

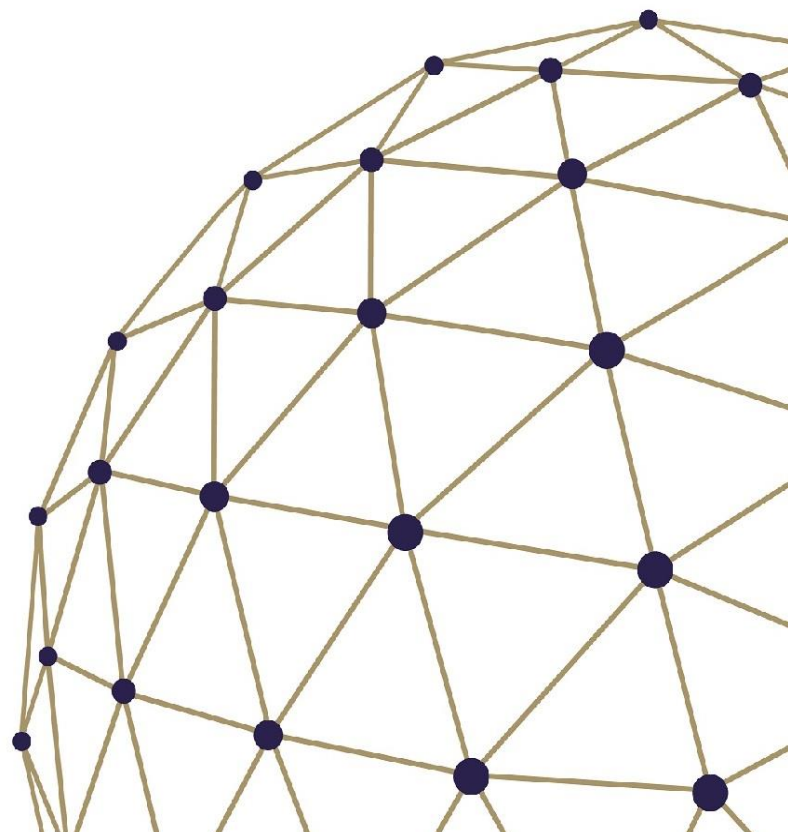


# Chart-pack on recent economic and financial market developments

Directorate Monetary Policy and Financial Market Analysis

Financial Market Analysis Department

December 2017





## Chart-pack on recent economic and financial market developments \*

19 December 2017

As of the 30th of June, 2005 the Magyar Nemzeti Bank (the central bank of Hungary) publishes a comprehensive chart-pack about the latest information in financial markets and the macro-economy. Our aim is to provide analysts and the public with a frequently updated, easy-to-use, clear-cut data set, in order to promote better knowledge and understanding of the current economic and financial market situation. The updated chart-pack is published on the day of each rate-setting meeting at 5 pm.

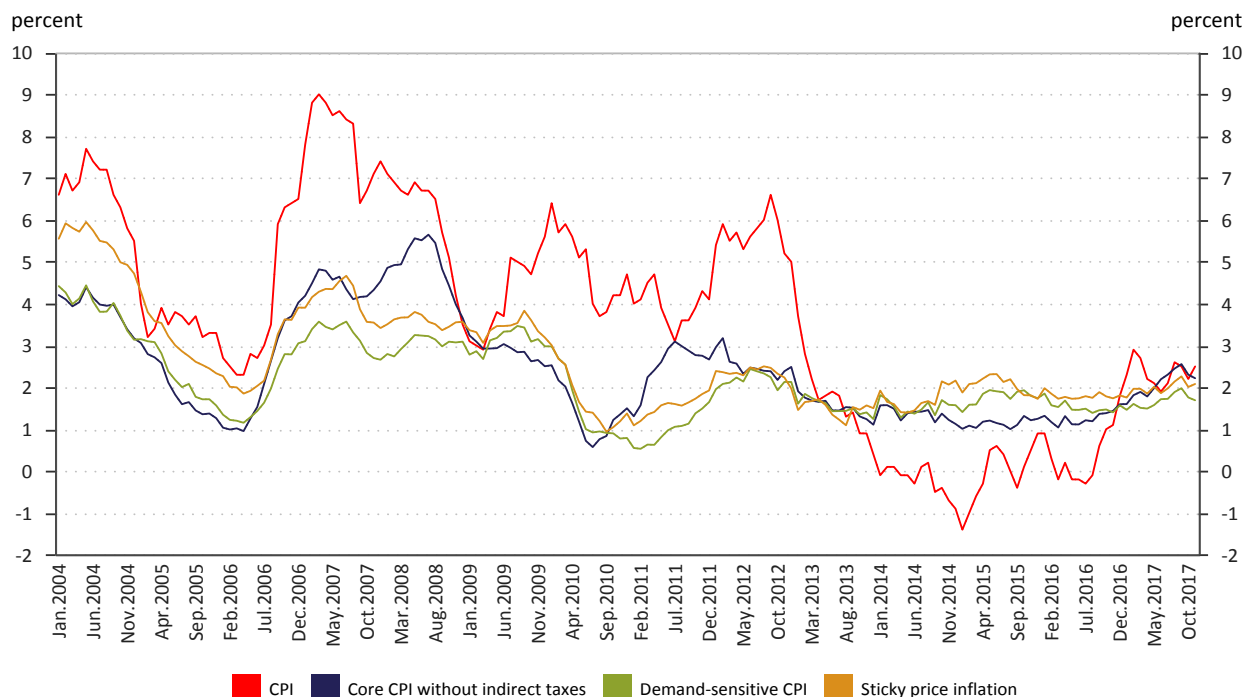
Earlier versions of the chart-pack are accessible on the website of Magyar Nemzeti Bank via the following address.

<http://www.mnb.hu/en/publications/studies-publications-statistics/chart-pack-on-recent-economic-and-financial-market-developments>

Questions and comments are welcome, and should be addressed to [info@mnb.hu](mailto:info@mnb.hu).

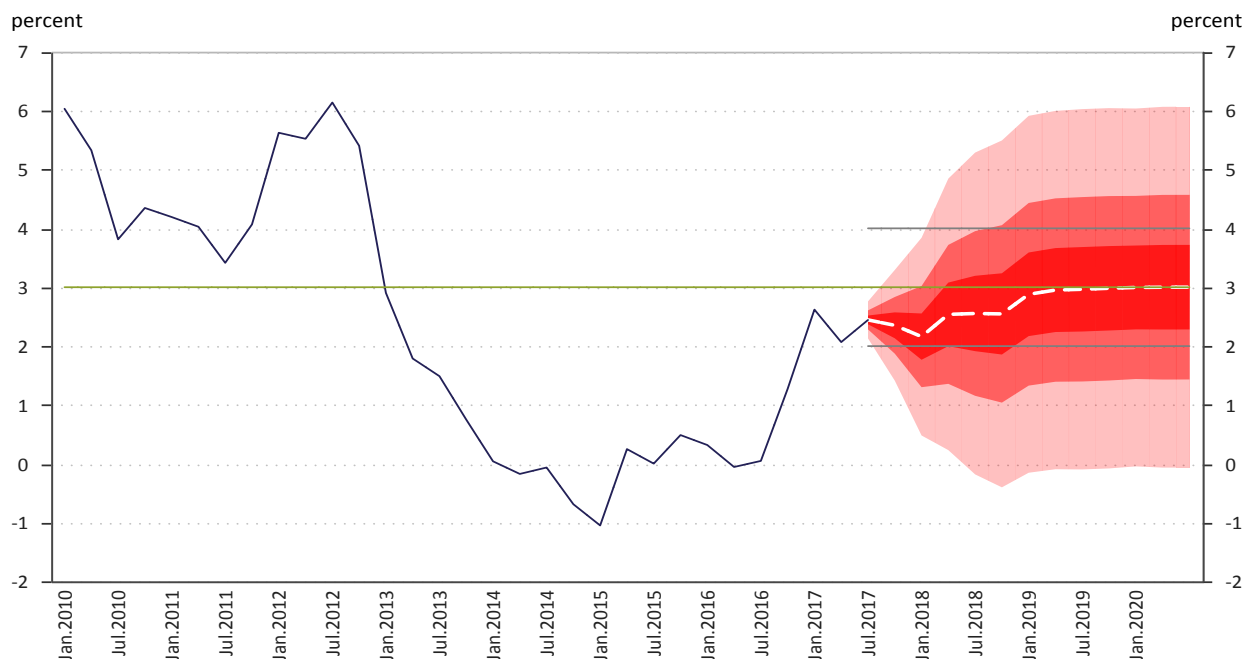
\* The data sources of this document, in whole or in part, do not fall within the scope of Act XLVI of 1993 on statistics, therefore the data contained in the tables and charts are not to be considered as official statistical data. Magyar Nemzeti Bank excludes all liability for any damage caused by the usage of the herein published non-official statistical data

1. Development of inflation and underlying inflation indicators



Source: HSCO, MNB  
 Note: Seasonally adjusted year-on-year growth rates.

2. Fanchart of the inflation forecast



Source: MNB, HCSO. Note: the fan chart represent the uncertainty around the central projection. Overall, the coloured area represents a 90 per cent probability. The central area containing the central projection for the consumer price index illustrated by the dotted line (as the mode of distribution) refers to 30 per cent of the probability. The horizontal lines show the value of the announced inflation target and the tolerance band.

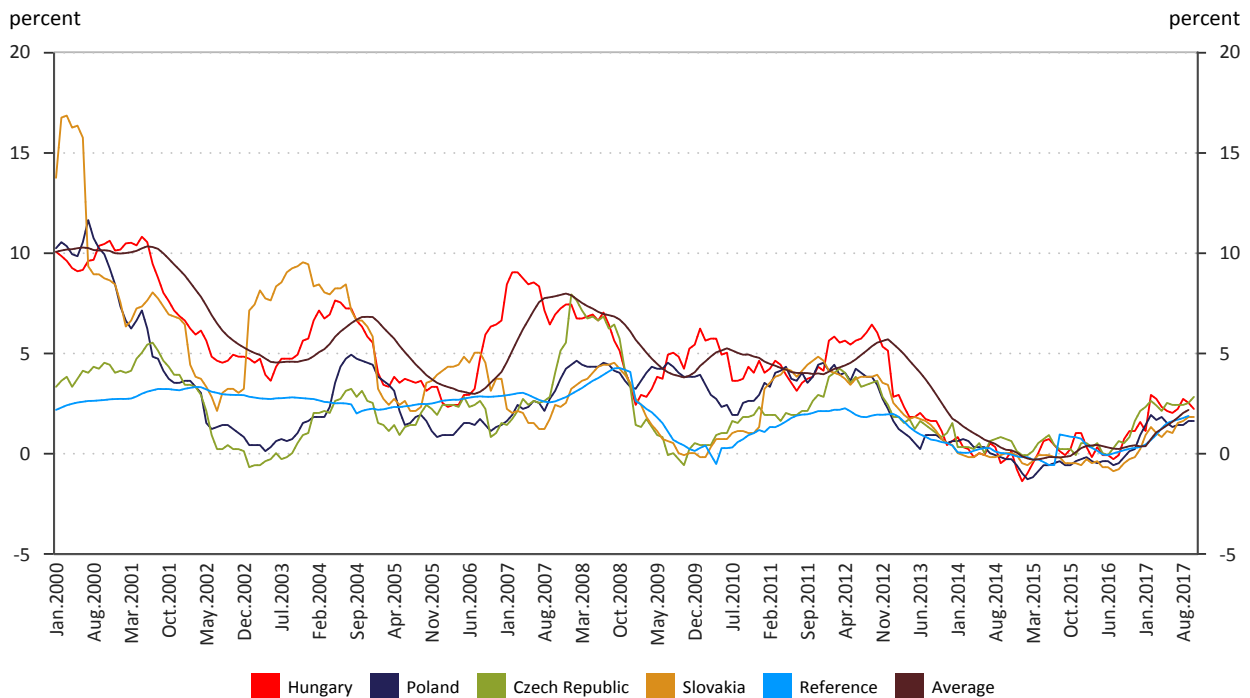
**3. Decomposition of the Consumer Price Index**

|                                | Weight 2017 | AUG 2017 | SEP 2017 | OCT 2017 | NOV 2017 |
|--------------------------------|-------------|----------|----------|----------|----------|
| Consumer Price Index           | 100.0       | 2.6      | 2.5      | 2.2      | 2.5      |
| Thereof:                       |             |          |          |          |          |
| Unprocessed food               | 6.2         | 0.4      | -0.4     | 1.5      | 2.3      |
| Processed food                 | 13.1        | 4.3      | 4.5      | 4.1      | 4.0      |
| Manufactured goods             | 22.9        | 0.9      | 1.1      | 0.5      | 0.8      |
| Market services                | 23.0        | 2.5      | 2.5      | 2.3      | 1.8      |
| Non-regulated household energy | 1.0         | 5.2      | 7.5      | 10.0     | 11.1     |
| Alcohol, tobacco               | 9.9         | 5.8      | 6.0      | 6.8      | 7.1      |
| Gasoline prices                | 7.5         | 5.7      | 5.4      | 1.3      | 5.9      |
| Regulated prices               | 16.4        | 0.6      | 0.2      | 0.2      | -0.2     |
| Core Consumer Price Index      | 68.9        | 2.8      | 2.9      | 2.7      | 2.6      |
| CPI without tax changes        | 100.0       | 2.9      | 2.9      | 2.7      | 3.1      |

Source HCSO, MNB decomposition

Notes: annual growth rates (%); The time series of industrial products, market services, regulated prices have changed because the method of the core inflation developed by the CSO and the NBH has broken down several items (like pharmaceutical products, the telephone, the other travels, the TV fee) from 2009.

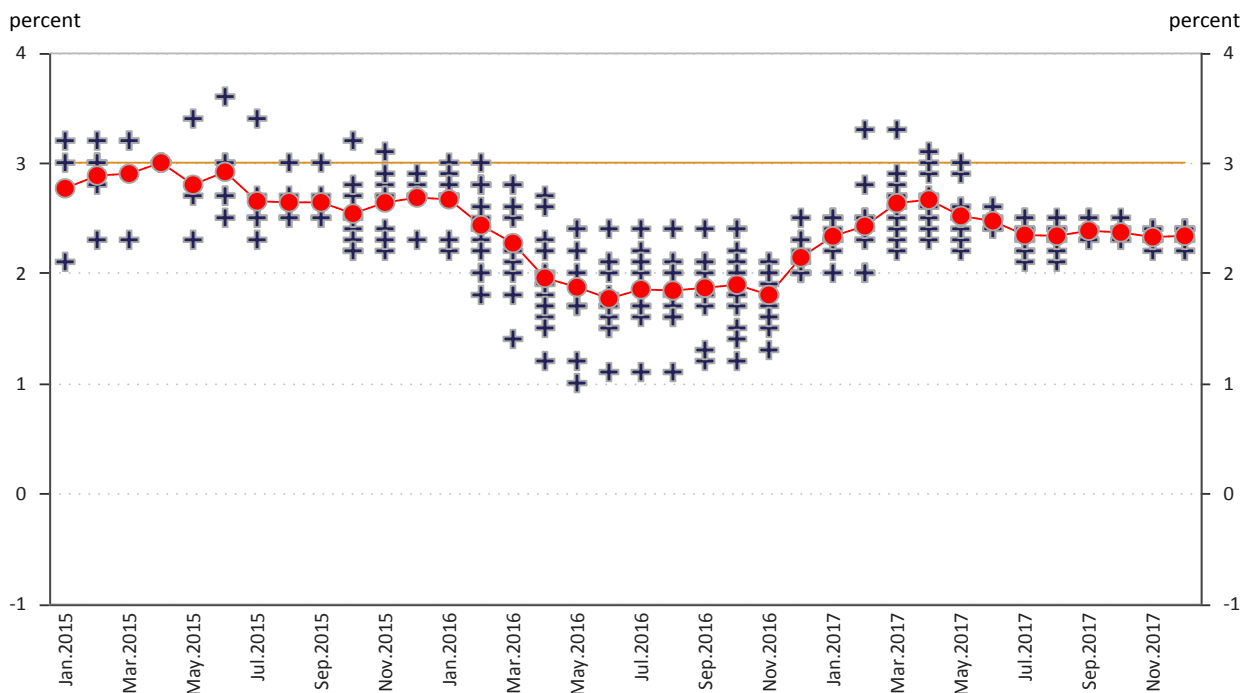
**4. Harmonised index of consumer prices**



Source: Eurostat

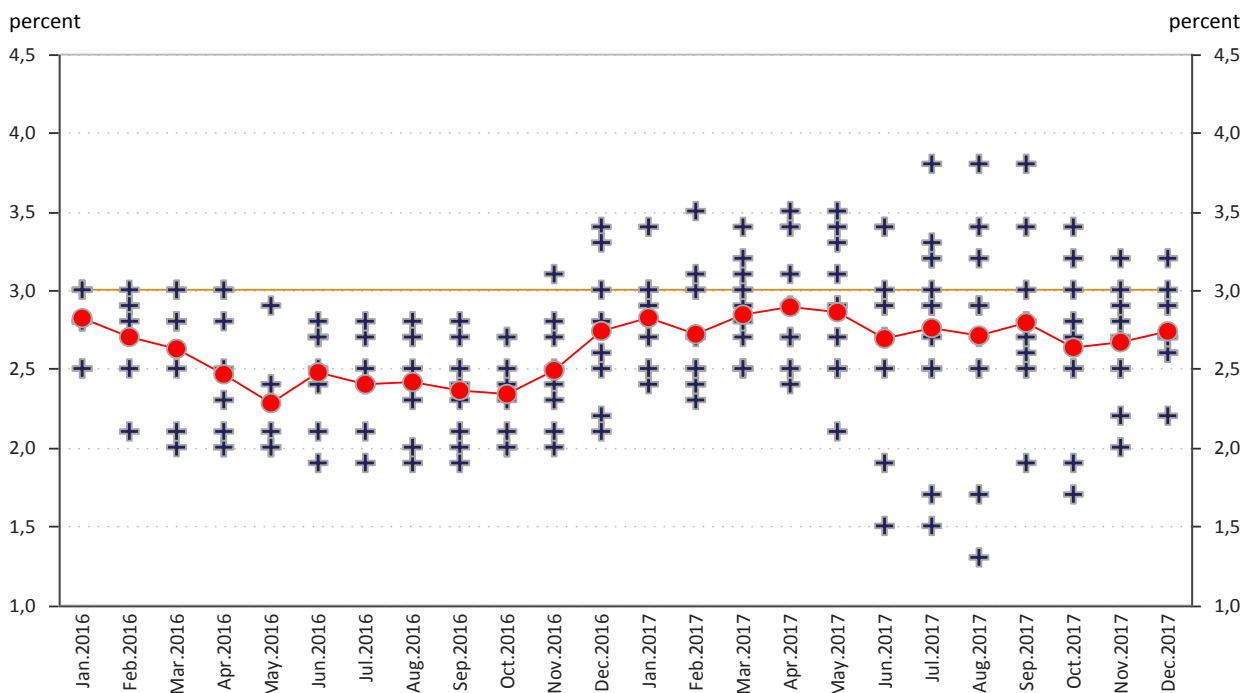
Note: annual growth rate.

5. Market expectations for the inflation rate in current year



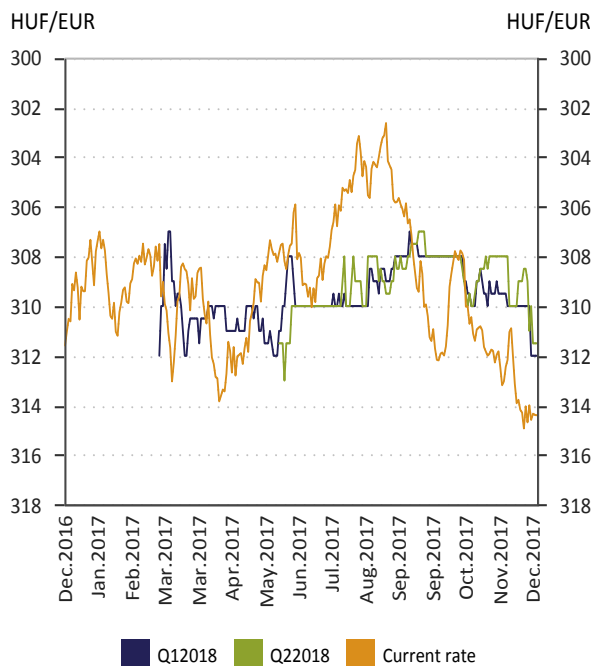
Source: Thomson Reuters  
 Note: the red continuous line represents the trimmed mean calculated by cutting off the lowest and the highest value, the brown line shows the inflation target of MNB.

6. Market expectations for the inflation rate next year



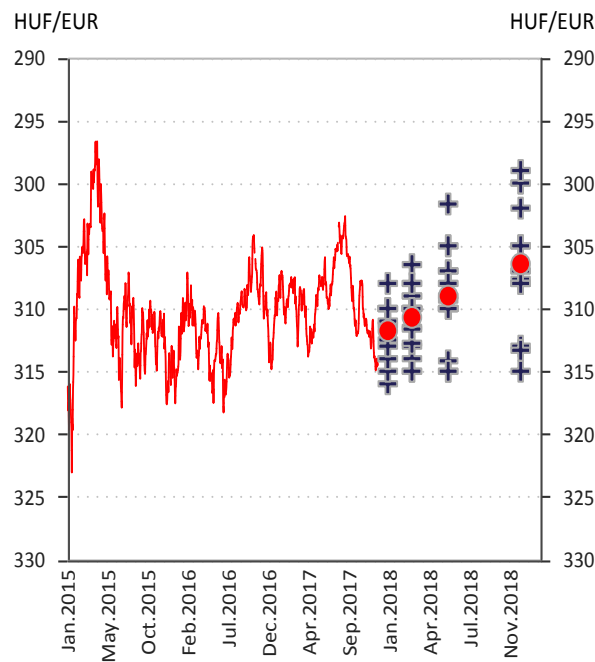
Source: Thomson Reuters  
 Note: the red continuous line represents the trimmed mean calculated by cutting off the lowest and the highest value, the brown line shows the inflation target of MNB.

**7. Expectations for HUF/EUR exchange rate (Bloomberg collection)**



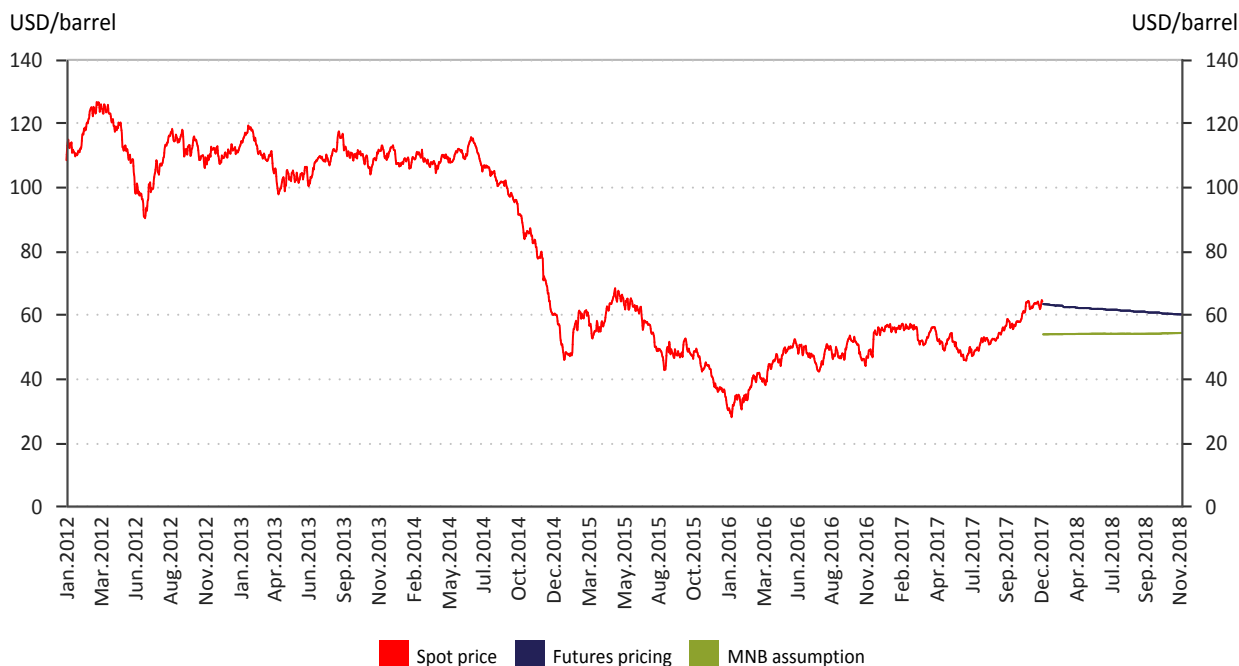
Source: Bloomberg  
 Note: Bloomberg collection; based on new FX forecasts. 2-weeks moving average, reverse scale.

**8. Expectations for HUF/EUR exchange rate**



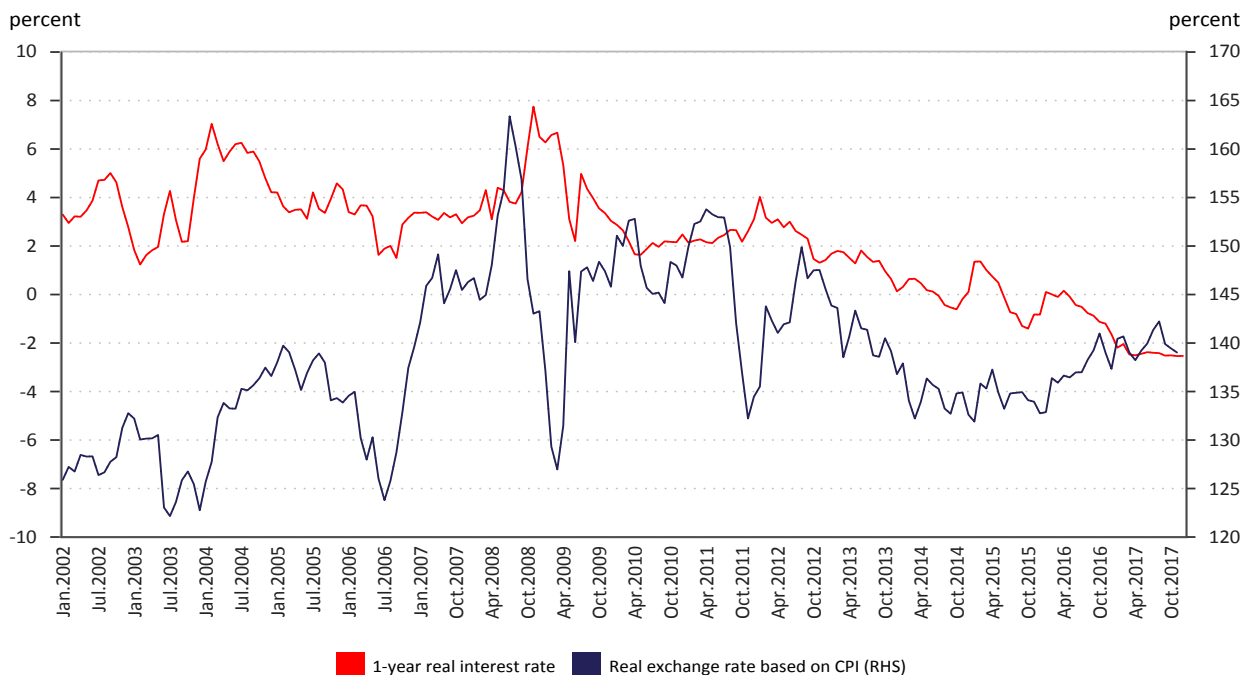
Source: Thomson Reuters, MNB.  
 Note: reverse scale, the red dots represent analysts average exchange rate expectations according to the most recent Reuters FX Poll.

