



NBP

Narodowy Bank Polski

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Monetary policy of the NBP in a changing external environment

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The views expressed in this presentation belong to the author only, and do not necessarily reflect those of the NBP.



1.

Is exchange rate a shock absorber or a shock amplifier?

Textbook definition

- Exchange rate acts as a shock absorber if it appreciates when economic conditions improve
 - Appreciation has a negative impact on output since it decreases competitiveness of domestic products
 - It also reduces inflation as import prices shrink

- However, this is true only if we abstract from FX debt (and assets)
 - Under high dollarisation, appreciation might have a positive effect on output as it reduces debt and debt servicing costs

In Poland, appreciation indeed reduces output

IS curve estimates for Poland

	Coefficients	Standardised coefficients	p-value
Output gap(-1)	0.642***	0.632***	0.000
Output gap(-2)	0.198**	0.191**	0.011
Euro area output gap	0.663***	0.139***	0.000
Real interest rate	-0.232***	-0.227***	0.000
REER	-0.014**	-0.080**	0.015
Bank credit(-1)	0.027***	0.088***	0.010
Lending spread(-1)	-0.330***	-0.127***	0.003

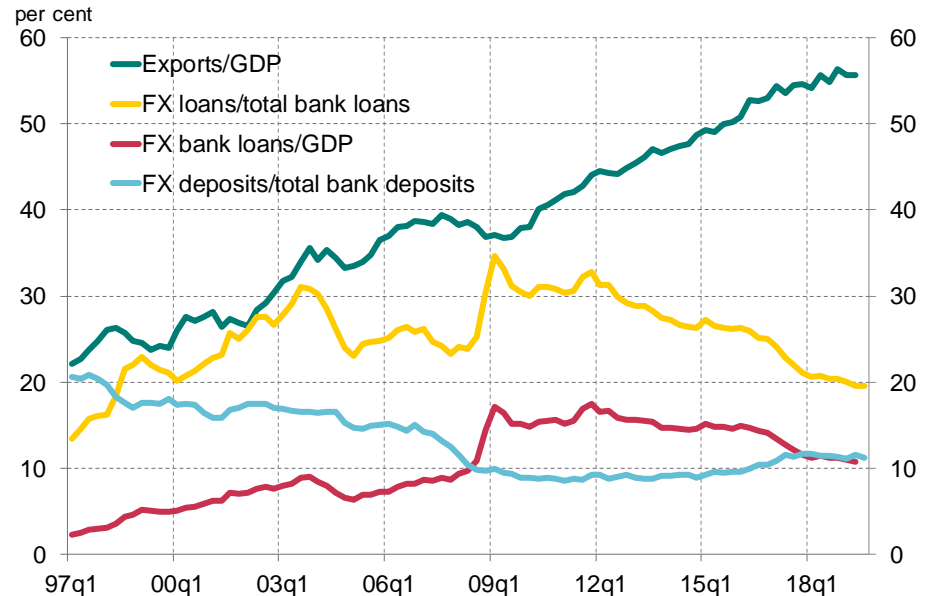
Independent variable is an average of 4 output gap estimates: estimated using HP filter, obtained from OECD, estimated from capacity utilisation data, and estimated from the insufficient demand as a factor limiting activity data. Model estimated on quarterly data, 1999Q2-2019Q2, using OLS. Euro area output gap computed analogically to the Polish output gap and expressed in QoQ terms. Real interest rate is the NBP reference rate minus core inflation YoY. REER is expressed in QoQ annualised terms (increase denotes appreciation). Bank credit stands for MFI loans and other claims on other domestic residents QoQ SAAR. Lending spread is a difference between an average interest rate on loans and the NBP reference rate. Fiscal policy is controlled for.

Source: OECD, Eurostat, NBP, BIS, and Statistics Poland data, own calculations.

Why is it the case?

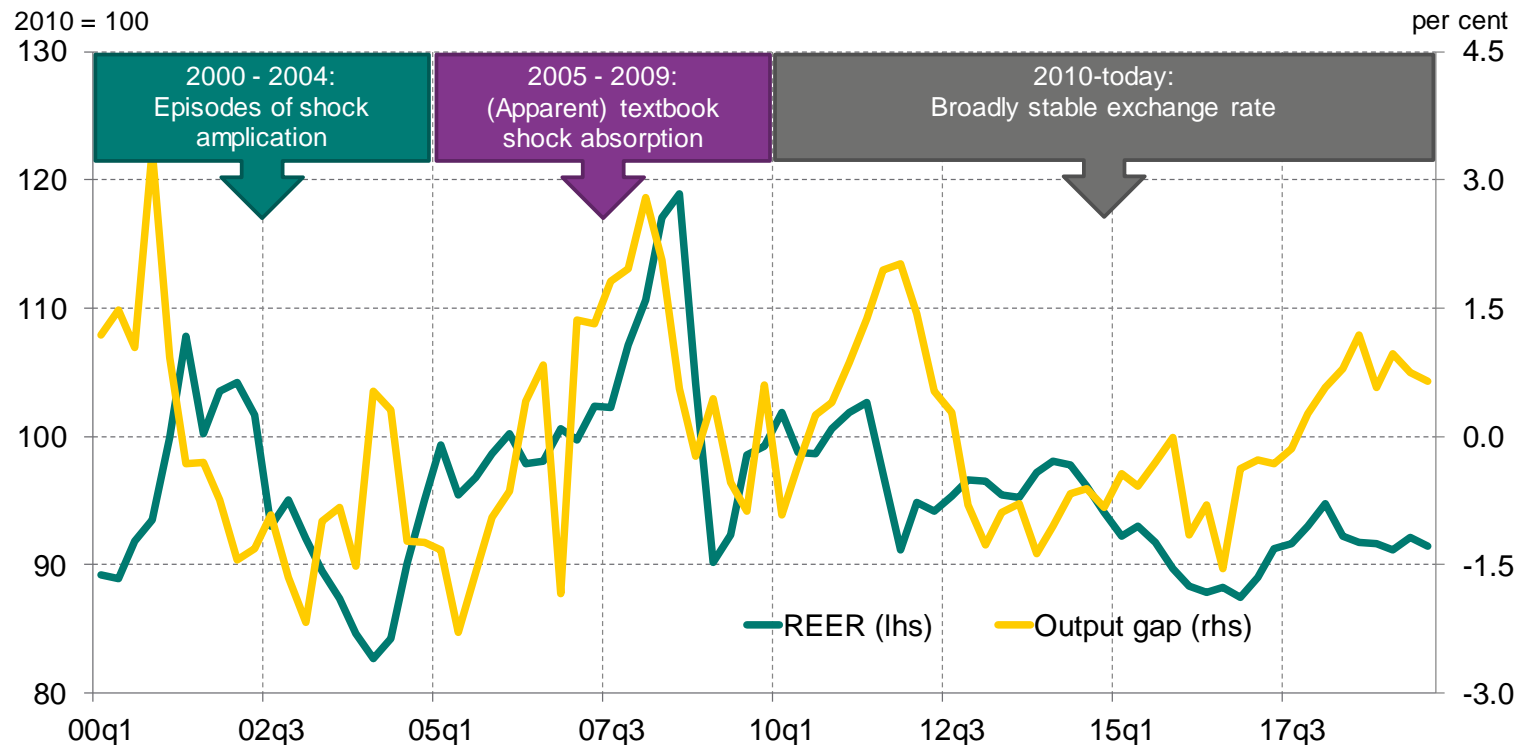
- Two reasons:
 - Relatively low dollarisation & low indebtedness
 - Relatively high trade openness
- As a result, the effects on exports clearly exceed the effects on debt servicing costs

