

SEÐLABANKI ÍSLANDS

From boom to bust and back again

The financial crisis and the recent recovery in Iceland



The Finnish Academy in Stockholm
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The financial crisis

A financial tsunami heads north

The financial boom and bust ...

- The latter half of the 2000s saw a build-up of large internal and external macro-financial imbalances in Iceland: asset prices were rising fast, credit growth exploding, and the banking system grew enormously, fed by cross-border wholesale funding
- The macroeconomy was overheating, the currency was overvalued, and a large trade deficit had build up

Financial and macroeconomic variables in the 2008 financial crisis

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Real house prices	Light Pink	Medium Pink	Dark Red	Dark Red	Dark Red	Dark Red	Light Pink	Light Blue	Light Blue	Light Blue	Light Blue
Real credit	Light Pink	Light Pink	Medium Pink	Dark Red	Dark Red	Medium Pink	Light Pink	Light Blue	Light Blue	Light Blue	Dark Blue
Credit-to-GDP	Light Pink	Light Pink	Dark Red	Dark Red	Dark Red	Medium Pink	Light Pink	Light Blue	Dark Blue	Dark Blue	Dark Blue
Real M3	Light Blue	Light Blue	Light Pink	Light Pink	Dark Red	Dark Red	Medium Pink	Light Pink	Light Blue	Light Blue	Light Blue
M3-to-GDP	Light Blue	Light Blue	Light Blue	Light Blue	Dark Red	Dark Red	Dark Red	Light Pink	Light Pink	Light Blue	Light Blue
Credit-to-M3	Light Pink	Medium Pink	Medium Pink	Dark Red	Medium Pink	Light Blue	Light Blue	Light Blue	Dark Blue	Light Blue	Light Blue
Bank assets-to-GDP	Light Blue	Light Pink	Dark Red	Dark Red	Dark Red	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Bank leverage ratio	Light Blue	Light Blue	Light Pink	Medium Pink	Medium Pink	Light Blue	Light Pink	Light Blue	Light Blue	Light Blue	Light Blue
Foreign non-core bank liab.	Dark Red	Medium Pink	Dark Red	Dark Red	Dark Red	Light Pink	Light Blue	Dark Blue	Dark Blue	Light Blue	Light Blue
Total non-core bank liab.	Dark Red	Medium Pink	Medium Pink	Dark Red	Dark Red	Light Pink	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
GDP	Light Blue	Light Pink	Light Pink	Light Pink	Medium Pink	Medium Pink	Light Pink	Light Blue	Light Blue	Light Blue	Light Blue
Domestic demand	Light Blue	Light Pink	Medium Pink	Dark Red	Dark Red	Medium Pink	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Trade deficit-to-GDP	Light Pink	Light Pink	Dark Red	Dark Red	Medium Pink	Light Pink	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Nominal exchange rate	Light Pink	Medium Pink	Medium Pink	Medium Pink	Medium Pink	Light Pink	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue
Real exchange rate	Light Pink	Light Pink	Medium Pink	Medium Pink	Medium Pink	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue

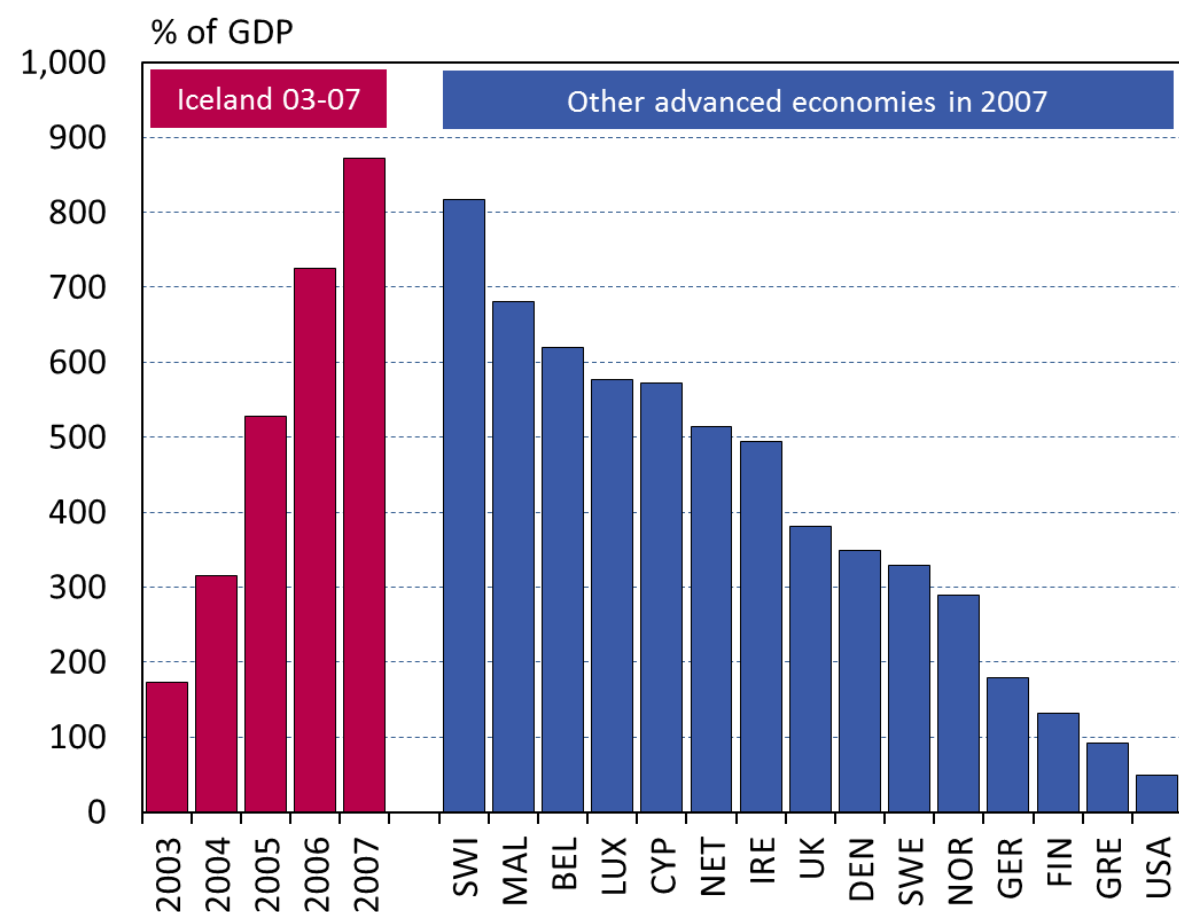
1. The table shows the development of each variable compared to its long-term trend for the five years in the run-up to and in the aftermath of a financial crisis (starting in 2008). The long-term trend is estimated for 1870-2013 using the Hodrick-Prescott filter with a smoothing parameter equal to 1,563. Red cells indicate that a variable was above trend in a given year with darker red cells indicating ever larger deviations above trend (■ indicates more than 1 standard deviation above trend, ■ more than 2 standard deviations above trend, and ■ more than 3 standard deviations above trend). Blue cells indicate that a variable was below trend in a given year with darker blue cells indicating ever larger deviations below trend (■ indicates more than 1 standard deviation below trend, ■ more than 2 standard deviations below trend, and ■ more than 3 standard deviations below trend).

Source: B. G. Einarsson, K. Gunnlaugsson, T. T. Ólafsson and T. G. Pétursson (2015), "The long history of financial boom-bust cycles in Iceland – Part I: Financial crises", Central Bank of Iceland, Working Papers no. 68.

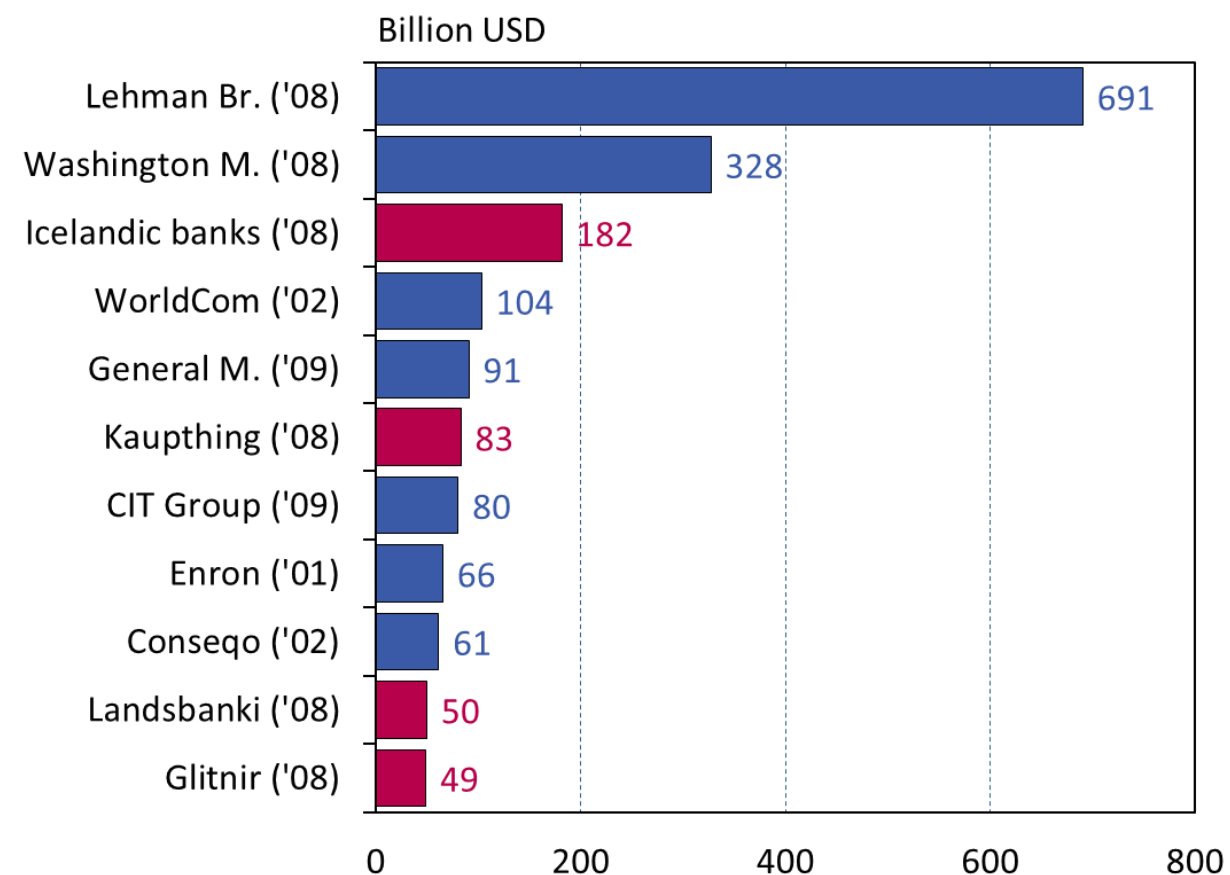
... saw the rise and fall of a gigantic banking system

- The Icelandic banking system expanded rapidly following its privatisation in the early 2000s: increasing from less than 2 times GDP in 2003 to 10 times GDP by the time it collapsed in the autumn of 2008 – making it the largest banking system in the advanced world relative to GDP ... and among the largest bankruptcies in history – even in absolute terms

Banking system size in the run-up to the international financial crisis¹



The largest bankruptcies in history



1. The figure shows the development in Iceland in 2003-2007 but the position in 2007 in other countries.

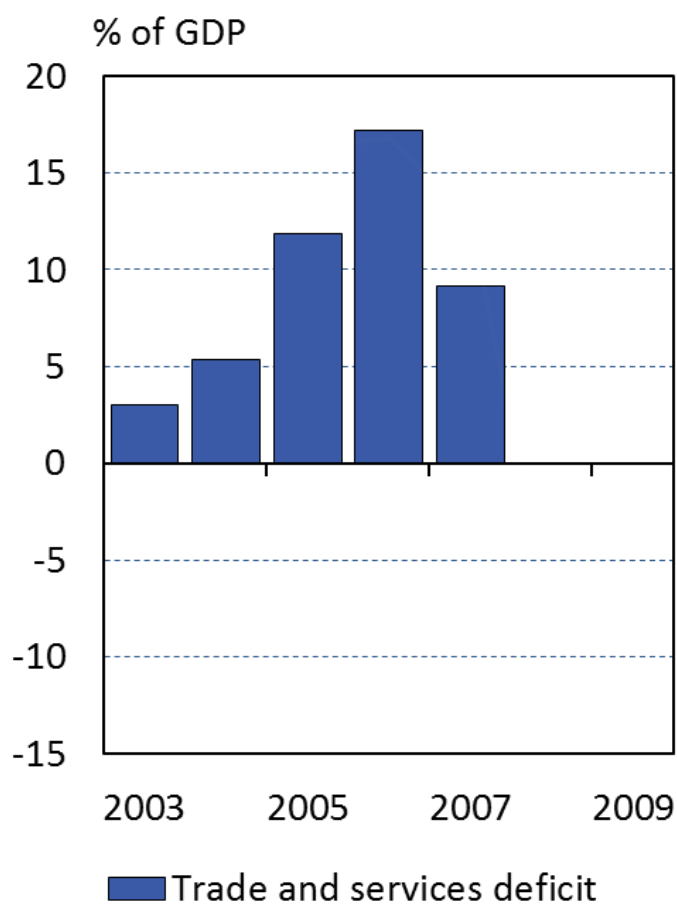
Sources: BankruptcyData.com, Interim Financial Statements of the Icelandic banks in September 2008, Central Bank of Iceland, T. T. Ólafsson & T. G. Pétursson (2011). Weathering the financial storm: The importance of fundamentals and flexibility. In *The Euro Area and the Financial Crisis*. Editors M. Bablavý, D. Cobham and L. Ódor. Cambridge University Press.

The boom-bust cycle: large imbalances building up

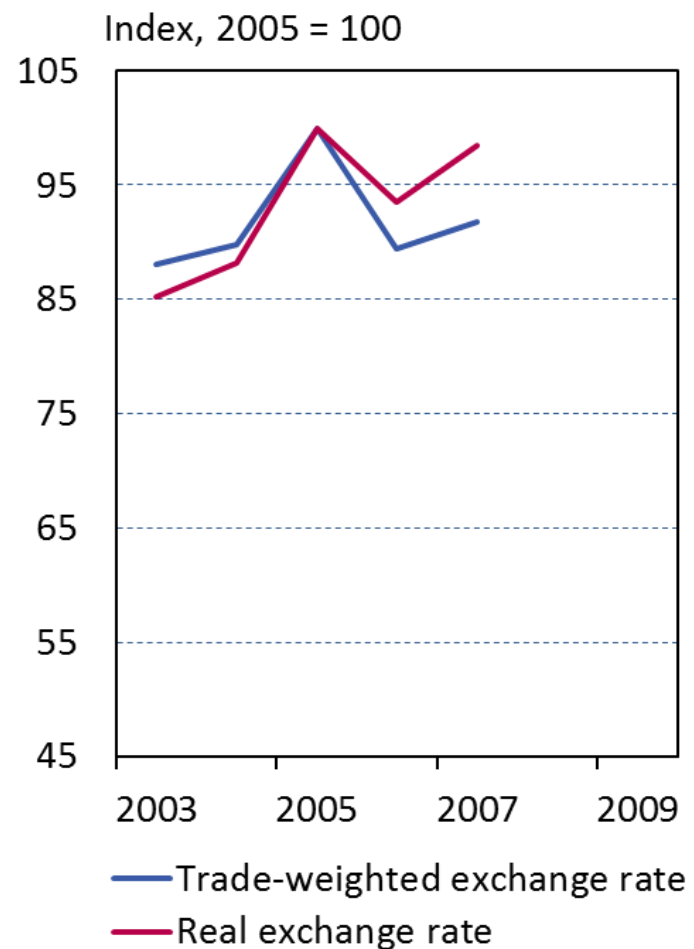
- The trade deficit reached almost 20% of GDP, the currency rose by almost 20% and real asset prices rose enormously (house prices by more than 50% and equity prices by more than 250%), all being fed by a large credit boom ...
- ... thus, leading to a very large increases in private sector debt – which had reached over 300% of GDP in 2007