**9. Spot and futures Brent crude oil price**



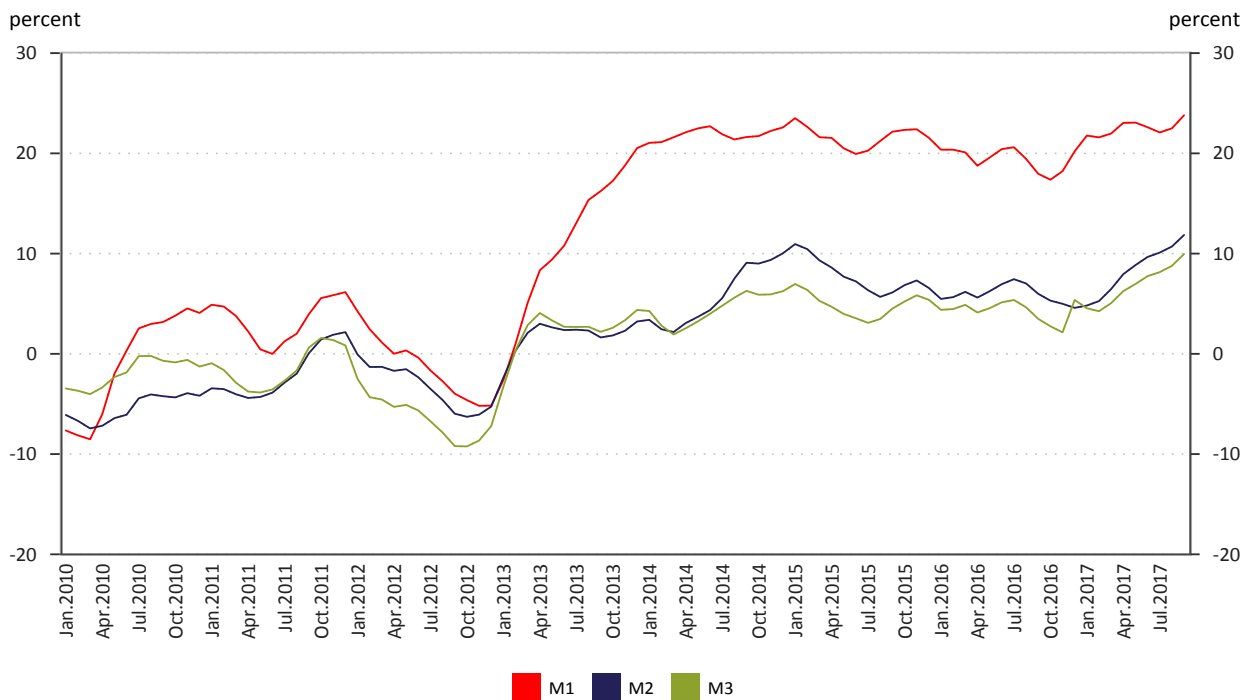
Source: Bloomberg, MNB.  
 Futures are based on the latest available futures prices. Technical assumption underlying is used in our inflation forecast published in the most recent Quarterly Report on inflation.

10. Monetary conditions



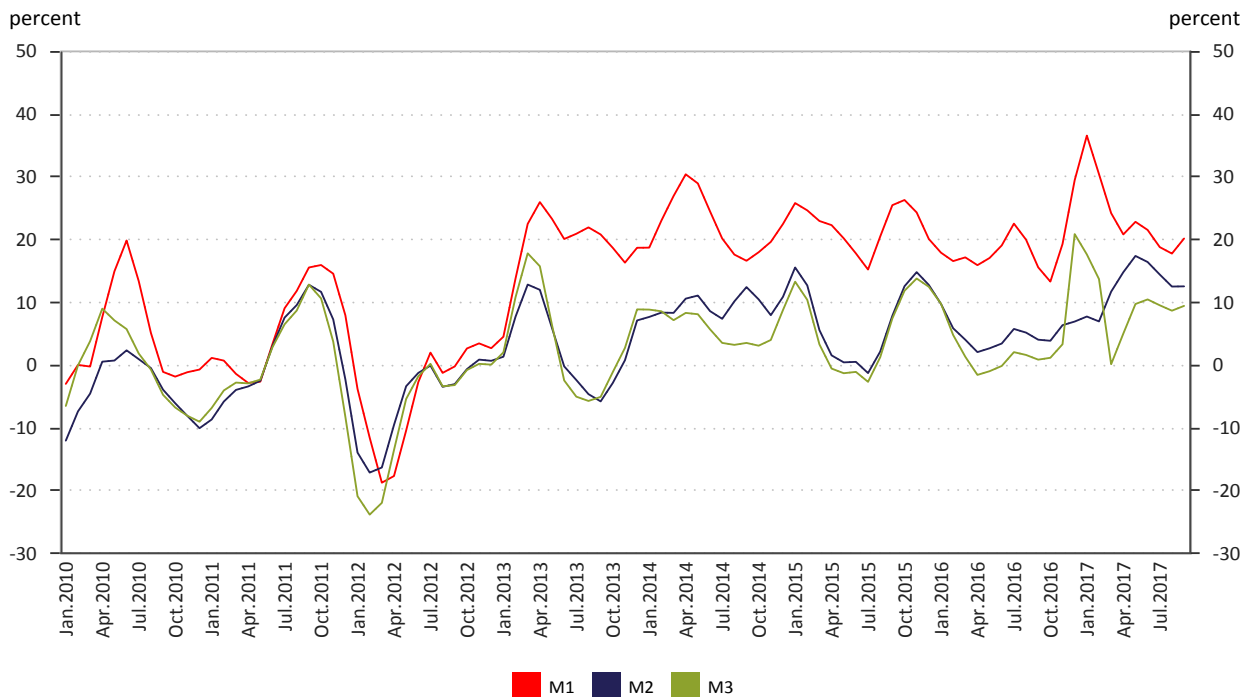
Source: Reuters, HCSO, Eurostat, ÁKK, MNB  
 Note: Real interest rate is calculated from 1-year zero coupon yield and analysts corresponding 1-year forward inflation expectations derived from the Reuters-poll by the MNB. Real exchange rate is calculated from the change of the forint relative to euro, adjusted by the corresponding Hungarian CPI and the EMU is HICP. (1 January 1997=100%, increase represents appreciation)

11. Real growth rate of monetary aggregates (year-on-year basis)



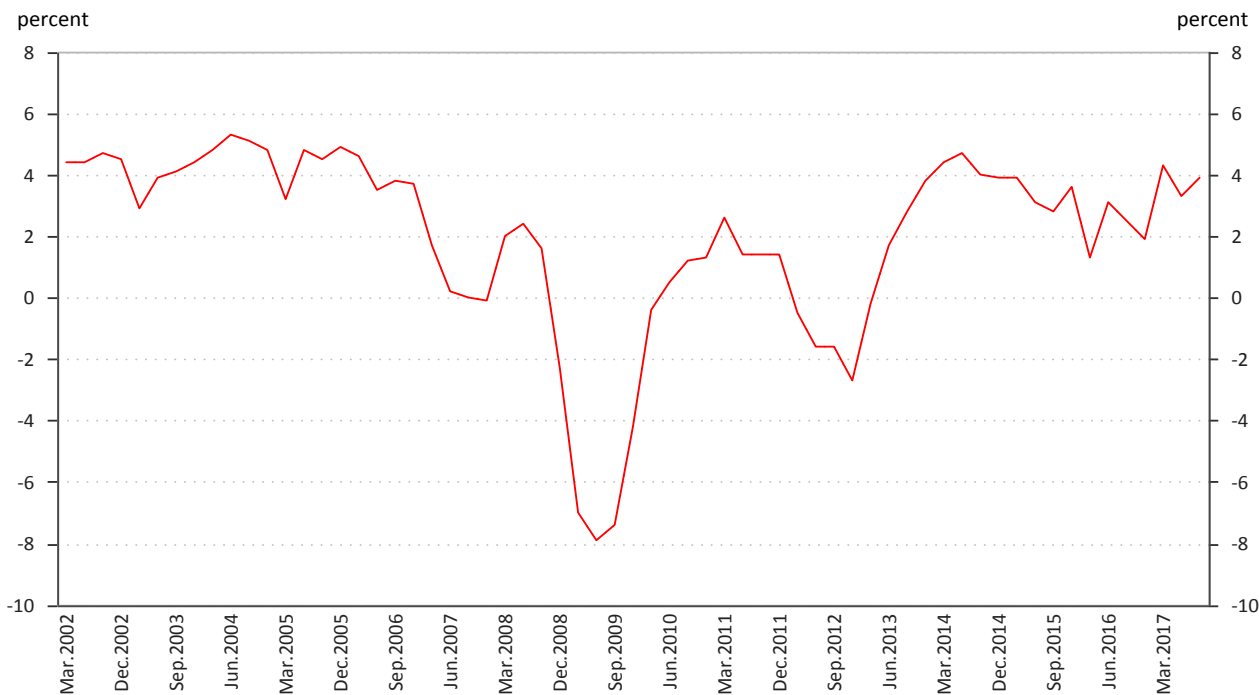
Source: MNB.

**12. Real growth rate of monetary aggregates (annualized from quarterly rates)**



Source: MNB.

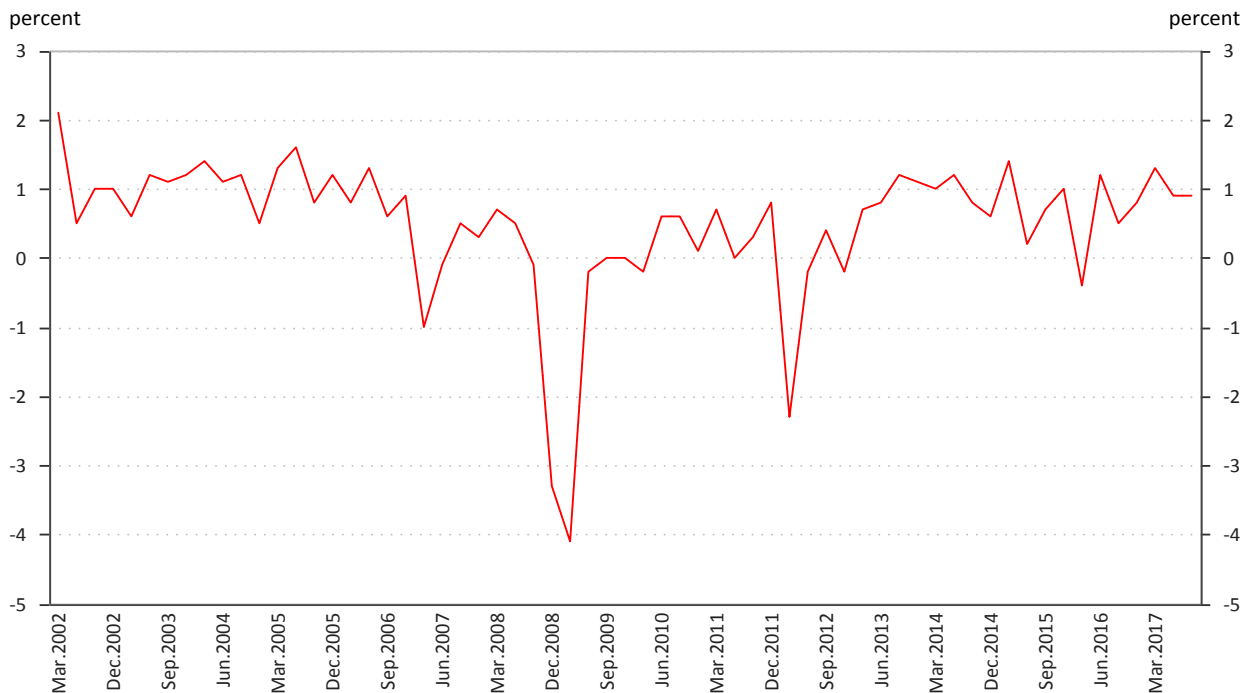
**13. Change in annual GDP**



Source: HSCO

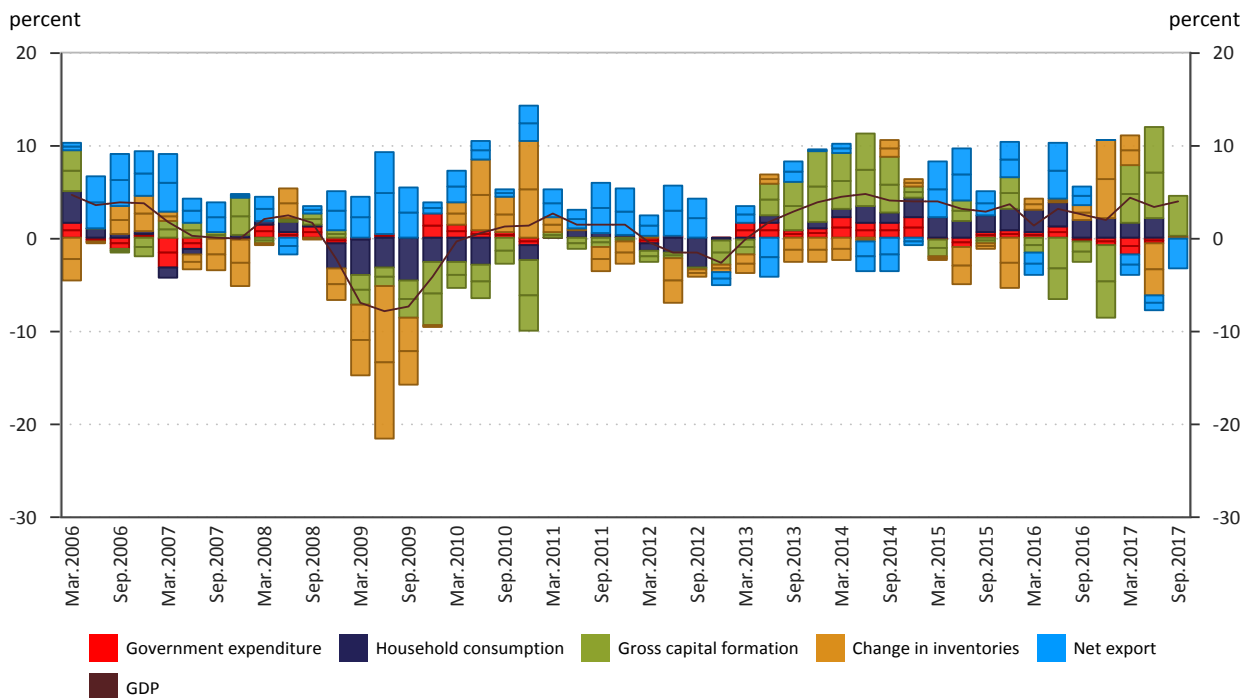


14. Quarterly GDP change



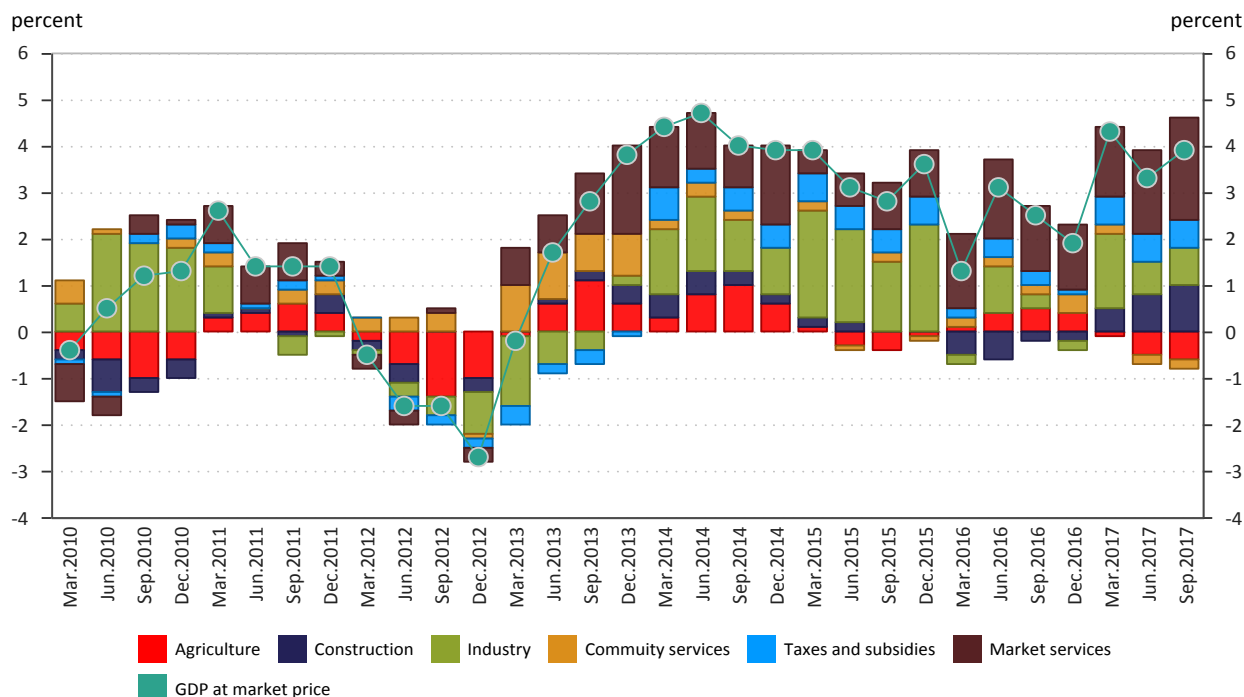
Source: MNB, HSCO.

15. Contribution to annual GDP growth



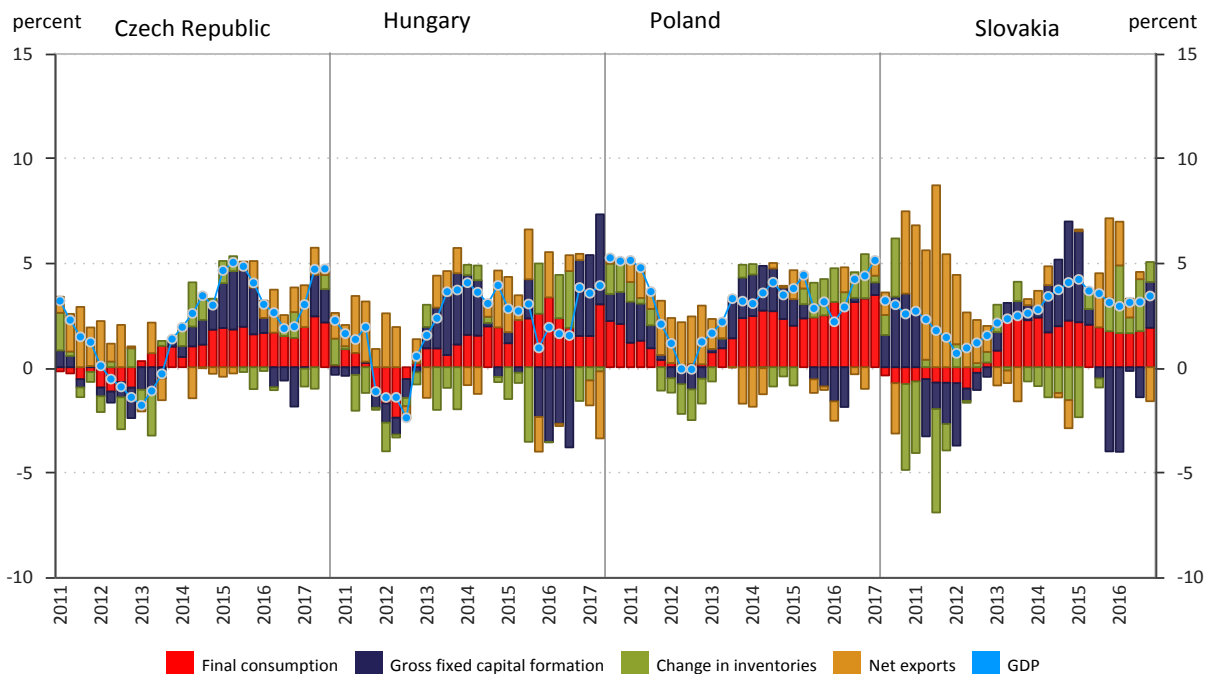
Source: MNB, HSCO.

16. Decomposition of GDP growth



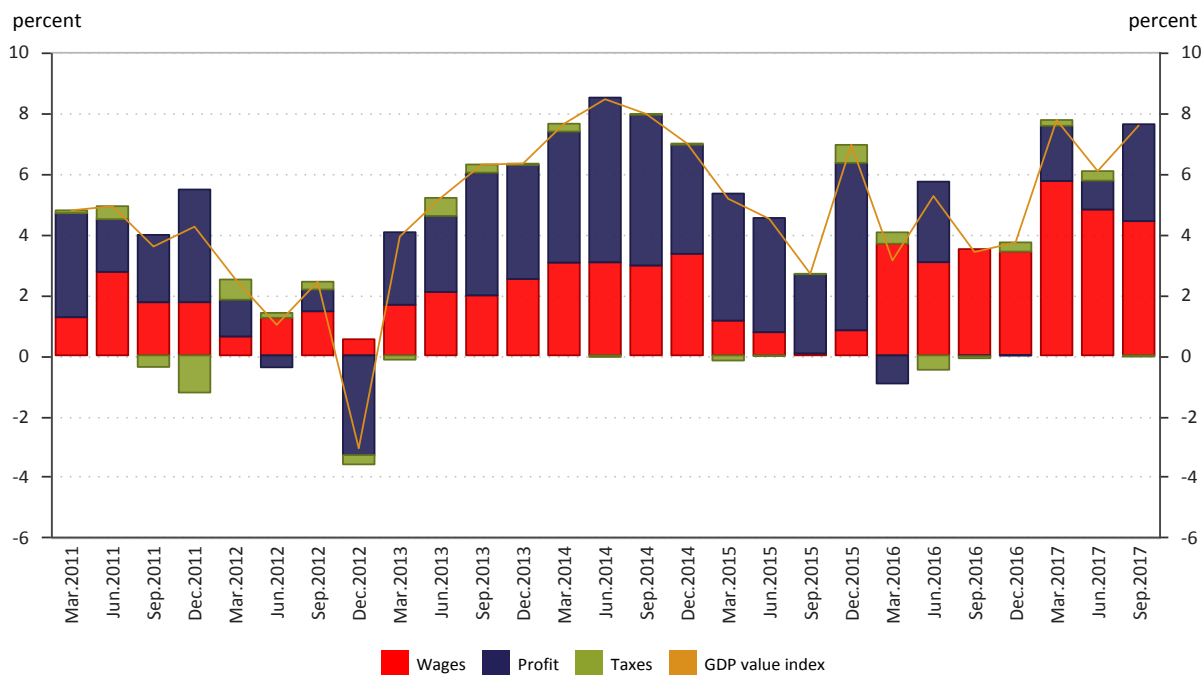
Source: HSCO.

17. Contribution to annual GDP growth in the region



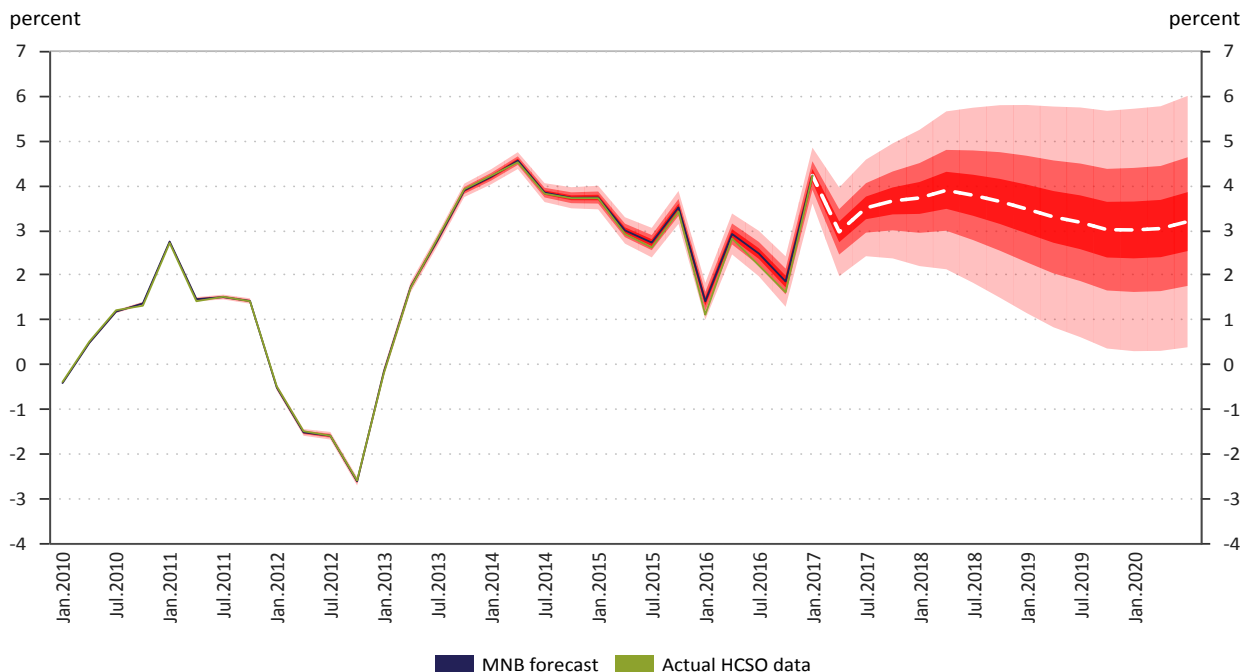
Source: MNB, HSCO.

18. Decomposition of GDP growth (income approach)



Source: MNB, HSCO Note: contribution in percentage points

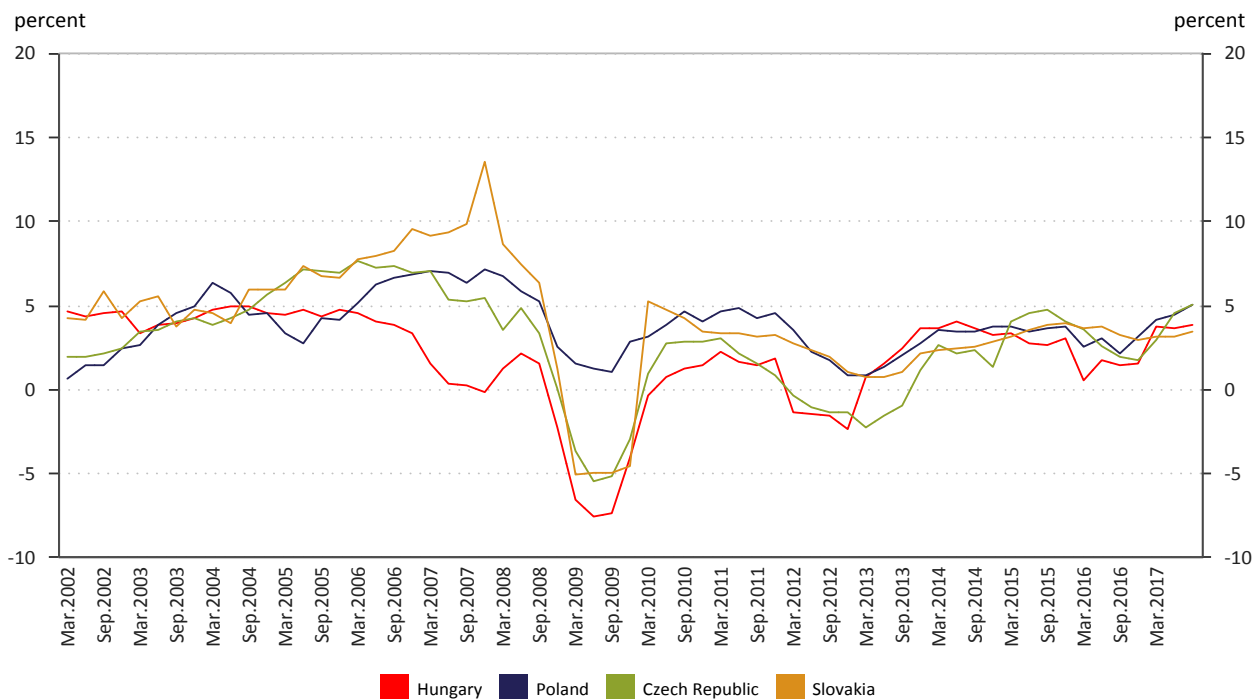
19. Fanchart of the GDP forecast



Source: MNB, HCSO.