Trade openness and dollarisation indicators in Poland, 1997-2019



Source: Eurostat and NBP data, own calculations.

So, did exchange rate act as a shock absorber in Poland?



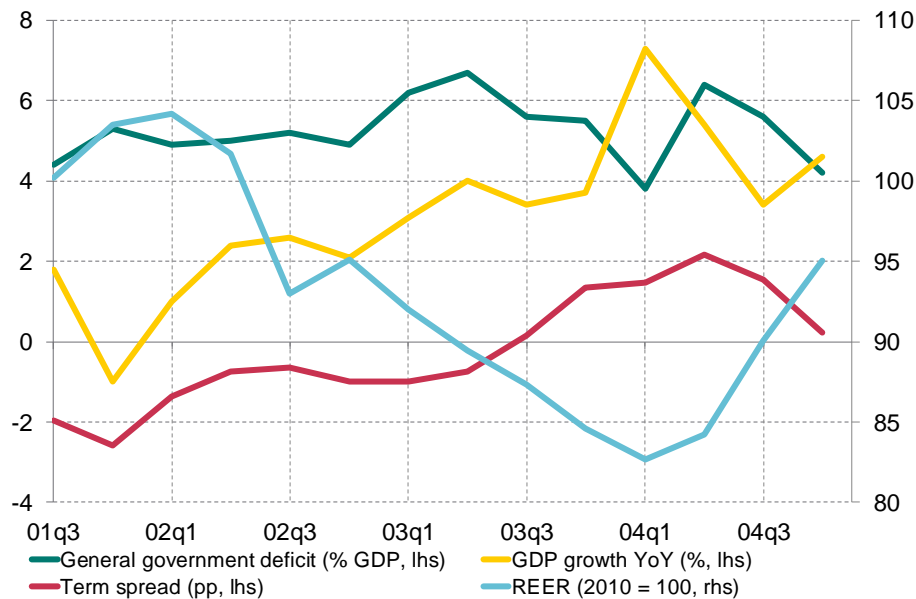
Increase in REER denotes appreciation. Output gap computed from the standard HP filter.

Source: BIS and OECD data, own calculations.

2003-04: depreciation amplifies the EU accession boom

- In 2003, the economic recovery following the dotcom crisis was well underway
- Despite this, zloty kept on depreciating due to high government deficit and political uncertainty
- Depreciation amplified the boom related to the EU accession
 - In early 2004, both consumers and firms were stocking up fearing a rise in prices after the accession to the EU on 1 May 2004

Government deficit, GDP growth, REER and term spread in 2001-2004

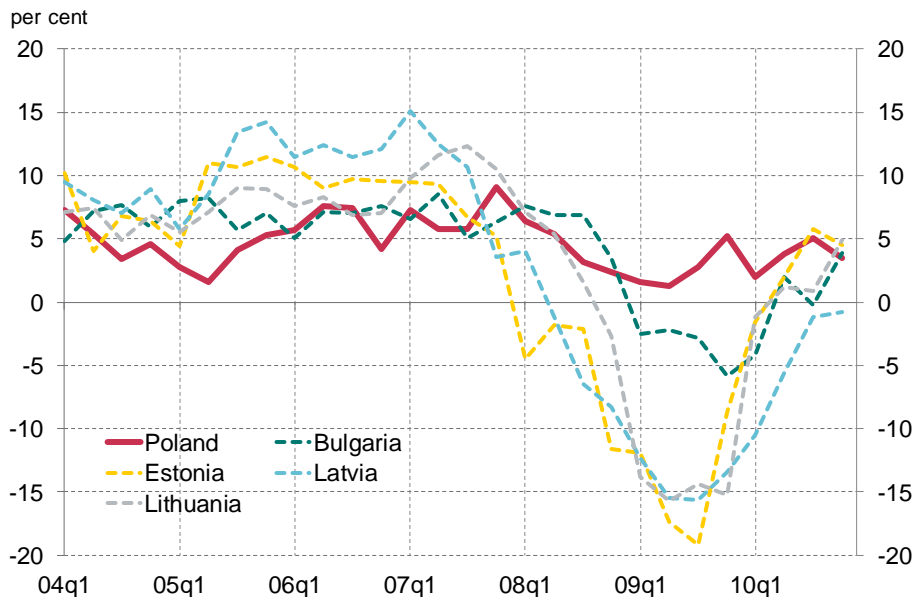


Increase in REER denotes appreciation. Term spread is a difference between 5Y government bond yield and the NBP reference rate.

Source: Eurostat, NBP, Bloomberg and BIS data, own calculations.

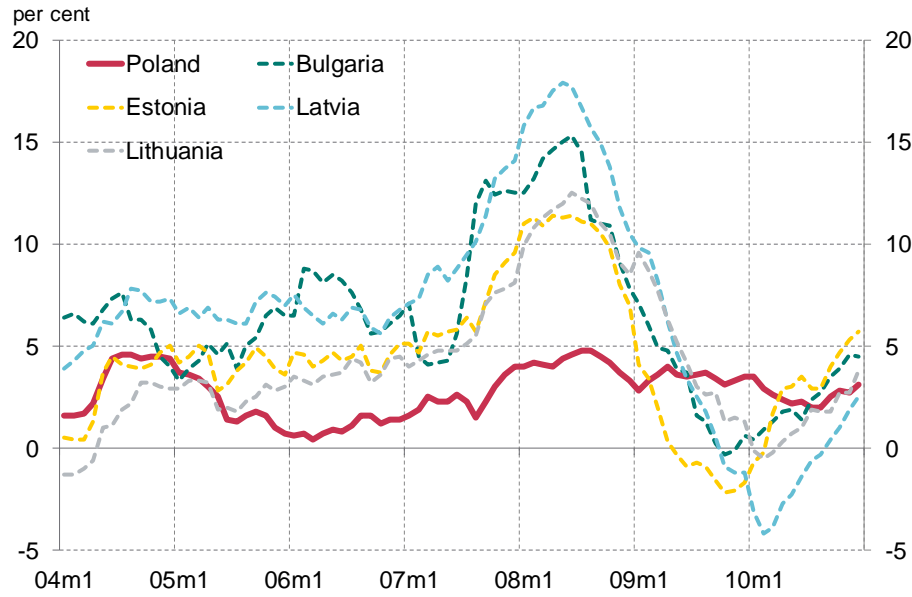
In 2005-2009, exchange rate fluctuations clearly lessened the boom-bust cycle

GDP growth in Poland and fixed exchange rate CEE countries, 2004-2010



Source: Eurostat data.