The boom-bust cycle 2003-2009

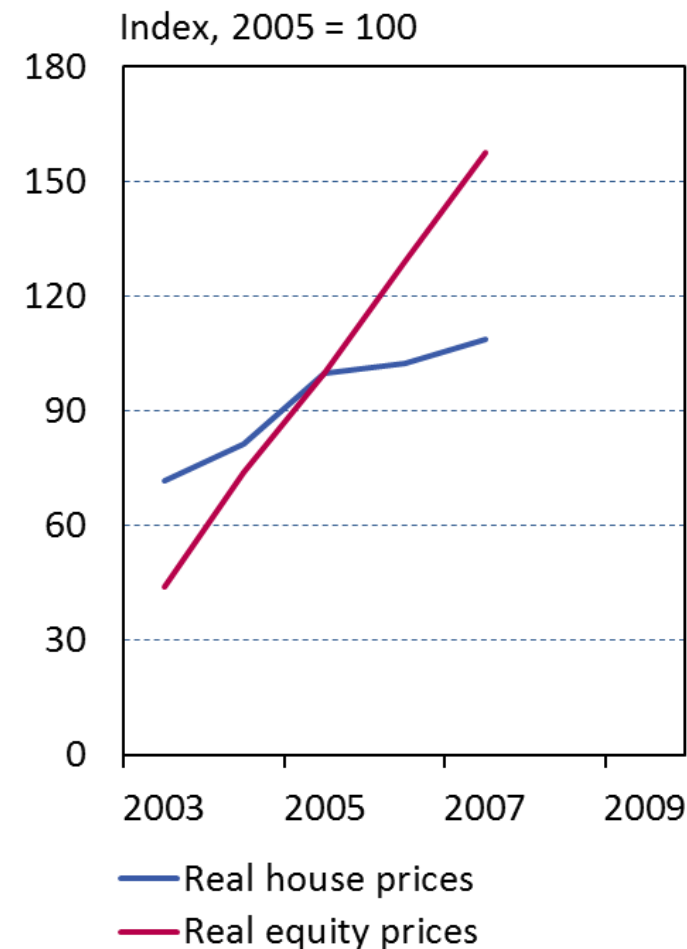
Trade deficit



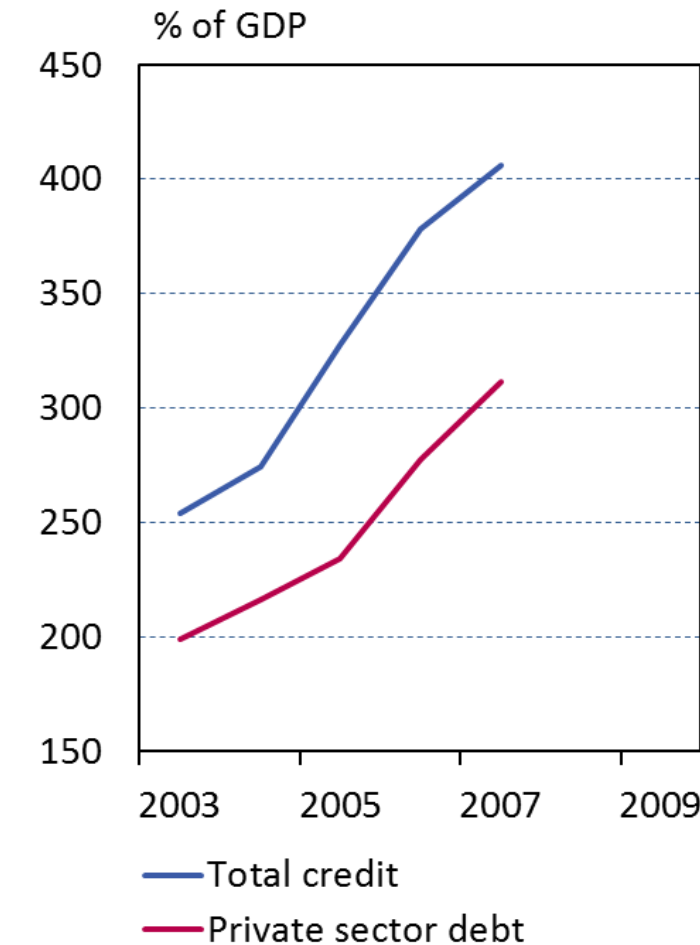
Exchange rate



Asset prices



Credit and debt

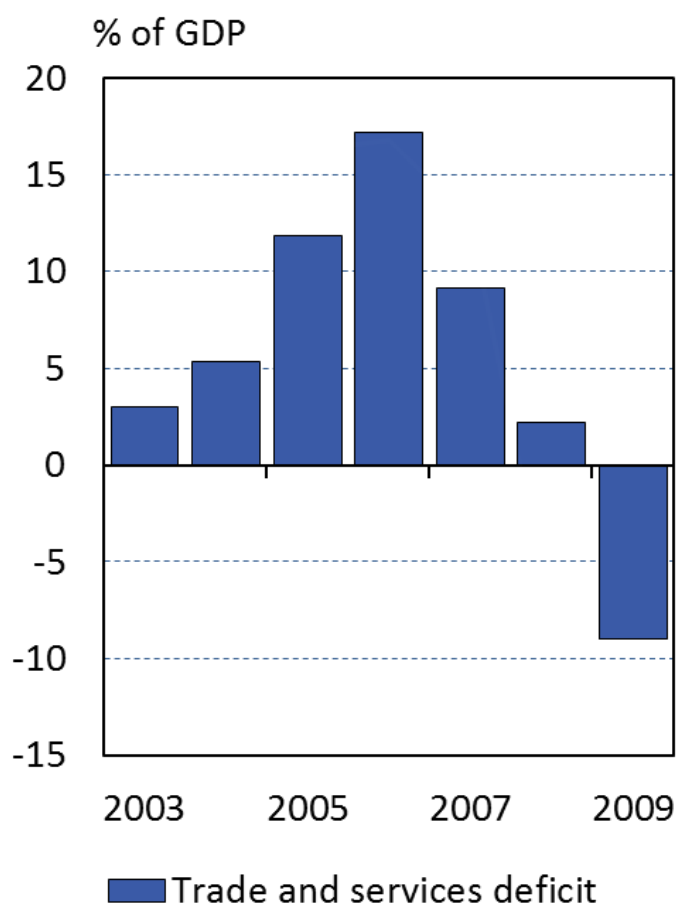


The boom-bust cycle: a large and sharp correction

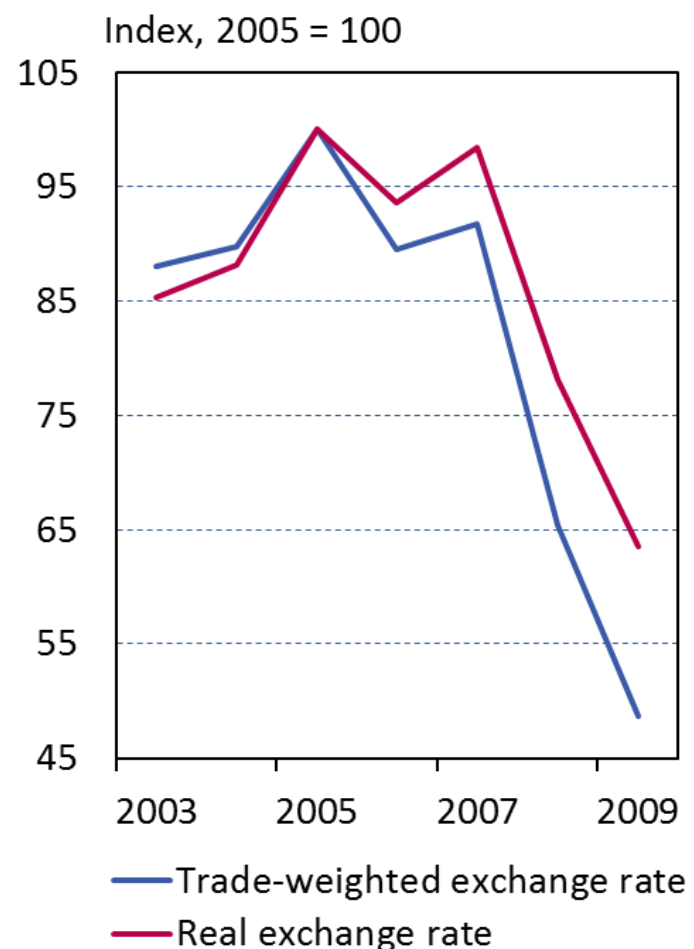
- The global financial crisis saw an abrupt stop to access to foreign credit to fund such a large trade deficit ...
- ... the sudden stop crisis led to a sharp reversal in the trade deficit as domestic demand became severely compressed, and a sharp correction in the currency, followed by collapsing credit and asset prices

The boom-bust cycle 2003-2009

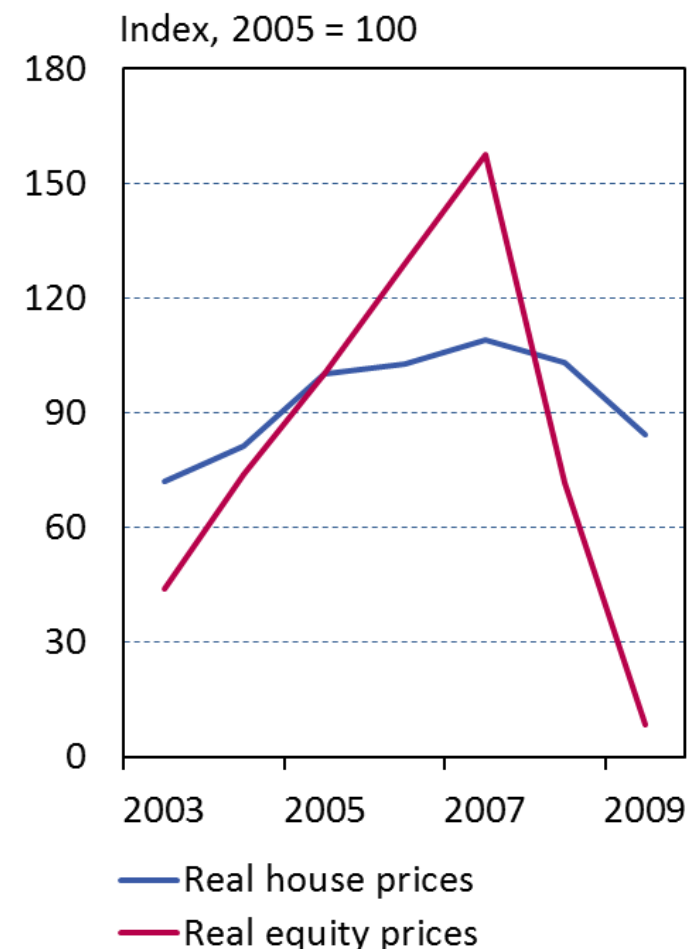
Trade deficit



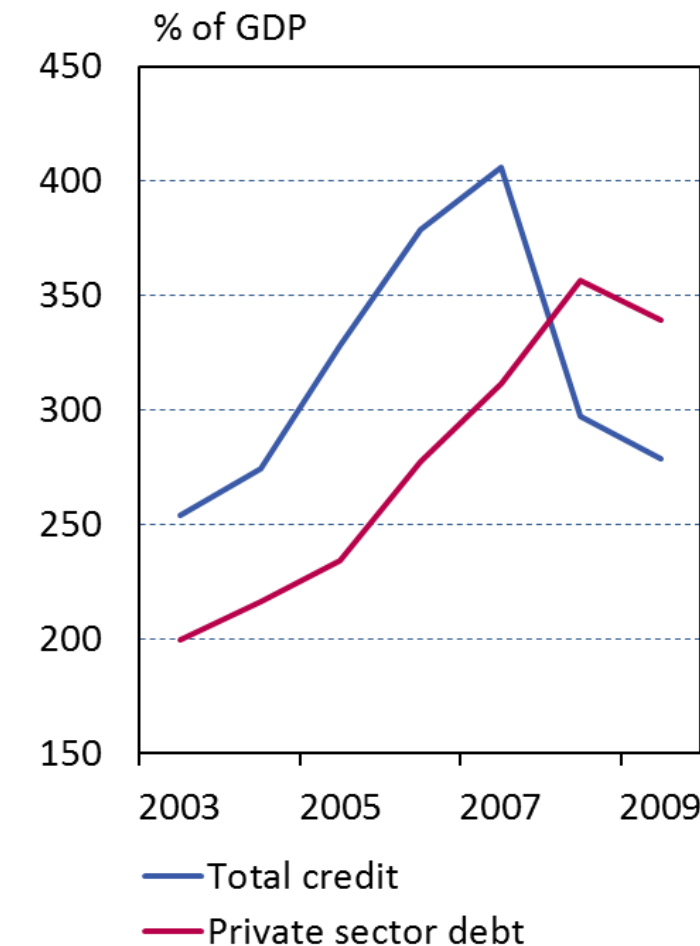
Exchange rate



Asset prices



Credit and debt

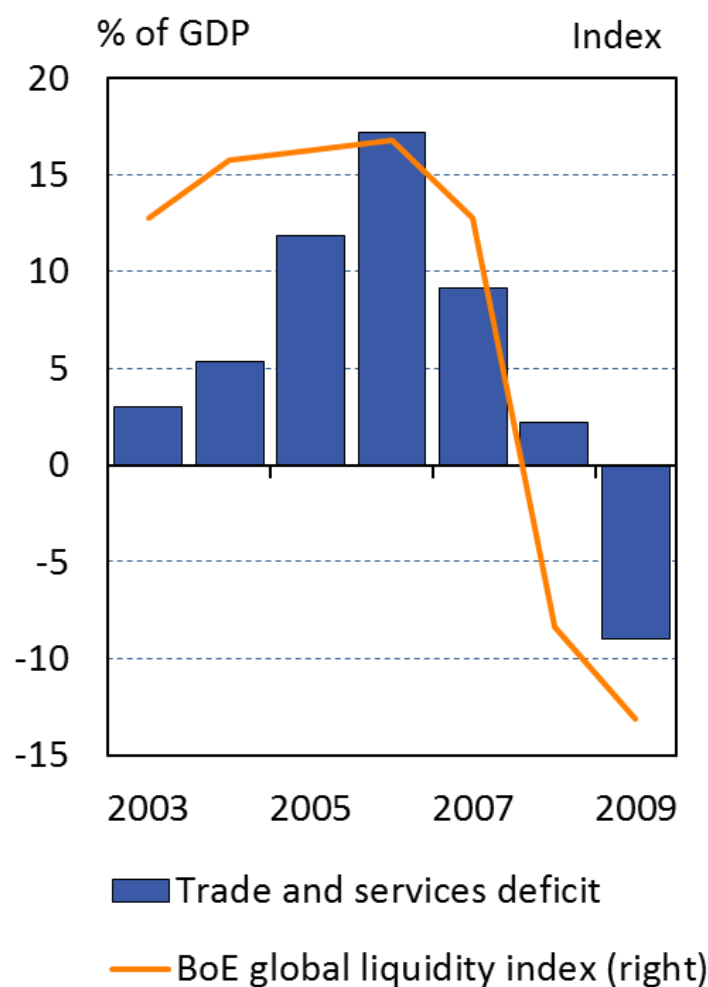


The boom-bust cycle: significant global spillovers

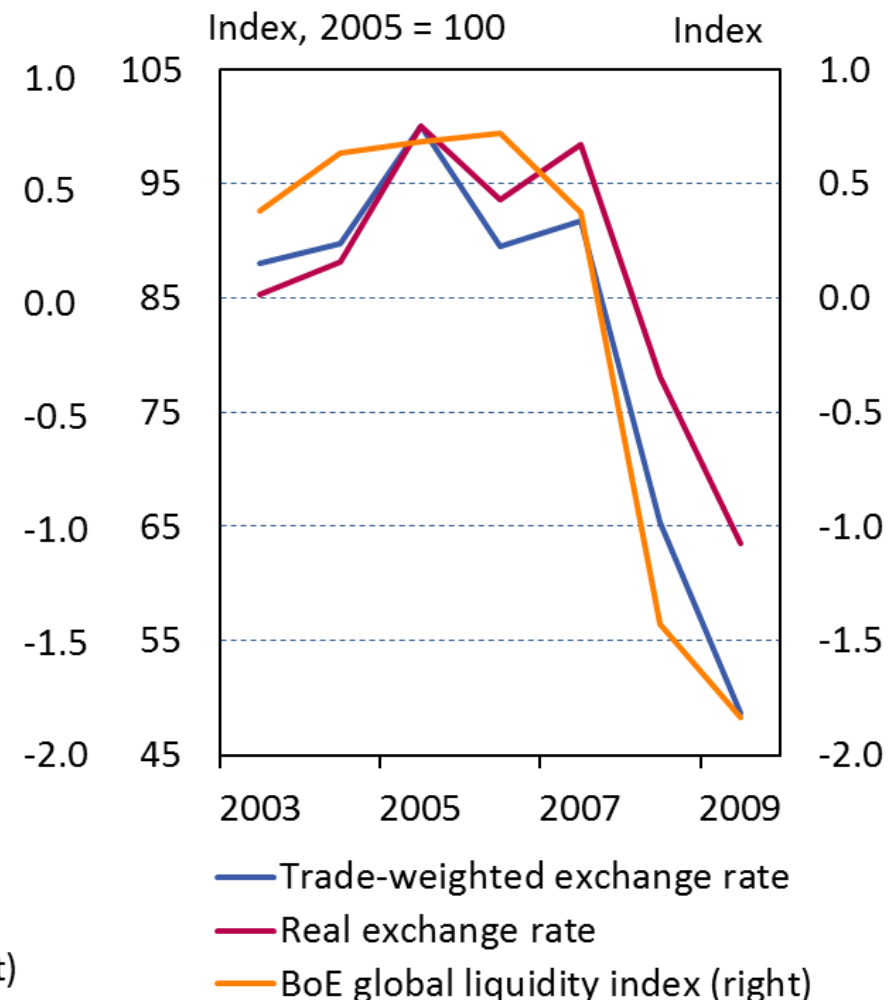
- An important feature of the boom-bust episode is the role of global financial conditions: how easy access to global funding fed the boom and how its sharp curtailment following the Lehmann collapse contributed to the bust
- Suggests there is a domestic financial cycle that is to a large extent driven by variations in global financial conditions

The boom-bust cycle 2003-2009

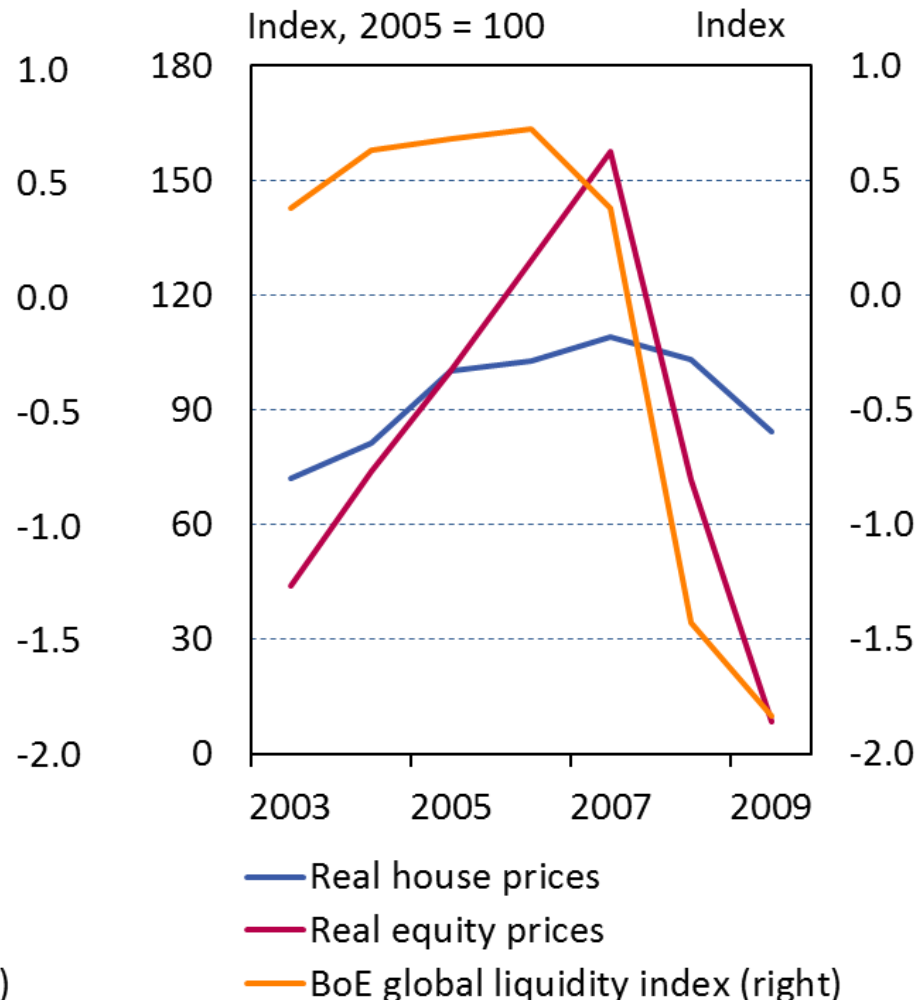
Trade deficit



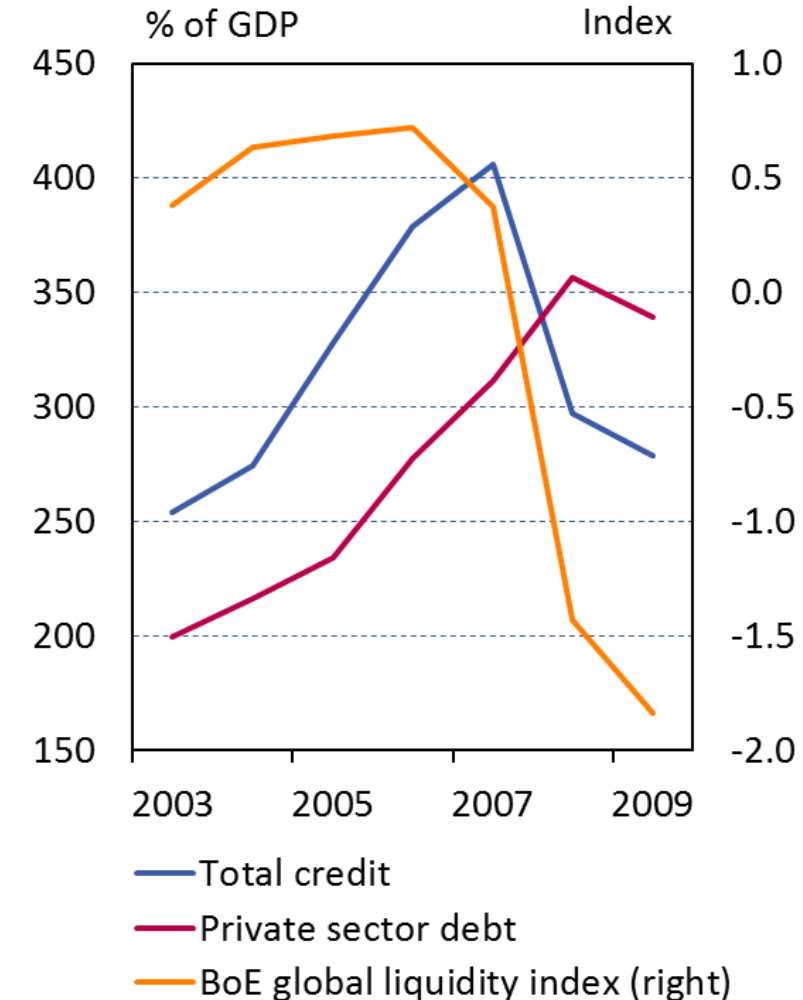
Exchange rate



Asset prices



Credit and debt

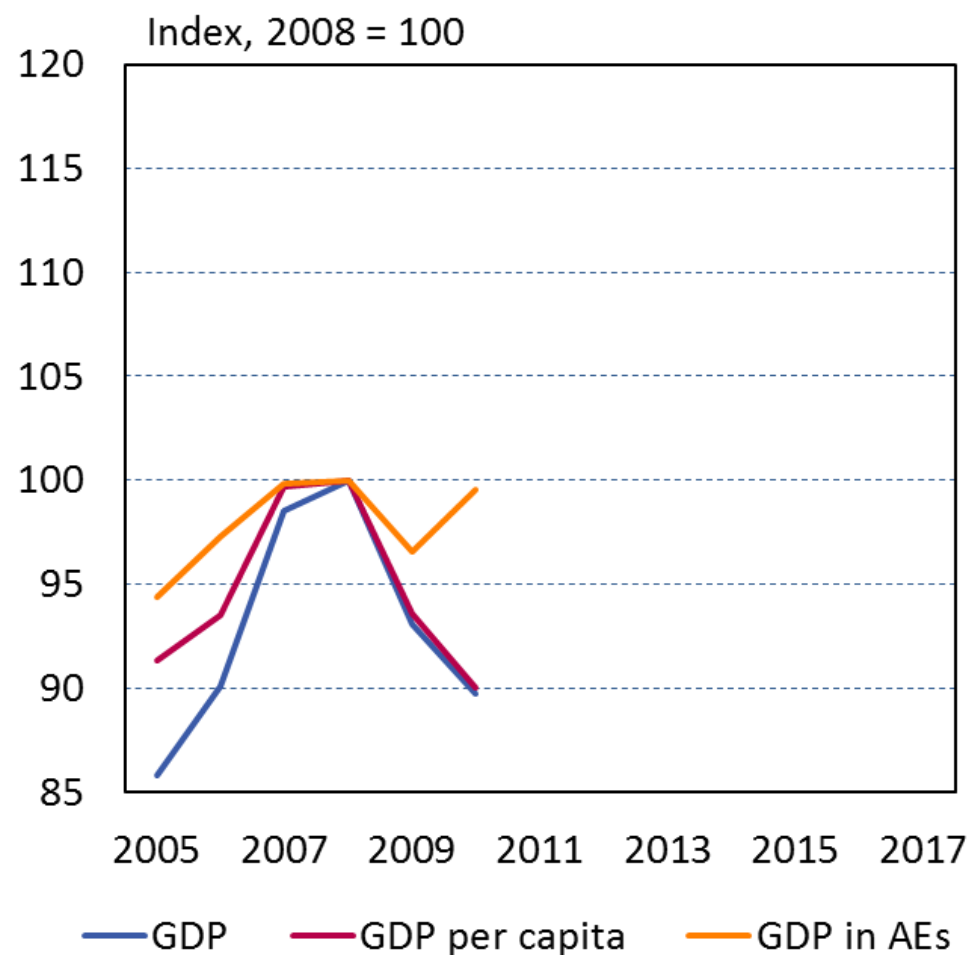


The Bank of England global liquidity index shows the number of standard deviations from the mean (exponential moving average) from a simple unweighted average of nine liquidity measures, normalised on the period 1999-2004.
Sources: Bank of England, Statistics Iceland, Central Bank of Iceland.