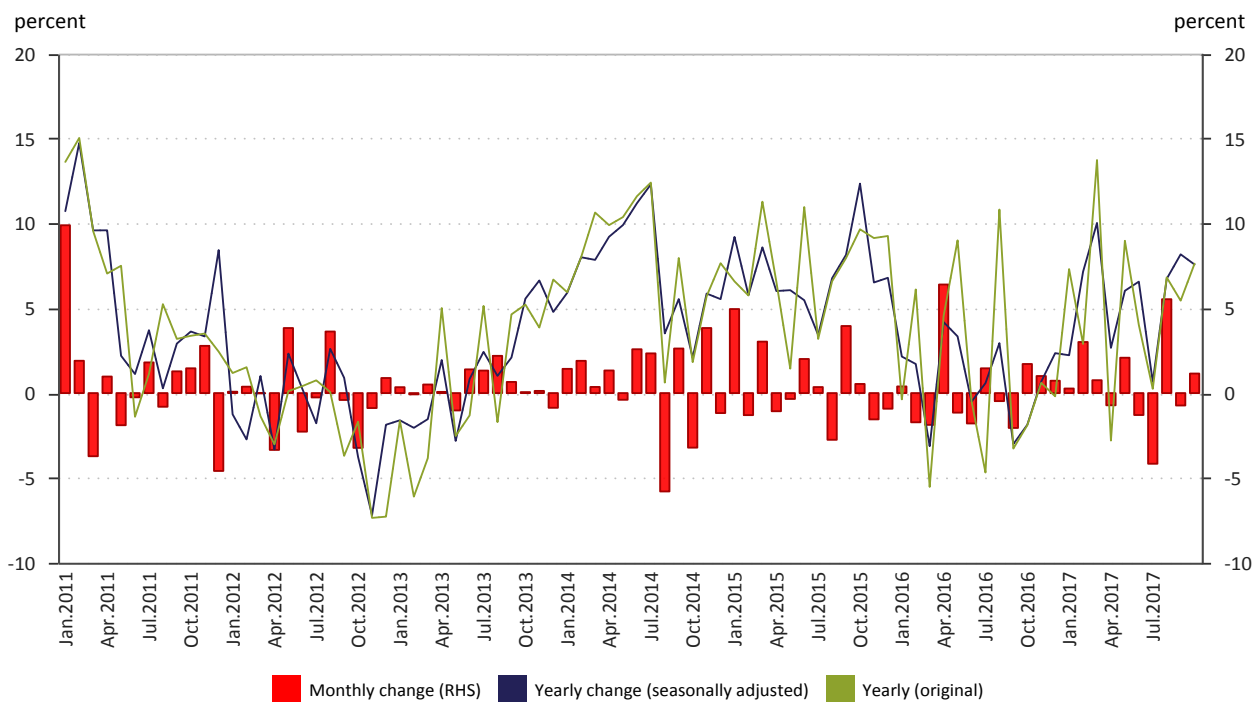
Note: the fan chart represents the uncertainty around the central projection. Overall, the coloured area represents a 90 per cent probability. The central area containing the central projection for the GDP illustrated by the dotted line (as the mode of distribution) refers to 30 per cent of the probability. Seasonally adjusted and reconciled data. The baseline forecast is based on backcast and nowcast adjusted by anticipated revisions.

20. GDP growth rate in CEE



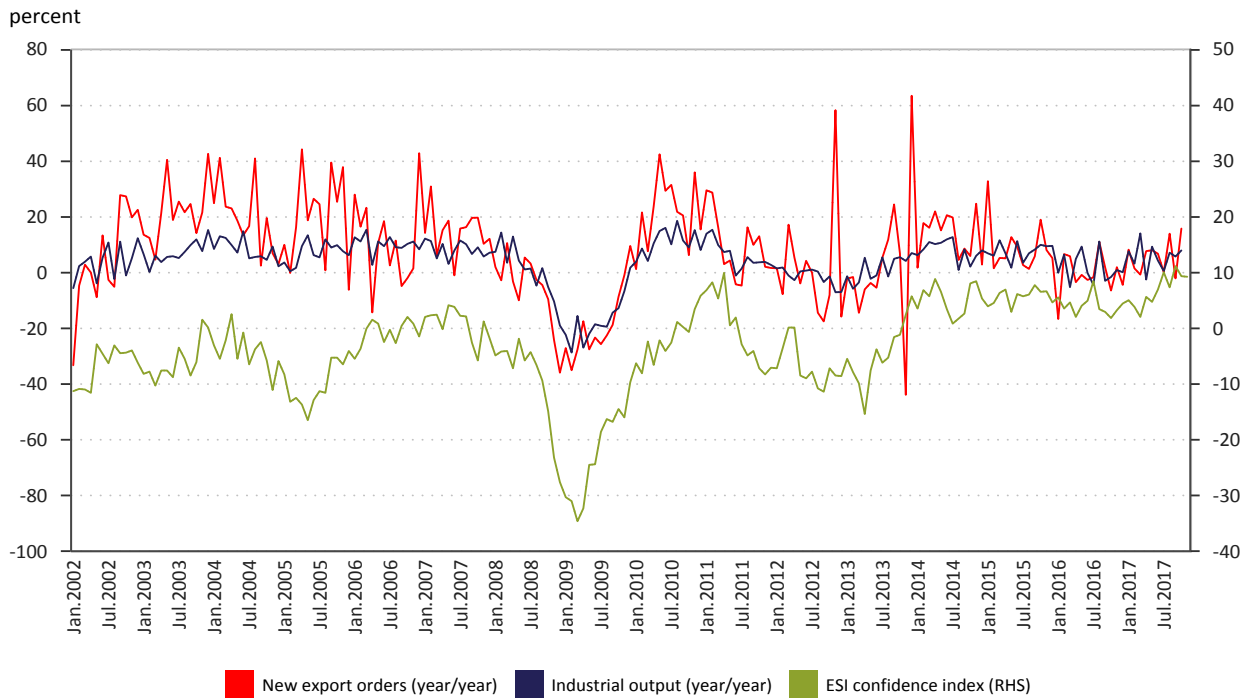
Source: Eurostat  
Note: annual growth rate.

21. Change in industrial production



Source: MNB, HCSO.

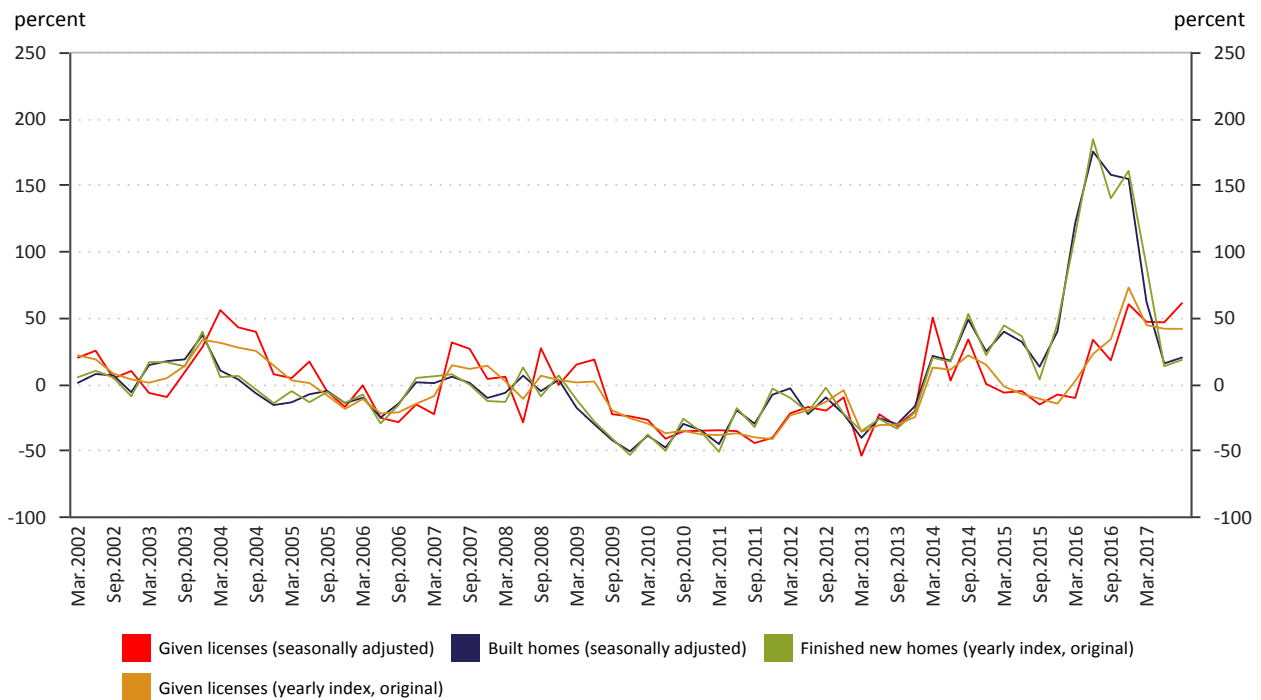
**22. Industrial production and new export orders**



Source: HSCO, European Commission.

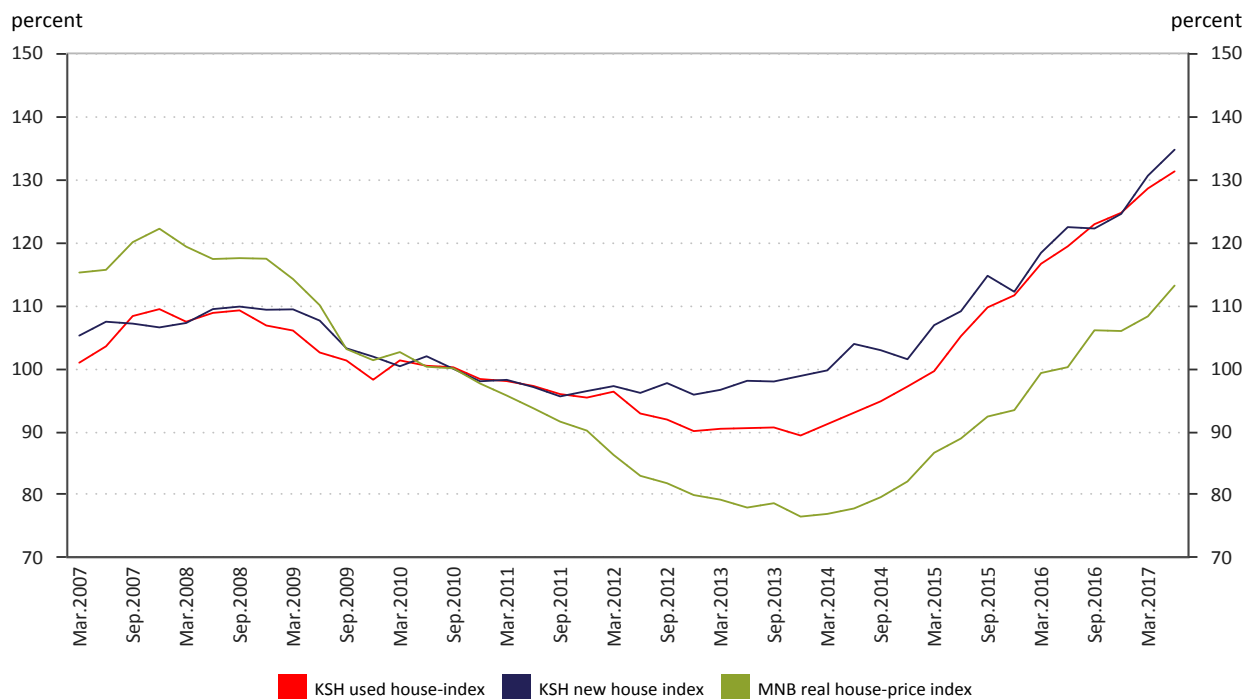
Note: ESI Index is a survey on business confidence by the European Commission. Chart represents the industrial sub-index.

**23. Developments on the real estate market**



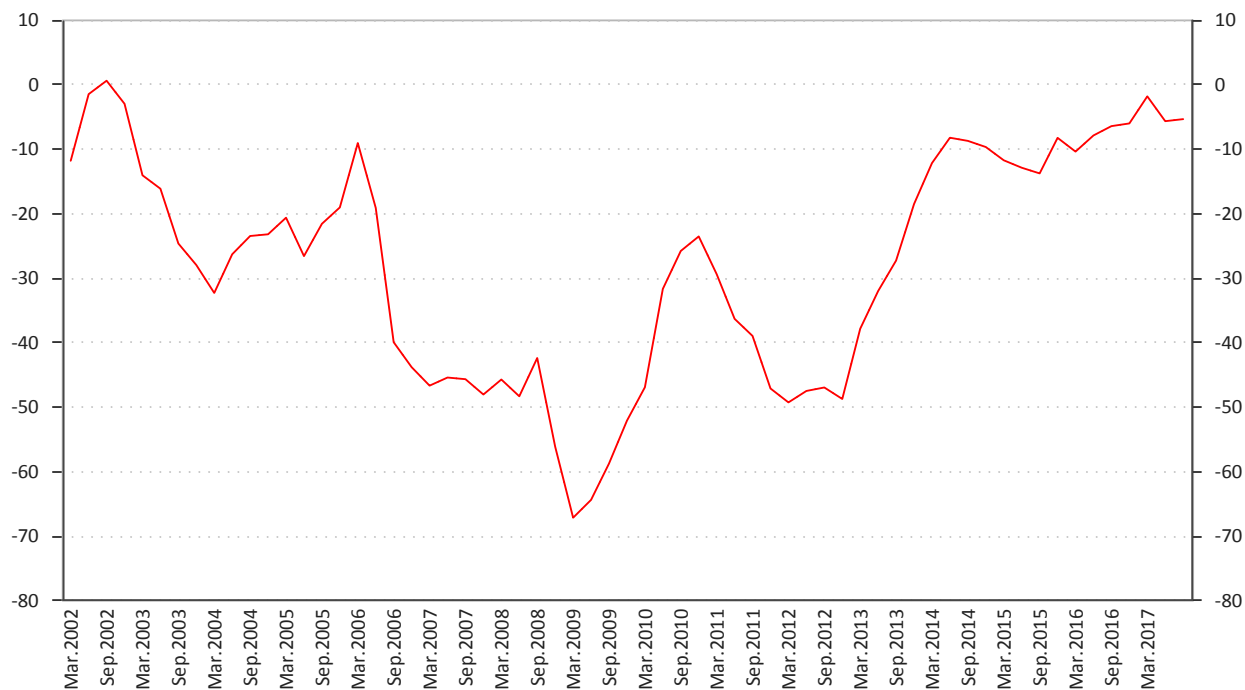
Source: MNB, HCSO.

24. Development of house prices



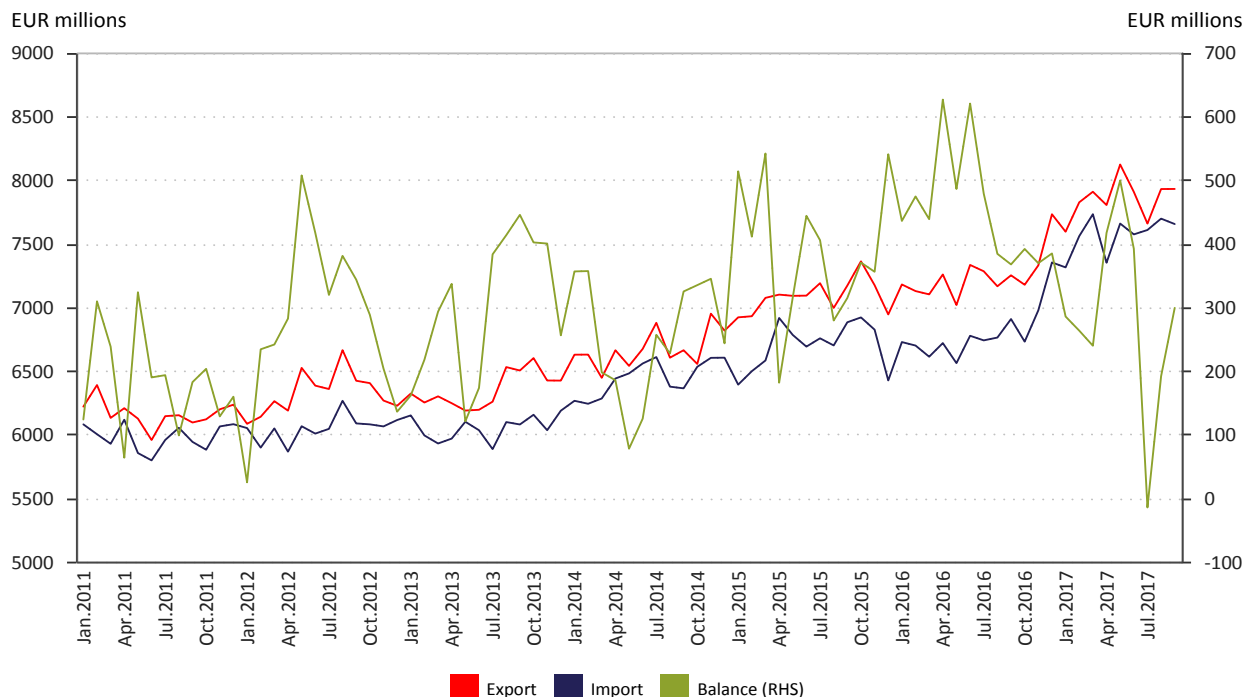
Source: HCSO  
 Note: 2010=100, inflation adjusted indices.

25. Household confidence index (reweighted)



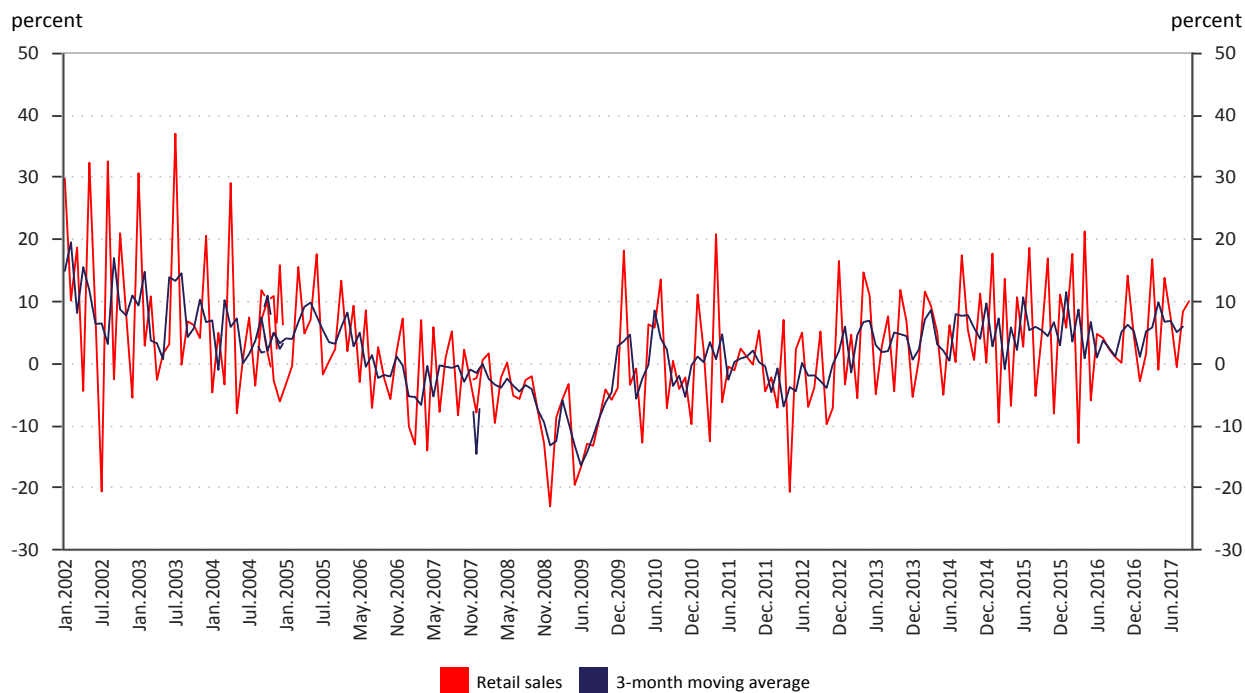
Source: European Commission.  
 Note: Household confidence indicator is a composite indicator based on the ESI survey

26. Change in export and import volumes



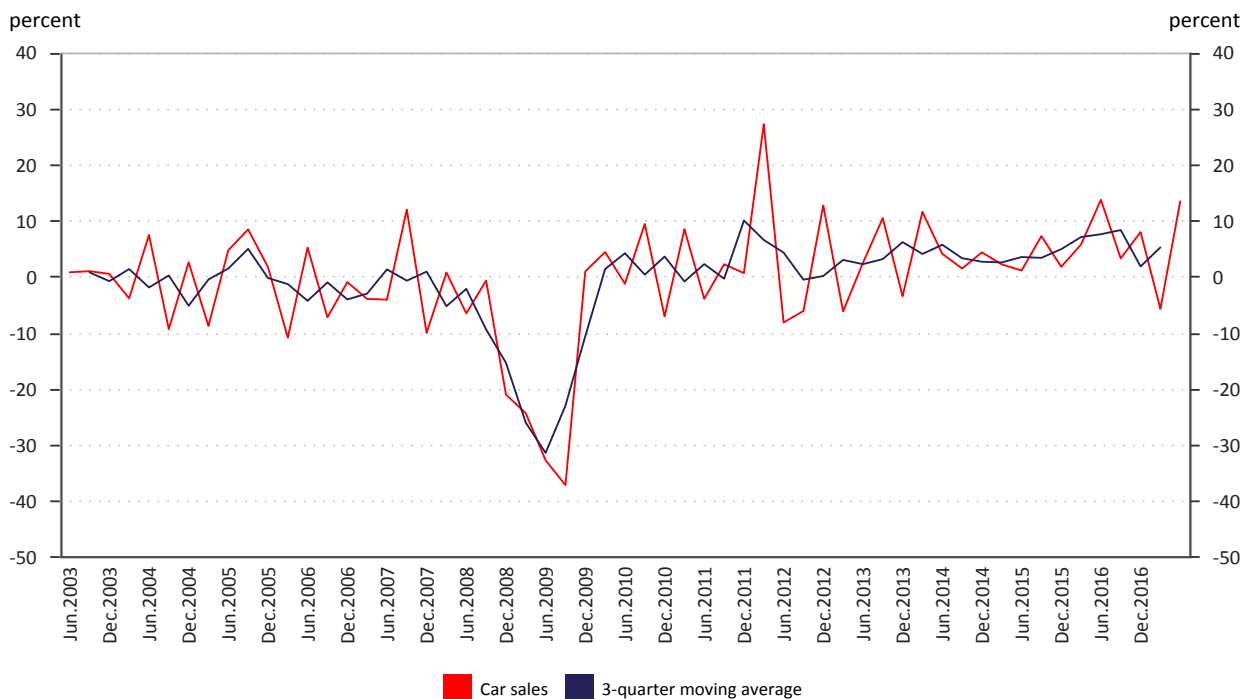
Source: HCSO, MNB calculation. Comment: Foreign trade was corrected due to slippage and missing items between specific months and the activity of VAT resident companies. The seasonal adjustment of the trade balance was done directly by MNB

27. Total volume of retail trade



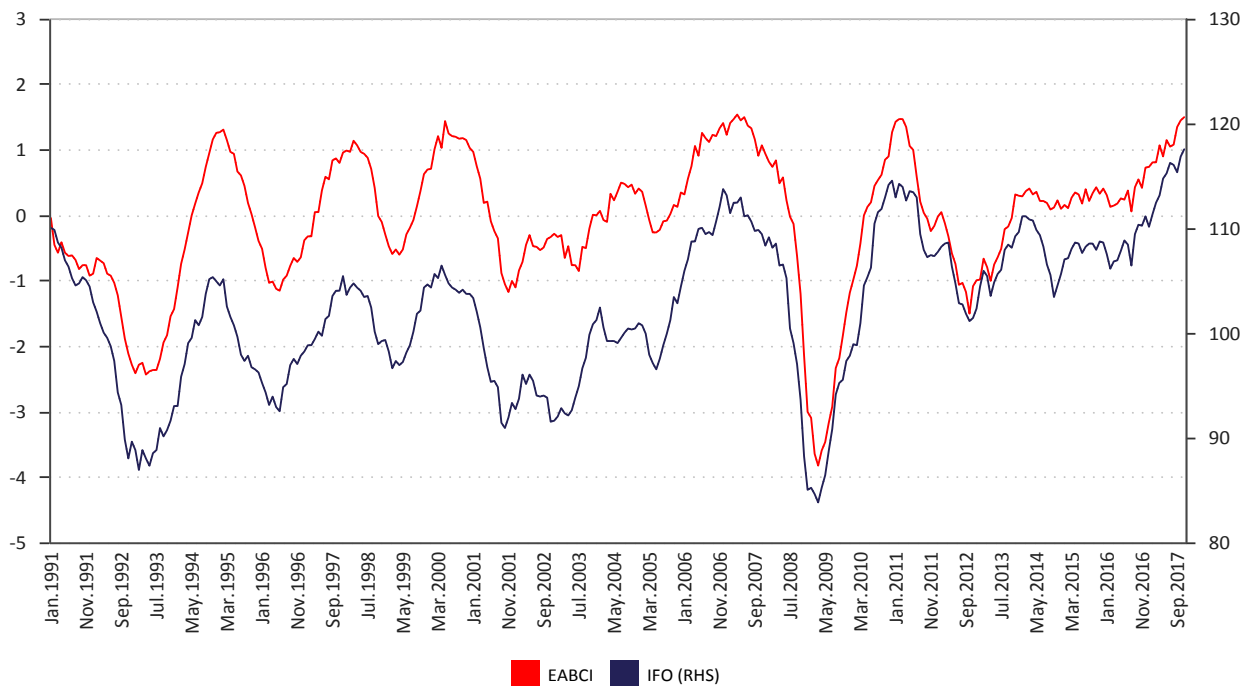
Source: HCSO. Note: seasonally adjusted annualised monthly growth rates. The data of total retail sales contain beyond the narrow retail sales the turnover of motor vehicles and automotive fuel as well.

28. Quarterly growth rates of automobile sales



Source: ACEA.

29. Business climate indices in the EMU

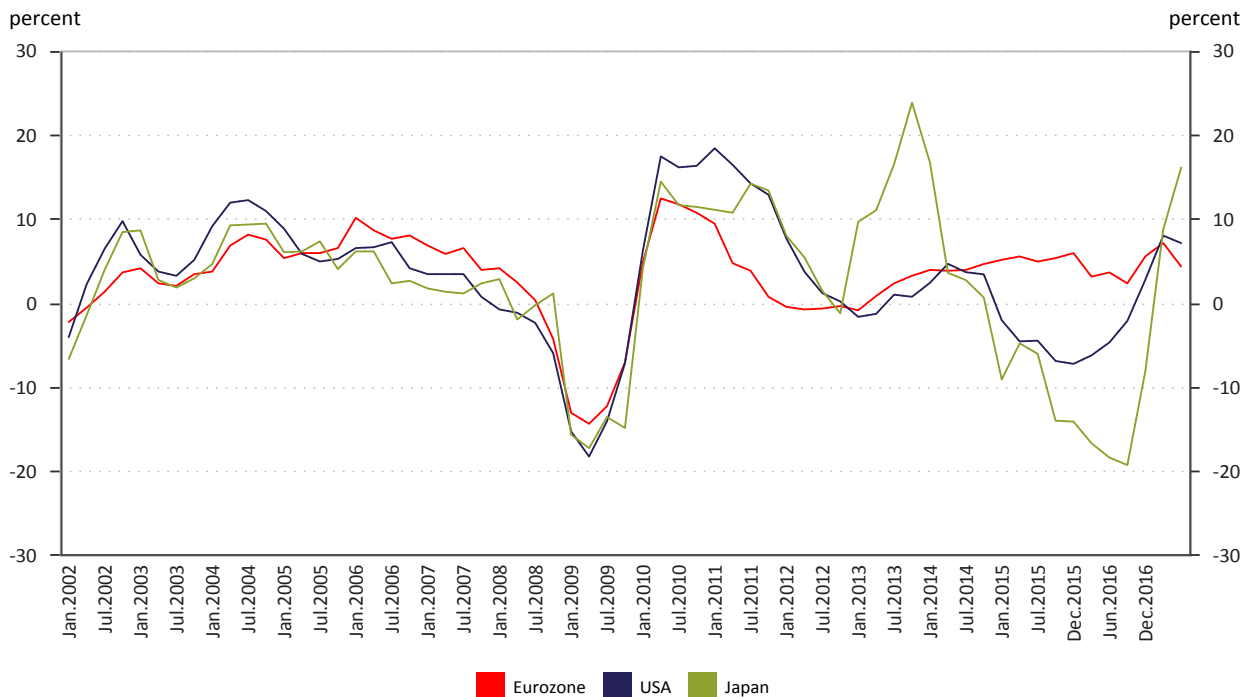


Source: IFO; European Committee.