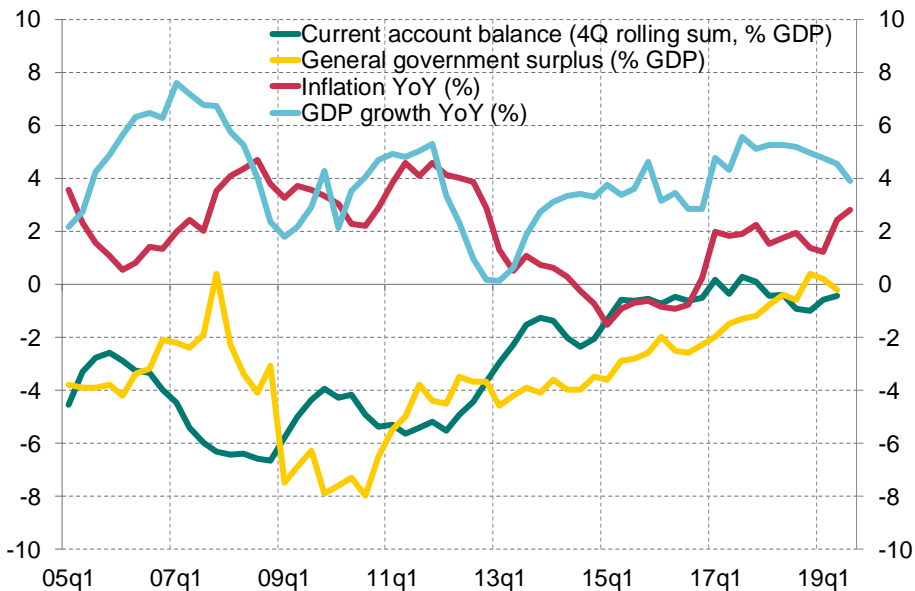
Inflation in Poland and fixed exchange rate CEE countries, 2004-2010



Source: Bloomberg data.

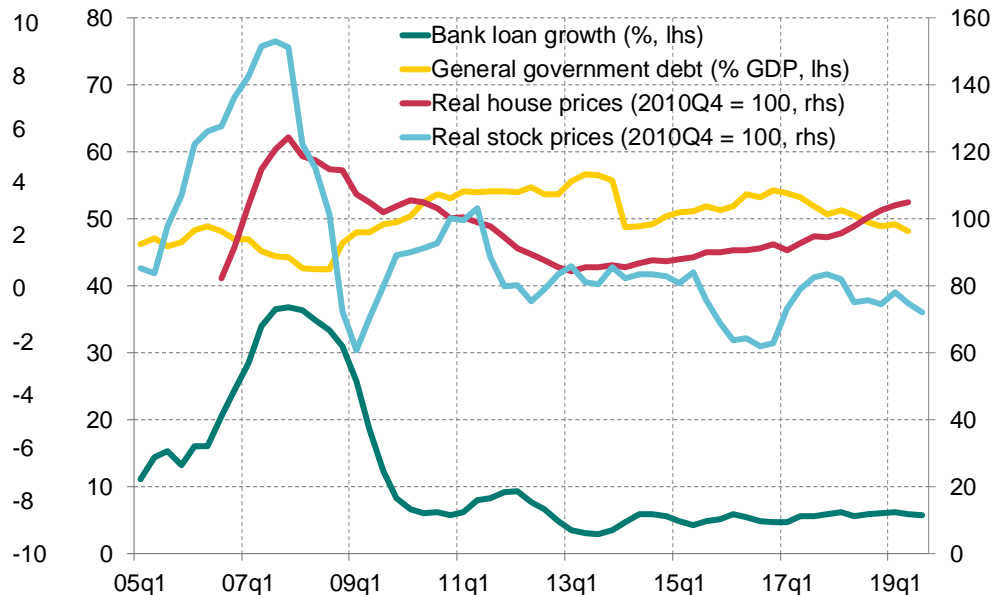
Post-2010: strong fundamentals stabilise the exchange rate

Current account balance, government deficit, inflation and GDP growth, 2005-2019



Source: NBP, Eurostat and GUS data.

Credit growth, government debt, real house and stock prices, 2005-2019



House price is the average primary and secondary market price from 17 cities. Stock prices measured by WIG20 index.

Source: NBP, Eurostat, and Bloomberg data, own calculations.

Lessons learnt

- Exchange rate acts as a shock absorber if:
 - The level of dollarisation and/or indebtedness is relatively low
 - Trade openness is relatively high
 - There are no policy mistakes

- However, if there are no imbalances and macroeconomic fundamentals are strong, there is no need for shock absorption and exchange rate remains stable

2.

How to control inflation in a globalised world?

A plethora of external factors may potentially influence inflation, making the task difficult for a central bank

- Food and energy prices are affected primarily by global developments and domestic supply shocks
 - In Poland they account for 41.1% of the CPI basket

- Core inflation is often assumed to be a reflection of domestic price pressures, but:
 - In small open economies it can be strongly affected by import prices
 - Energy prices should have an indirect impact on core prices
 - With an expansion of GVC and globalisation, global economic conditions could have a direct impact on domestic inflation (Borio and Filardo, 2007)
 - Domestic economic conditions might have less and less effect on inflation (i.a. Blanchard, 2016)

Core inflation determinants in Poland: average from 6 models

	Coefficients	Standardised coefficients	p-value
Core inflation(-1)	0.368***	0.389***	0.000
Consumer inflation expectations	0.034***	0.367***	0.000
Global energy prices	0.001	0.035	0.597
NEER(-2)	-0.007	-0.089	0.182
Foreign core inflation	0.520**	0.230**	0.019
Domestic slack	0.096***	0.206***	0.008
Euro area slack	0.019	0.025	0.723


Core inflation is the dependent variable. Average values from 6 models differing in the measures of domestic and euro area slack. Models are estimated on quarterly data, 2001Q2-2019Q3, using OLS. Core inflation, energy prices and NEER are expressed in QoQ SAAR terms, while consumer inflation expectations are expressed as balance statistics. Foreign inflation is import-weighted core inflation QoQ SAAR of trade partners. 6 slack measures: HP filter output gap, OECD output gap, output gap estimated from capacity utilisation data, output gap estimated from the insufficient demand as a factor limiting activity data, OECD unemployment gap, underemployment gap (including involuntary part-time workers).