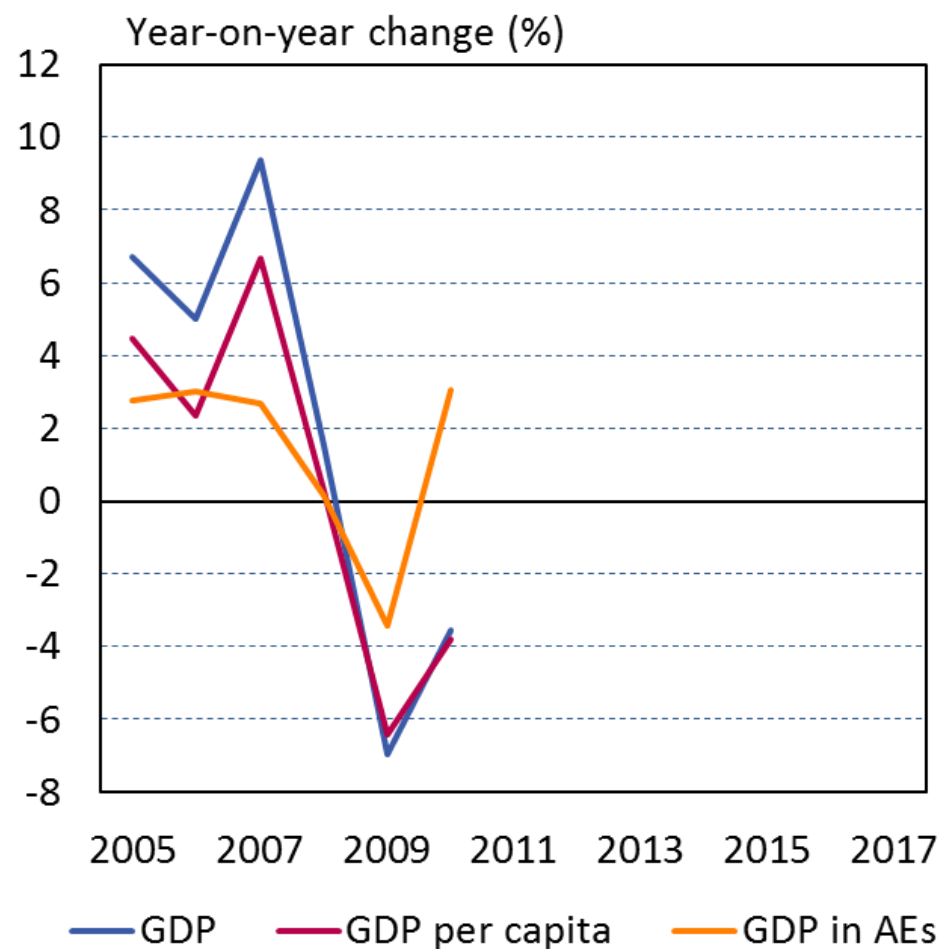
The crisis hit the real economy hard

- GDP contracted by 6.9% in 2009 and by further 3.6% in 2010: with a 13.3% cumulative contraction from quarterly peak to trough – much more than in other advanced economies
- Unemployment also rose sharply and by much more than in other AEs: from about 2% pre-crisis to 8% in late 2010

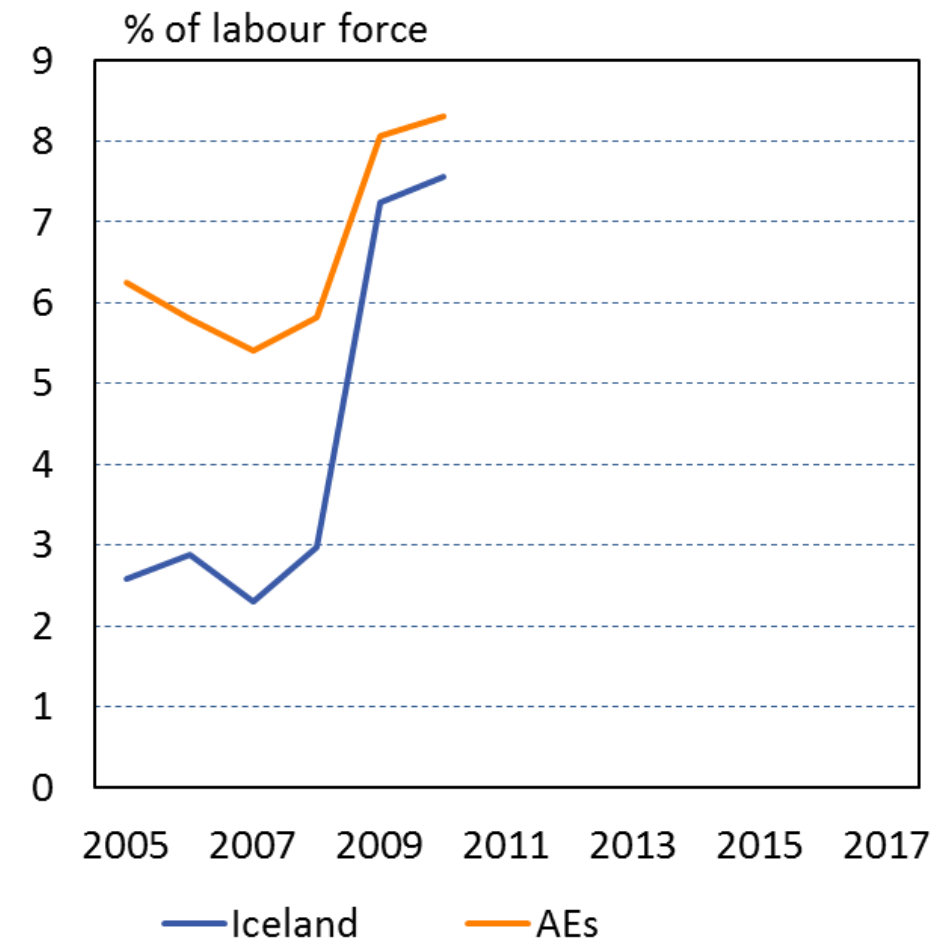
GDP and GDP per capita 2005-2010



GDP and GDP per capita 2005-2010



Unemployment rate 2005-2010





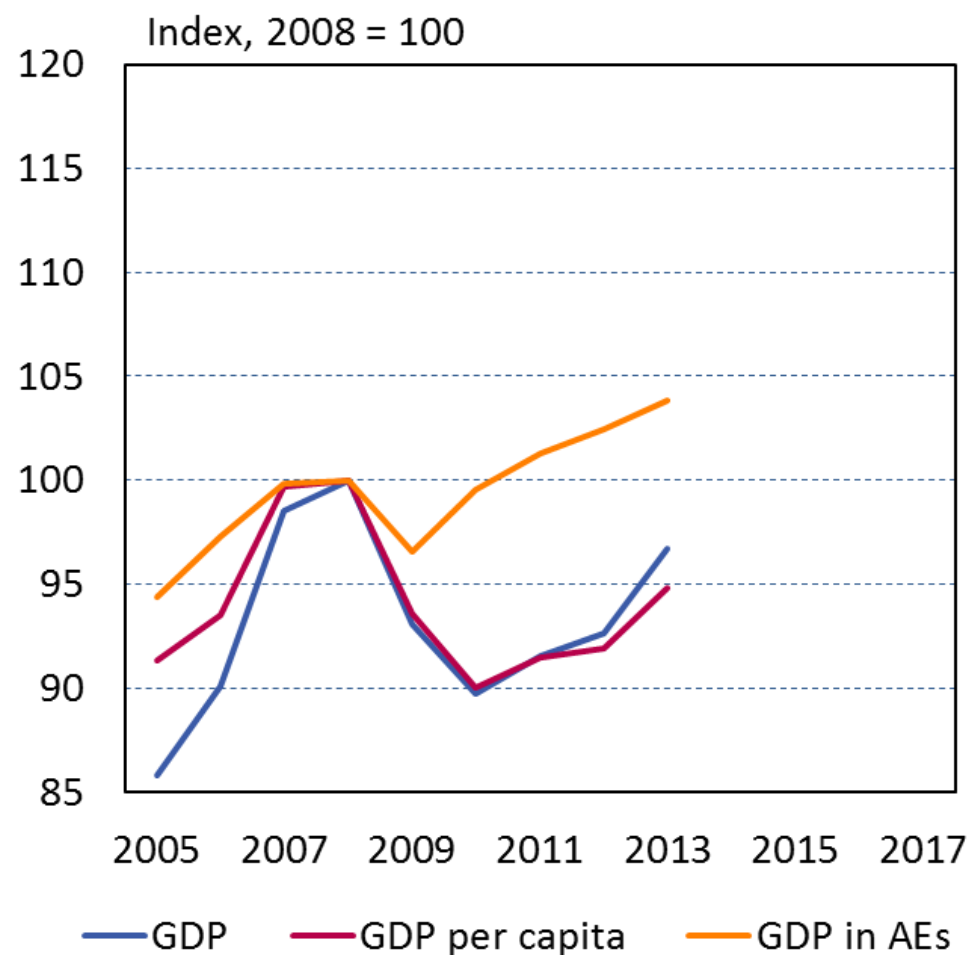
The recovery

This time its different?

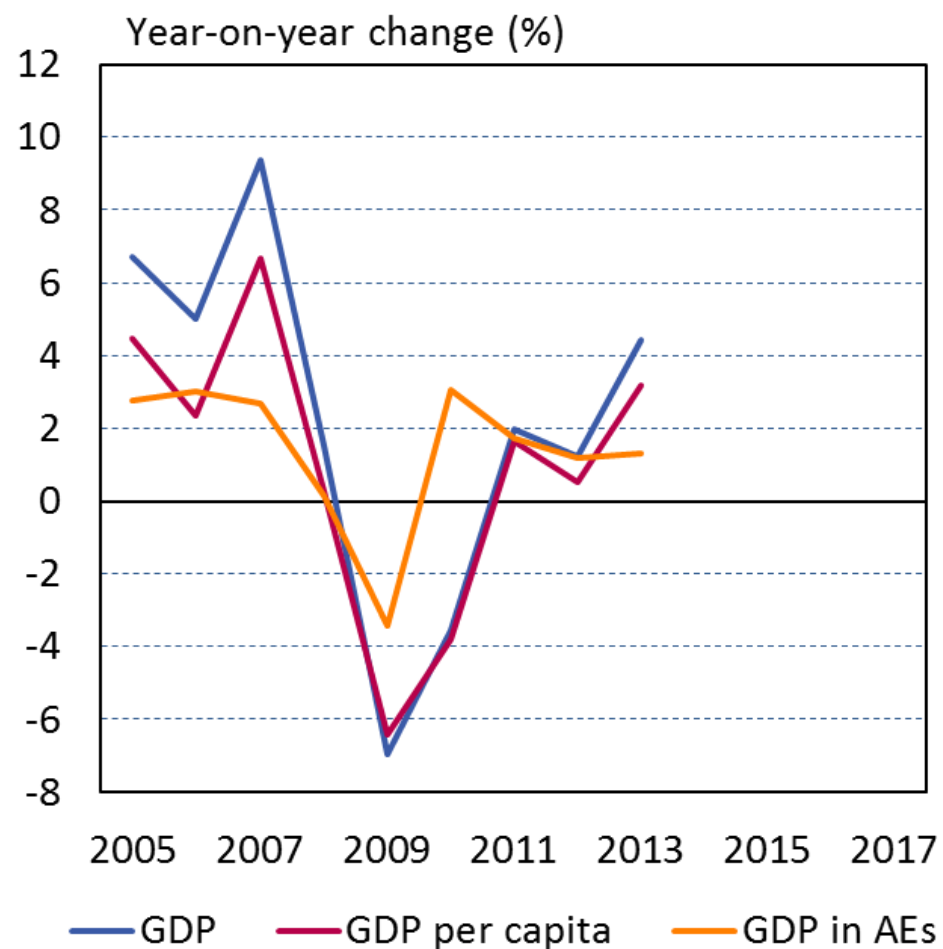
The first phase of the recovery was relatively slow ...

- Recovery started in early 2010 – but it was slow and uneven: average per capita growth in 2011-13 was 1¾% ...
- ... but GDP remained well below its pre-crisis peak – while AEs had on average already retained their pre-crisis peak
- Unemployment fell below 6% but remained high in Icelandic context