Note: IFO: Business Climate Index of the German Institut für Wirtschaftsforschung (Average of year 2000 = 100); EABCI: Business Climate Index of the European Committee (deviations from the long-run average), seasonally adjusted.

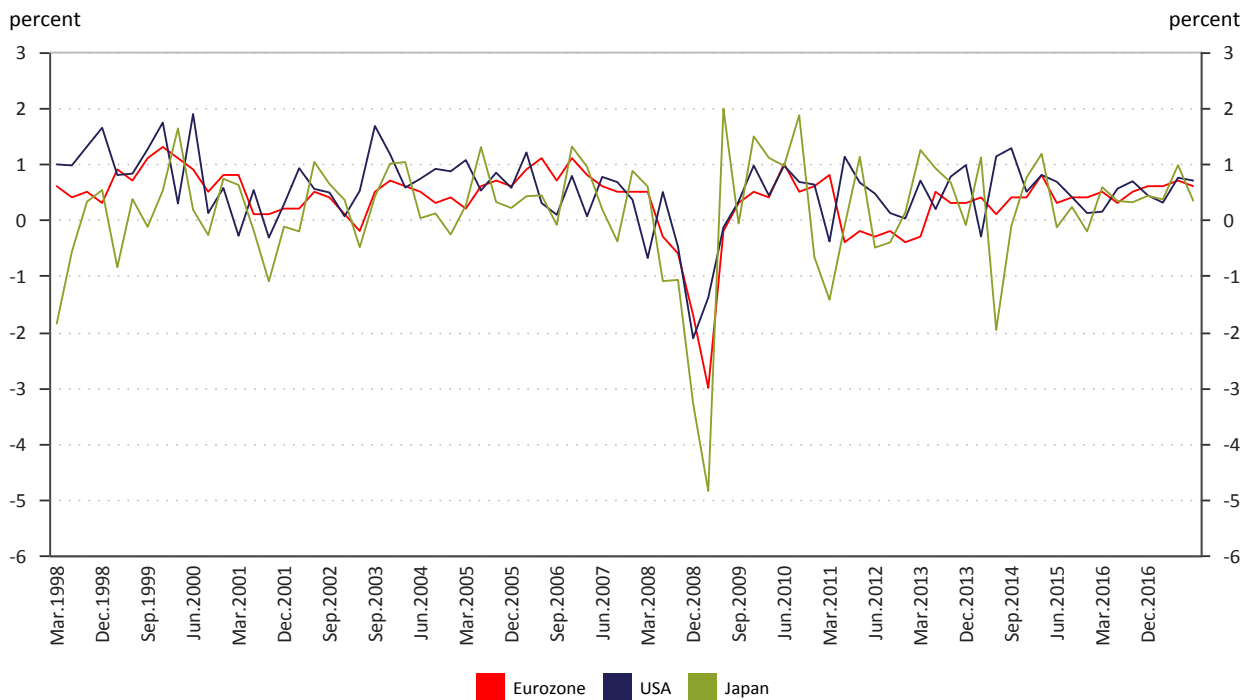


30. The annual growth rate of the volume of imported goods and services



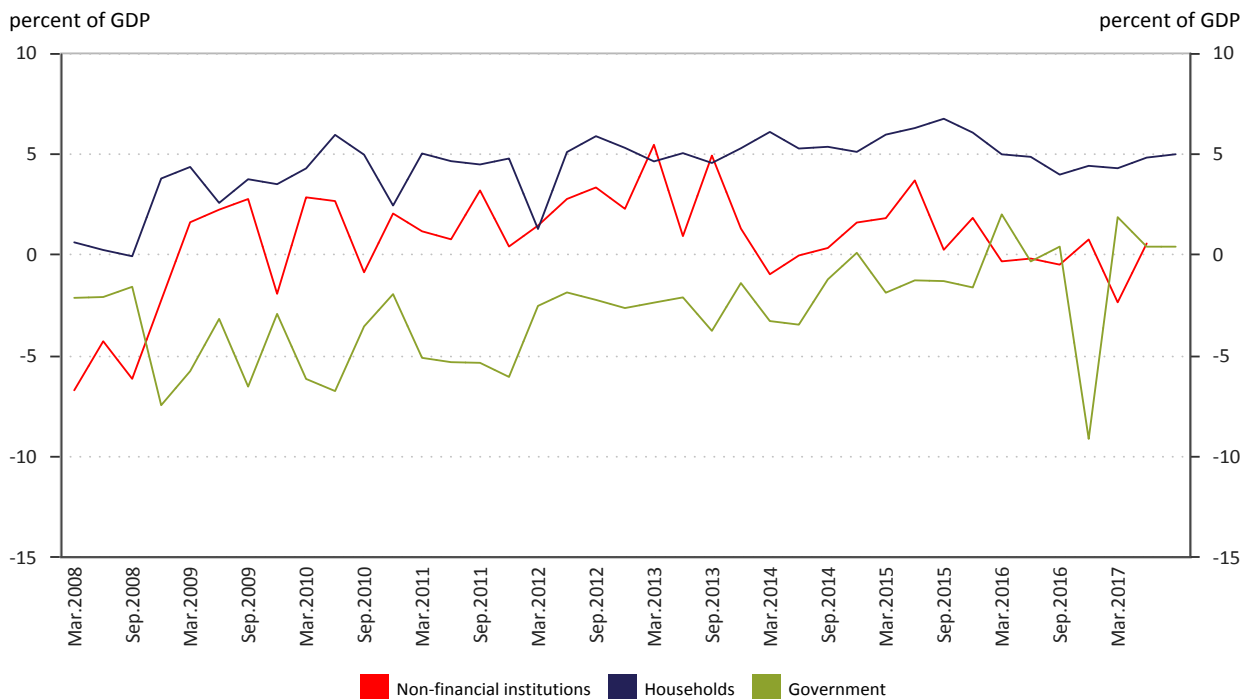
Source: Eurostat.

31. GDP growth rate in the EMU, US and Japan



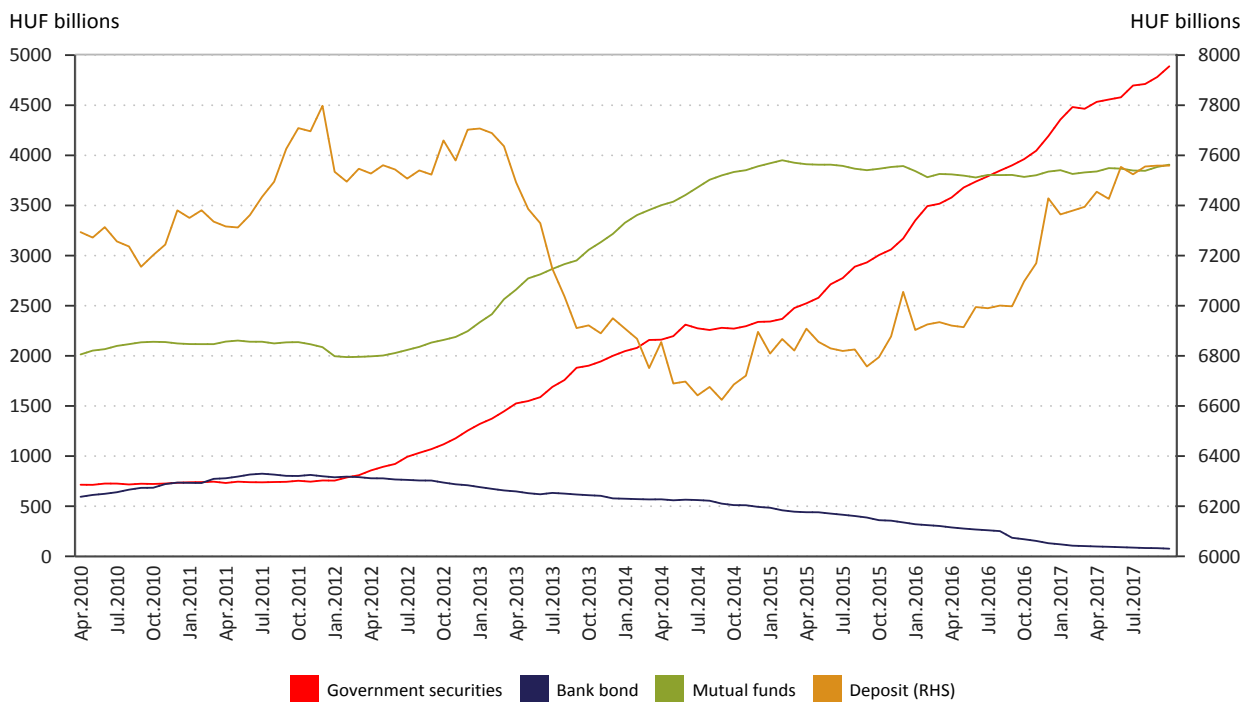
Source: Eurostat  
Note: quarterly growth rate.

### 32. Net lending of domestic sectors



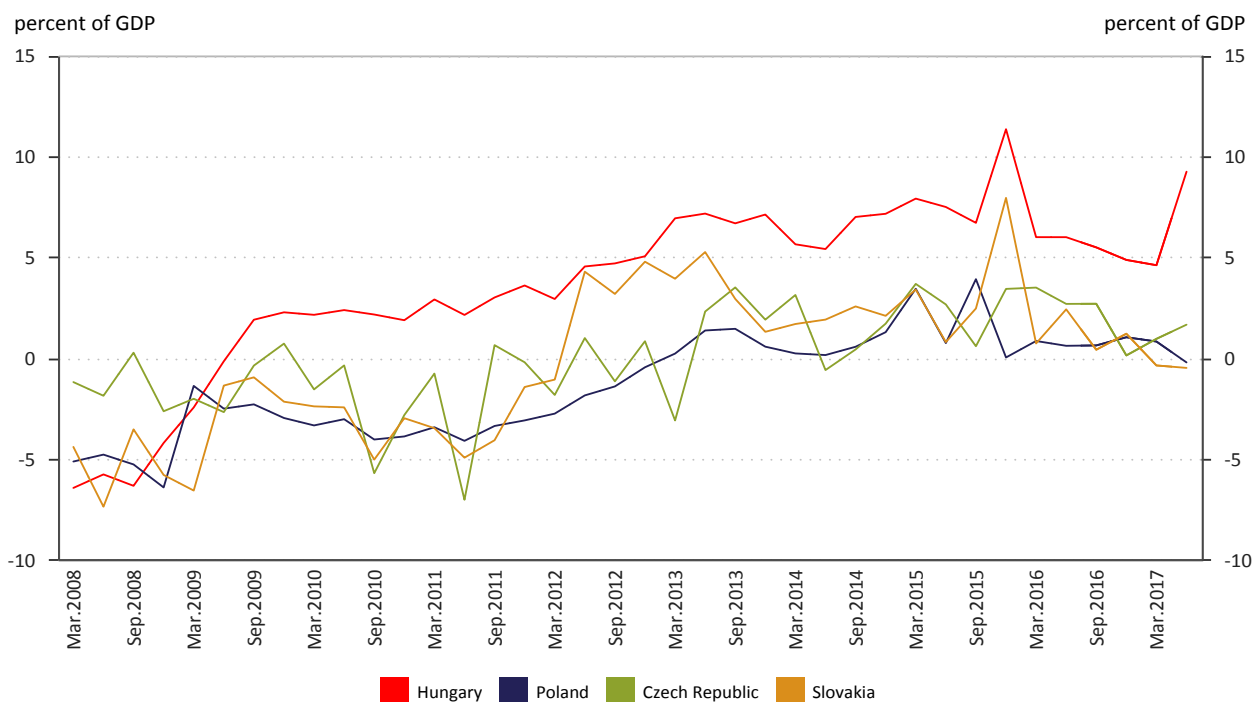
Source: MNB.

### 33. Main financial assets held by households



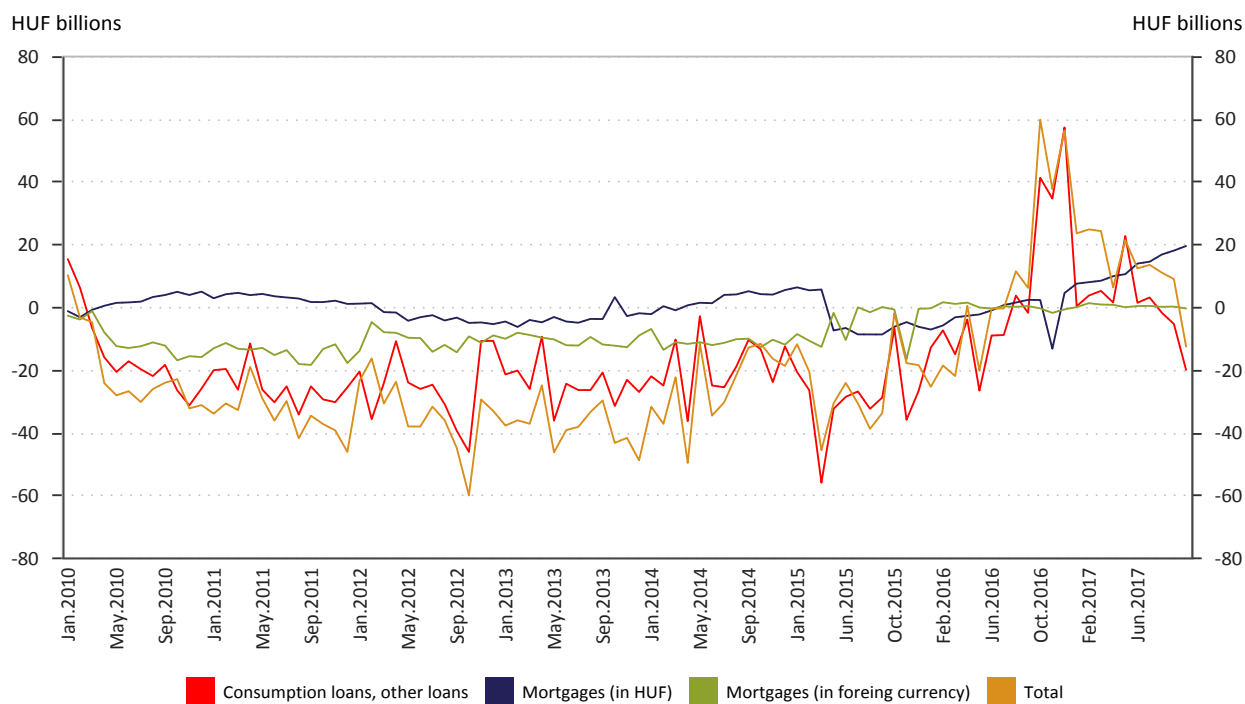
Source: MNB.

34. External financing capacity in the CEE countries



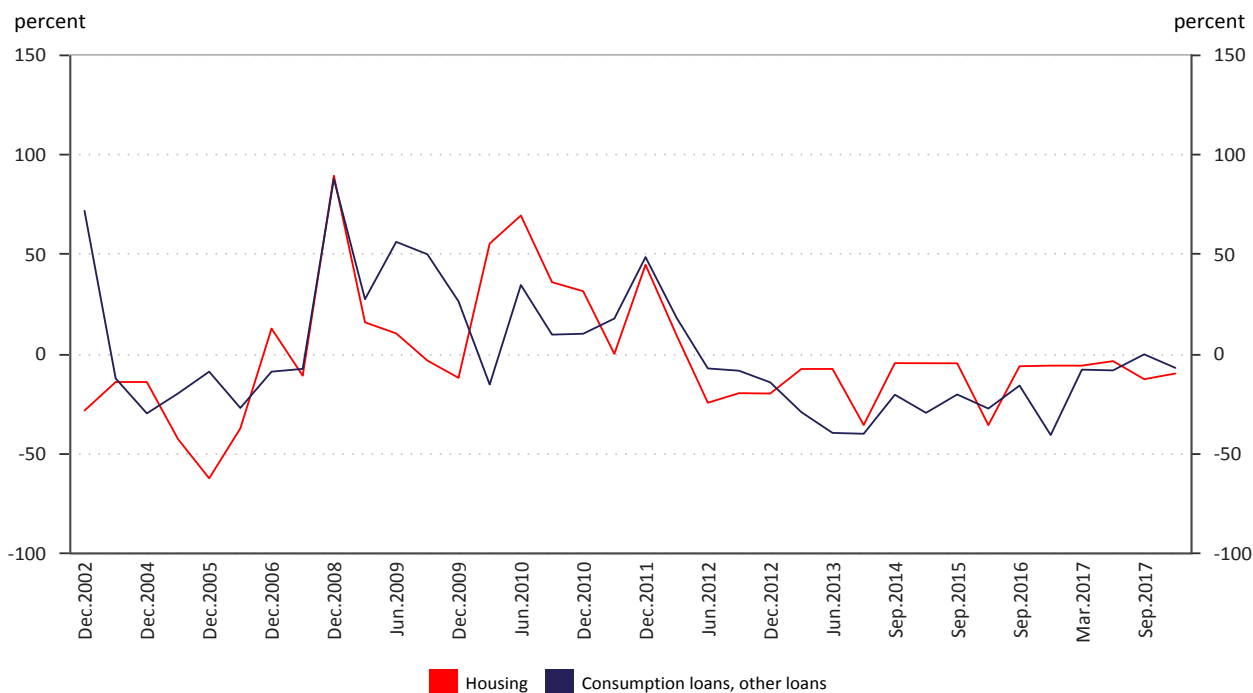
Source: MNB.

35. Net borrowing of the households



Source: MNB

**36. Creditworthiness standards and credit conditions in the household sector**



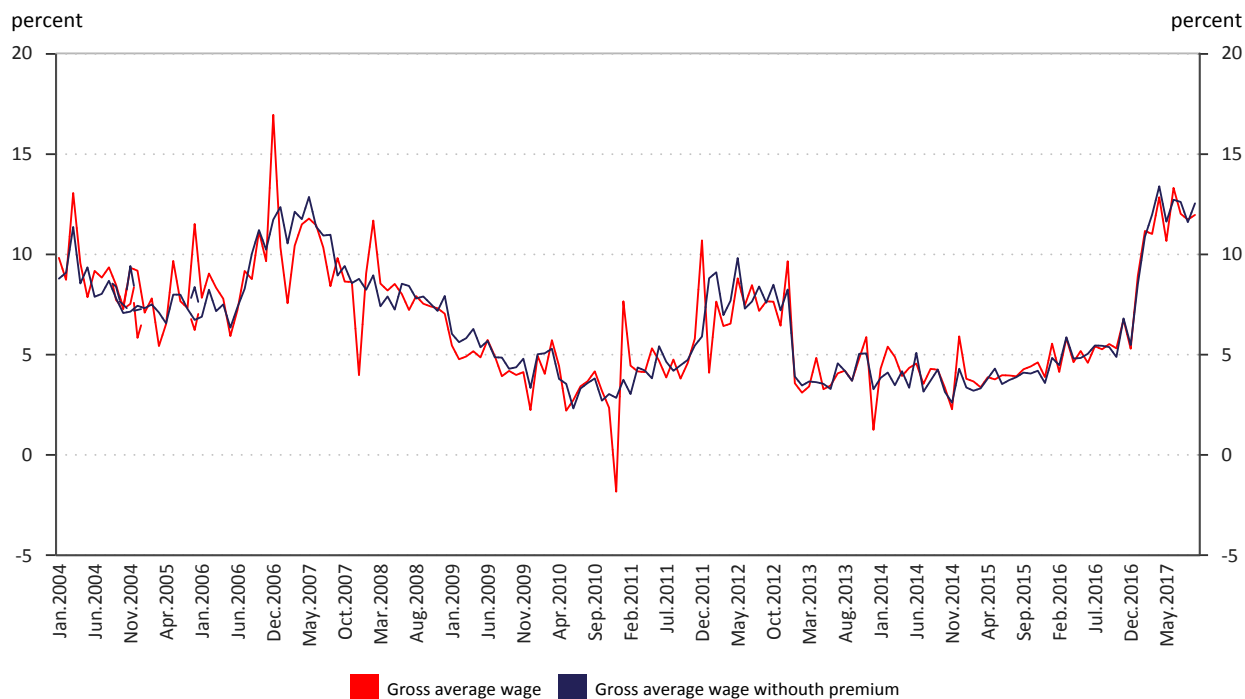
Source: MNB  
 Note: credit conditions estimated by lending officers. Negative value indicates easing, positive indicates tightening compared to the last quarter (before 2009 to previous half a year).

**37. Creditworthiness standards and credit conditions in the corporate sector**



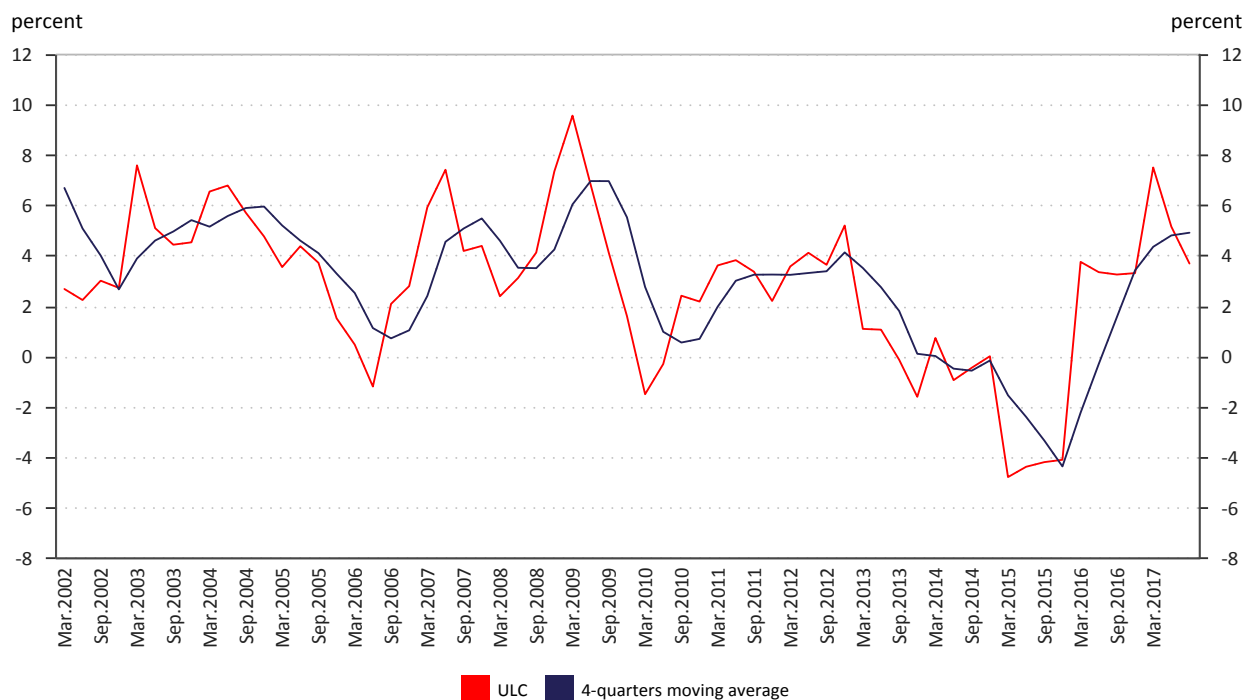
Source: MNB  
 Note: credit conditions estimated by lending officers. Negative value indicates easing, positive indicates tightening compared to the last quarter (before 2009 to previous half a year).

**38. Wage growth in private sector**



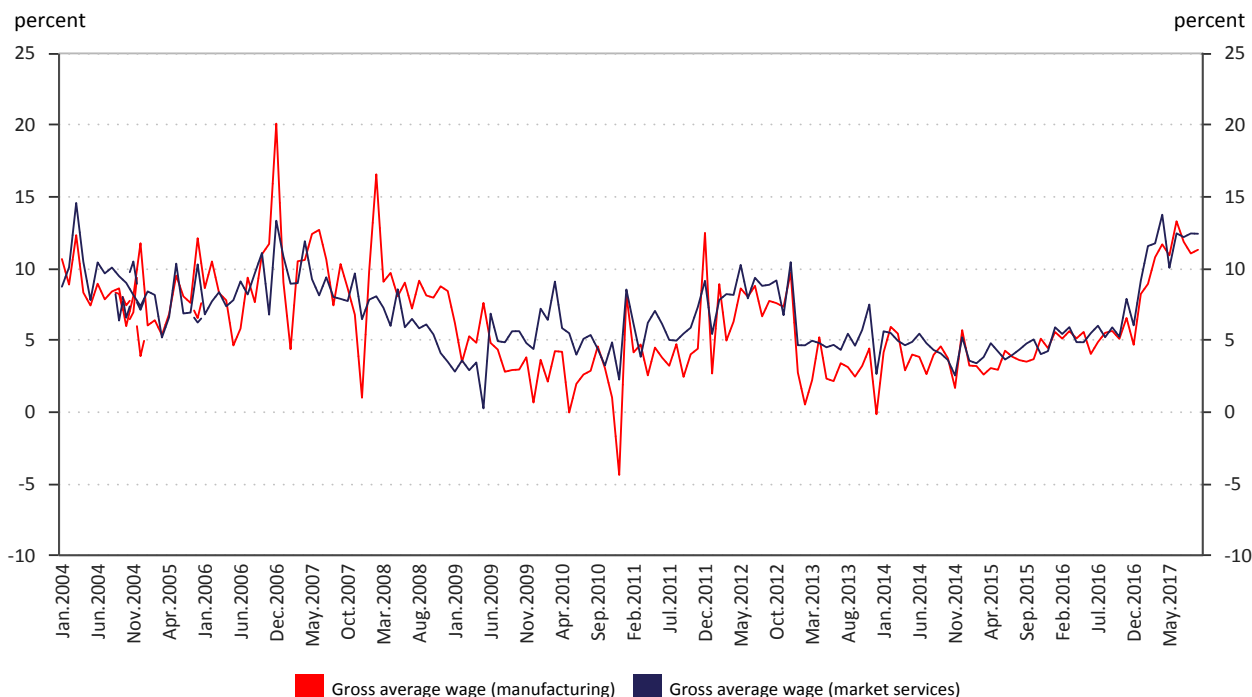
Source: HCSO, seasonally adjusted by MNB  
 Note: annual growth rates.