Source: OECD, Eurostat, IMF, BIS, Bloomberg and Statistics Poland data, own calculations.

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But energy prices and foreign slack are not

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Core inflation determinants in Poland: average from 6 models

But inflation expectations are a key determinant of inflation

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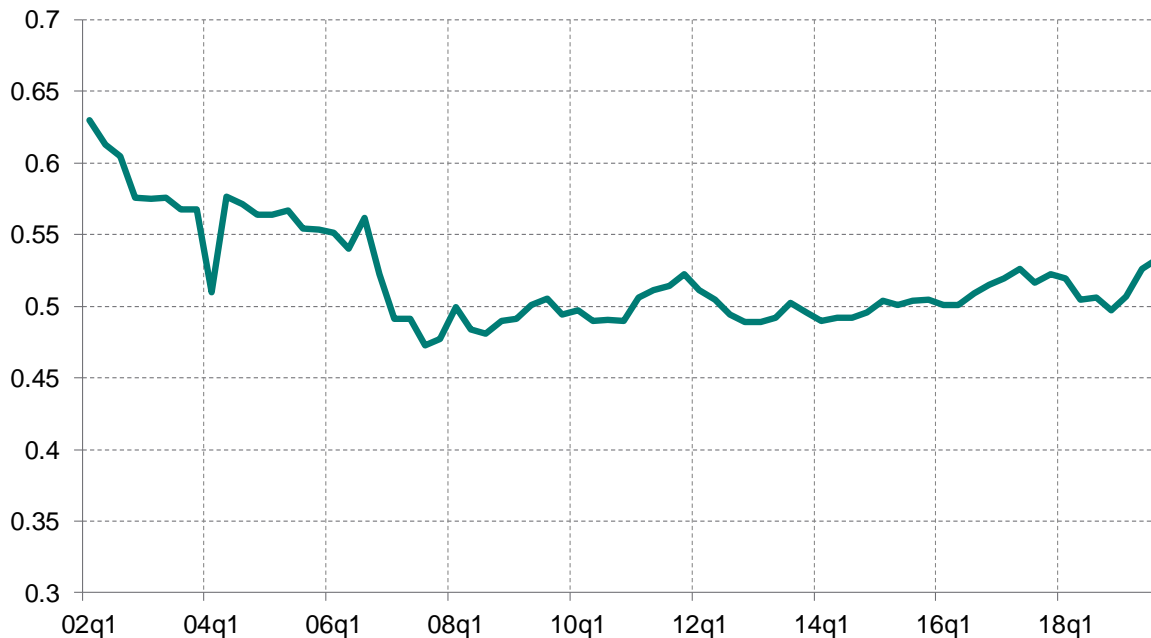
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The importance of foreign inflation has not increased in recent years, however

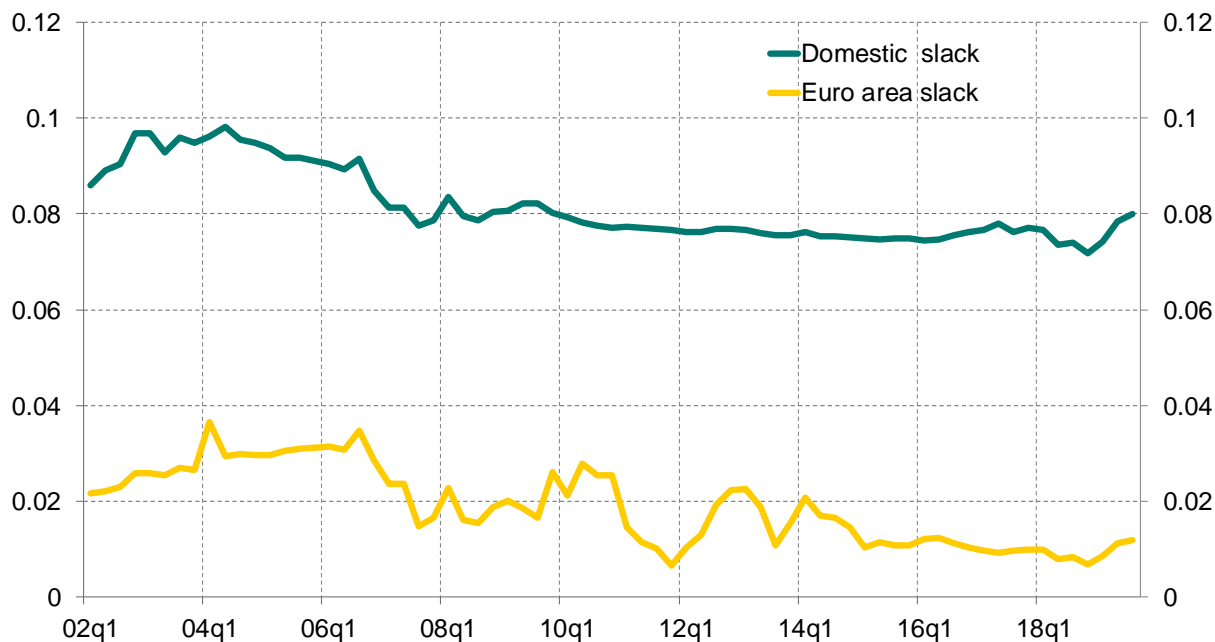
Average coefficient on foreign core inflation from 6 time-varying parameters models, 2002Q1-2019Q3



Source: OECD, Eurostat, IMF, BIS, Bloomberg and Statistics Poland data, own calculations.