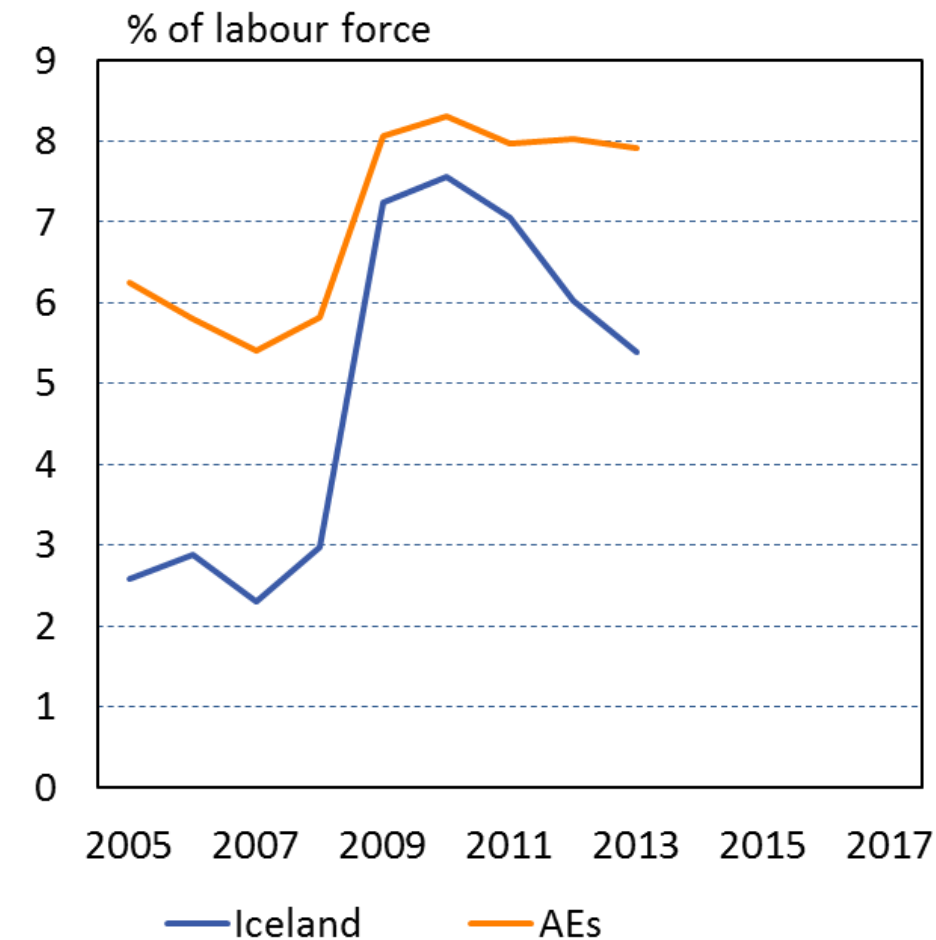
GDP and GDP per capita 2005-2013



GDP and GDP per capita 2005-2013



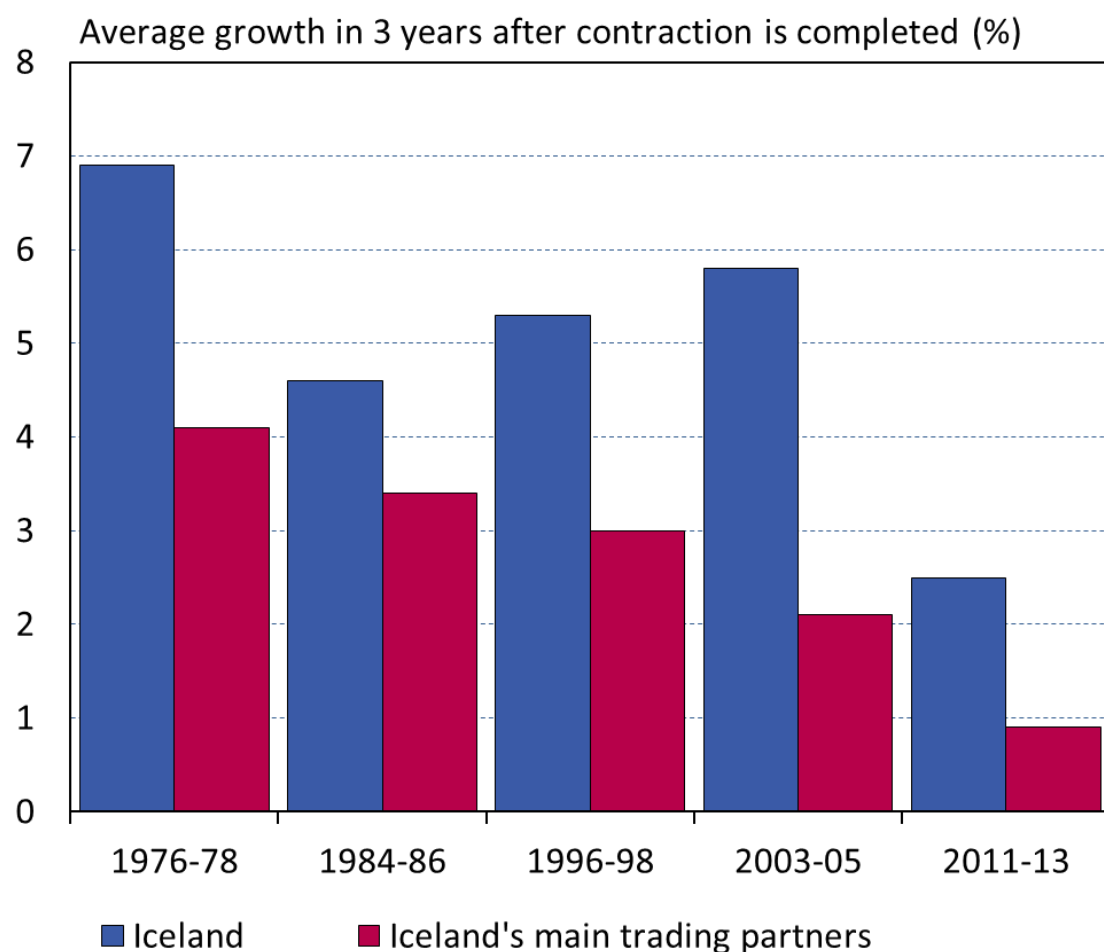
Unemployment rate 2005-2013



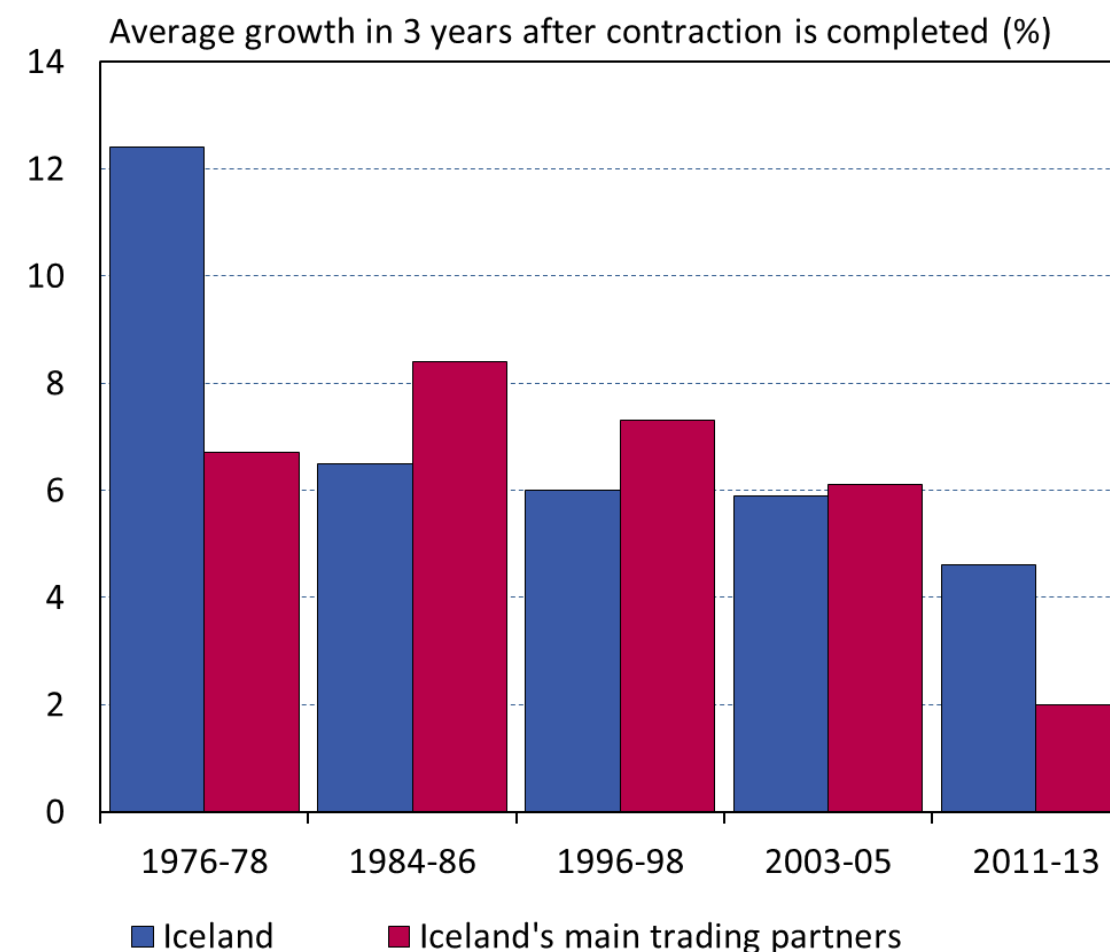
... and slower than in previous recoveries ...

- The initial recovery was markedly slower than seen in previous recoveries in Iceland: average GDP growth in 2011-13 only half of previous 4 recoveries
- Reflects smaller support from exports and the fact that this was a recovery from a financial crisis

GDP growth in recovery phases¹



Export growth in recovery phases¹

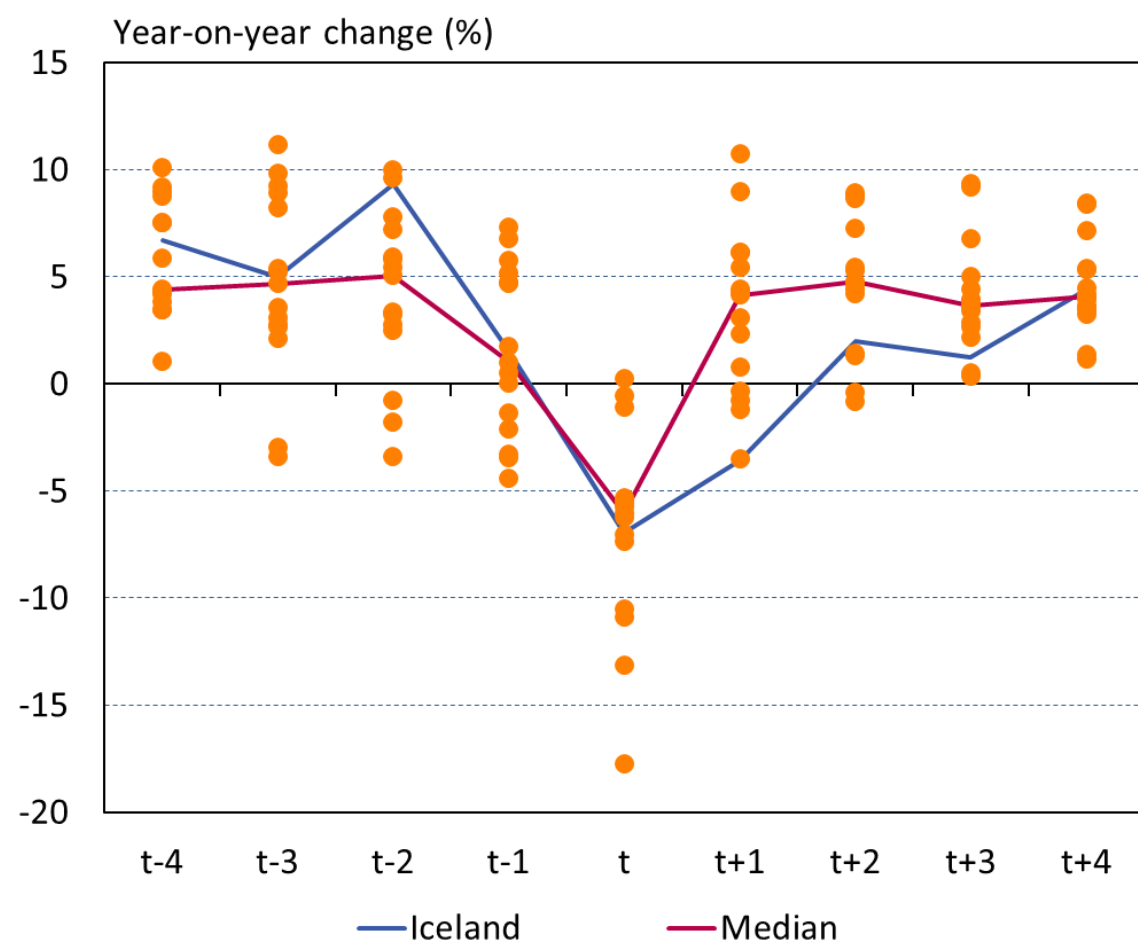


1. Contraction periods are based on the business cycle dating from Pétursson (2000) using a Markov switching model, in addition to the periods 2002-3 and 2008-10.
 Sources: T. G. Pétursson (2000), "Business cycle forecasting and regime switching", Central Bank of Iceland, Working Paper no. 7, OECD, Statistics Iceland, Central Bank of Iceland.

... but understandable given the nature of crisis

- The initial contraction in fact similar to output contractions in other large financial crises – but the recovery was slower than typically found in other financial crises ...
- ... reflecting that Iceland had a twin-crisis (which are typically much nastier) and the poor state of the global economy

GDP growth in financial crises¹



Different types of financial crises

	Currency crises	Banking crises	Twin crises
Duration	2.1	2.6	3.8
Size	5.9	6.2	18.6

Comparison of 52 crises. Length: Average duration of contraction period in years. Size: average accumulative loss of GDP in %. From Bordo et al. (2001).

Average GDP growth in advanced economies in the 4 years after the crisis (%)

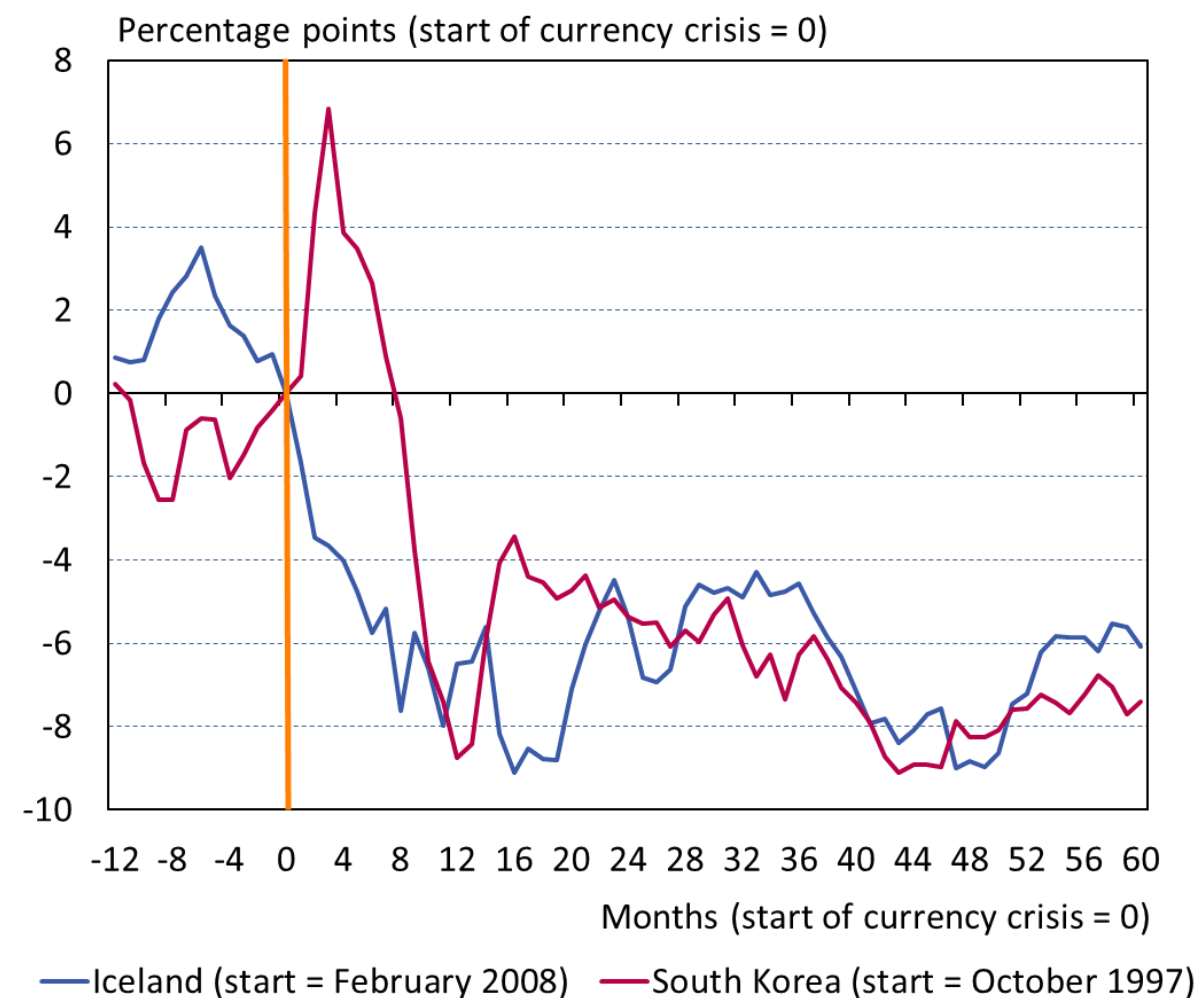
Scandinavian crisis in 1991	2.2
Asian crisis in 1998	3.0
Great Financial Crisis	0.6

1. GDP growth in Iceland and 15 other financial crisis episodes (year t defined as the first calendar year of the crisis). The countries are (first calendar year of crisis in parenthesis): Argentina (2002), Brazil (1999), Ecuador (1999), Finland (1991), Iceland (2009), Indonesia (1998), Ireland (2009), Korea (1998), Latvia (2009), Malaysia (1998), Mexico (1995), Philippines (1998), Sweden (1991), Thailand (1998), Turkey (2001), and Uruguay (2002). Sources: M. Bordo, B. Eichengreen, D. Klingebiel and M. S. Martinez-Peria (2001), "Is the crisis problem growing more severe?", *Economic Policy*, 16, 51-82, IMF, Statistics Iceland, Central Bank of Iceland.

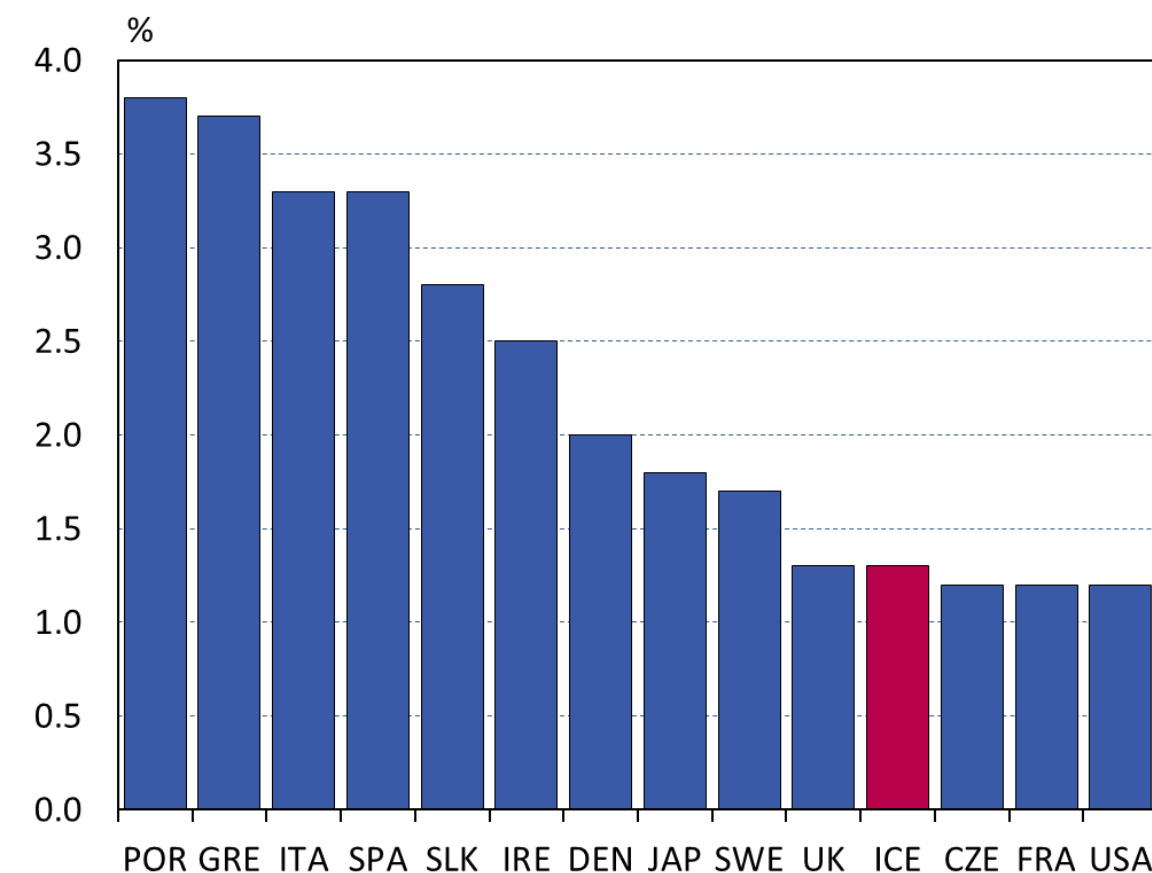
Capital controls supported initial recovery

- Capital controls helped stabilise currency and other asset prices and provided shelter for private sector balance sheet restructuring
- Reduced risk of negative spillover from eurozone sovereign debt crisis
- Allowed more rapid real interest rate reductions and facilitated fiscal adjustment by pushing down the cost of debt financing

Short-term real interest rates in two twin crises¹



Real effective interest rate on government debt in 2012²



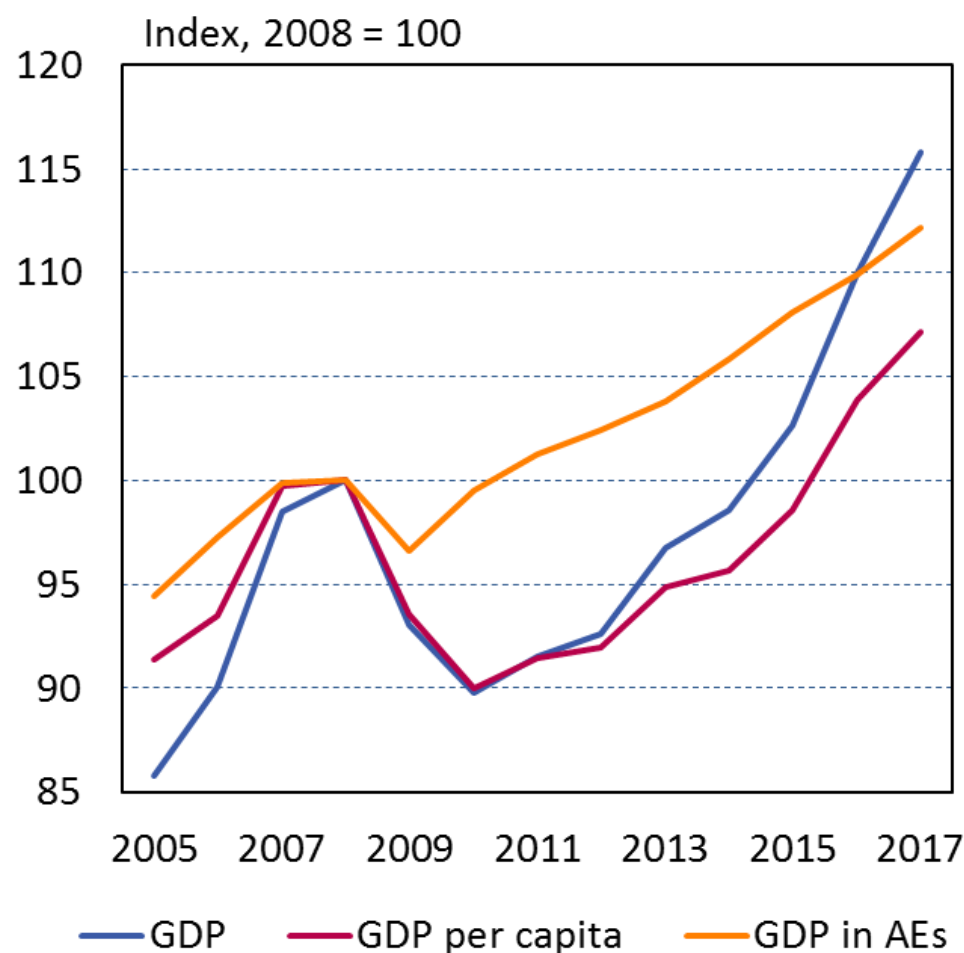
1. The currency crisis in South Korea is assumed to have started in October 1997 when pressures on the won started to escalate. The currency crisis in Iceland is assumed to have started in February 2008 when the foreign exchange swap market collapsed. 2. Ratio of interest payments over debt from the IMF's *Fiscal Monitor*, October 2012.

Sources: IMF, OECD, Statistics Iceland, Central Bank of Iceland.