**39. Unit labour cost in the private sector**



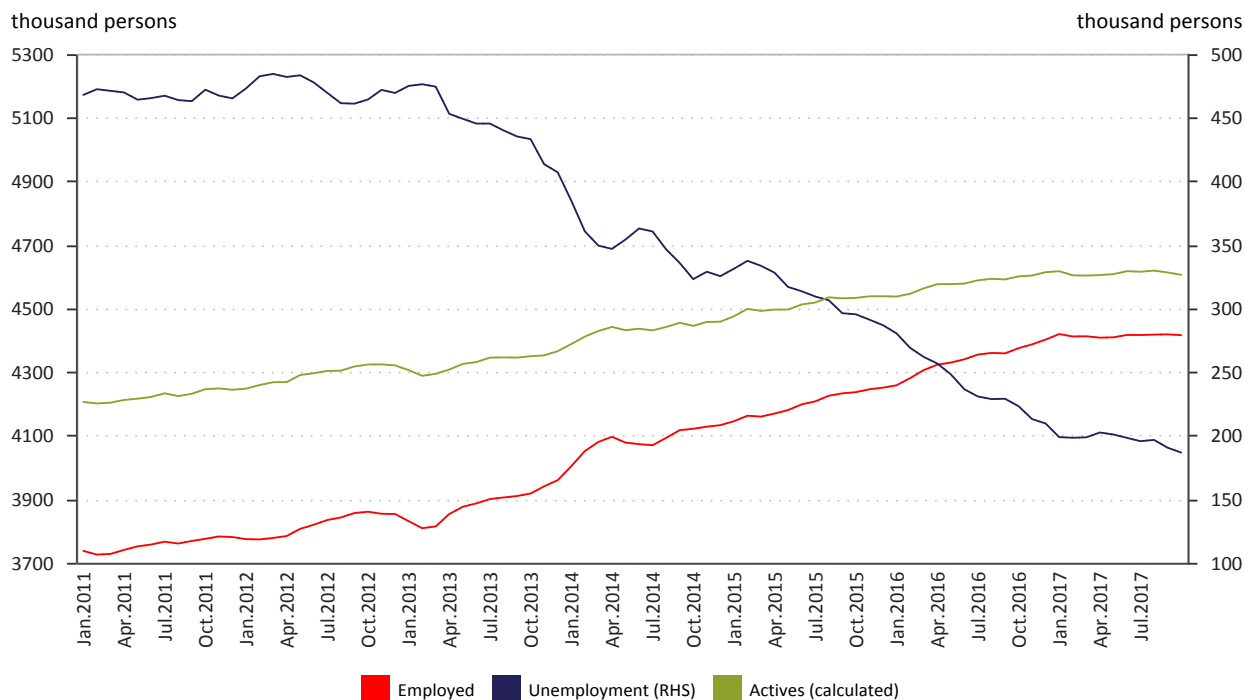
Source: HCSO, seasonally adjusted by MNB  
 Note: annual growth rates.

40. Wage growth in the manufacturing and market service sector



Source: MNB, HCSO.

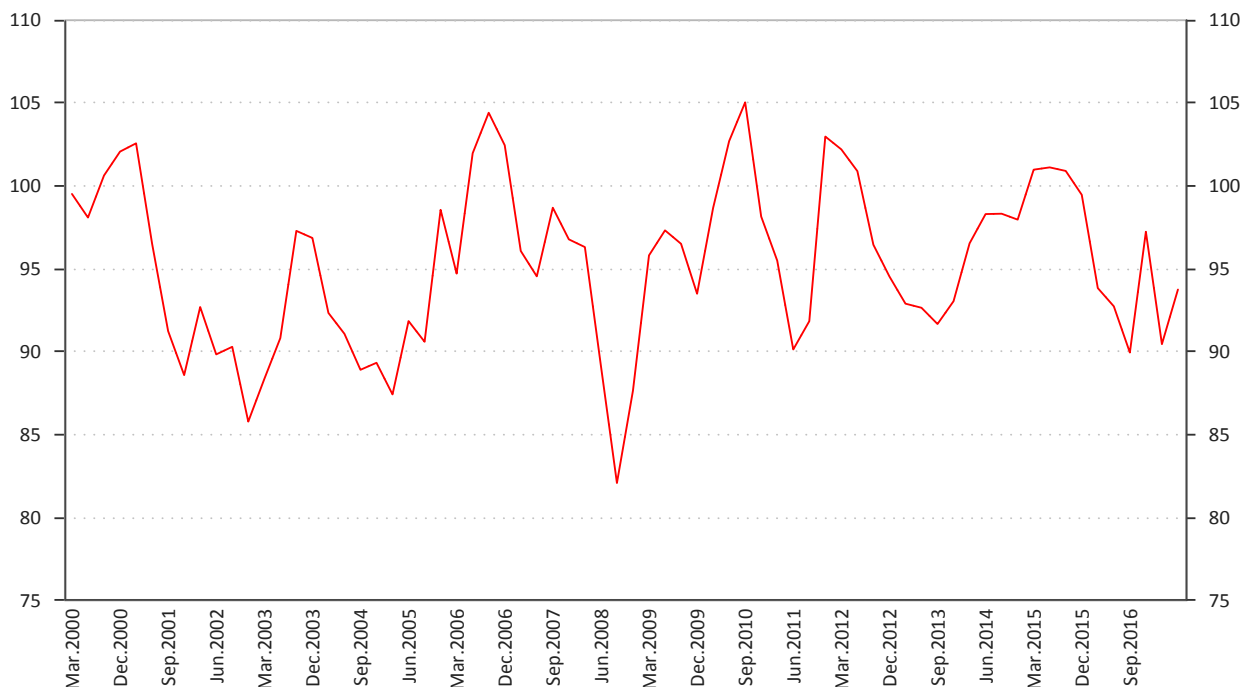
41. Activity and unemployment



Source: HCSO.

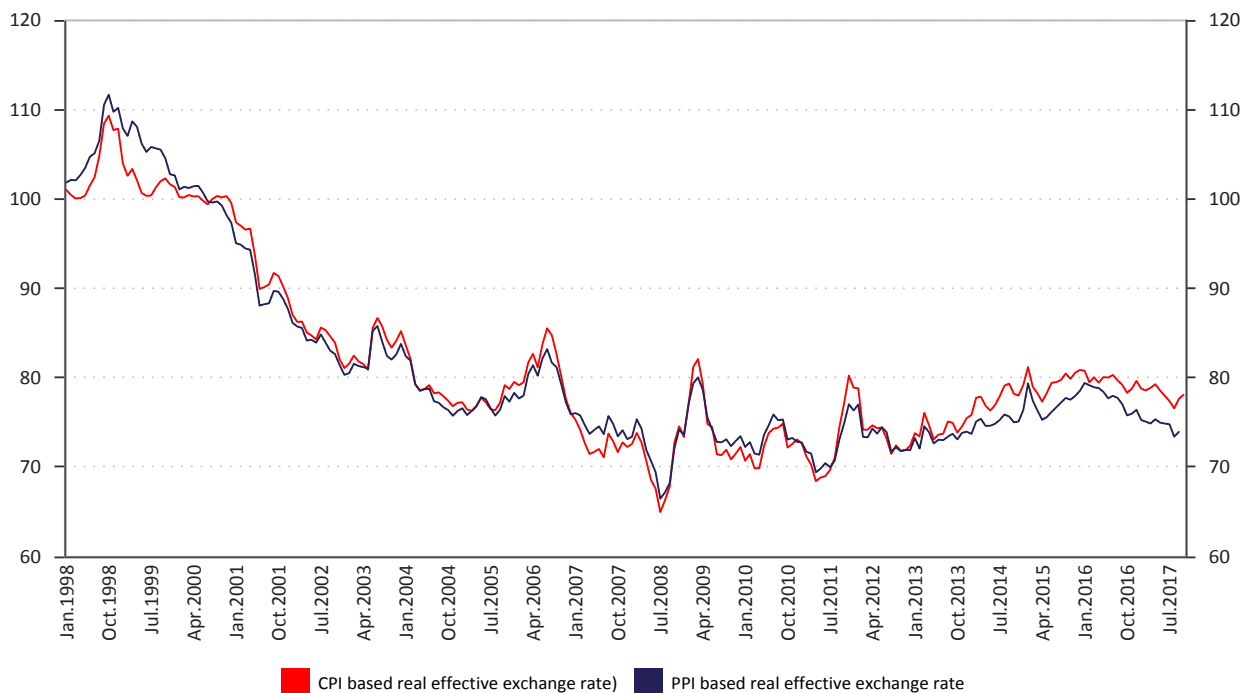
Notes: levels, seasonally adjusted.

**42. ULC based real effective exchange rate of the HUF**



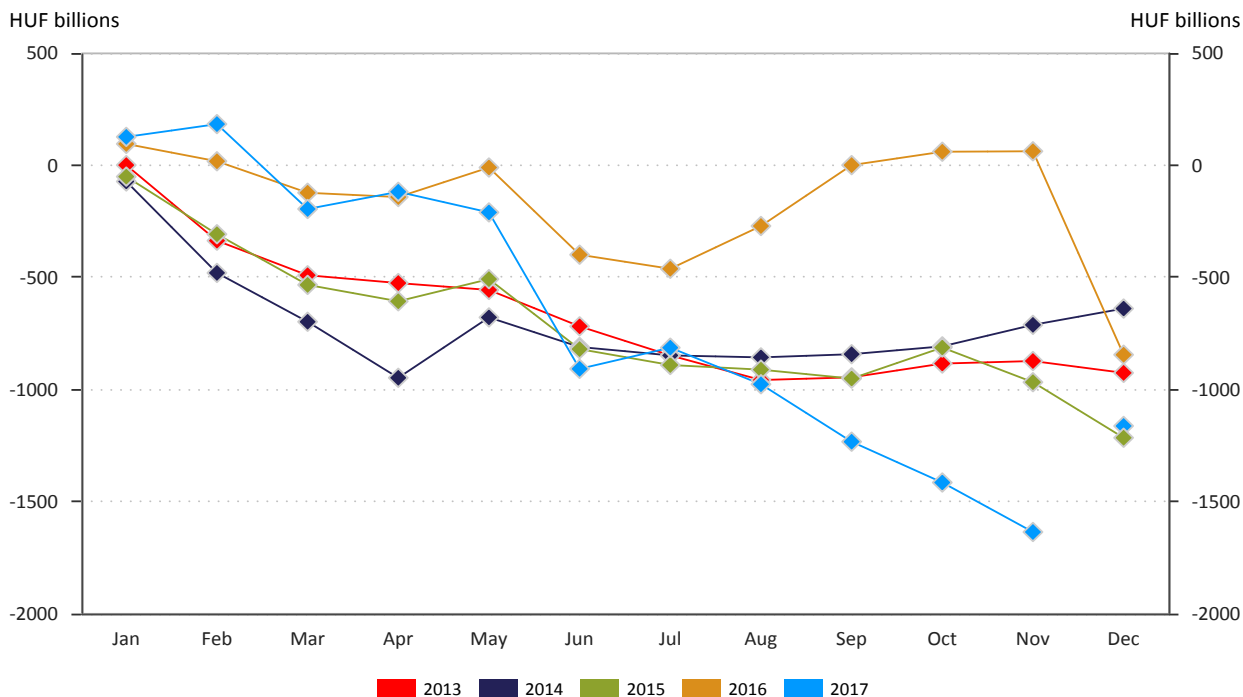
Source: HCSO.  
 Note: average of year 2000 = 100%.

**43. CPI and PPI based real effective exchange rates of the HUF**



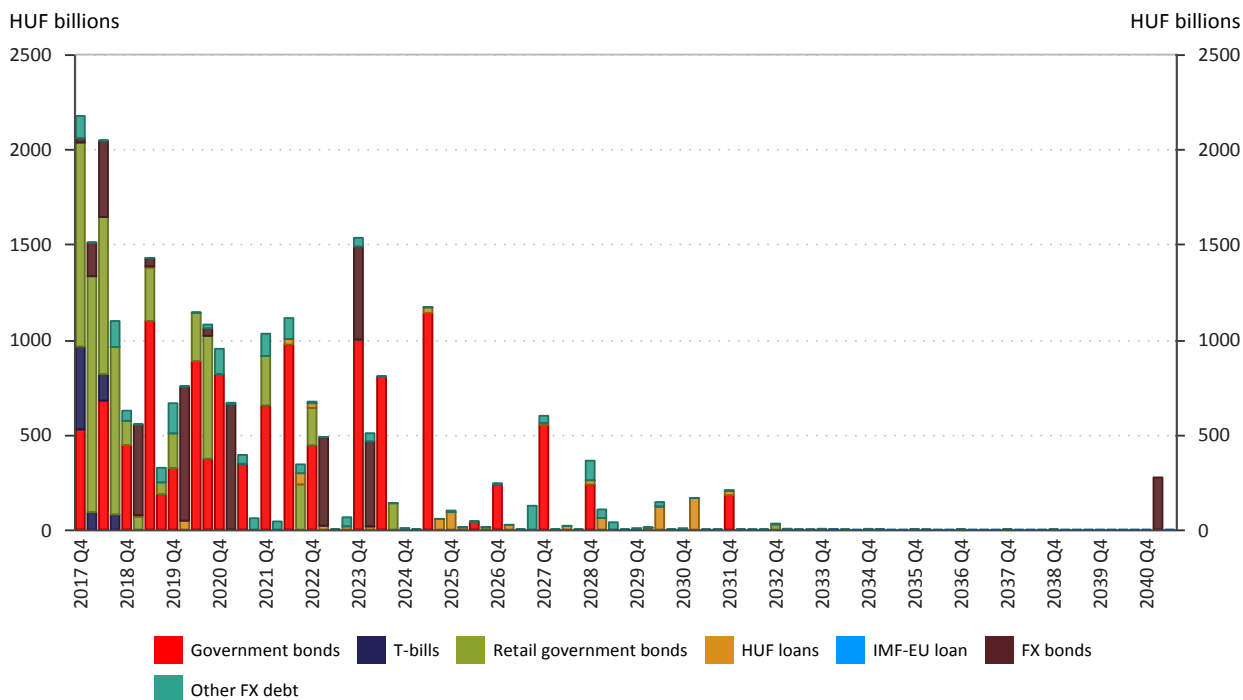
Source: HCSO.  
 Note: average of year 2000 = 100%. PPI based effective rates changed due to statistical revision on 24th March 2017.

44. Monthly evolution of budget deficit



Source: Hungarian State Treasury  
 Note: Individual dot shows the budget forecast. Cumulated balance.

45. Quarterly maturity structure of the government debt



Source: MNB, ÁKK.  
 Note: Redumptions in the recent quarter are included.



## 46. The latest central projection of the MNB compared to other prognoses

|   | 2016      | 2017                     | 2018                     | 2019            |
|---|-----------|--------------------------|--------------------------|-----------------|
| <b>CPI (annual average growth rate, %)</b>  |           |                          |                          |                 |
| MNB (SEP 2017)  | 0.4       | 2.4                      | 2.5                      | 2.9             |
| Consensus Economics (NOV 2017) <sup>1</sup>   | 0.4       | 2.3 - 2.4 - 2.6          | 1.7 - 2.8 - 3.8          |                 |
| European Commission (NOV 2017)  | 0.4       | 2.3                      | 2.6                      | 3.0             |
| IMF (OCT 2017)  | 0.4       | 2.5                      | 3.2                      | 3.0             |
| OECD (NOV 2017)   | 0.4       | 2.3                      | 2.7                      | 3.4             |
| Reuters survey (NOV 2017) <sup>1</sup>  |           | 2.2 - 2.3 - 2.4          | 2.0 - 2.7 - 3.2          | 2.1 - 3.0 - 3.5 |
| <b>GDP (annual growth rate, %)</b>  |           |                          |                          |                 |
| MNB (SEP 2017)  | 2.2 (2.0) | 3.6                      | 3.7                      | 3.2             |
| Consensus Economics (NOV 2017) <sup>1</sup>   | 2.2       | 3.5 - 3.8 - 4.0          | 2.5 - 3.4 - 4.2          |                 |
| European Commission (NOV 2017)  | 2.2       | 3.7                      | 3.6                      | 3.1             |
| IMF (OCT 2017)  | 2.0       | 3.2                      | 3.4                      | 2.8             |
| OECD (NOV 2017)   | 2.2       | 3.9                      | 3.6                      | 2.8             |
| Reuters survey (NOV 2017) <sup>1</sup>  |           | 3.6 - 3.8 - 4.0          | 3.1 - 3.6 - 4.2          |                 |
| <b>Current account balance<sup>3</sup></b>  |           |                          |                          |                 |
| MNB (SEP 2017)  | 5.5       | 3.5                      | 2.5                      | 3.1             |
| European Commission (NOV 2017)  | 6.1       | 4.3                      | 3.3                      | 3.2             |
| IMF (OCT 2017)  | 5.5       | 4.8                      | 4.2                      | 3.2             |
| OECD (NOV 2017)   | 6.1       | 4.0                      | 2.5                      | 0.8             |
| <b>Budget deficit (ESA-95 method)<sup>3,4</sup></b>   |           |                          |                          |                 |
| MNB (SEP 2017)  | -1.8      | (-1.6) - (-1.8)          | (-2.2) - (-2.4)          | (-1.8) - (-2.0) |
| Consensus Economics (NOV 2017) <sup>1</sup>   | -1.9      | (-0.3) - (-2.1) - (-3.0) | (-1.8) - (-2.5) - (-3.0) |                 |
| European Commission (NOV 2017)  | -1.9      | -2.1                     | -2.6                     | -2.3            |
| IMF (OCT 2017)  | -1.6      | -2.8                     | -2.9                     | -2.7            |
| OECD (NOV 2017)   | -1.9      | -2.4                     | -2.7                     | -2.4            |
| Reuters survey (NOV 2017) <sup>1</sup>  |           | (-1.7) - (-2.1) - (-2.7) | (-2.1) - (-2.4) - (-2.8) |                 |
| <b>Forecasts on the size of Hungary's export markets (annual growth rate, %)</b>            |           |                          |                          |                 |
| MNB (SEP 2017)  | 4.4       | 4.2                      | 4.1                      | 4.0             |
| European Commission (NOV 2017) <sup>2</sup>   | 4.3       | 5.4                      | 5.2                      | 4.8             |
| IMF (OCT 2017) <sup>2</sup>   | 4.3       | 5.0                      | 4.9                      | 4.6             |
| OECD (NOV 2017) <sup>2</sup>  | 3.8       | 5.3                      | 4.8                      | 4.5             |
| <b>Forecasts on the GDP growth rate of Hungary's trade partners (annual growth rate, %)</b> |           |                          |                          |                 |
| MNB (SEP 2017)  | 2.4       | 2.3                      | 2.4                      | 2.5             |
| Consensus Economics (NOV 2017) <sup>1</sup>   | 2.3       | 2.7                      | 2.5                      |                 |
| European Commission (NOV 2017) <sup>2</sup>   | 2.3       | 2.8                      | 2.6                      | 2.4             |
| IMF (OCT 2017) <sup>2</sup>   | 2.3       | 2.7                      | 2.4                      | 2.1             |
| OECD (NOV 2017) <sup>2</sup>  | 2.1       | 2.8                      | 2.6                      | 2.2             |

1 For Reuters and Consensus Economics surveys, in addition to the average value of the analysed replies (i.e. the median value), we also indicate the lowest and the highest values to illustrate the distribution of the data.

2 Values calculated by the MNB; the projections of the named institutions for the relevant countries are adjusted with the weighting system of the MNB, which is also used for the calculation of the bank's own external demand indices. Certain institutions do not prepare forecast for all partner countries.

3 As a percentage of GDP.

4 With complete cancellation of free reserves.

Source: Consensus Economics, European Commission, IMF, OECD, Reuters poll

**47. Domestic financial developments***Overview*

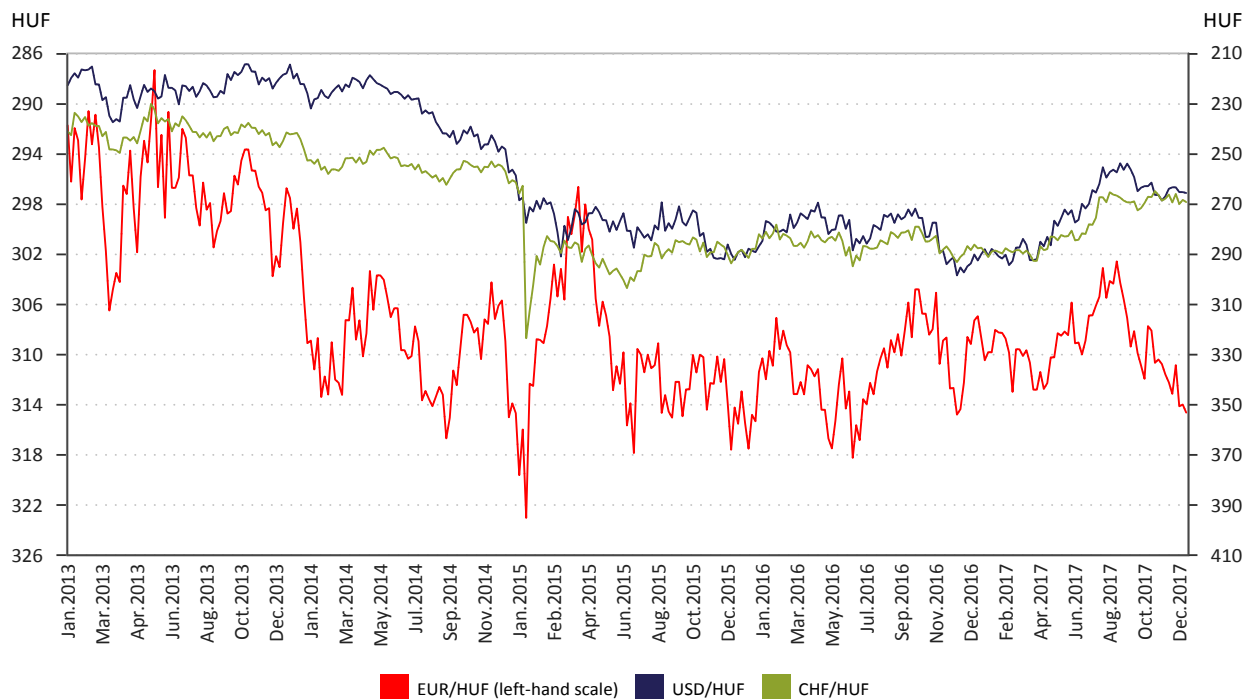
| <b>Indicator</b>   | <b>One month ago</b> | <b>One week ago</b> | <b>Current</b> |
|--|----------------------|---------------------|----------------|
| HUF/EUR spot exchange rate                                     | 311.9                | 315.0               | 313.9          |
| Skewness of expectations on HUF/EUR exchange rate              | 0.64                 | 0.70                | 0.65           |
| HUF-positions of foreign investors (HUF billions)              | -1885                | -2078               | -2162          |
| Forward positions of domestic investors (HUF billions)         | 1150                 | 1423                | 1389           |
| MNB base rate (%)  | 0.90                 | 0.90                | 0.90           |
| Expected short-term interbank rate at the end of the year (%)* | 0.04                 | 0.05                | 0.05           |
| 3-months interbank rate (%)                                    | 0.05                 | 0.05                | 0.05           |
| 3x6 FRA rate (%)   | 0.03                 | 0.04                | 0.03           |
| 3 month T-bill yield (%)                                       | -0.04                | 0.00                | 0.00           |
| 5 year T-bond yield (%)  | 1.14                 | 1.10                | 1.16           |
| Slope of yield curve (10Y-1Y, bp)                              | 220                  | 207                 | 216            |
| O/N FX-swap spread (bp)  | -19                  | -52                 | 3              |
| 3-month FX-swap spread (bp)                                    | 6                    | 6                   | -26            |
| 5-year FX-swap spread (bp)                                     | -18                  | -19                 | -19            |
| 5-year CDS spread (bp)   | 95                   | 91                  | 92             |
| 5x5 government bond spread (bp)**                              | 203                  | 183                 | 179            |
| Average spread of USD-denominated government bonds (bp)        | 116                  | 105                 | 104            |
| Foreign holdings of HUF-government bonds (HUF billion)         | 3545                 | 3430                | 3471           |

Notes:

\* Based on forward yield curve.

\*\* Over Germany yield.

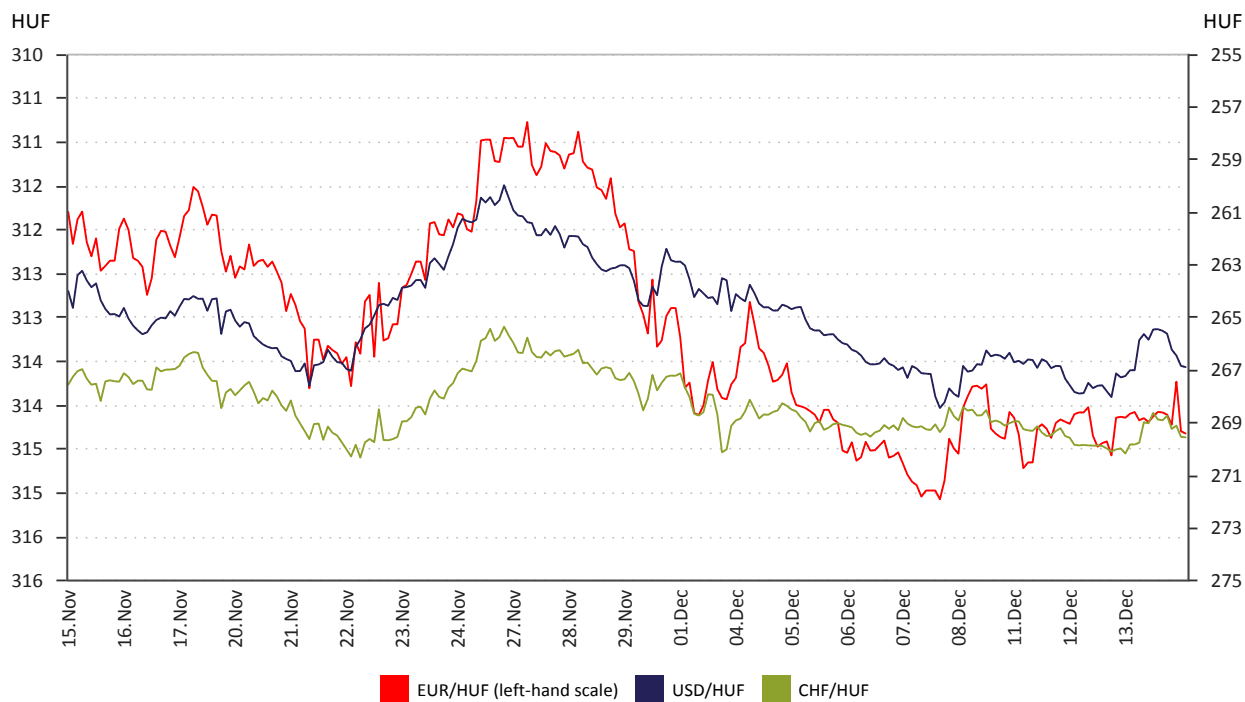
48. Developments in HUF exchange rate



Source: Datastream

Note: reverse scale, daily observations.