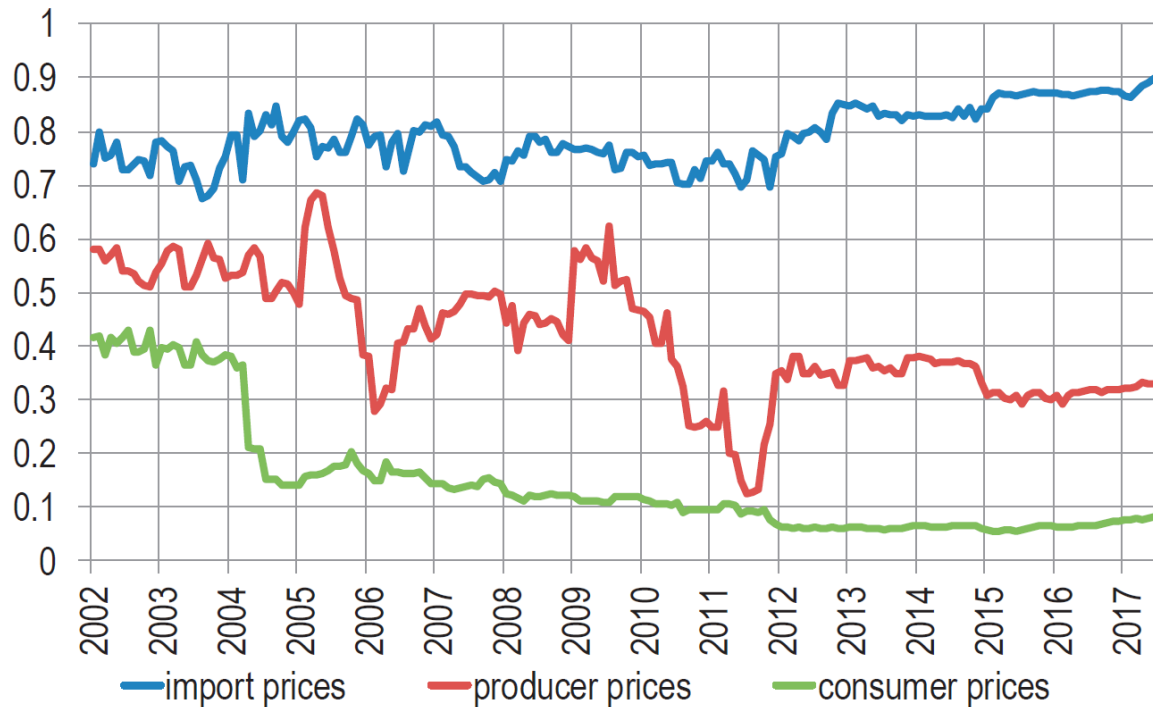
The impact of domestic economic conditions has weakened only slightly, and not at the expense of foreign slack

Average coefficients on domestic and foreign slack from 6 time-varying parameters models, 2002Q1-2019Q3



Source: OECD, Eurostat, IMF, BIS, Bloomberg and Statistics Poland data, own calculations.

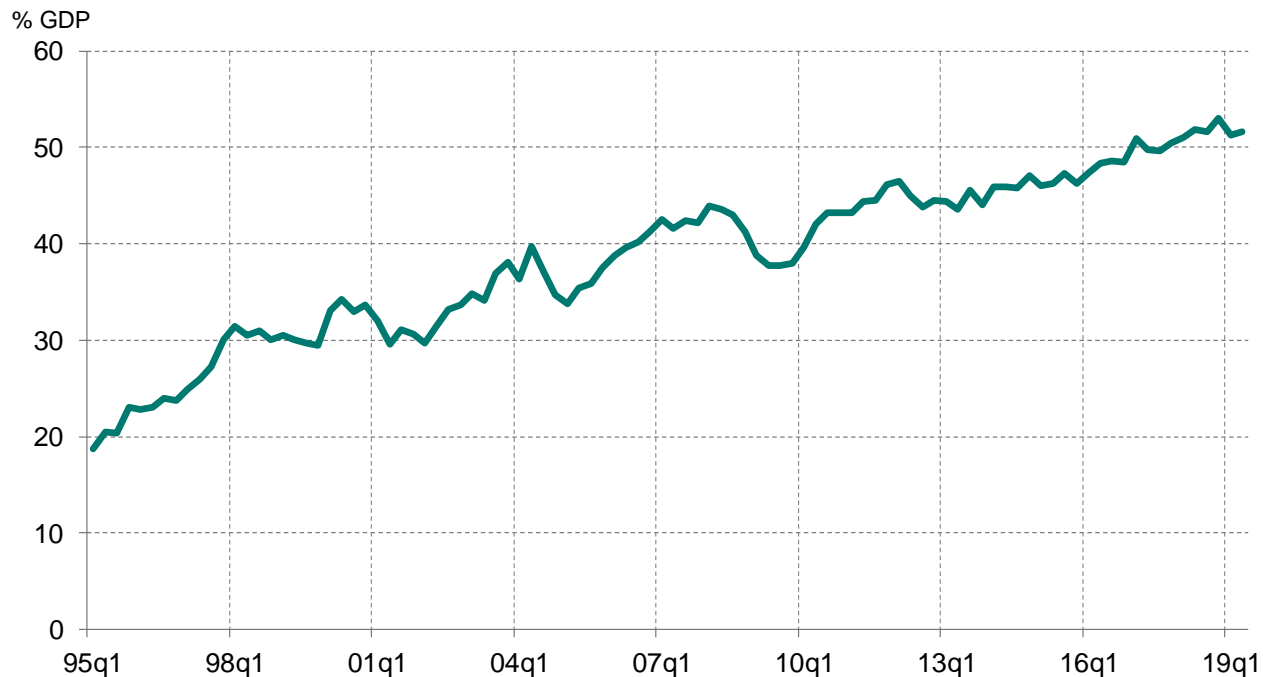
On top of that, the exchange rate pass-through has weakened over the last 15 years...



Source: Chmielewski et al. (2018).

Which is surprising given increasing trade openness

Imports to GDP ratio, 1995-2019

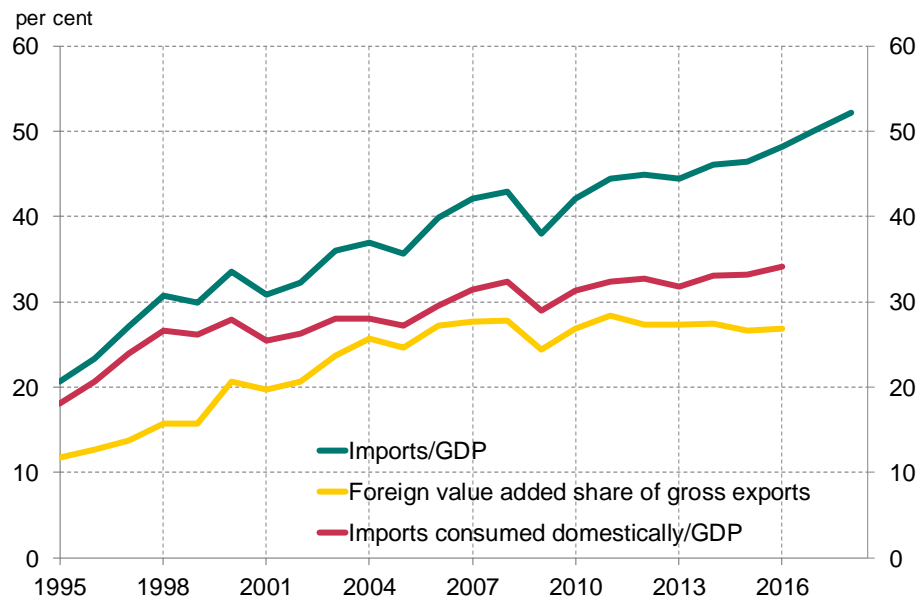


Source: Eurostat data.