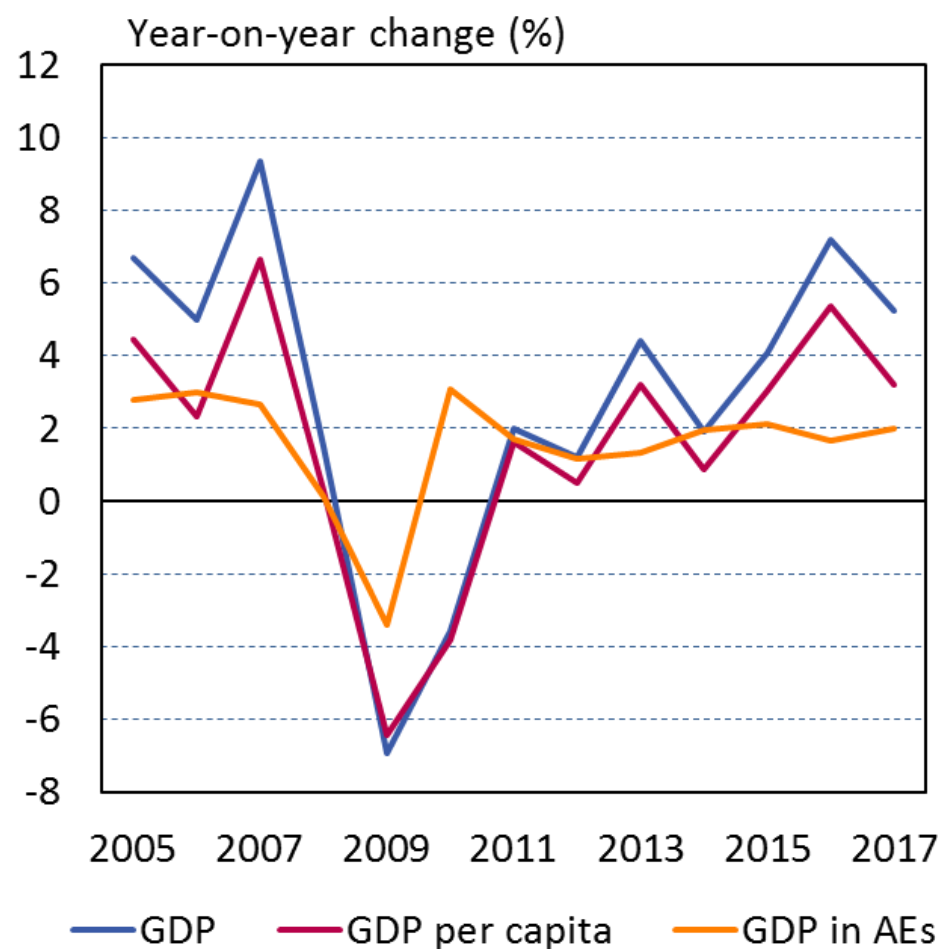
The recovery has accelerated in recent years ...

- GDP growth has accelerated in recent years: measuring 4.1% in 2015 and a whopping 7.2% in 2016 (with 5.2% growth expected this year) ... and GDP has regained its pre-crisis peak (also in per capita terms)
- Unemployment has fallen further and reached 3% in 2016 and 2.5% in Q2/2017

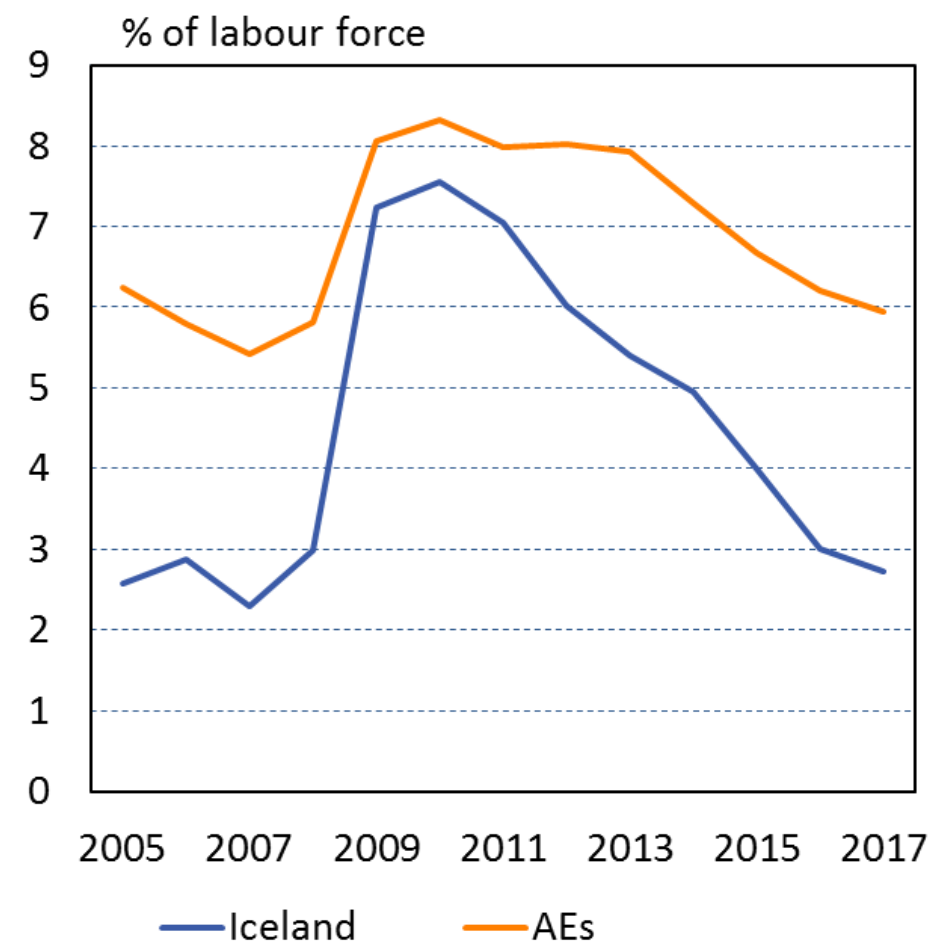
GDP and GDP per capita 2005-2017¹



GDP and GDP per capita 2005-2017¹



Unemployment rate 2005-2017¹

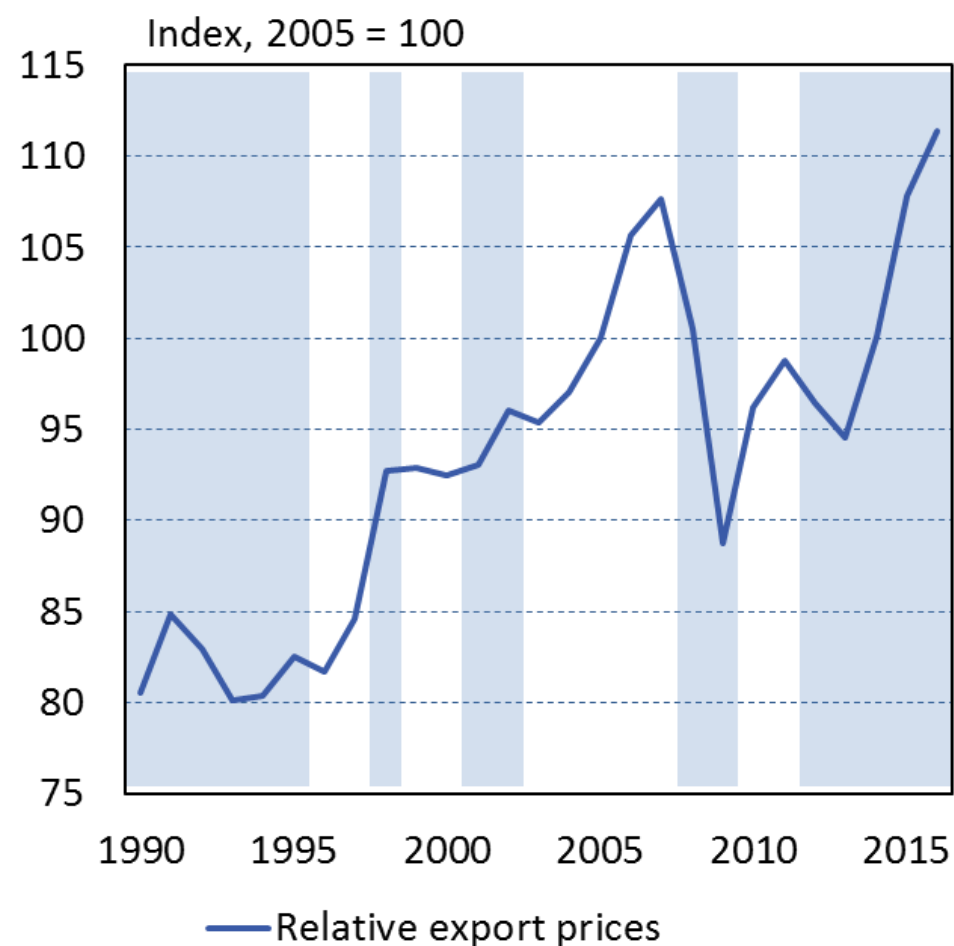


1. Forecasts for 2017 from *Monetary Bulletin* 2017/3 for Iceland and the IMF's *World Economic Outlook*, April 2017 for Advanced Economies (AEs).
Sources: IMF, Central Bank of Iceland.

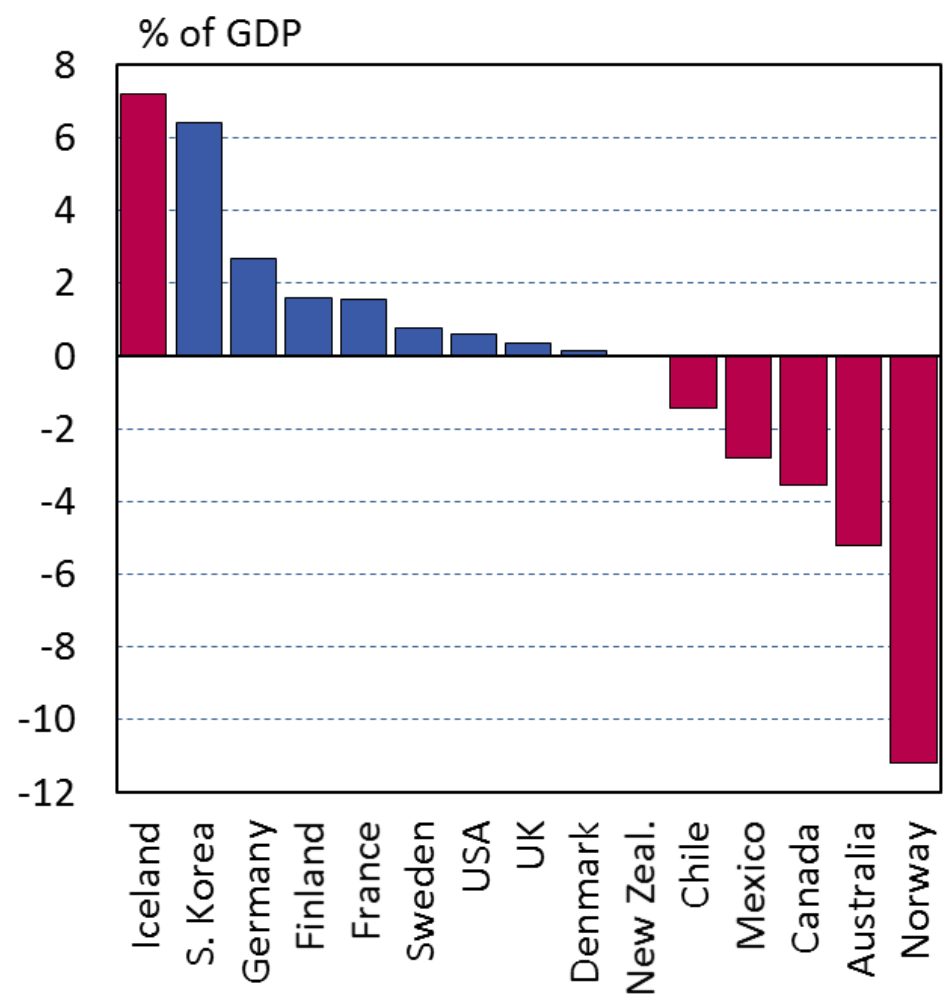
... supported by favourable external shocks

- Export prices rose by 17% in 2014-16 relative to trading partners' export prices – unusual given the weak trading partner growth ... leading to the largest terms of trade improvement among OECD countries
- Exports have also been booming: driven by a tourism boom – which has almost quadrupled since 2010

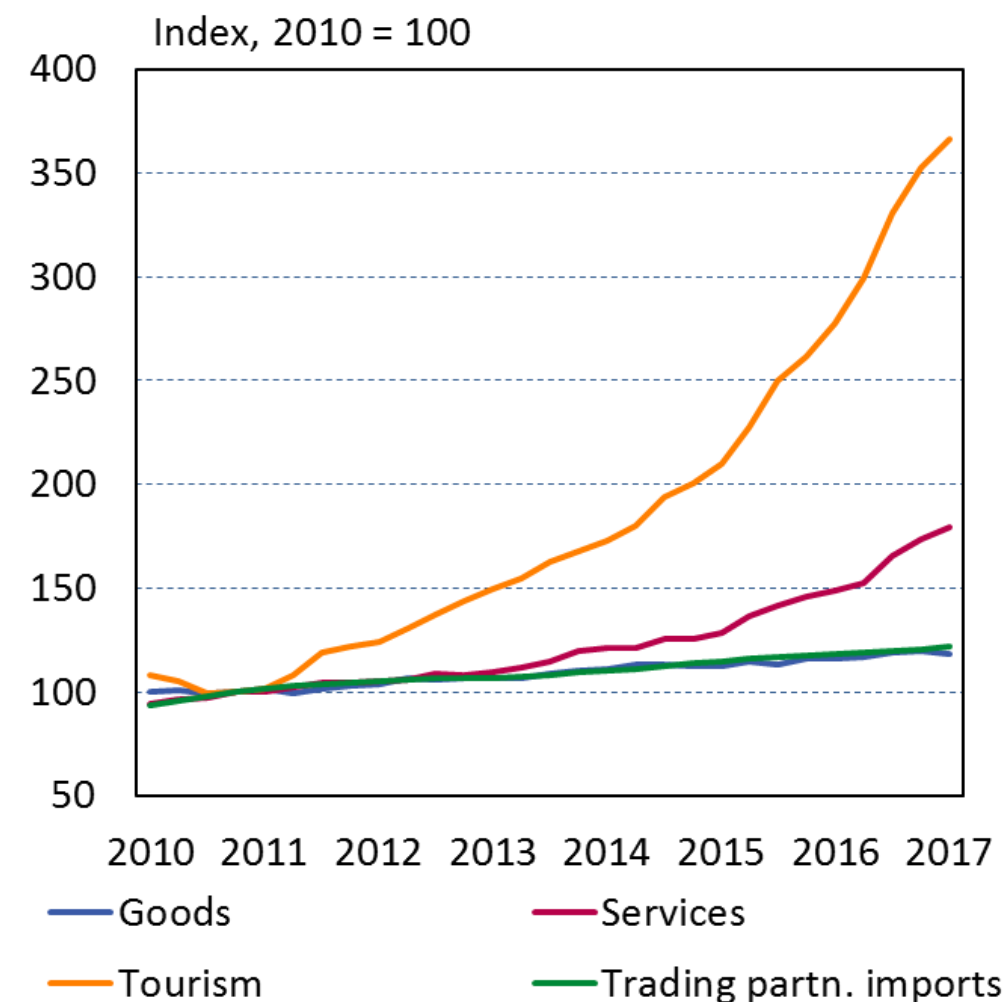
Export prices and global growth 2000-2016¹



Terms of trade effect in 15 OECD countries 2014-2016²



Exports and external demand³ Q1/2010 - Q1/2017



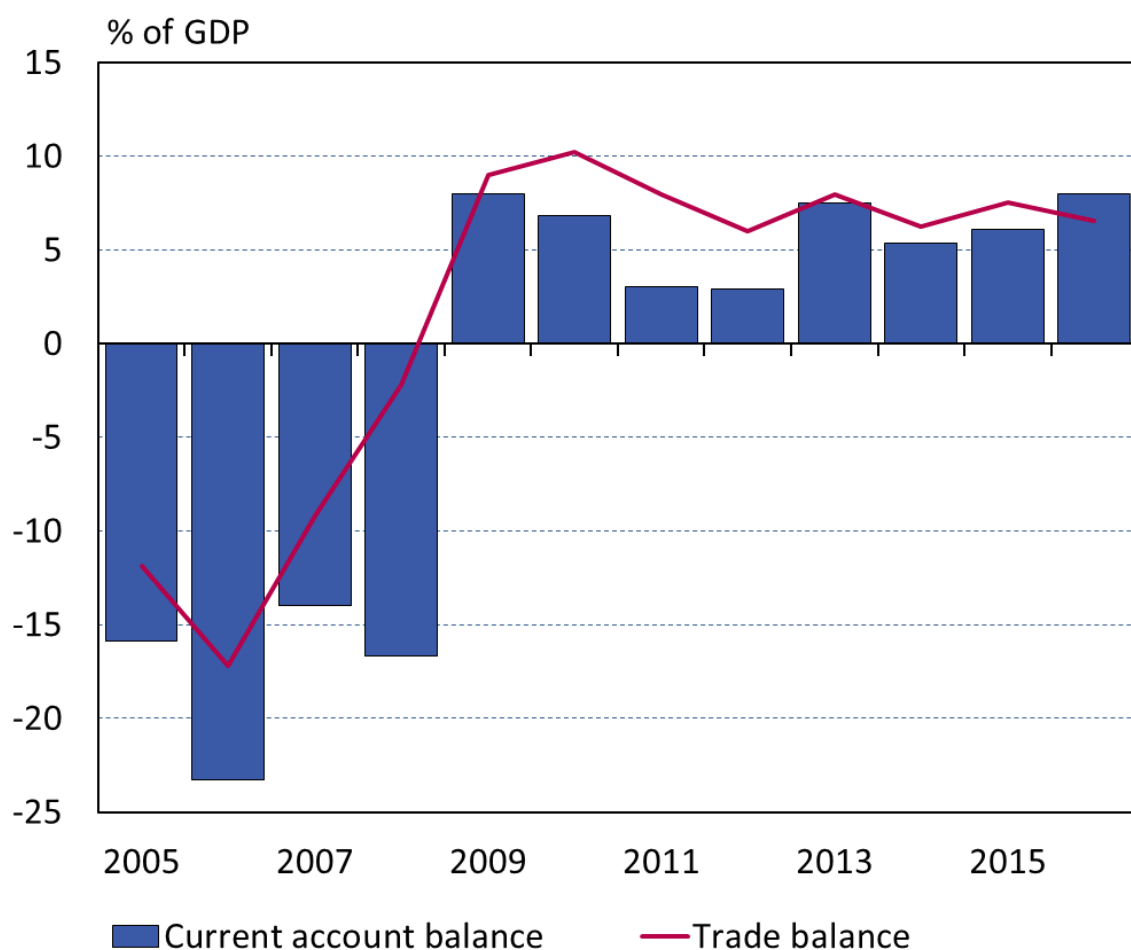
1. Price of Icelandic exports relative to trading partners' export prices (converted to the same currency using the trade-weighted exchange rate index). Shaded area denotes years when global GDP growth is below its 25-year average (1992-2016). 2. The difference between the purchasing power of exports and export volumes relative to the previous year's GDP. Cumulative effects for 2014-2016. Countries classified as commodity exporters in terms of the weight of commodities in net exports are denoted by red columns. 3. Four quarter moving average.

Sources: IMF, Macrobond, OECD, United Nations (UNCTAD), Statistics Iceland, Central Bank of Iceland.