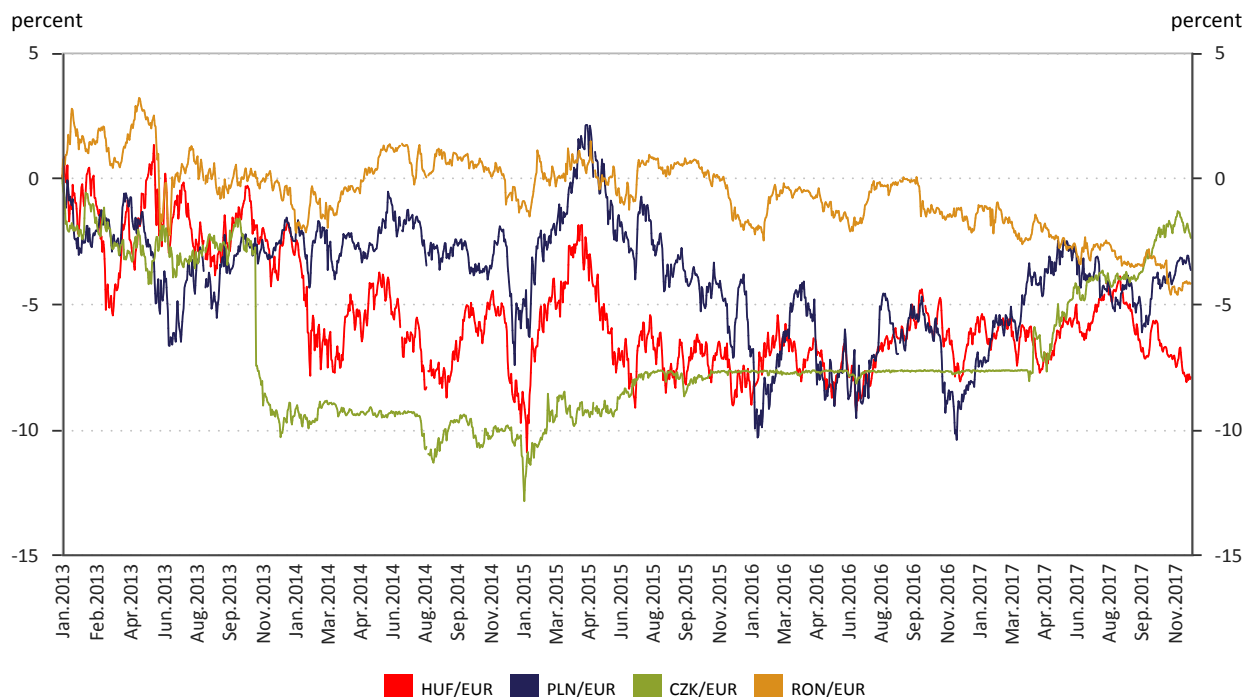
49. Developments in HUF exchange rate (last month)



Source: Thomson Reuters

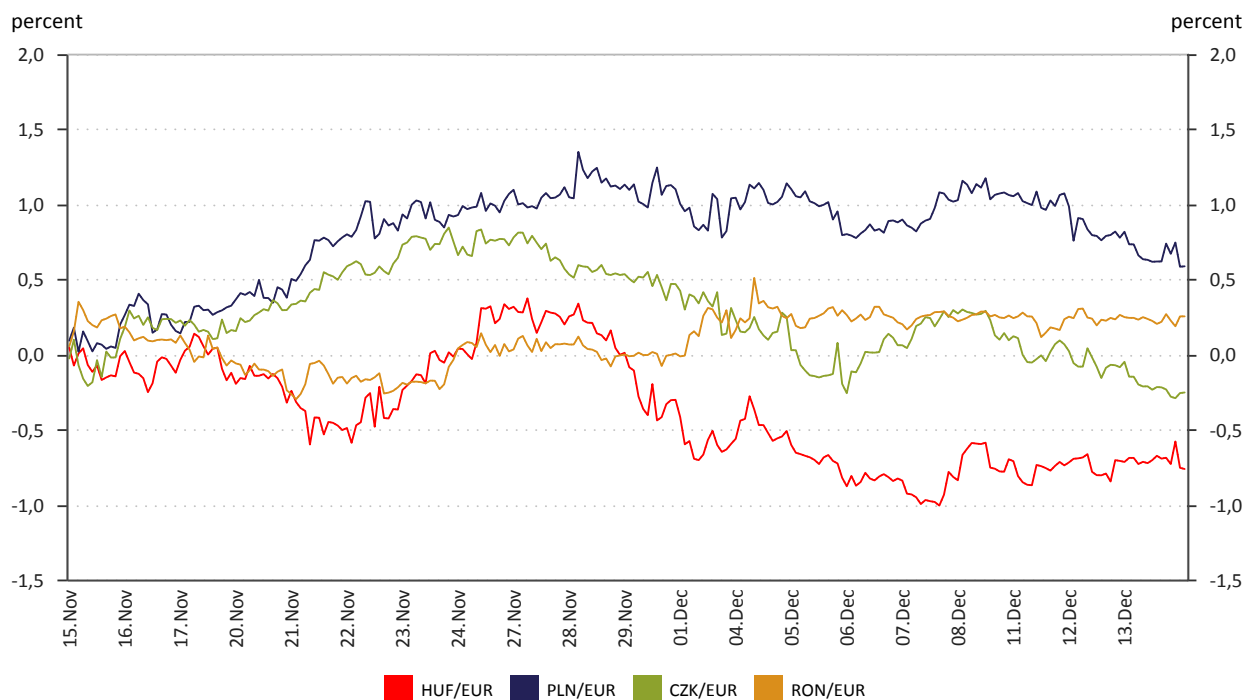
Note: reverse scale.

50. Emerging markets exchange rate



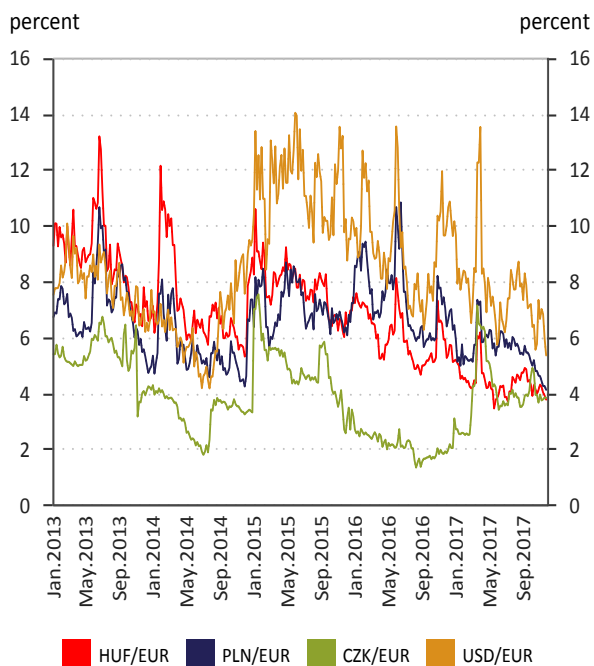
Source: Thomson Reuters  
 Note: cumulative change. Positive values mean appreciation.

51. Emerging markets exchange rate (last month)



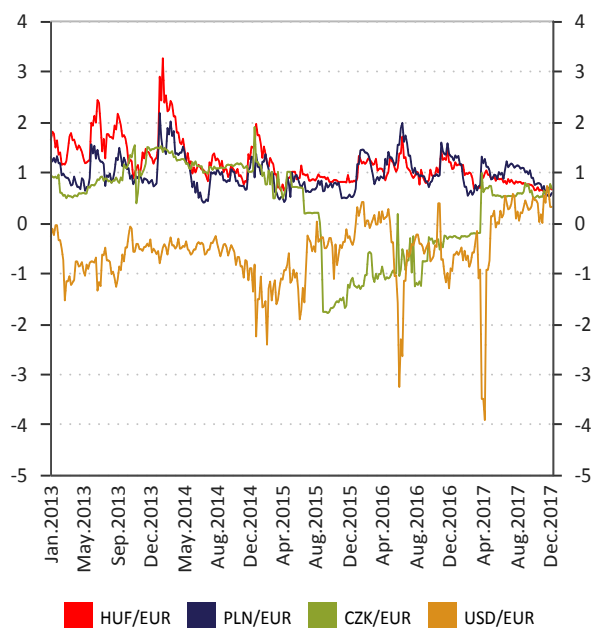
Source: Thomson Reuters.  
 Note: cumulative change, negative value means depreciation of the local currency.

52. Volatility of exchange rate expectations



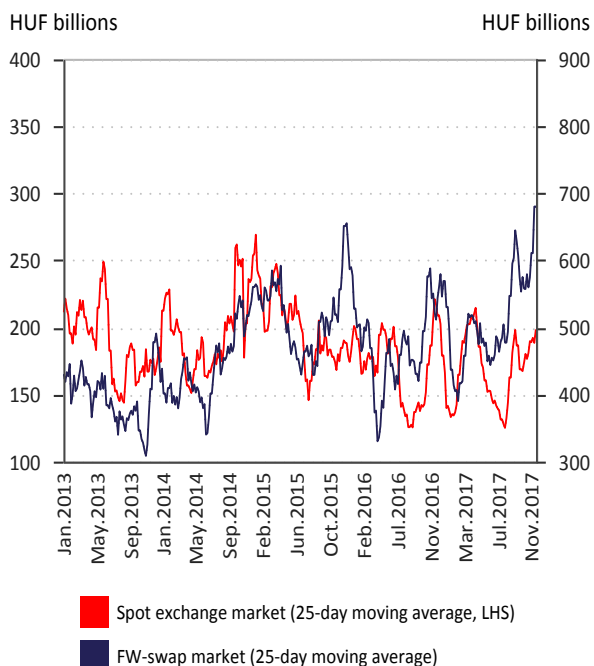
Source: Bloomberg  
 Note: implied volatility (based on foreign exchange option quotes) can be interpreted as an indicator of risk perceived by the market.

53. Skewness of exchange rate expectations



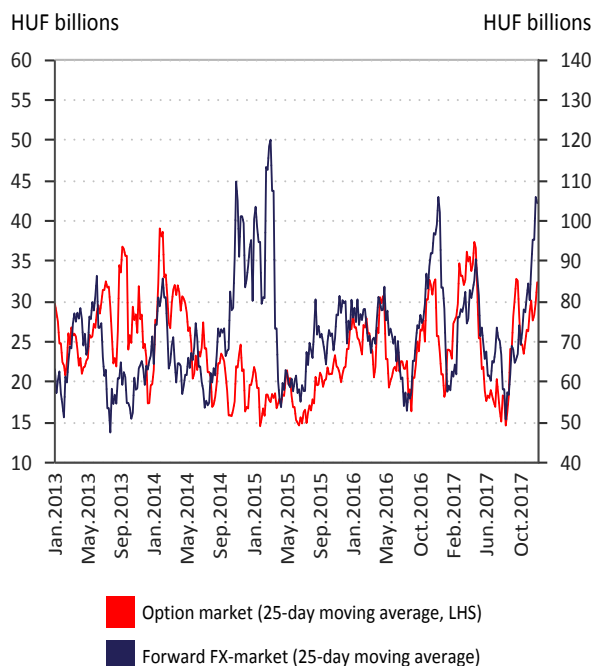
Source: Bloomberg  
 Notes: based on option quotes for 1-month 25D risk reversal; skewness=RR/Volatility\*10. Risk reversal can be regarded as a nominal indicator for the skewness of the distribution of exchange rate expectations, while skewness eliminates the effect of changes in volatility.

54. Turnover on the spot and the FX-swap market



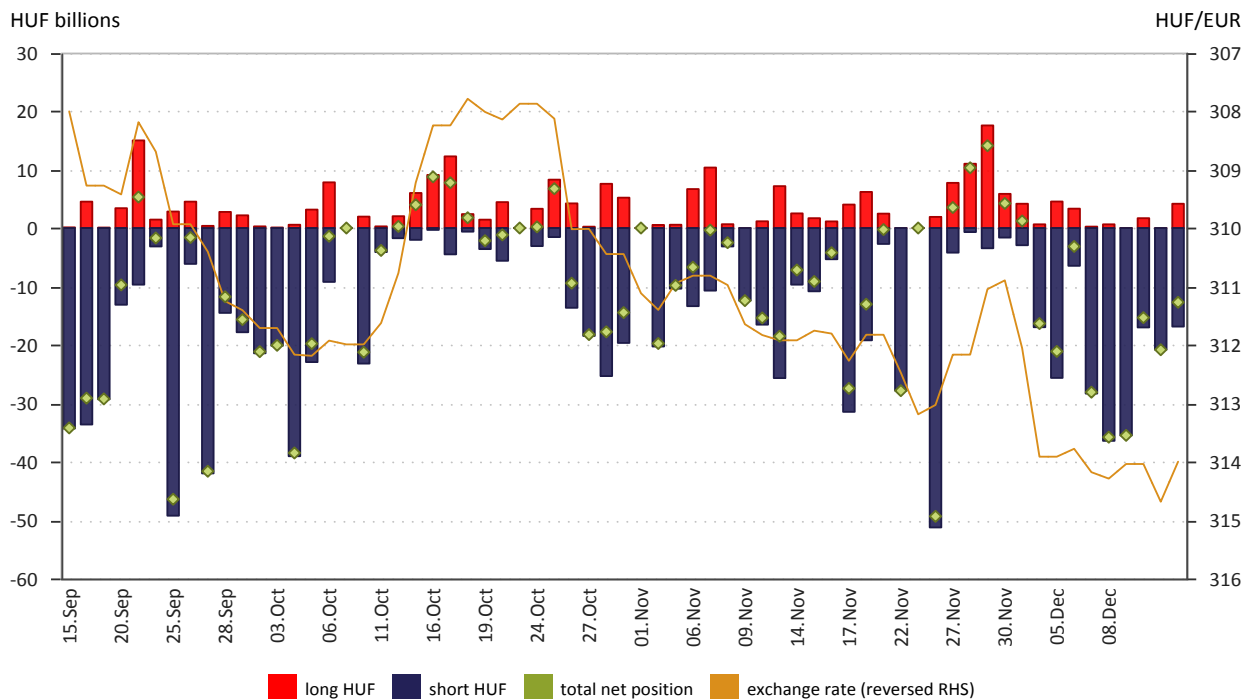
Source: MNB  
 Notes: forint against foreign exchange deals by domestic banks; moving averages calculated based on deal date data.

55. Turnover on the forward and option market



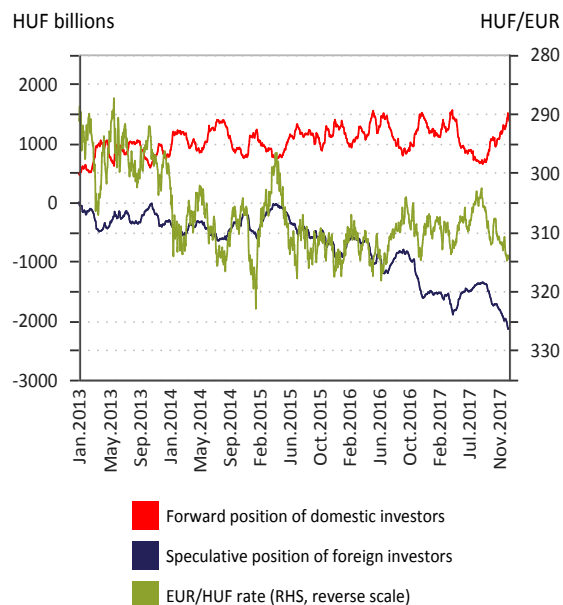
Source: MNB  
 Note: forint against foreign exchange deals by domestic banks; moving averages calculated based on deal date data.

56. Open FX-positions of non-residents in HUF



Source: MNB.

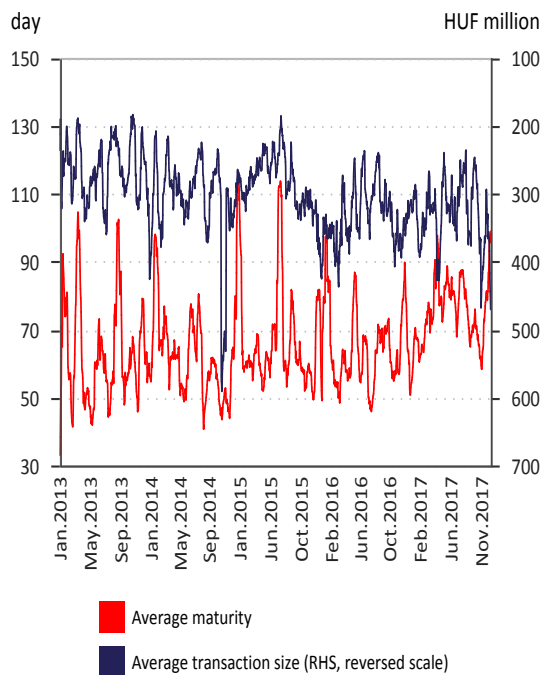
57. Cumulated positions of non-residents in HUF and the EUR/HUF exchange rate



Source: MNB

Note: Based on daily reports of credit institutions. Due to the nature of the daily reports of banks on FX transactions the components of the statistic do not close to zero. As a result information contained in the data series is relevant mainly to evaluate the direction of short-term fluctuation. The MNB does not hold responsibility for the accuracy of the data. Revision due to reporting error and non-standard transactions might lead to subsequent modification of the data series.

58. Forward agreements of non-financial institutions



Source: MNB

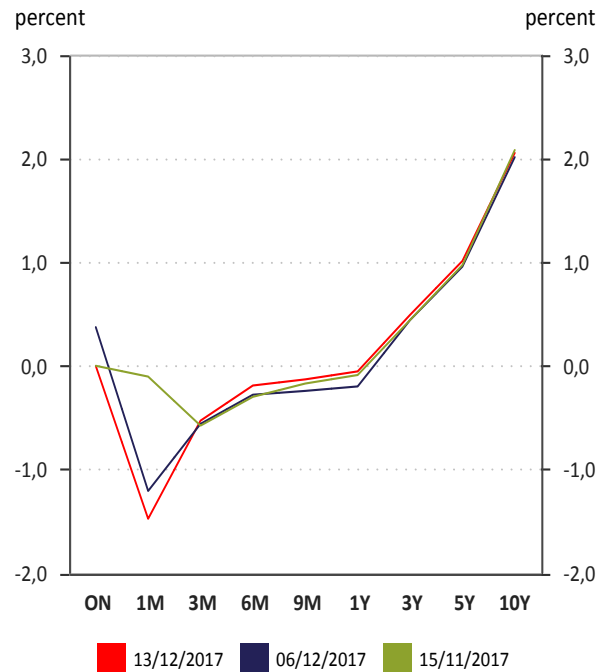
Note: 20-day moving averages.

59. Implied HUF rates on FX-swap market



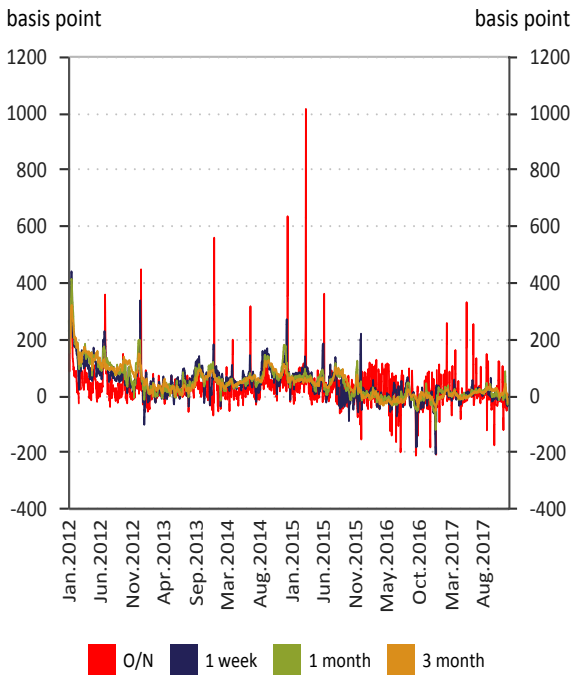
Source: MNB, Thomson Reuters  
 Note: implied HUF yields based on trades in case of O/N maturity and based on USD/HUF FX-swap quotes provided by Thomson Reuters in the cases of 6-month maturity.

60. Implied yield curve on FX-swap markets



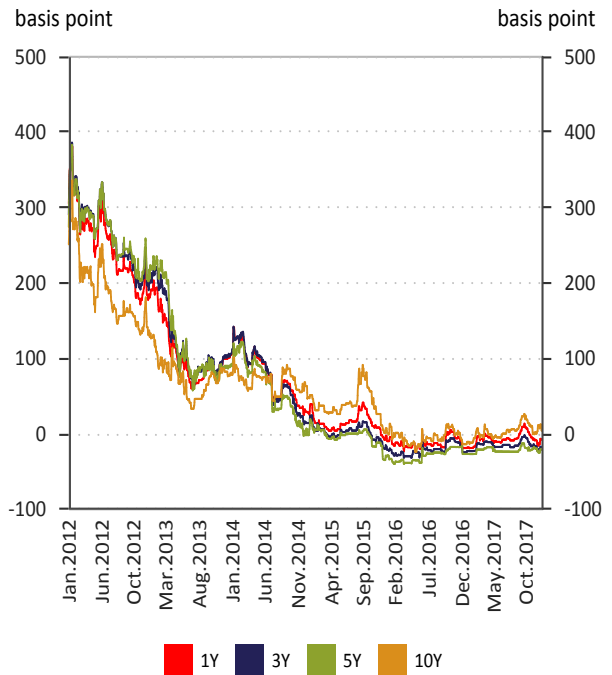
Source: MNB, Thomson Reuters.  
 Notes: Based on USD/HUF swap quotes.

61. Difference between short-term interbank yields and FX-swap market implied yields



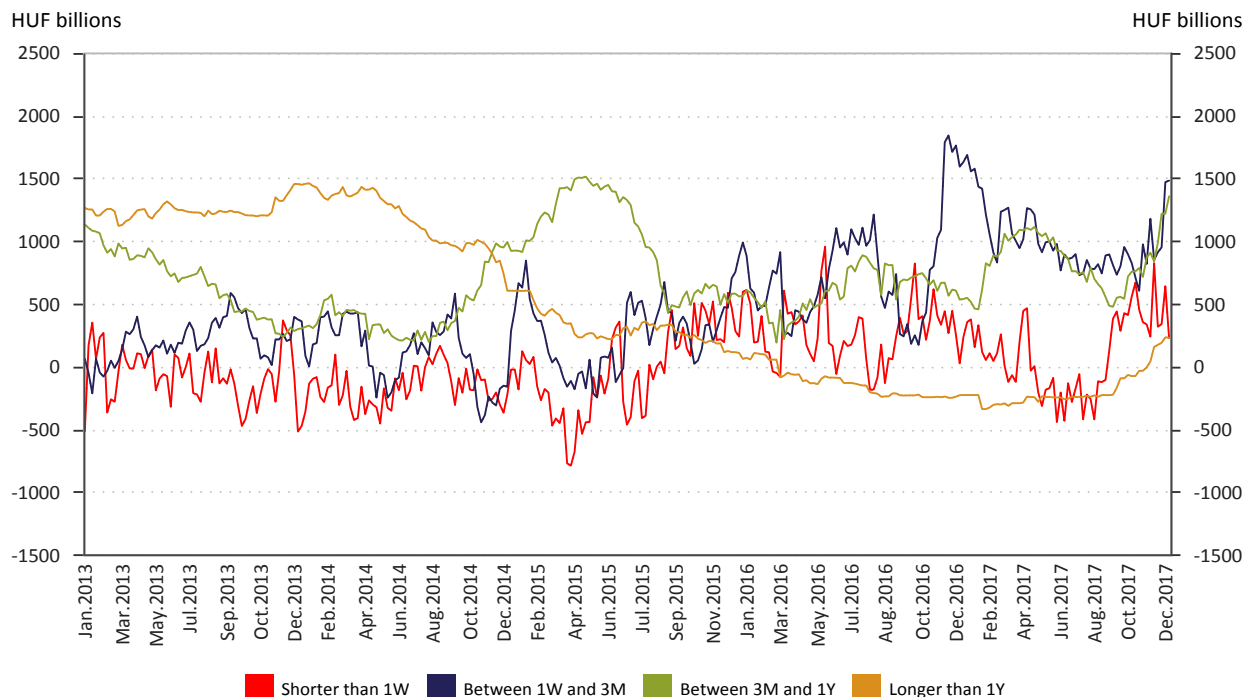
Source: Thomson Reuters.

62. Difference between long-term interbank yields and FX-swap market implied yields



Source: Thomson Reuters.

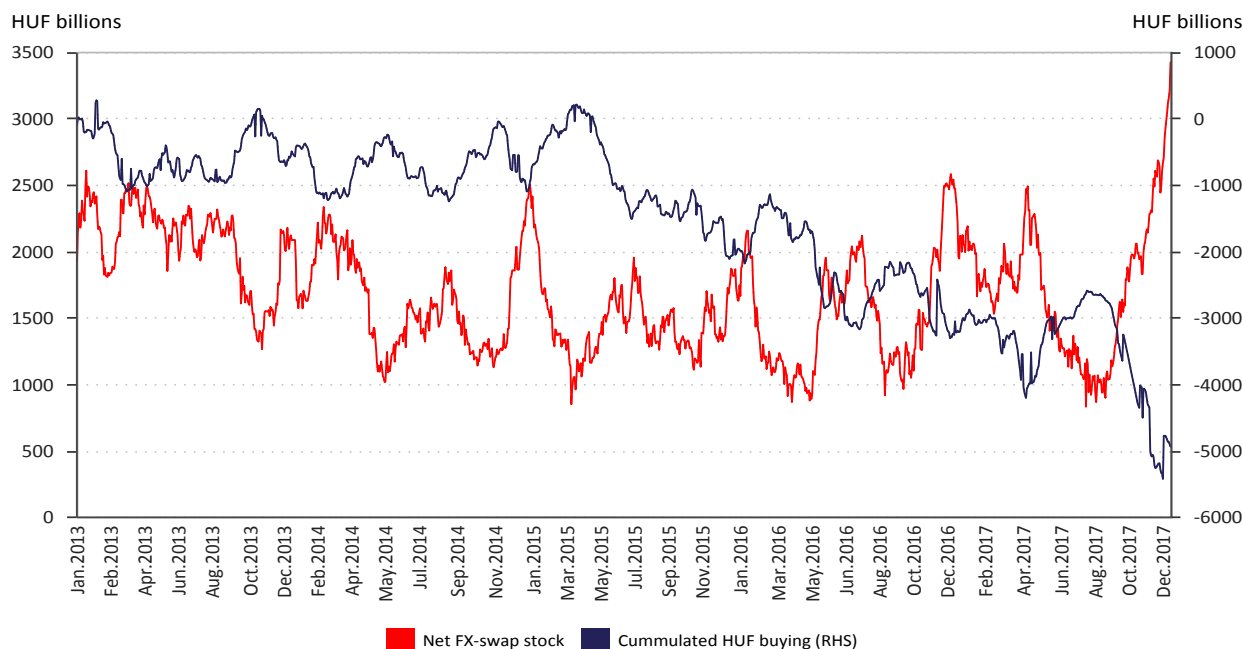
**63. Net FX-swap stock of non-residents by maturity**



Source: MNB

Note: net FX-swap stock is defined as a difference of HUF-buying and FX-buying transactions.

**64. Forint FX-swap stock and cumulated HUF purchase of non-residents**

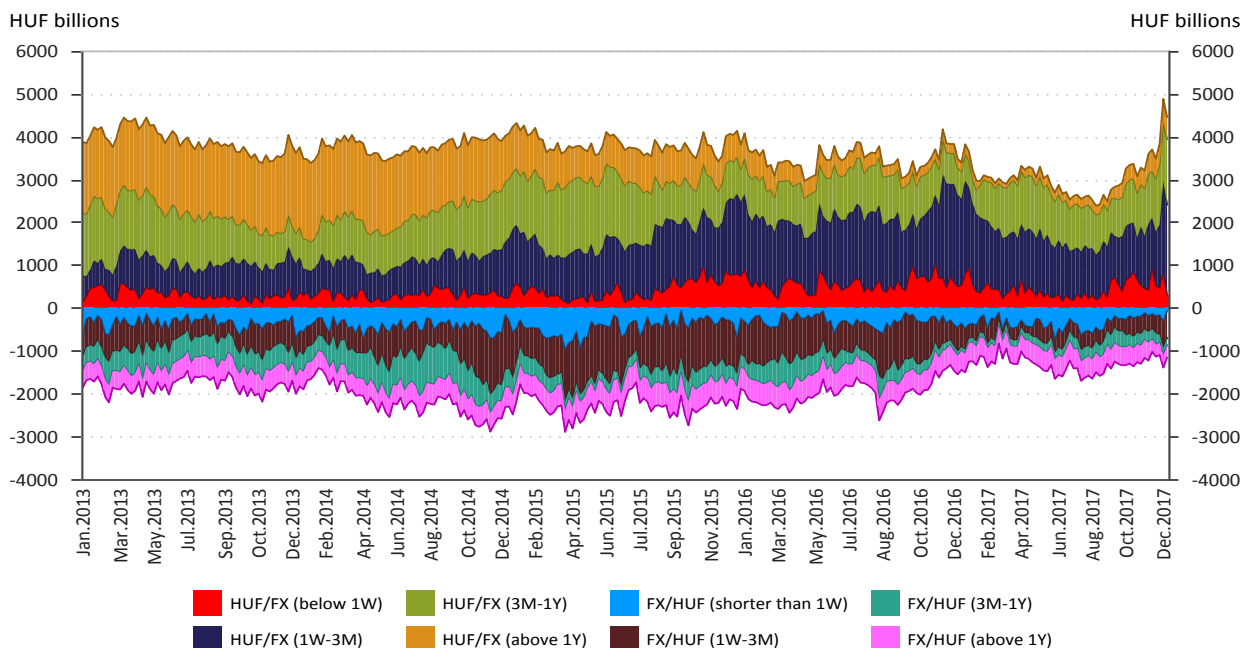


Source: MNB

Notes: due to the nature of the daily reports of the banks on FX transactions, the components of the FX transactions statistic do not close to zero. As a result, the information contained in the data series on net forint purchase of non-resident investors - and its components - is relevant mainly to evaluate the direction of short-term fluctuations. An increase in the swap stock stands for swaps with a long forint spot leg. Based on the daily fx-reports of credit institutions. Calculated from swap transactions between credit institutions and non-resident investors. The MNB does not hold responsibility for the accuracy of the data. Revisions due to reporting errors and non-standard transactions might lead to significant subsequent modifications of the data series.