Increasing participation in global value chains is not a sufficient explanation

- Participation in global value chains is often mentioned as a reason behind declining pass-through
- It indeed increased in Poland, as proxied by foreign value added share of exports
- But not enough to offset the rise in imports – imports consumed domestically to GDP still increased
- This should support a *rise* in pass-through and the role of foreign inflation

Participation in GVC and imports consumed domestically, 1995-2018

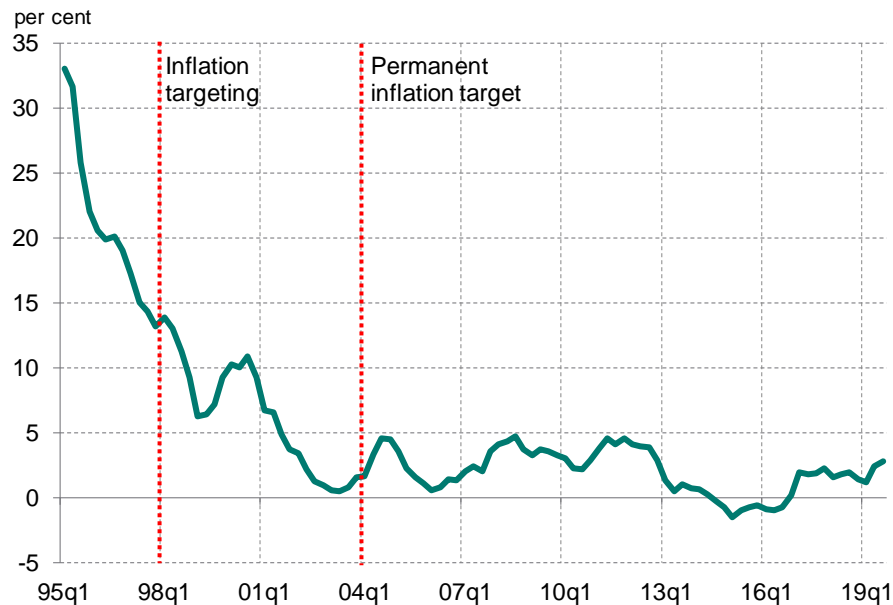


Source: Eurostat, OECD and Ambroziak and Marczewski (2014) data, own calculations.

Instead, monetary policy credibility seems to have been the key reason

- Pass-through tends to decline with declining inflation level and volatility
- In Poland it declined abruptly in 2004, when a permanent inflation target was put in place, and kept on decreasing as credibility was building up
- Same arguments can be used to explain the initial fall in the foreign inflation coefficient

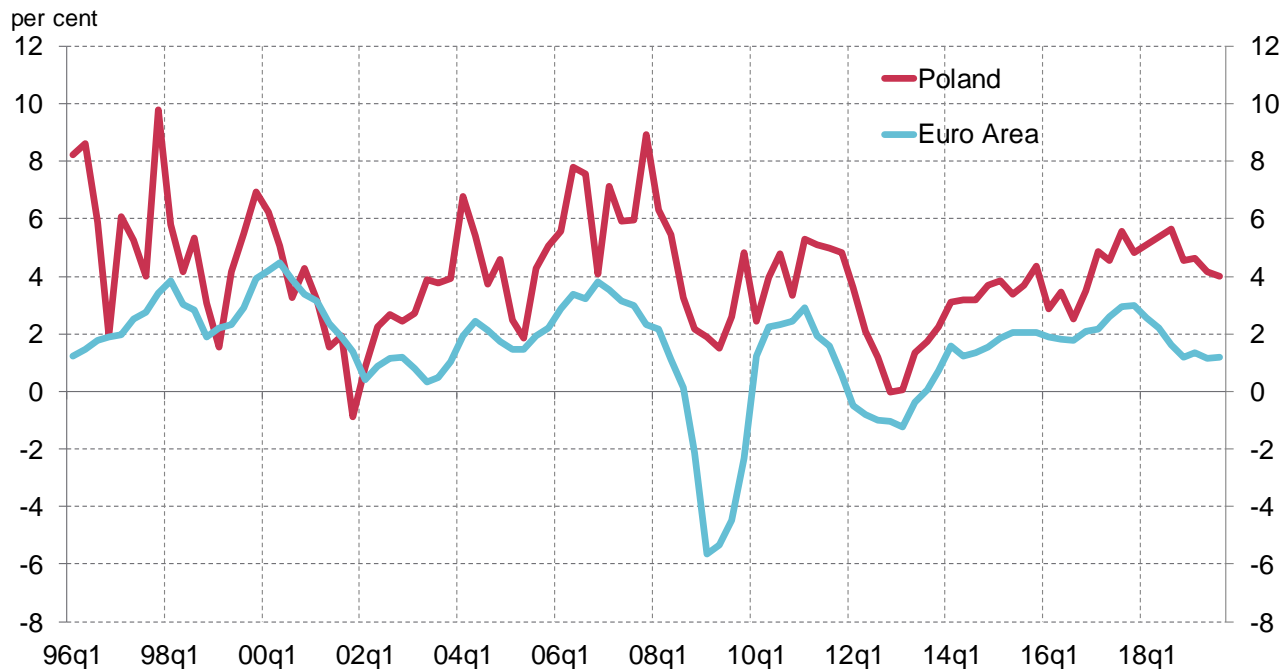
Inflation in Poland, 1995-2019



Source: OECD data.

Even if domestic economic conditions affect inflation, they seem to be closely linked to economic conditions abroad

GDP growth YoY in Poland and the euro area, 1996-2019



Source: OECD data.

More thorough analysis confirms this hypothesis...