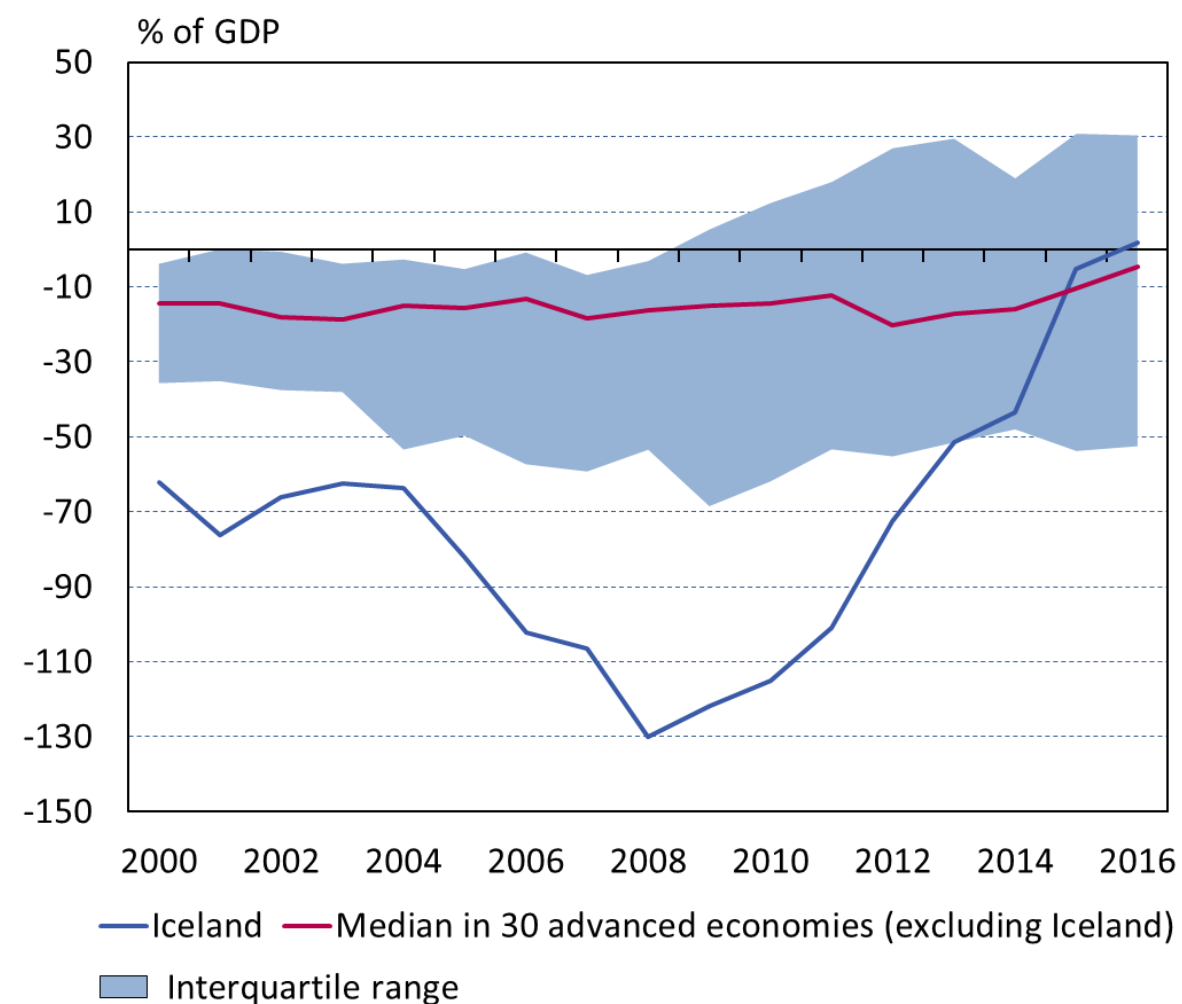
This time macro fundamentals look more solid ...

- From large and persistent current account deficits to sizeable surpluses ...
- ... which, along with the recent settlement of the failed bank estates, has led to a dramatic improvement in the net international investment position of the country: from -130% of GDP in 2008 to +1.8% in 2016 – the best position for 50 years

Current account balance 2005-2016¹



Net international investment position 2000-2016²



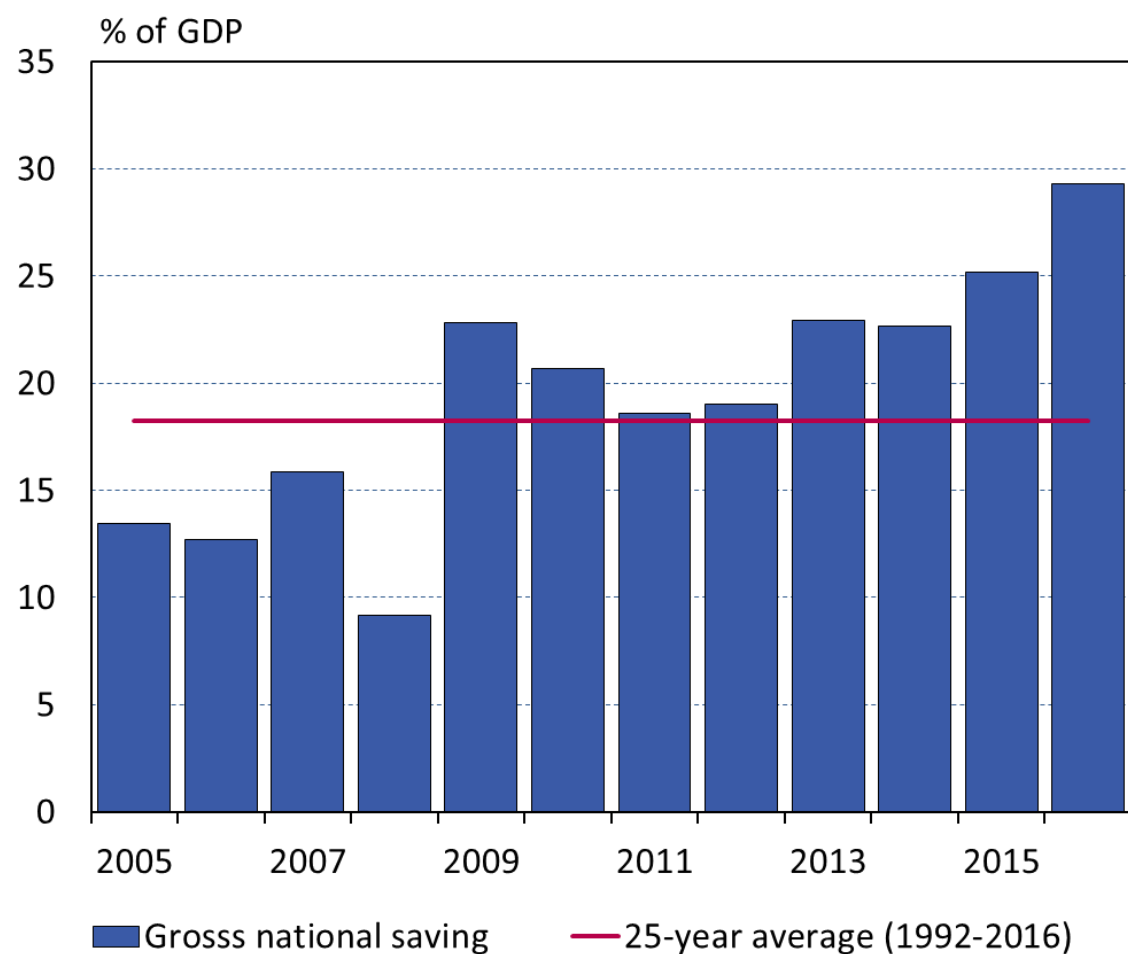
1. Underlying current account (current account excluding the effect of failed financial institutions 2008-2015 and the pharmaceuticals company Actavis in 2009-2012 on primary income). Also adjusted for the failed financial institutions' financial intermediation services indirectly measured (FISIM). 2. Figures for 2008-2014 for Iceland are based on the underlying net investment position.

Sources: IMF, Statistics Iceland, Central Bank of Iceland.

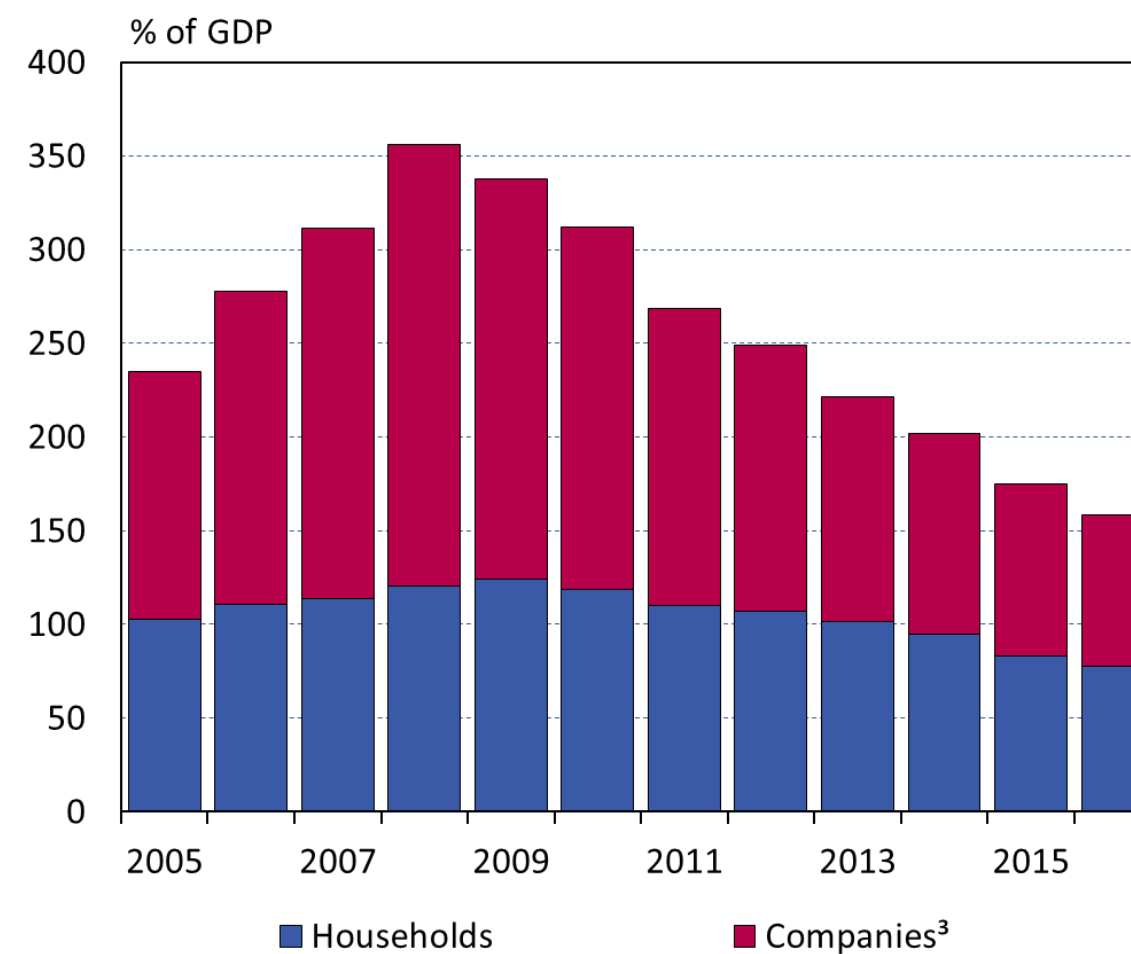
... and balance sheets have been repaired, ...

- Saving rate was historically low leading into crisis ... but has risen sharply and remains historically high
- Private sector debt levels have declined sharply from its pre-crisis peak ... mainly through a large deleveraging of the corporate sector – although household debt has also fallen significantly

Gross national saving 2005-2016¹



Household and non-financial corporate debt 2005-2016²



1. Underlying national saving rate in 2008-2015, based on the estimated underlying current account balance (adjusted for the effects of failed financial institutions 2008-2015 and pharmaceuticals company Actavis in 2009-2012).

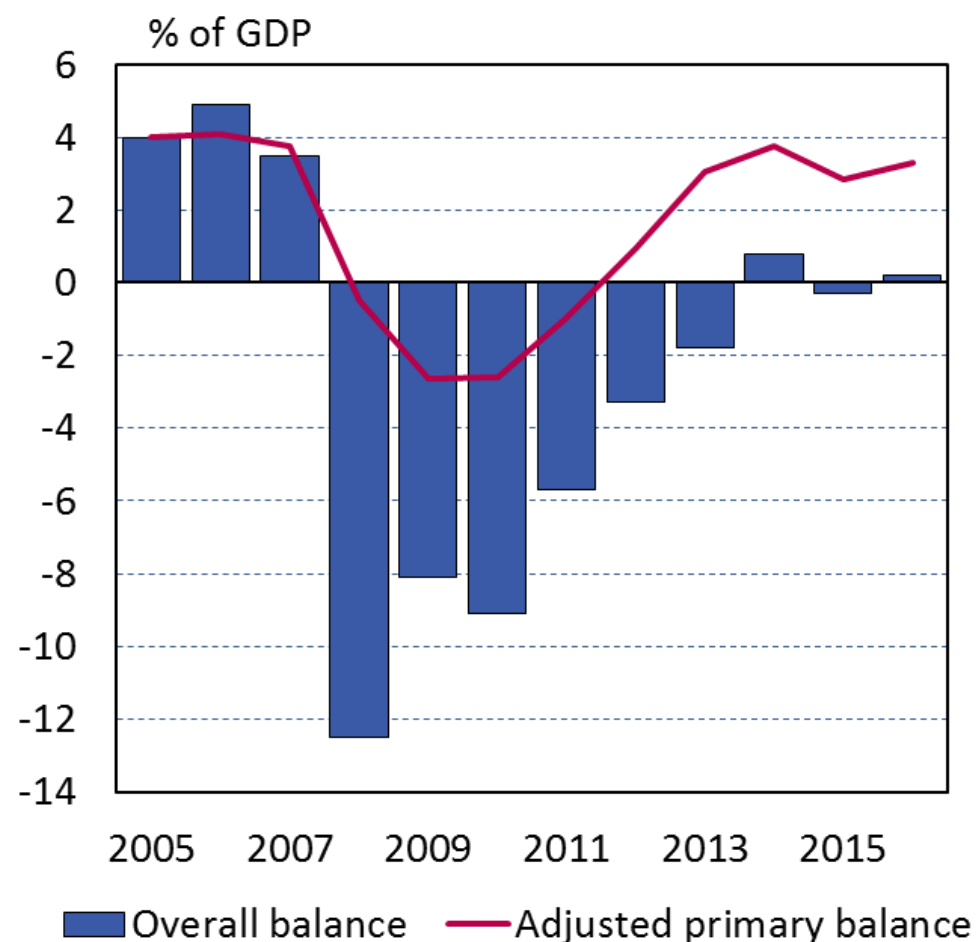
2. Debt owed to financial undertakings and market bonds issued. 3. Excluding financial institutions (which includes holding companies).

Sources: Statistics Iceland, Central Bank of Iceland.

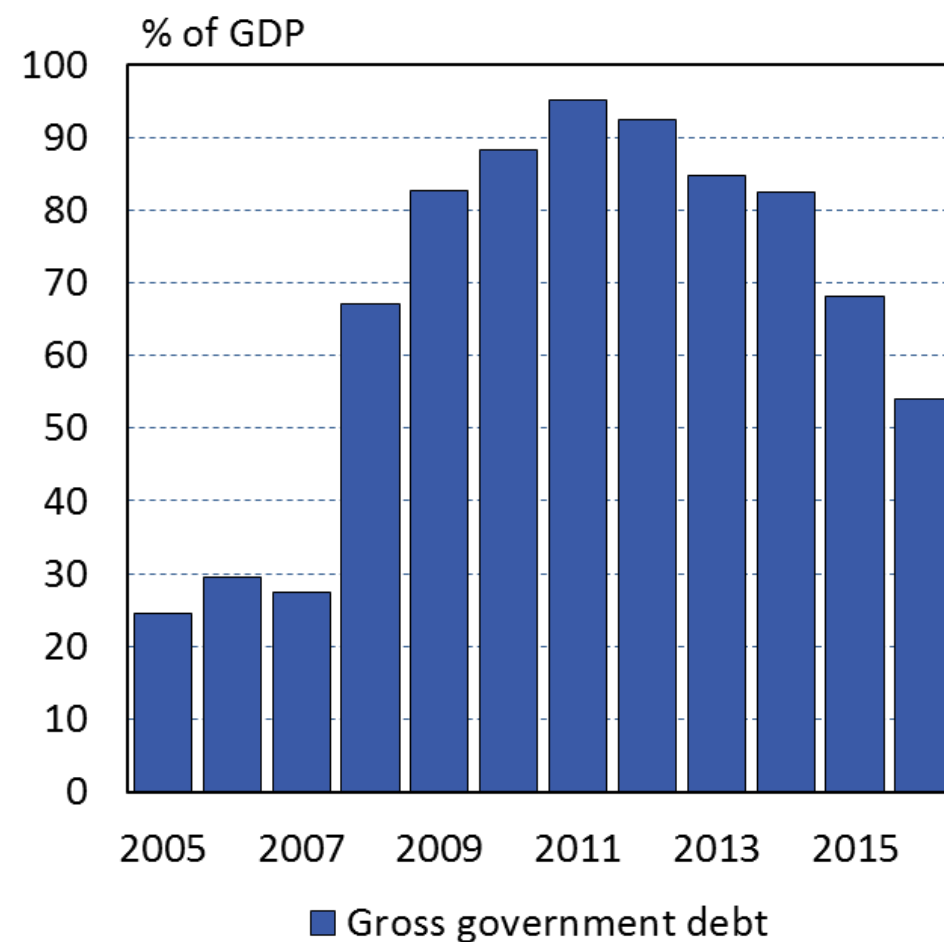
... with fiscal sustainability ensured ...

- Government finances were hit hard by the crisis: the Treasury went from a surplus of 5% of GDP in 2006 to a deficit of 12½% in 2008 ... but a successful fiscal consolidation programme has led to gradual improvements ...
- ... with government debt declining and risk premia on government debt receding

Treasury balance 2005-2016¹

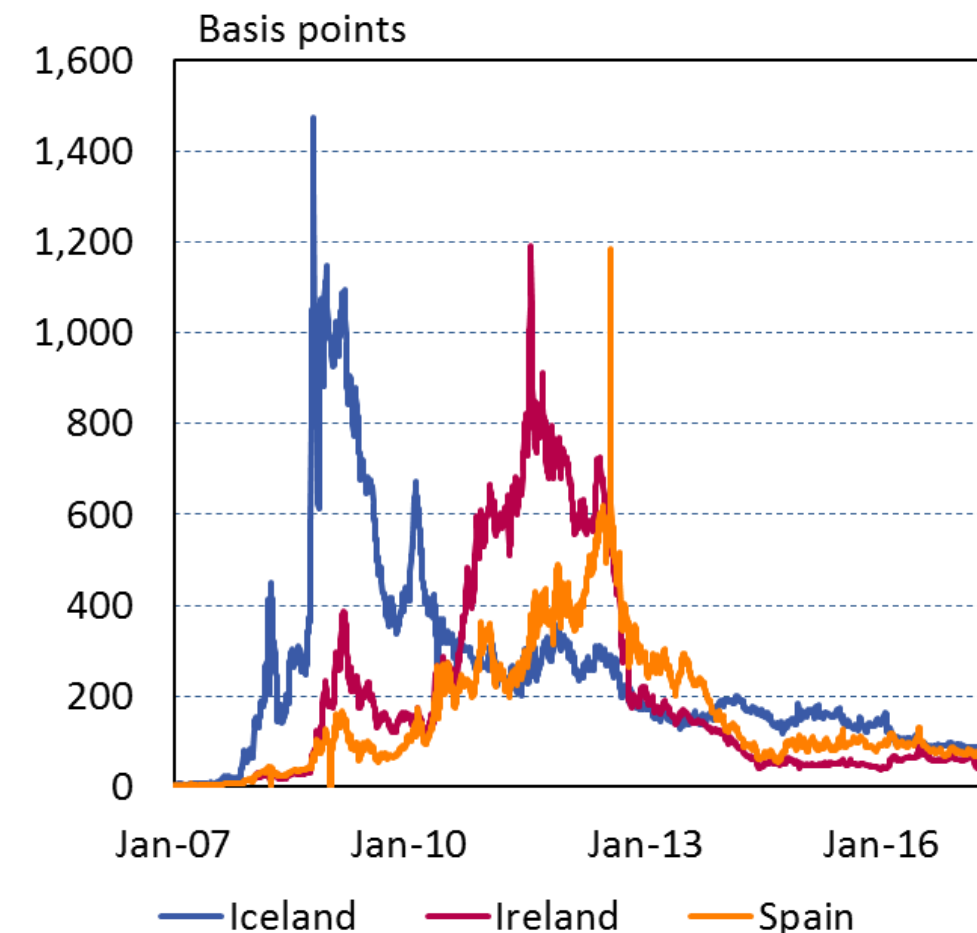


Gross government debt 2005-2016



Risk premia on Treasury obligations²

1 January 2007 - 30 June 2017



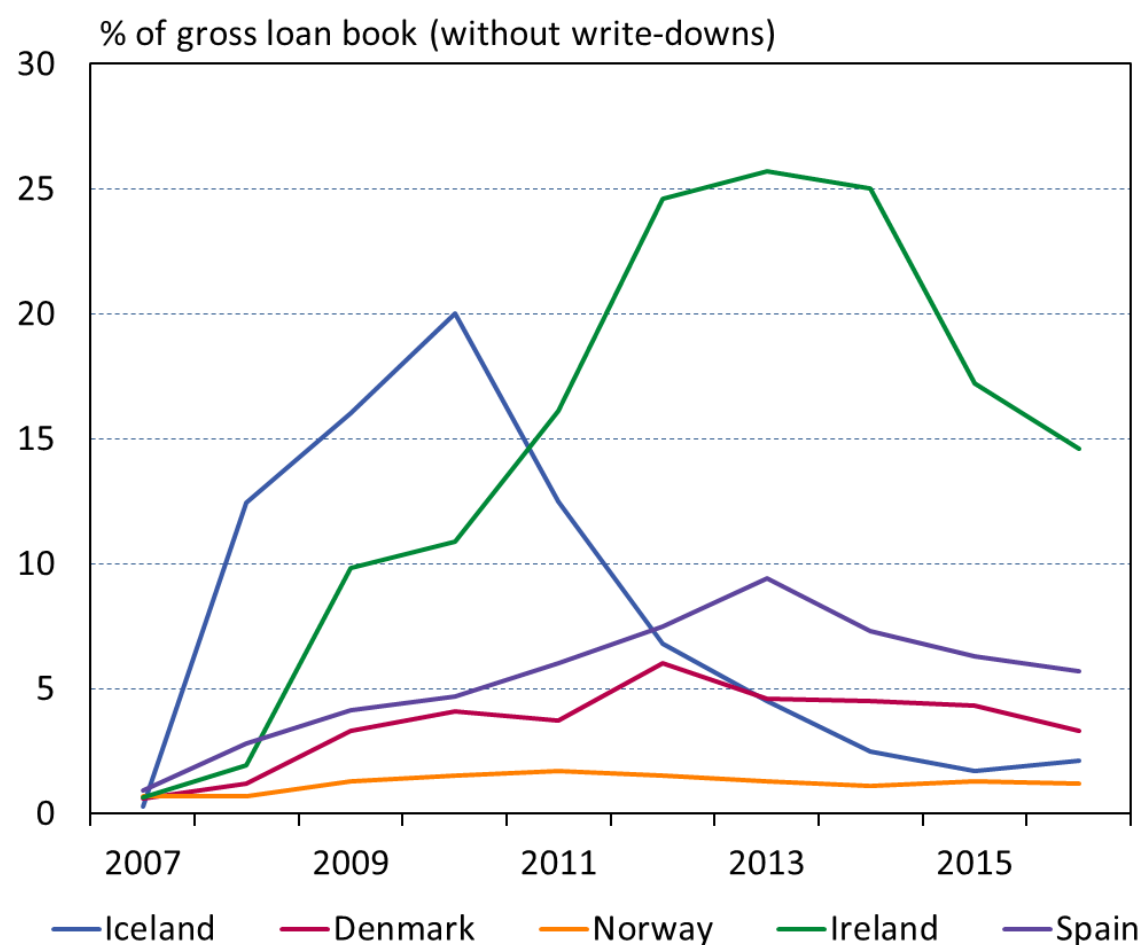
1. The primary balance is adjusted for one-off revenues and expenditures (e.g., stability contributions from the settlement of the failed financial institutions and accelerated write-downs of indexed mortgage loans). In 2016 and 2017 the overall balance is adjusted for one-off items; i.e., the effects of the stability contributions, dividends in excess of the National Budget, and accelerated write-downs of indexed mortgage loans. 2. CDS spread on five-year USD obligations.