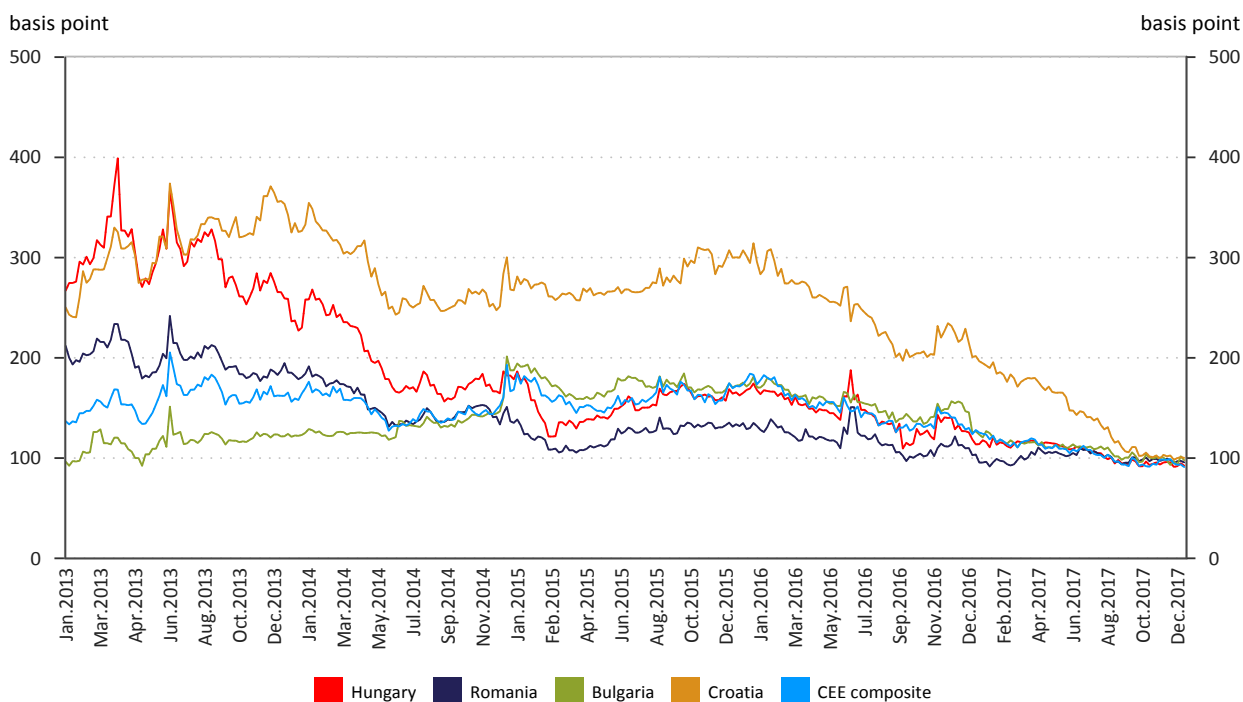
65. Gross FX-swap stocks of foreign investors by maturity



Source: MNB

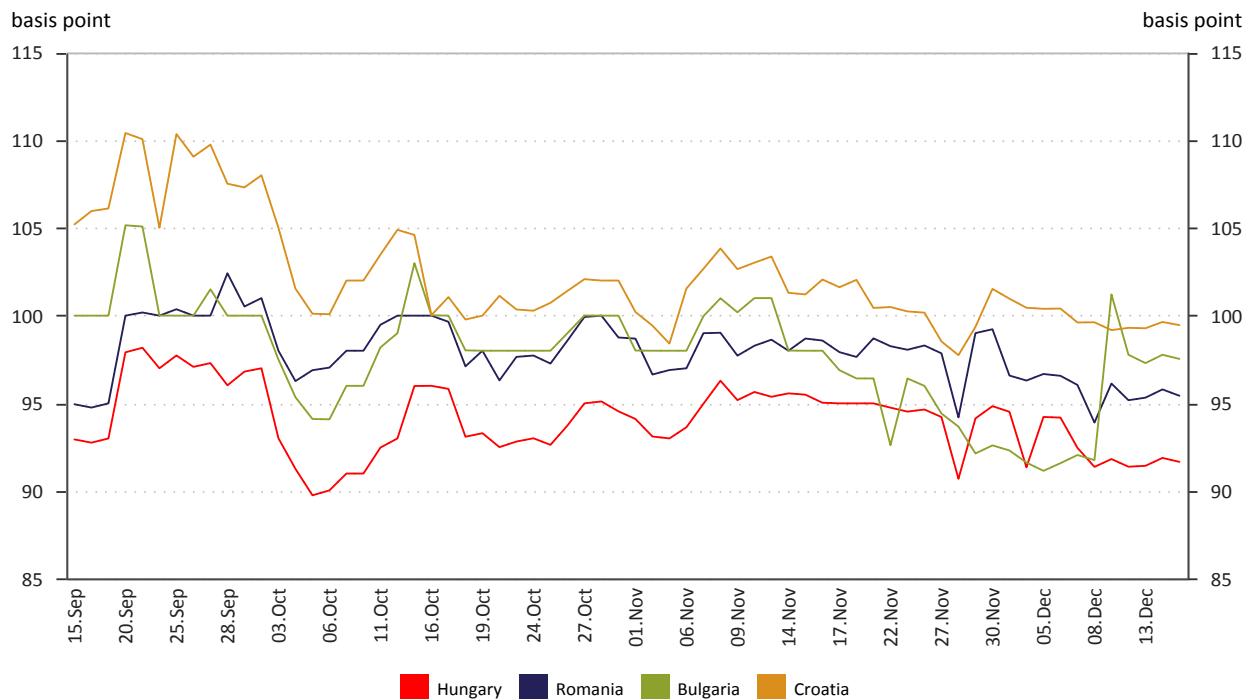
Note: due to the nature of daily reports by banks on FX transactions, the components of the FX transactions statistic do not close to zero. As a result, the information contained in the data series on net forint purchase of non-resident investors - and its components - is relevant mainly to evaluate the direction of short-term fluctuations. An increase in the swap stock stands for swaps with a long forint spot leg. Based on the daily fx-reports of credit institutions. Calculated from swap transactions between credit institutions and non-resident investors. The MNB does not hold responsibility for the accuracy of the data. Revisions due to reporting errors and non-standard transactions might lead to significant subsequent modifications of the data series.

66. 5 year sovereign CDS spreads in CEE



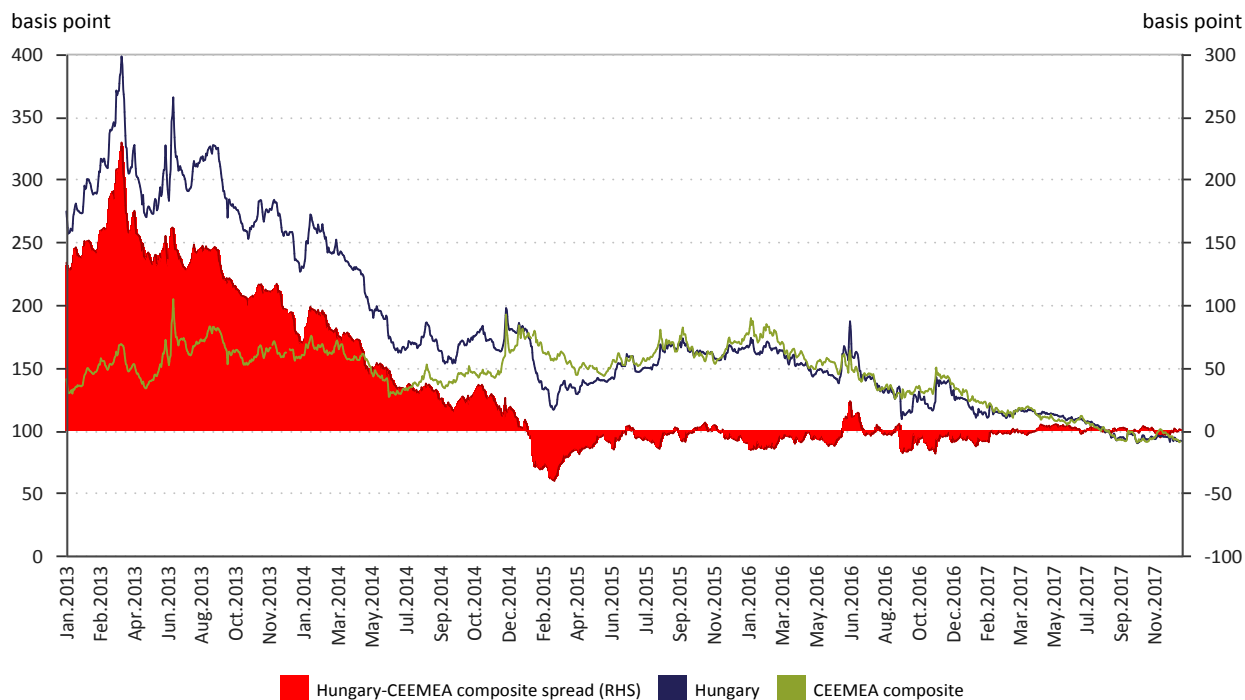
Source: Thomson Reuters.

67. 5 year sovereign CDS spreads in emerging markets (last month)



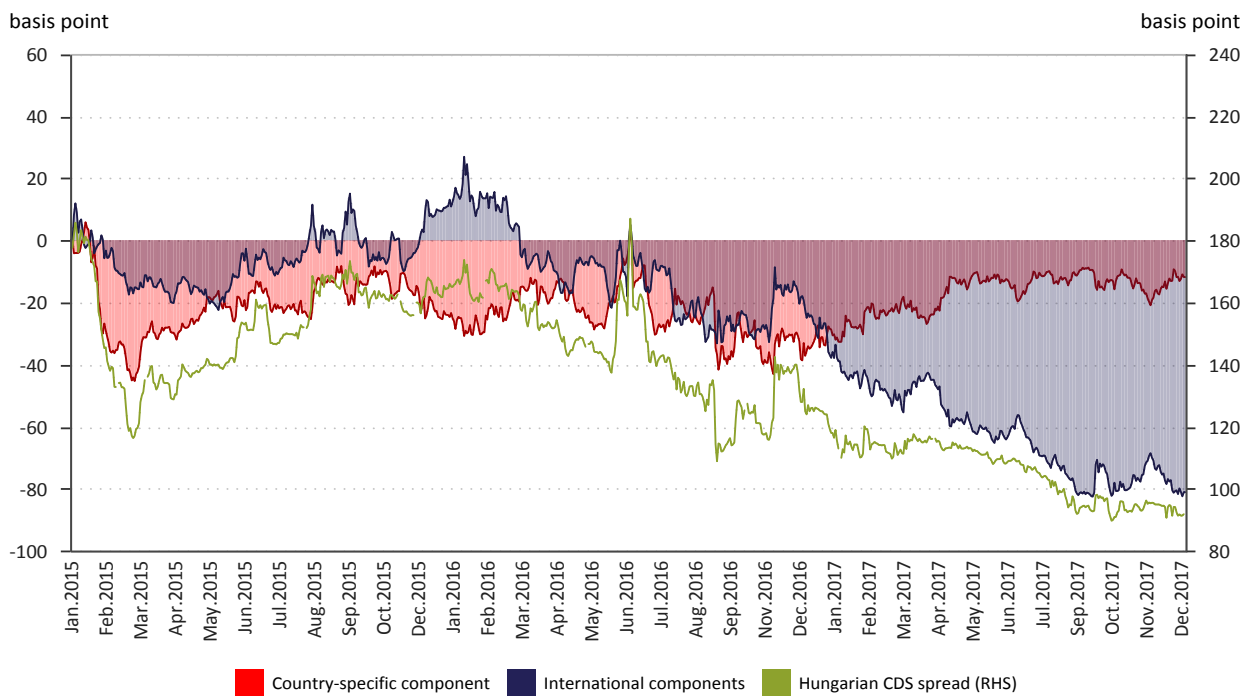
Source: Thomson Reuters

68. 5 year sovereign CDS spread in Hungary versus CEEMEA composite index



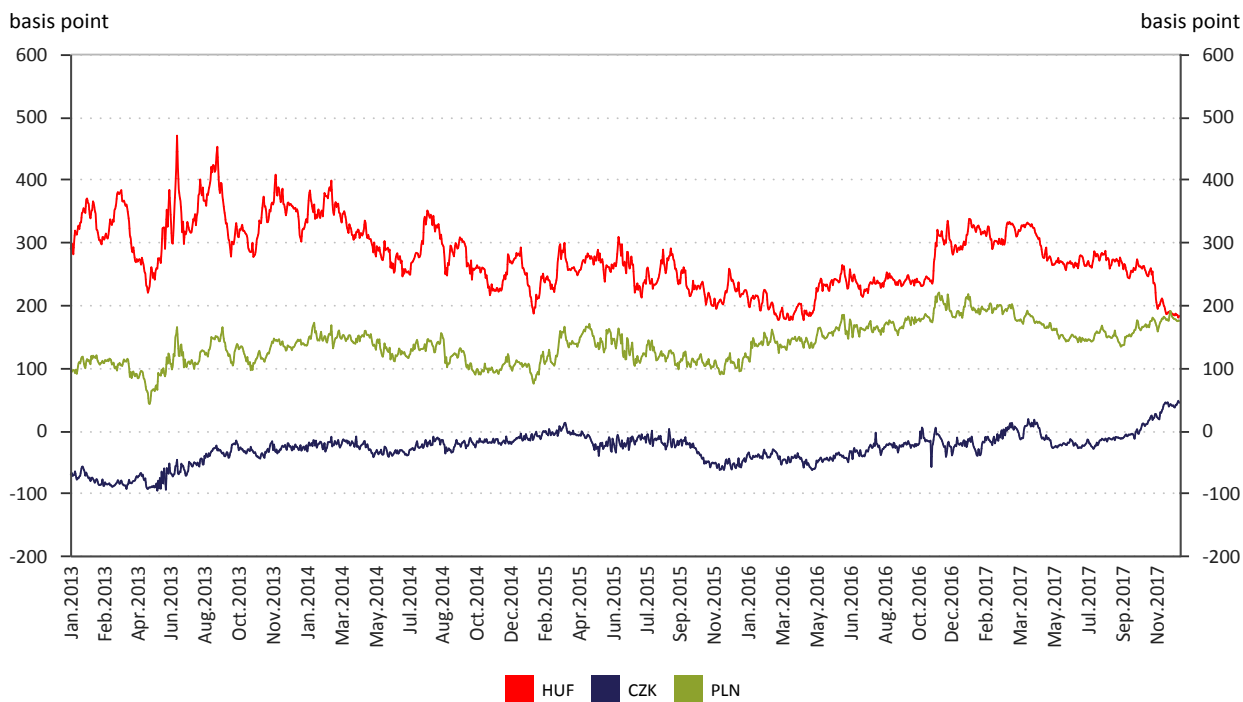
Source: Thomson Reuters.

69. Components of Hungarian 5 year sovereign CDS



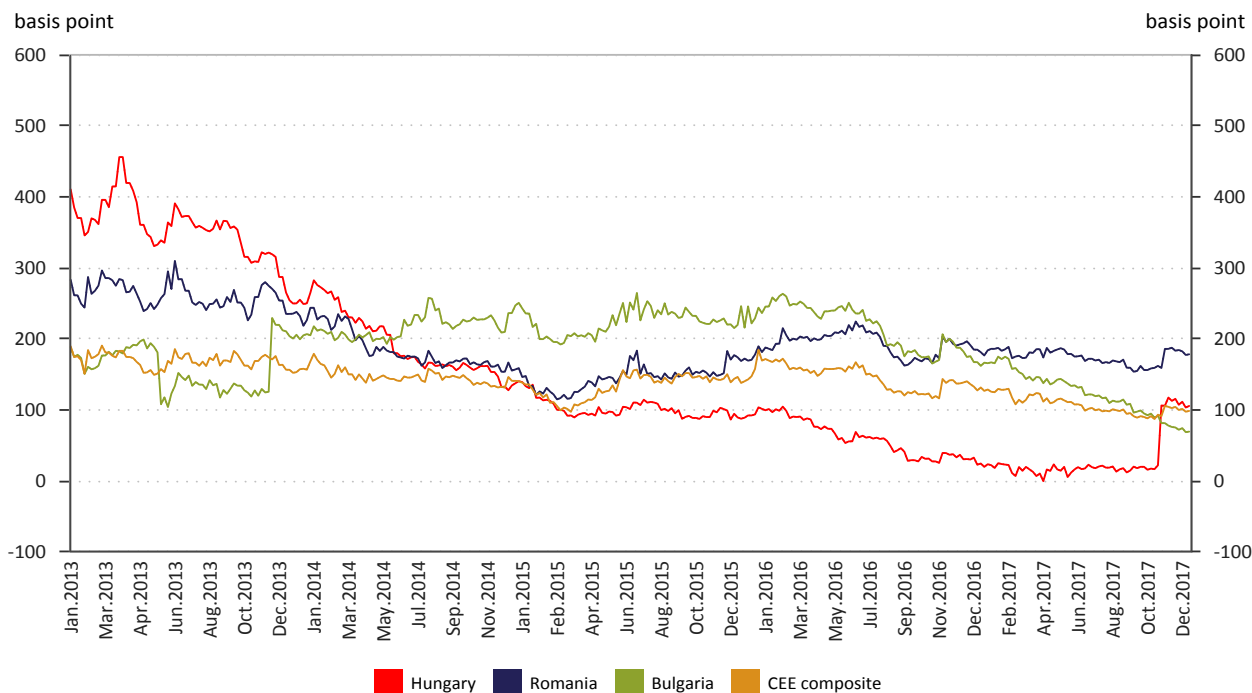
Source: Bloomberg  
 Note: based on factor analysis on daily CDS spread changes. Cumulated series. Increases/decreases of component time series denote contributions to CDS spread increases/decreases.

70. 5 year implied spreads over euro rates in 5 year time



Note: Based on swap rates by Reuters

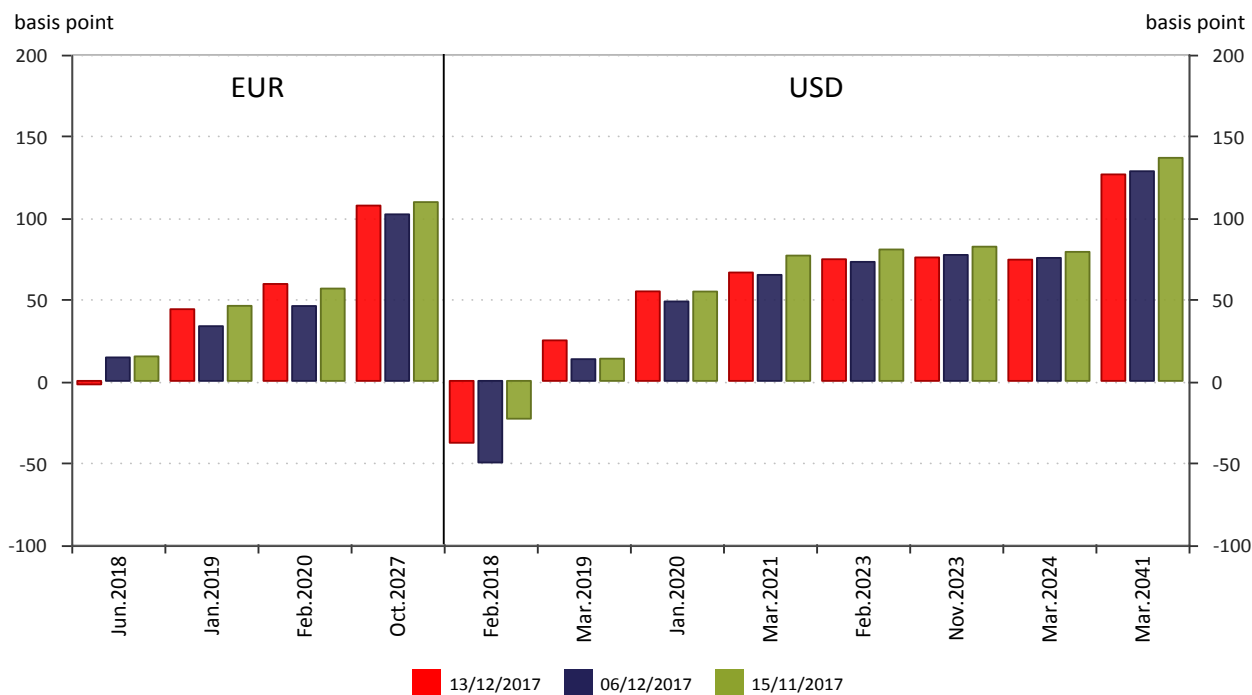
**71. Emerging markets FX denominated government bond spreads**



Source: Thomson Datastream.

Notes: calculated from JP Morgan Euro EMBI data. The series are differences between euro denominated (liquid) foreign currency bond yields and euro zero coupon yields of the corresponding maturities. Different durations may result in significant difference in the level of spreads.

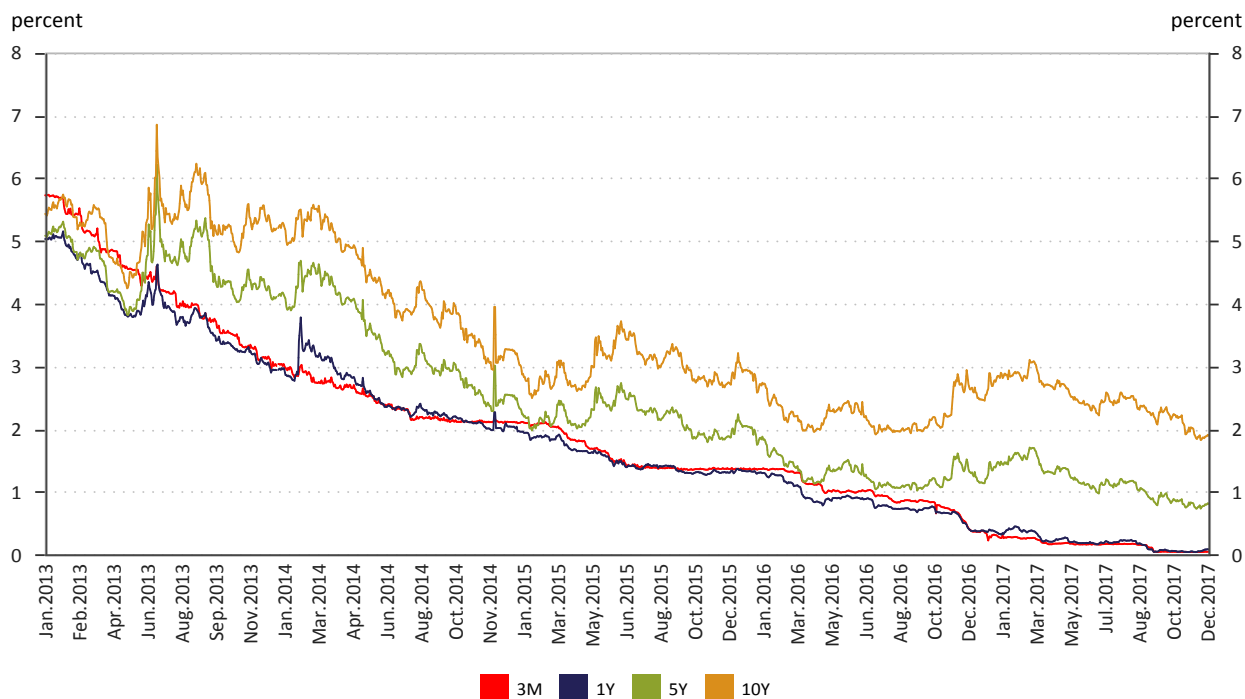
**72. Domestic FX-government bond**



Source: Bloomberg.

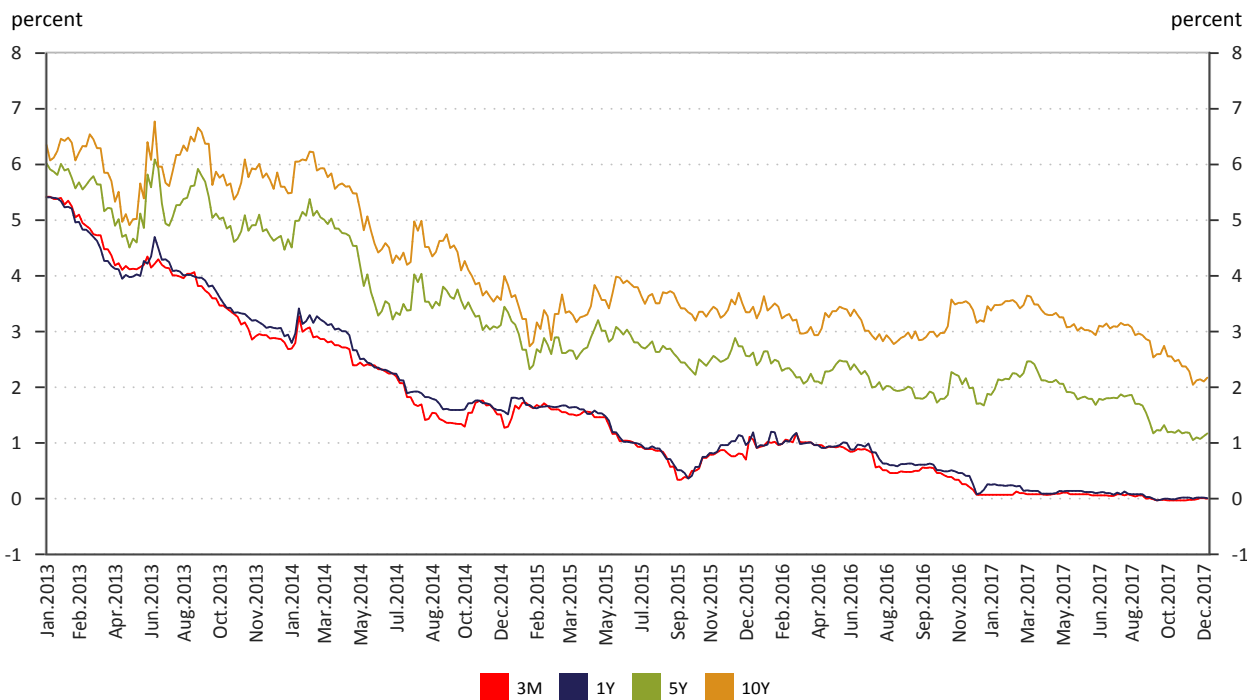
Notes: Spread between EUR and USD denominated FX-bonds and the equivalent US T-bond or euro yields chosen by Bloomberg. We present bonds grouped by currency in order of maturity.

