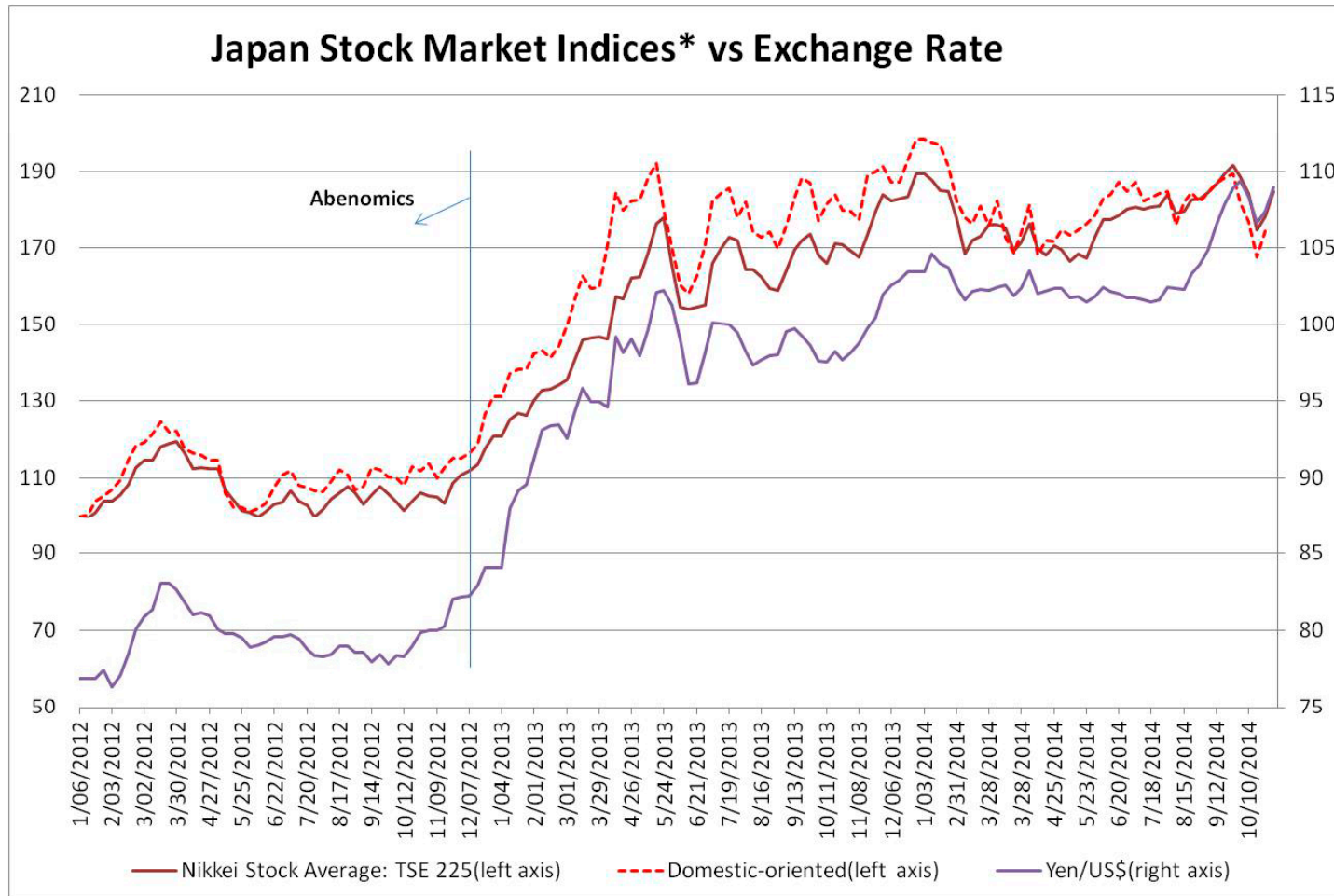
3. Fiscal and Monetary Policy at the Zero Lower Bound

3. Fiscal and Monetary Policy at the ZLB



- **Policy changes at the zero lower bound (ZLB)**
 - Monetary transmission mechanism less uncertain
 - Fiscal policy likely more powerful and could complement unconventional monetary policies

3. Fiscal and Monetary Policy at the ZLB



6 Jan 2012=100; Domestic-oriented stock market index: average of real estate, wholesale trade, retail trade, banks, insurance and services

Source: Haver Analytics and IMF Staff Calculations

3. Fiscal and Monetary Policy at the ZLB

- Zero interest rate floor and passive policy regime: exchange rate can act as a shock amplifier

$$q_{t+k} = \downarrow e_{t+k} - \downarrow p_{t+k} + p_{t+k}^*$$

$$\sum_{j=0}^k i_{t+j} = [\downarrow e_{t+k} - \downarrow e_t] + \sum_{j=0}^k \{i_{t+j}^* + \delta_{t+j}\}$$