Sources: Bloomberg, Ministry of Finance and Economic Affairs, Statistics Iceland, Central Bank of Iceland.

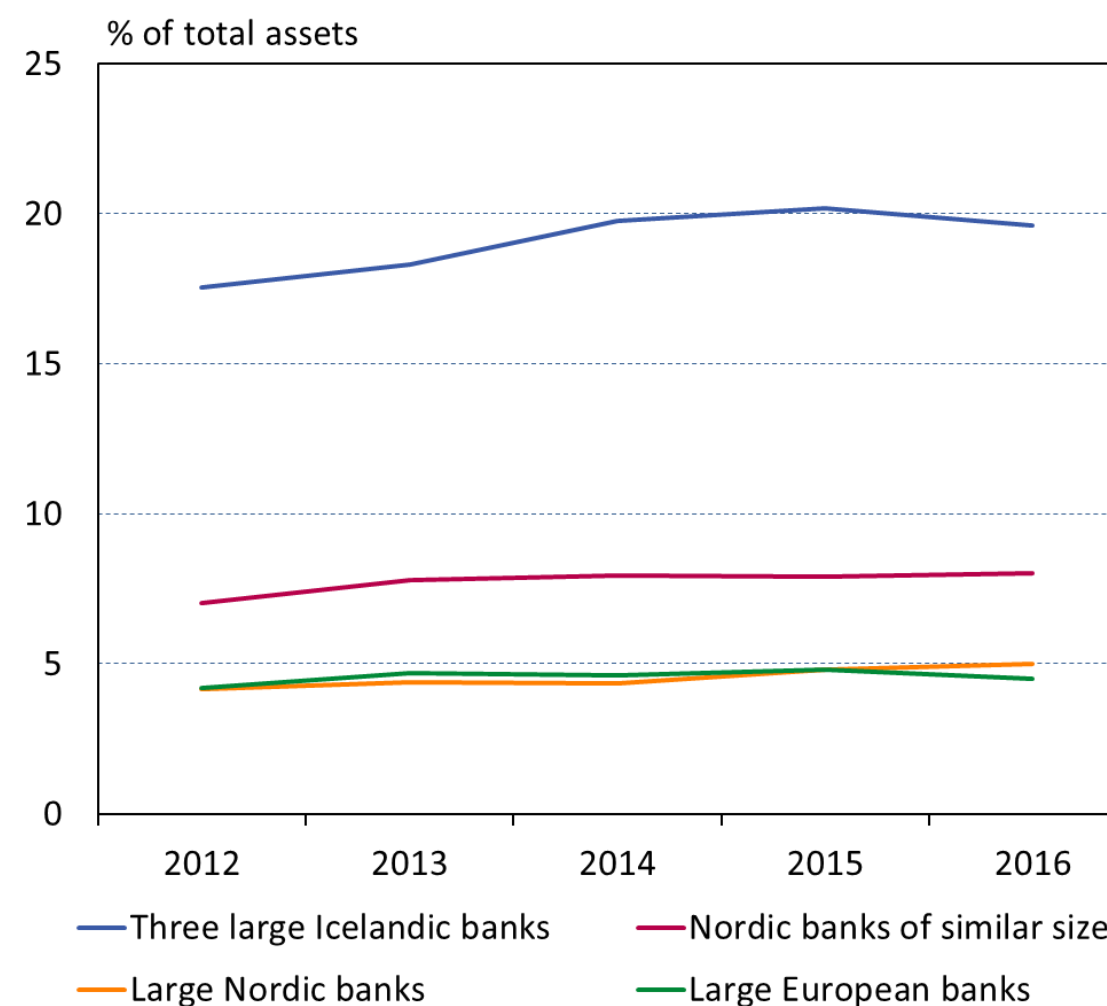
... and a much more resilient banking system

- Non-performing loans rose sharply after the financial crisis – reaching 20% in 2010 – but have fallen back to pre-crisis levels
- The domestic banks remain well capitalised – with capital ratios well above Nordic peers – and their loan book is relatively diversified

Non-performing loans 2007-2016¹



Capital ratios 2012-2016²

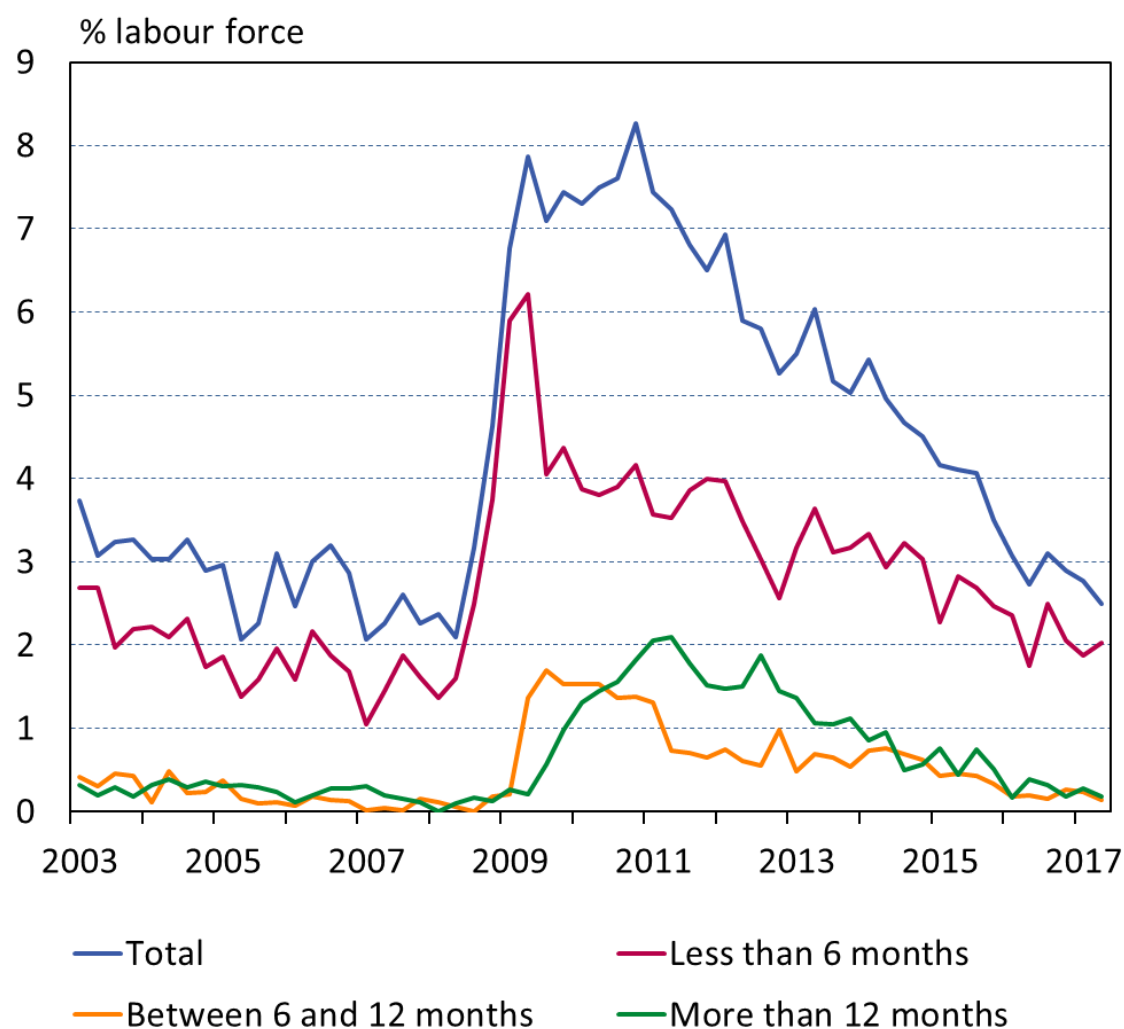


1. Banks' non-performing loans for households and businesses. Q3 data except for Iceland. Icelandic data for 2007 from the annual accounts of the failed banks and for 2008 from Central Bank estimates. 2. IFRS Tier 1 leverage ratios. Sources: Financial Supervisory Authority, IMF, SNL Financial, World Bank, Central Bank of Iceland.

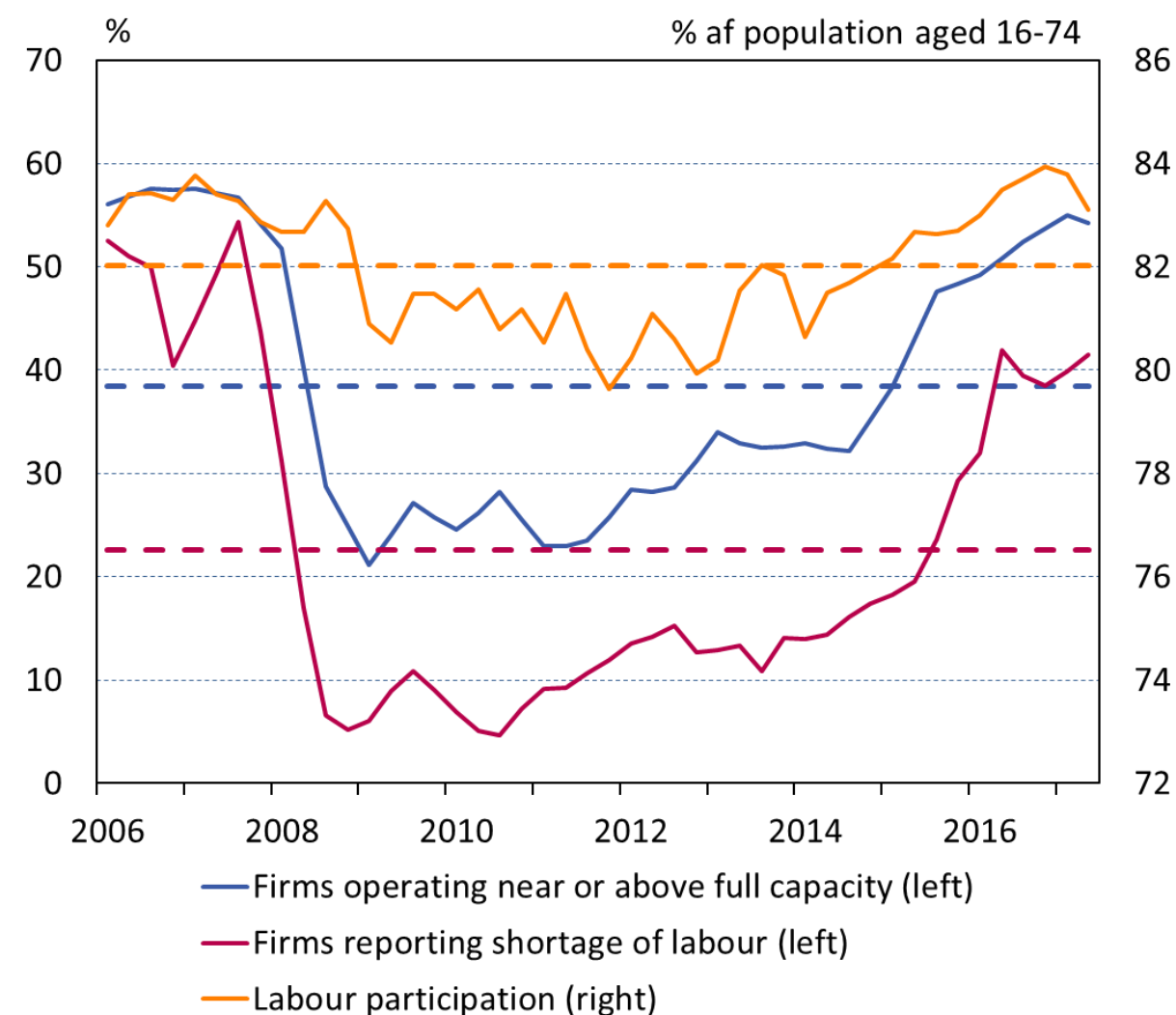
But risks of overheating have emerged ...

- Unemployment has fallen to 2.5% in Q2/2017 (lowest since Q2/2008) and long-term unemployment has all but disappeared
- Labour market becoming tight: a large number of firms report difficulties in hiring new staff and say they are working at full capacity, and labour participation has reached its pre-crisis peak – but this is offset by a large importation of foreign labour

Unemployment by duration¹
Q1/2003 - Q2/2017



Capacity utilisation, labour shortages and labour participation²



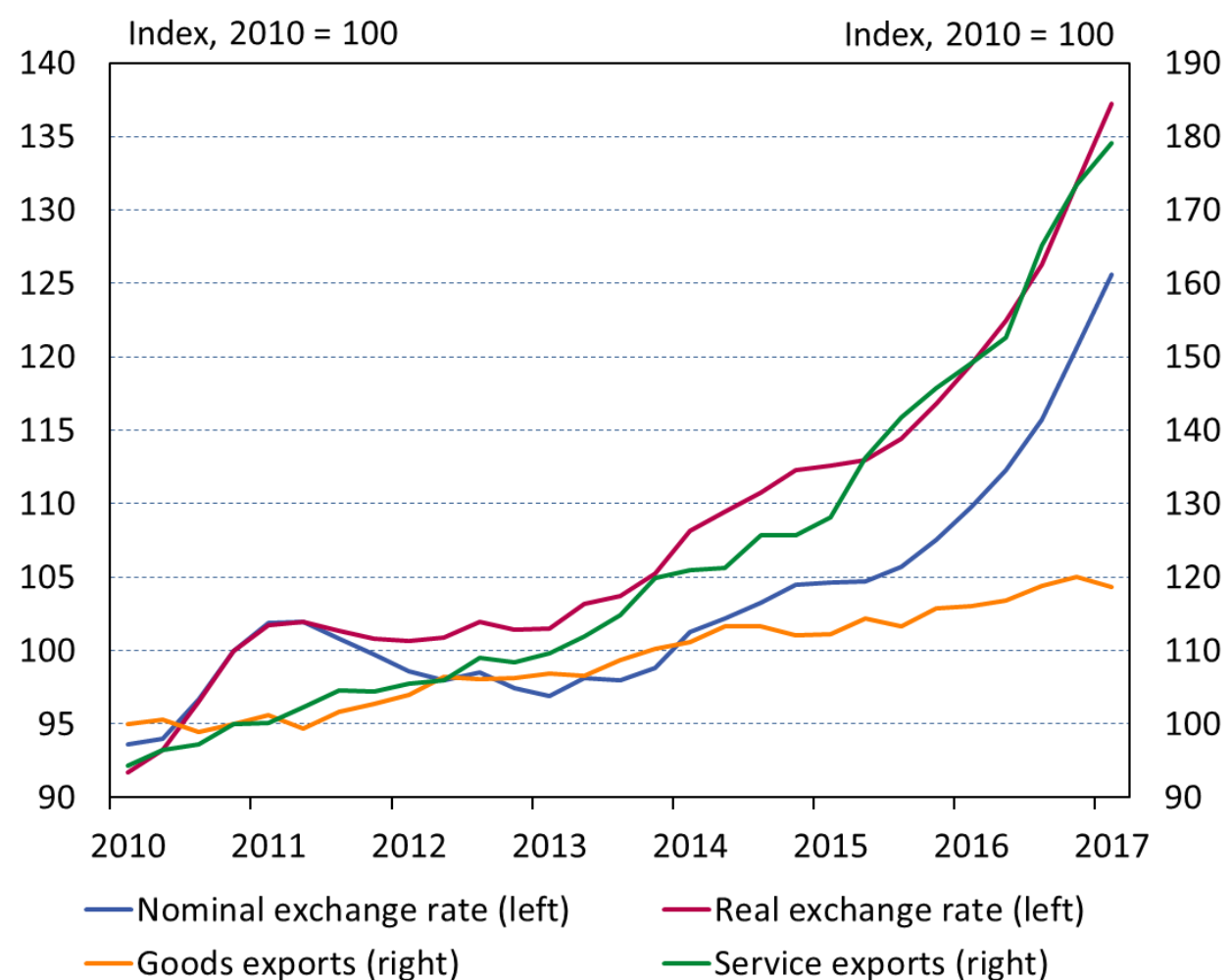
1. Seasonally adjusted data. 2. Indicators of factor utilisation are from the Gallup Sentiment Survey conducted among Iceland's 400 largest companies, and labour participation from Statistics Iceland's Labour Force Survey. Seasonally adjusted data for Q1/2006-Q2/2017. Broken lines show period averages.
Sources: Gallup, Statistics Iceland, Central Bank of Iceland.