IS curve estimates for Poland

	Coefficients	Standardised coefficients	p-value
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Exchange rate also has a significant impact on domestic economic conditions



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Though monetary policy turns out to be even more important

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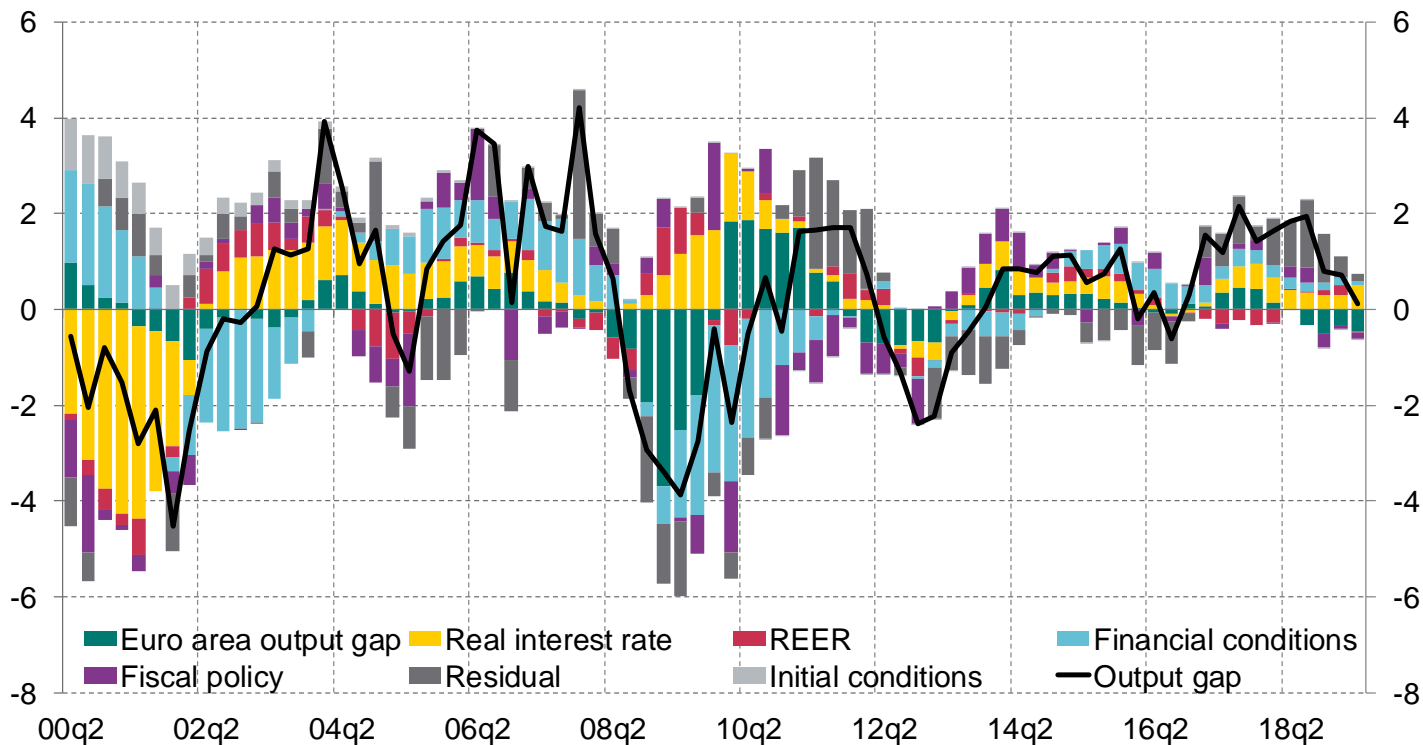
Monetary policy is more powerful than external factors



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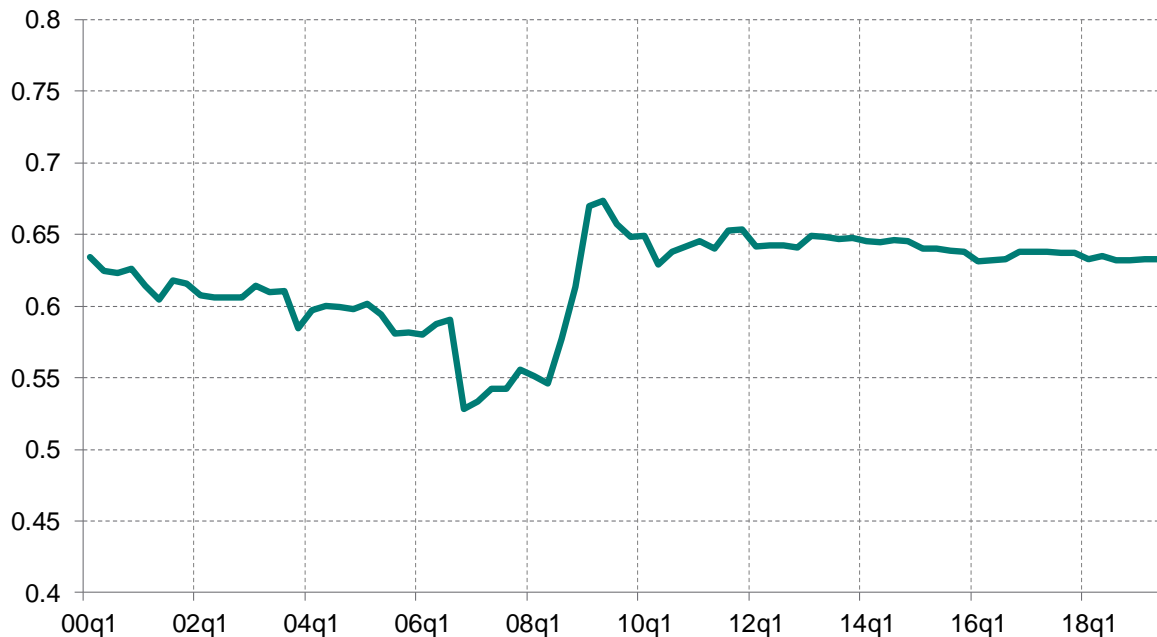
Historical decomposition of output gap YoY in Poland, 2000-2019



Source: OECD, Eurostat, NBP, BIS, and Statistics Poland data, own calculations.

Business cycle synchronisation increased somewhat after the crisis

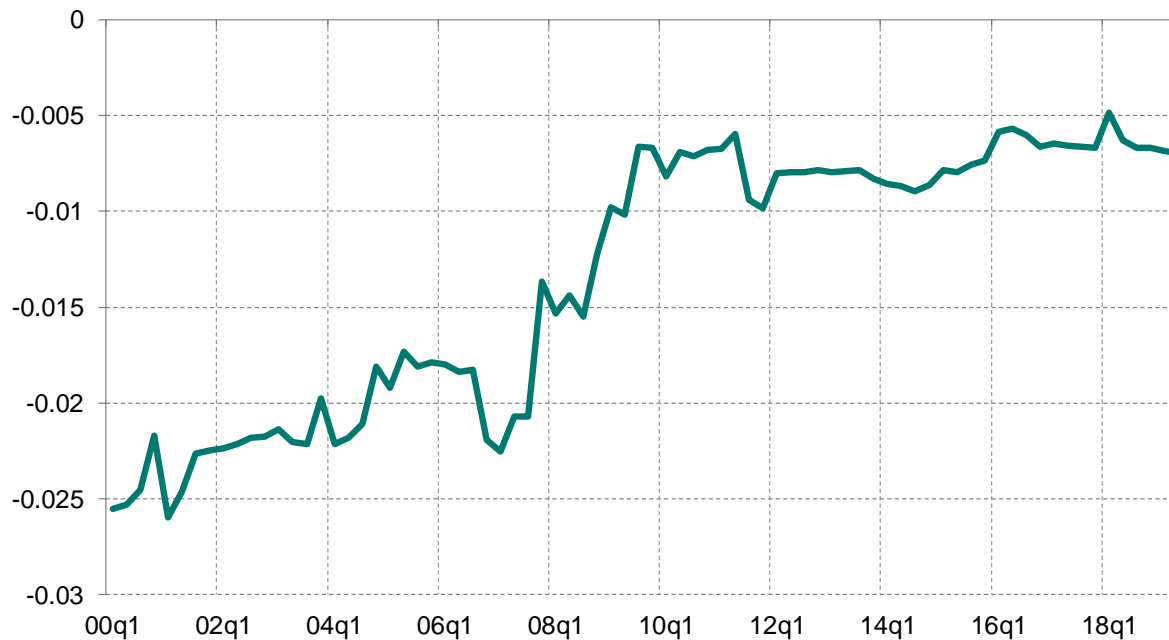
Coefficient on euro area output gap in a time-varying parameters model, 2000Q1-2019Q3