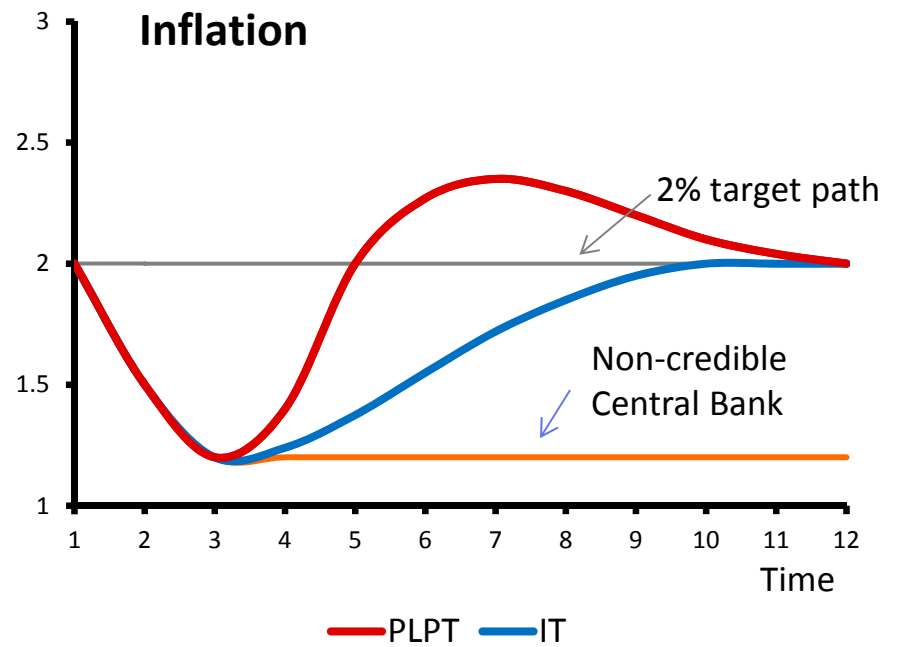
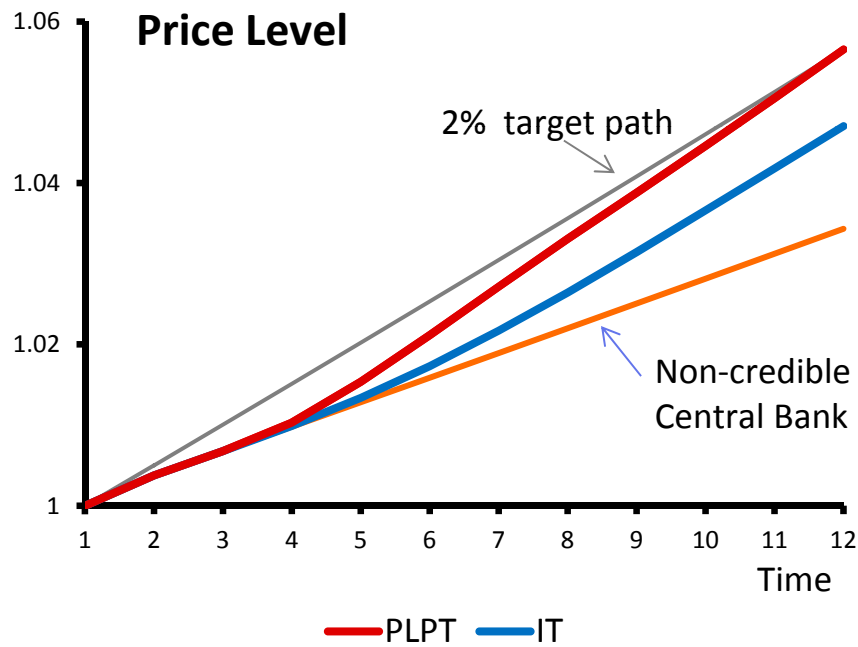
$$\uparrow \sum_{j=0}^k r_{t+j} = [q_{t+k} - \downarrow q_t] + \sum_{j=0}^k \{r_{t+j}^* + \delta_{t+j}\}$$

q: real exchange rate; e: nominal exchange rate; p: domestic price level; p*: foreign price level;
i: nominal interest rate; r: real interest rate; δ : risk premium

3. Fiscal and Monetary Policy at the ZLB



Responses to contractionary demand shock



4. Conclusion

4. Conclusion



- **Key ingredients for a comprehensive strategy to support a durable and robust recovery**
 - **Structural policies** to improve competitiveness and to increase potential growth
 - **Monetary policy** to support demand and fend off the risks from persistently low inflation
 - **Infrastructure initiative** at the European level to help deal with deficient demand and boost potential output

Thank You!