... and the króna has appreciated markedly

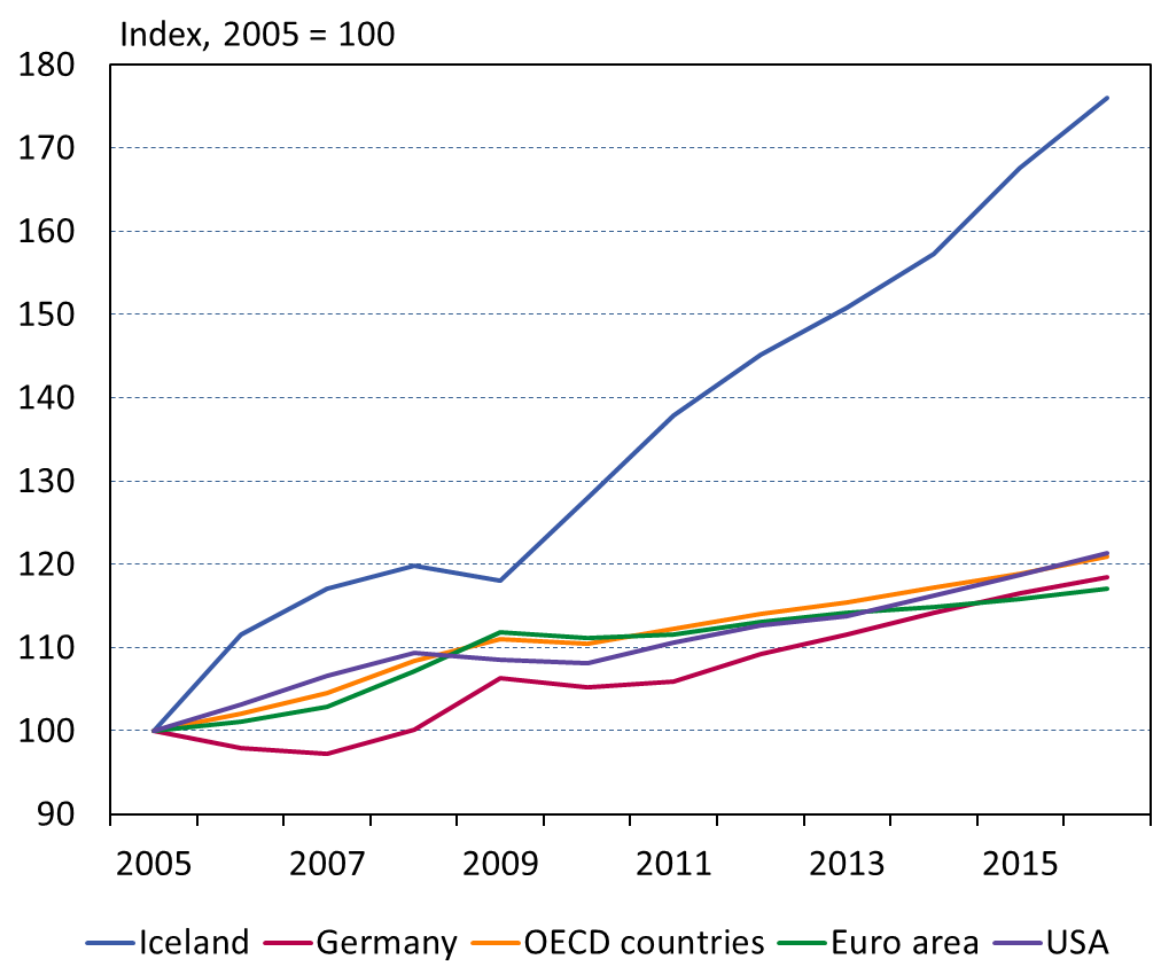
- The exchange rate of the króna has appreciated substantially – not withstanding the recent capital account liberalisation ... driven by the terms of trade improvement and the tourism boom
- The real exchange rate appreciation has risked a deterioration of the country's competitiveness position

Exchange rate and exports¹

Q1/2010 - Q1/2017



Unit labour costs in selected advanced economies 2005-2016

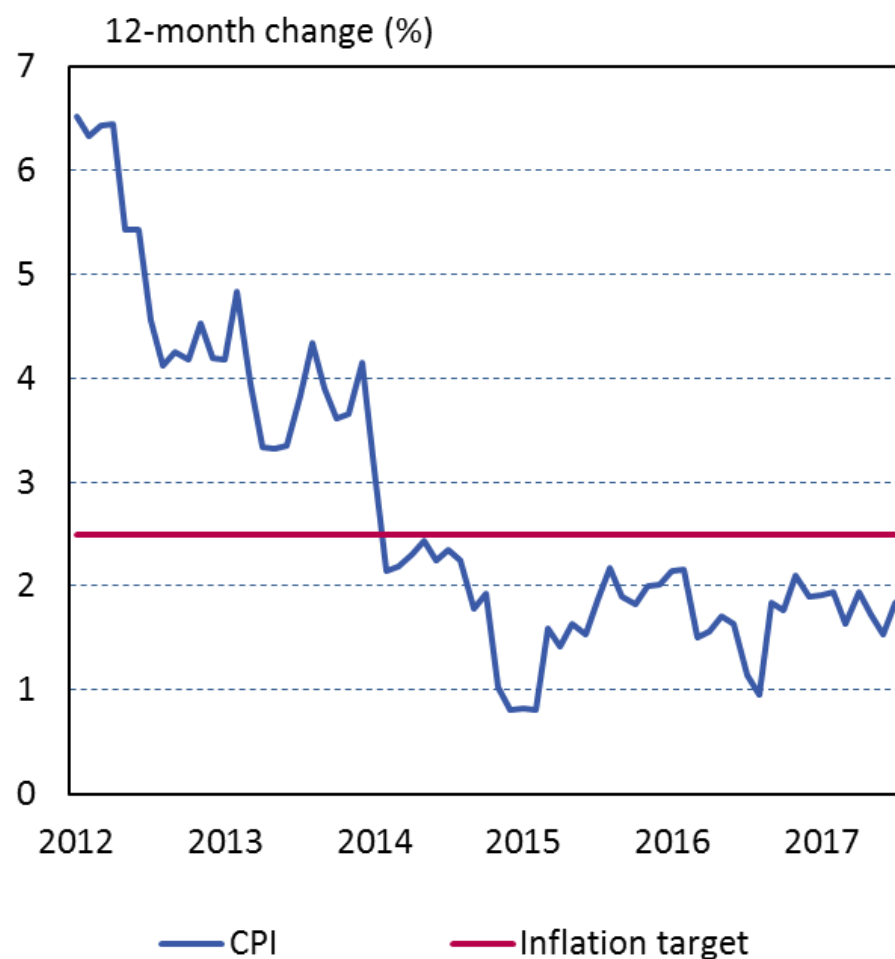


1. Four quarter moving average of quarterly export data. Trade-weighted nominal exchange rate.
Sources: Macrobond, Statistics Iceland, Central Bank of Iceland.

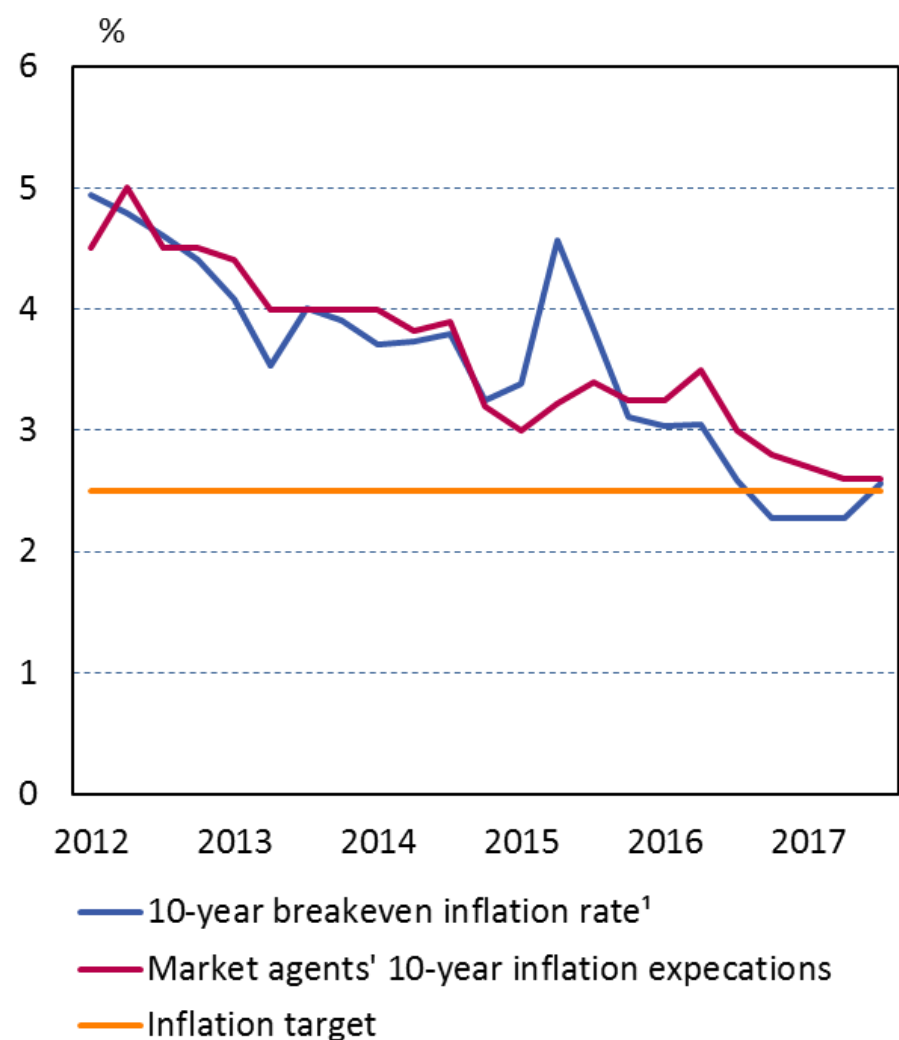
Inflation stabilised and expectations anchored

- Inflation increased sharply following the financial crisis but has gradually been stabilised: has been at or below the target for more than 3 years now ... measuring 1.8% in July
- Inflation expectations became unmoored but have gradually been re-anchored at target

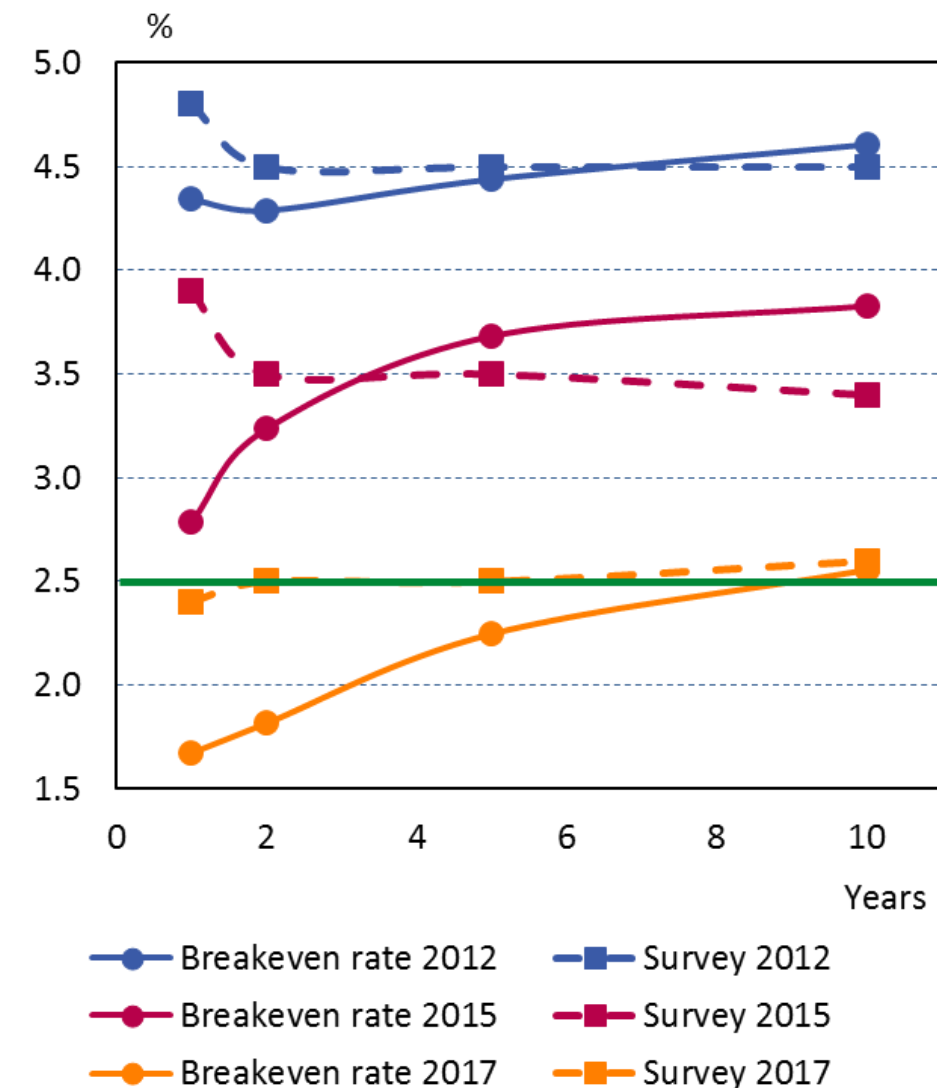
Headline inflation
January 2012 - July 2017



Long-term inflation expectations
Q1/2012 - Q3/2017



Inflation expectations for 1-10 years²
Q3 data for 2012, 2015 and 2017

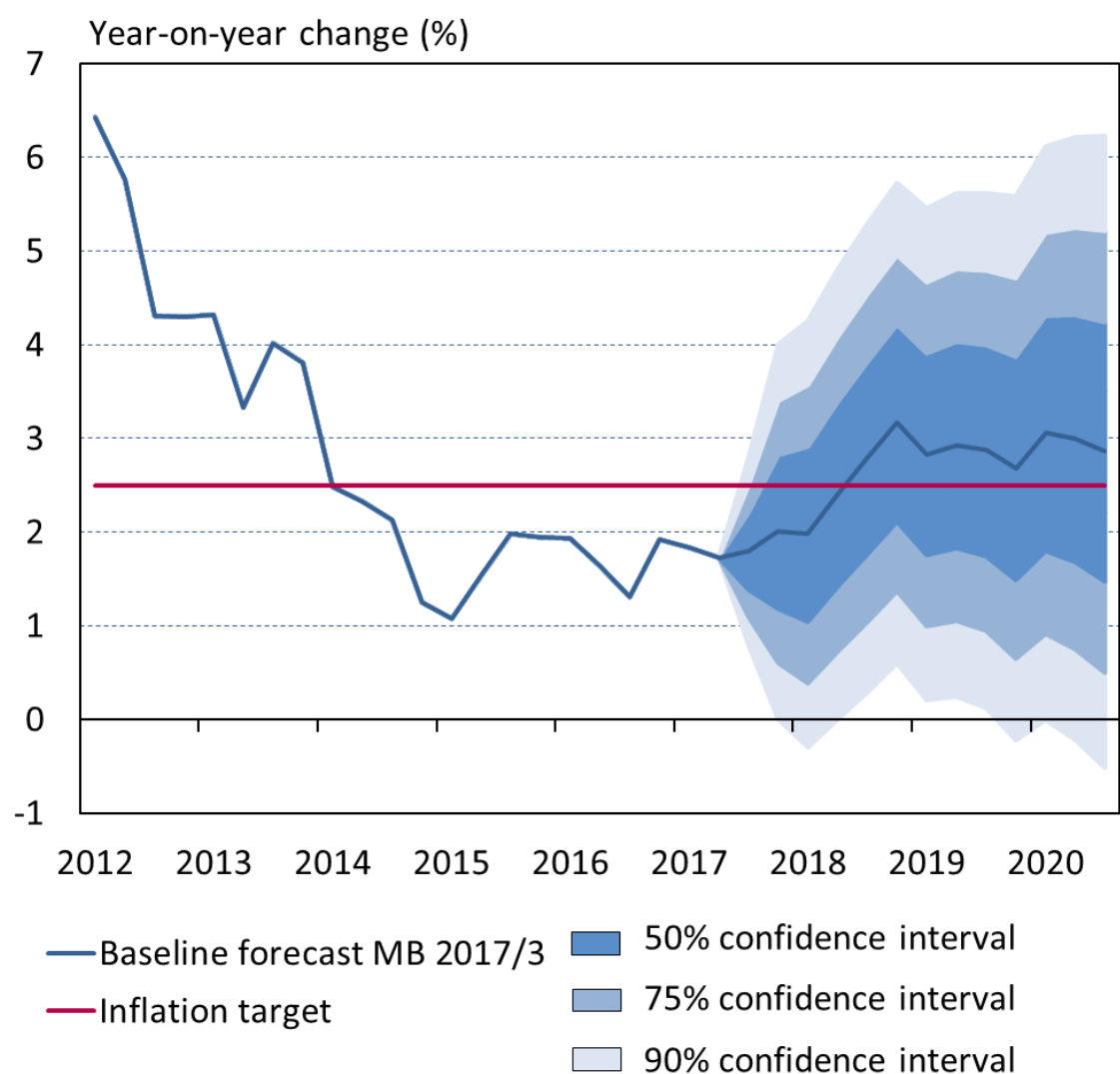


1. The value for Q3/2017 is the Q3 average to date. 2. Inflation expectations for 1, 2, 5, and 10 years from the bond market breakeven inflation rate (quarterly averages) and surveys among market agents.
Sources: Gallup, Statistics Iceland, Central Bank of Iceland.

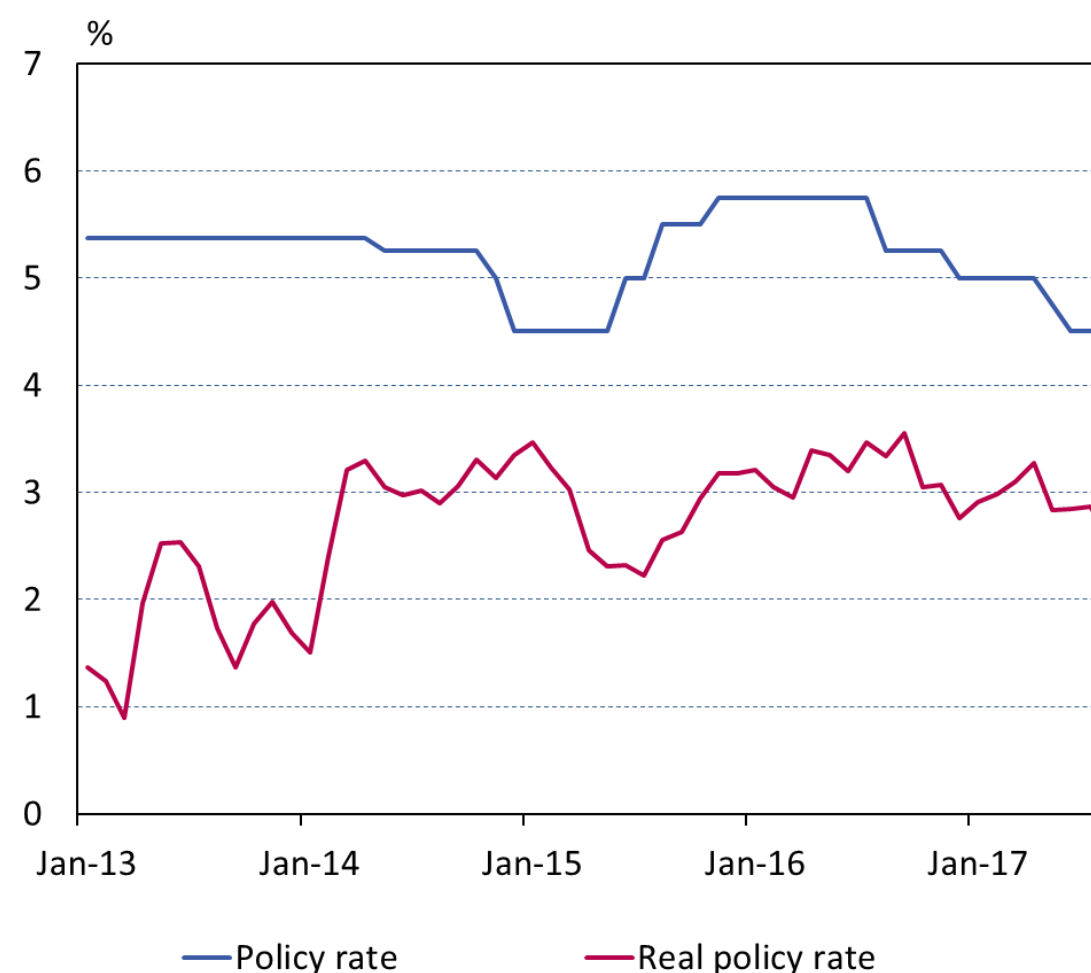
Overheating risks call for a tight monetary stance

- Headline inflation expected to rise to target next year and peak at roughly 3% before easing back to target
- Tight monetary policy to ensure medium-term price stability but firmer anchor of inflation and inflation expectations have allowed the MPC to lower nominal rates while keeping the real stance constant

Inflation forecast and confidence interval
Q1/2012 - Q3/2020



Nominal and real Central Bank policy rate¹
January 2013 - August 2017



1. The nominal Bank rate is end-of-month data. The real policy rate subtracts 1 year bond market inflation expectations (1 year breakeven inflation rate) from the nominal rate. The August breakeven rate is the August average to date.
 Source: Central Bank of Iceland.