Source: OECD, Eurostat, NBP, BIS, and Statistics Poland data, own calculations.

But the effect of exchange rate on output gap has diminished substantially

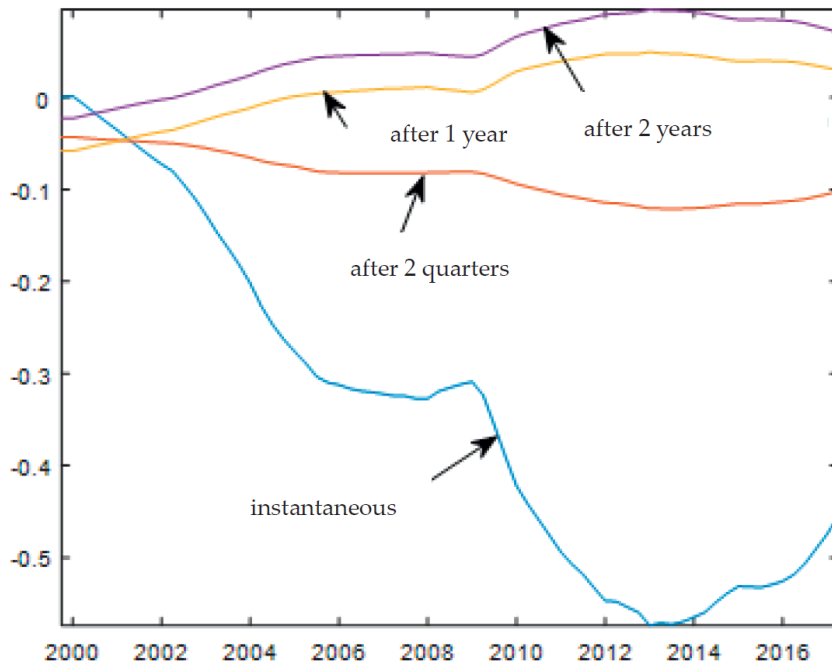
Coefficient on REER in a time-varying parameters model, 2000Q1-2019Q3



Source: OECD, Eurostat, NBP, BIS, and Statistics Poland data, own calculations.

At the same time, monetary policy transmission to GDP has strengthened

Response of GDP to a 25bp monetary policy shock



Source: Chmielewski et al. (2018).

Conclusions

- External factors have a significant effect on both (core) inflation and economic conditions in Poland
 - Foreign inflation is an important driver of core inflation, while foreign output gap and REER affect domestic output gap
 - However, energy prices and foreign output gap seem to have little impact on core inflation

- Their impact has not increased by much over the last 20 years, however, despite rising trade openness
 - The role of foreign inflation and the exchange rate in explaining inflation and output gap has actually diminished due to higher monetary policy credibility
 - Business cycle synchronisation has increased, but only slightly

Conclusions

- Monetary policy continues to have a strong impact on domestic economic conditions, which in turn affect core inflation
 - Monetary policy transmission to GDP has even strengthened

- Inflation expectations are the most important driver of core inflation
 - Managing inflation expectations is key!

- Overall, controlling inflation is possible even in a globalised world
 - Possible doesn't mean easy, though!

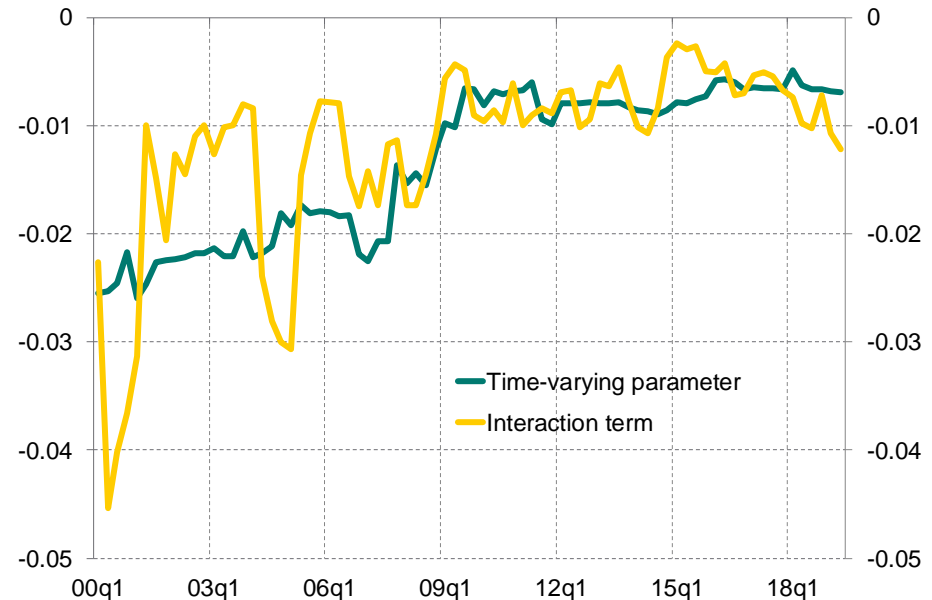
We protect the value of money

Appendix

Lower inflation volatility seems to be the key reason for declining role of REER

- Monetary policy credibility and inflation volatility seem to explain diminishing impact of exchange rate on economic conditions
 - Inflation volatility is proxied by an absolute value of a change in core inflation
 - Interaction term of REER and the inflation volatility proxy is highly significant (p-value of 0.002) in the IS curve regression
 - The resulting coefficient on REER broadly resembles the coefficient from the time-varying parameters model

Coefficient on REER in a time-varying parameters model vs the interaction term model, 2000Q1-2019Q3



Source: OECD, Eurostat, NBP, BIS, and Statistics Poland data, own calculations.