73. Interbank yields



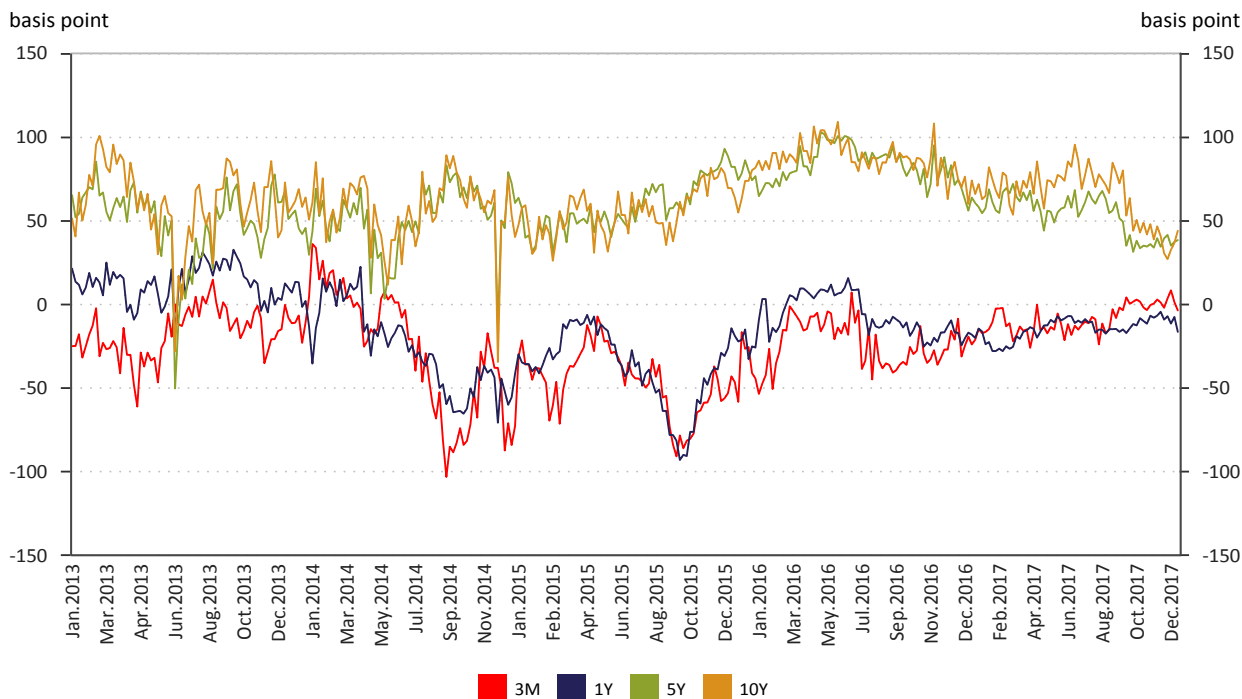
Source: Thomson Reuters

74. Yields of benchmark government securities



Source: Thomson Reuters.

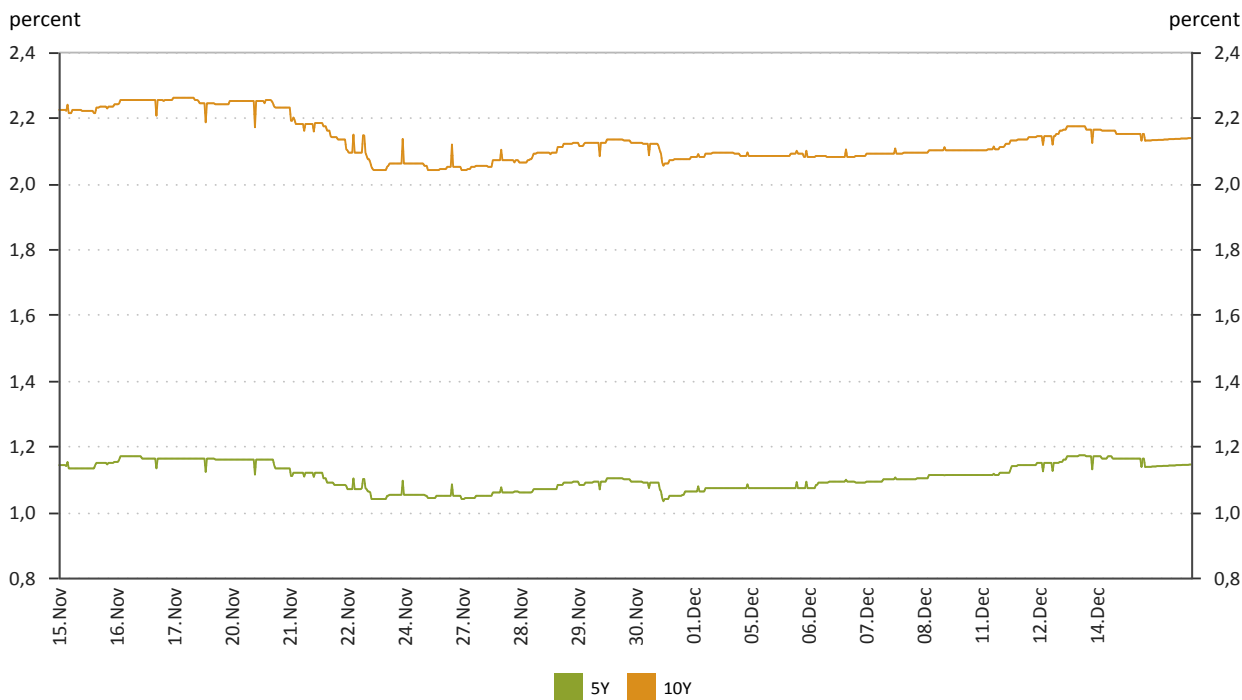
**75. Government securities - interbank yield spreads**



Source: Thomson Reuters

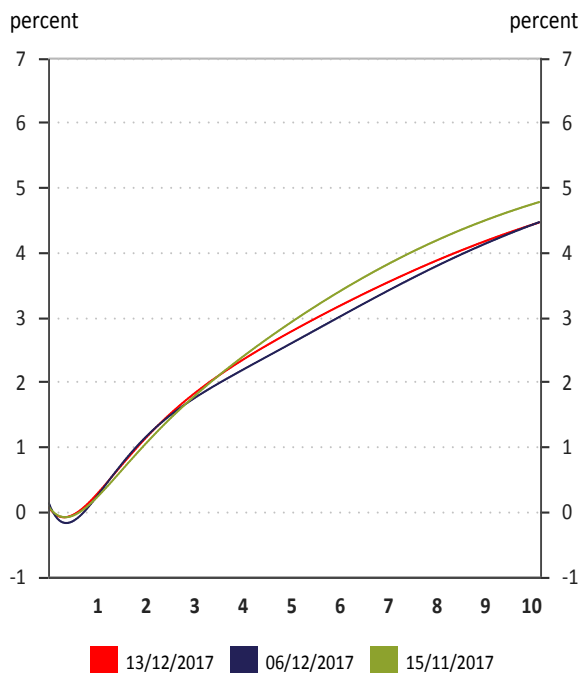
Note: Spread between the benchmark government bond yield of the given maturity and the interbank rates.

**76. Yields of benchmark government securities (last month)**



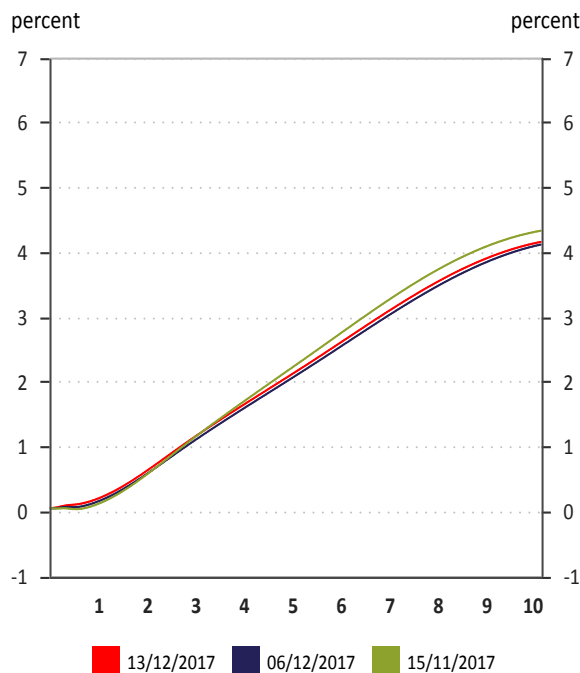
Source: Thomson Reuters.

**77. Implied 3 month forward interest rate yield curve (based on government securities yields)**



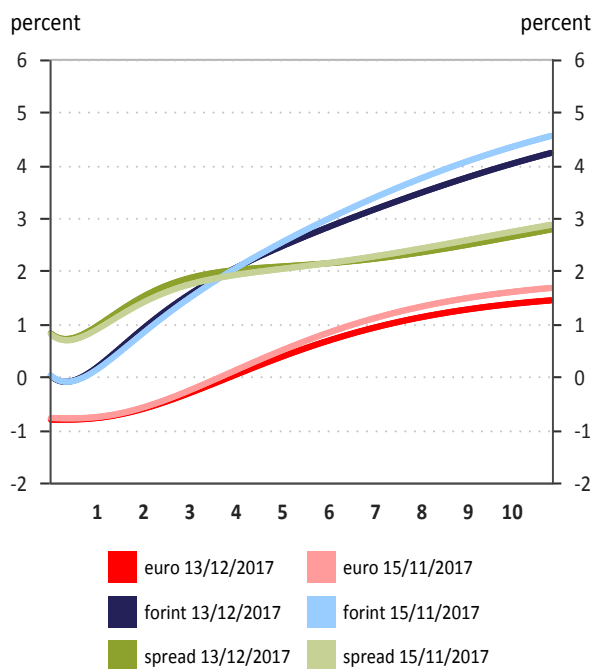
Source: MNB, ÁKK. Note: calculated by Svensson method by MNB. X axis shows maturities, in years.

**78. Implied 3 month forward interest rate yield curve (based on interbank yields)**



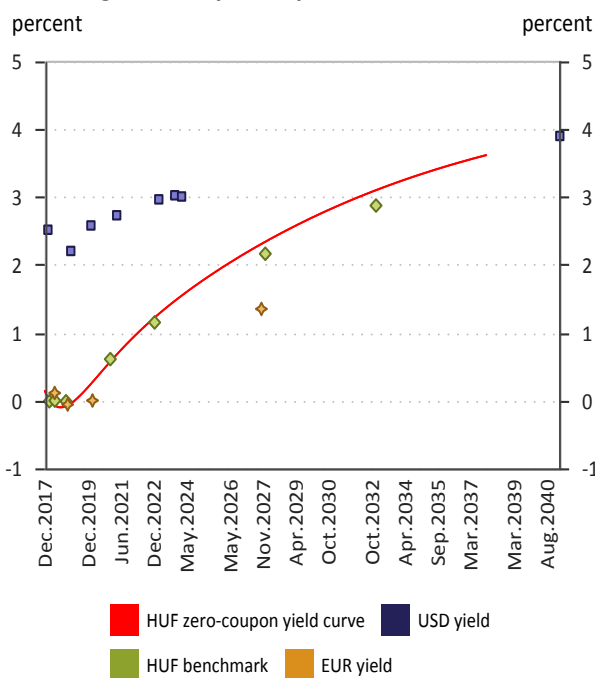
Note: Calculated from FRA-s, and IRS by spline method. X axis shows maturities, in years.

**79. Spread between 3-month forward yields in EUR and HUF**



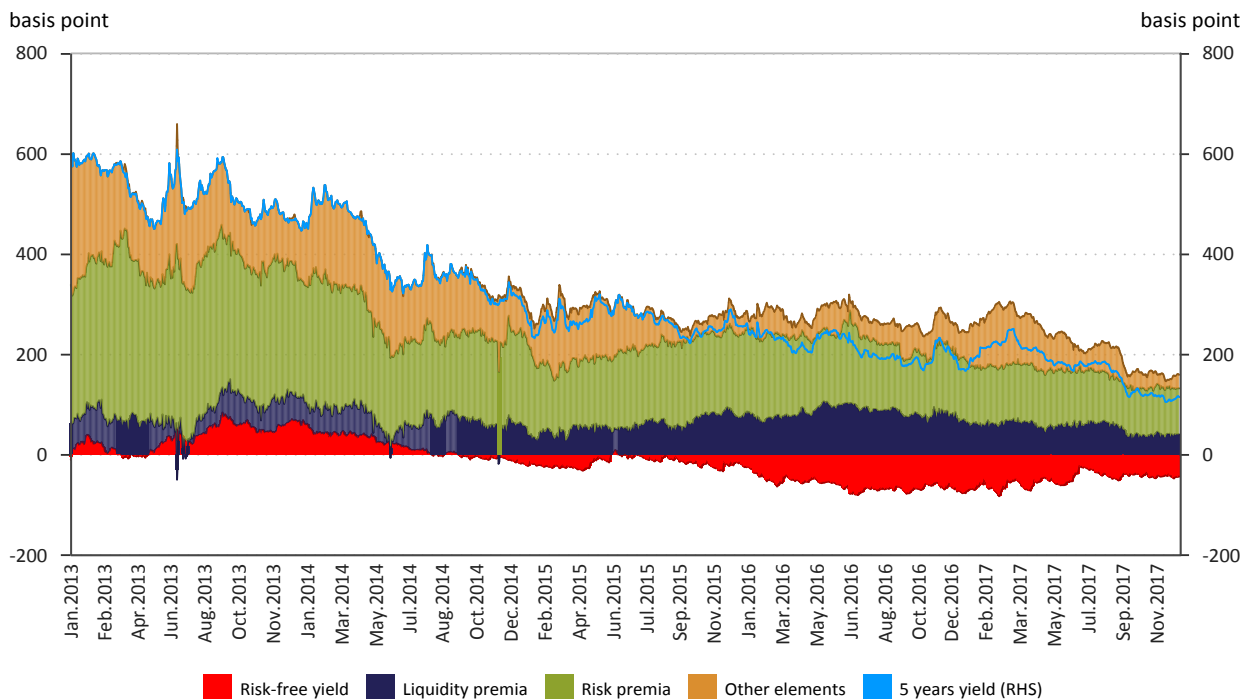
Source: Thomson Reuters  
Note: X axis shows maturities, in years. Estimated by the ECB using the Svensson-technique, based on AAA-rated euro area central government bonds.

**80. Hungarian government bond yield curve and foreign currency bond yields**



Source: MNB, Bloomberg.

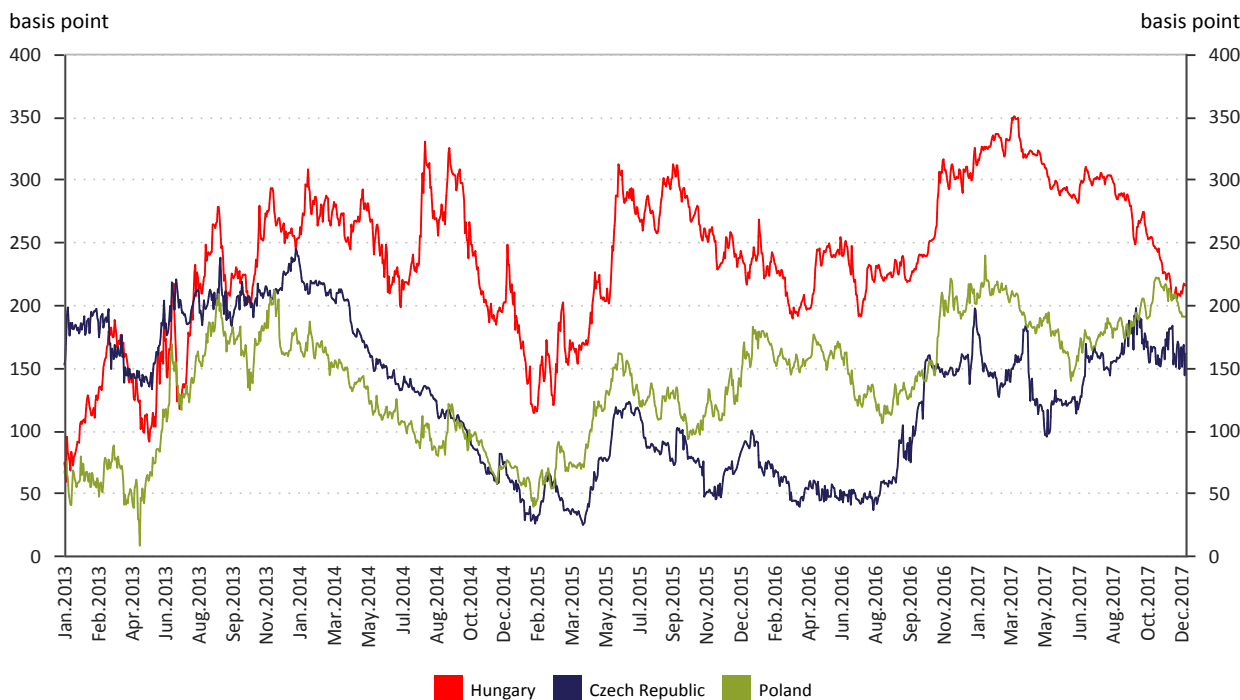
### 81. Decomposition of 5 year government bond yield



Source: Thomson Reuters, MNB

Note: Risk-free rate: German 5-year rate; Credit risk premium: 5-year Hungarian CDS spread; Liquidity premium: 5-year interest rate swap spread; others: based on residuals.

### 82. Slope of yield curve in CEE

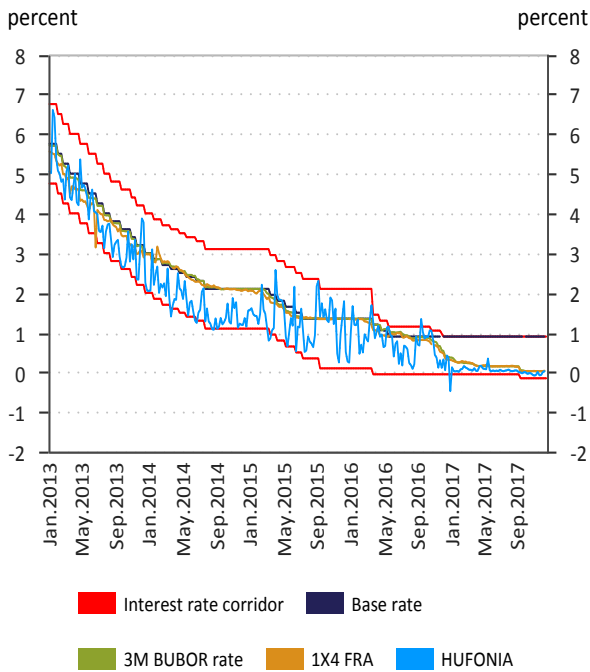


Source: Bloomberg

Note: Spread between 10 and 1 year local currency benchmark government bond yield.

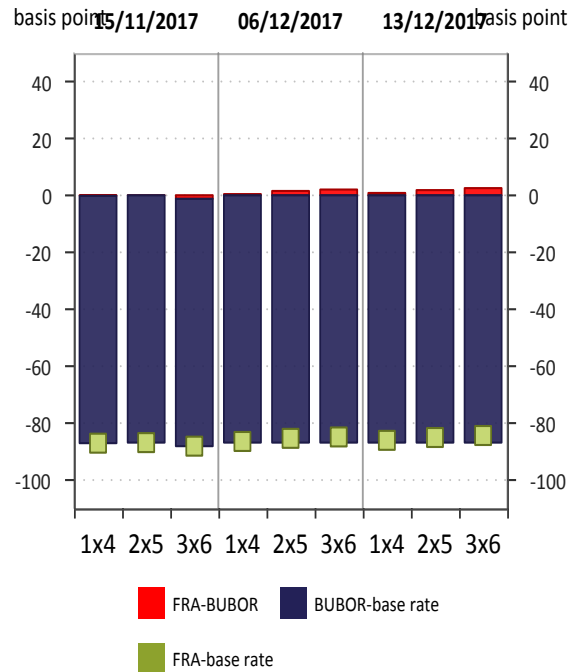


83. MNB base rate and money market rates



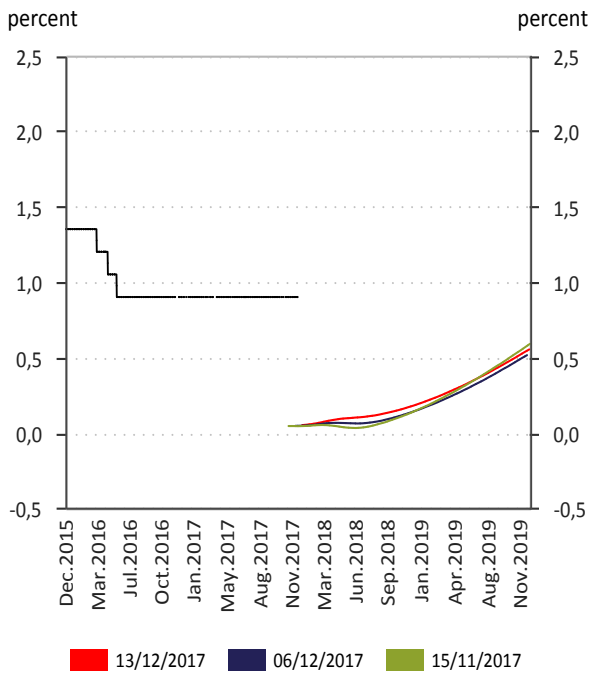
Source: Thomson Reuters, MNB

84. Difference between the 3 month FRA quotes and the current base rate



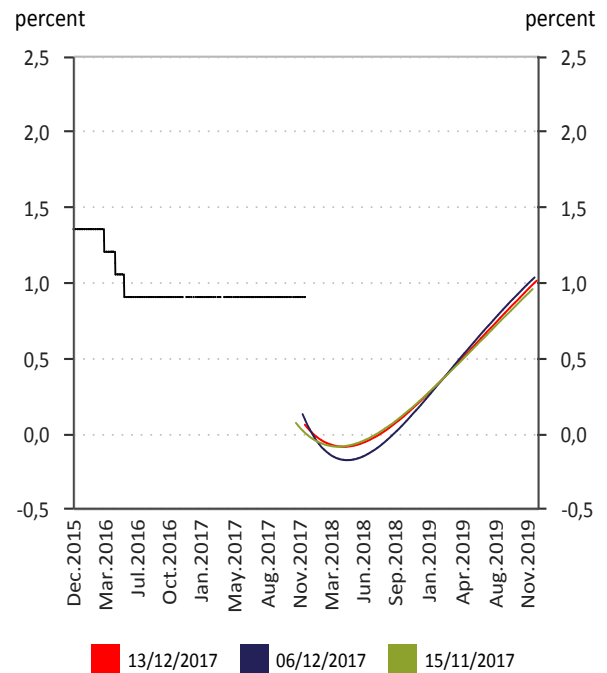
Source: Thomson Reuters, MNB.

85. Implied 3 month forward interest rate curve (based on interbank yields)



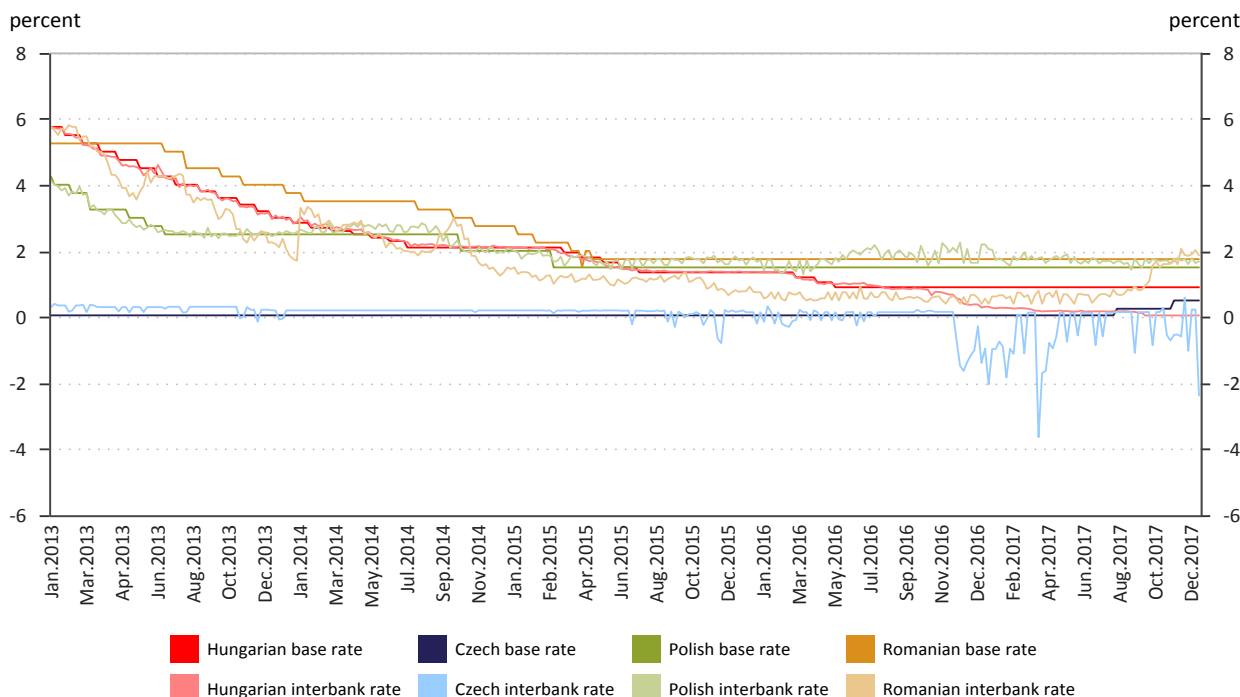
Source: MNB.

86. Implied 3 month forward interest rate curve (based on government bond yields)



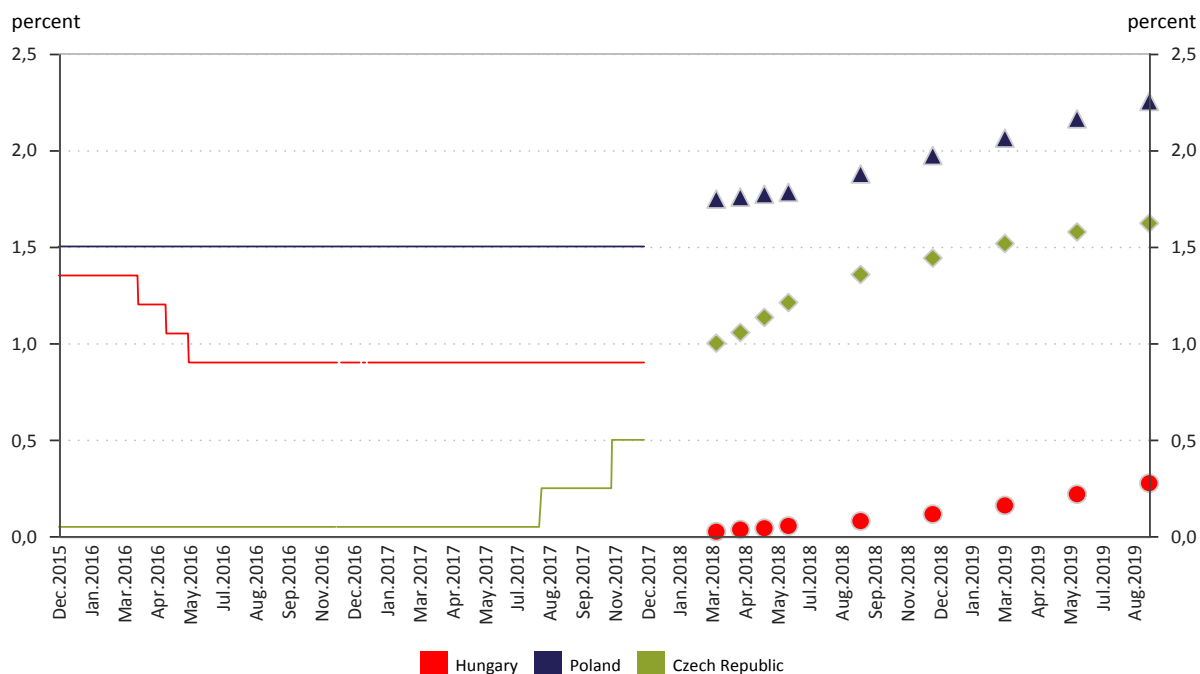
Source: MNB.

87. Base rates and short term interbank rates in the region



Source: Thomson Reuters.

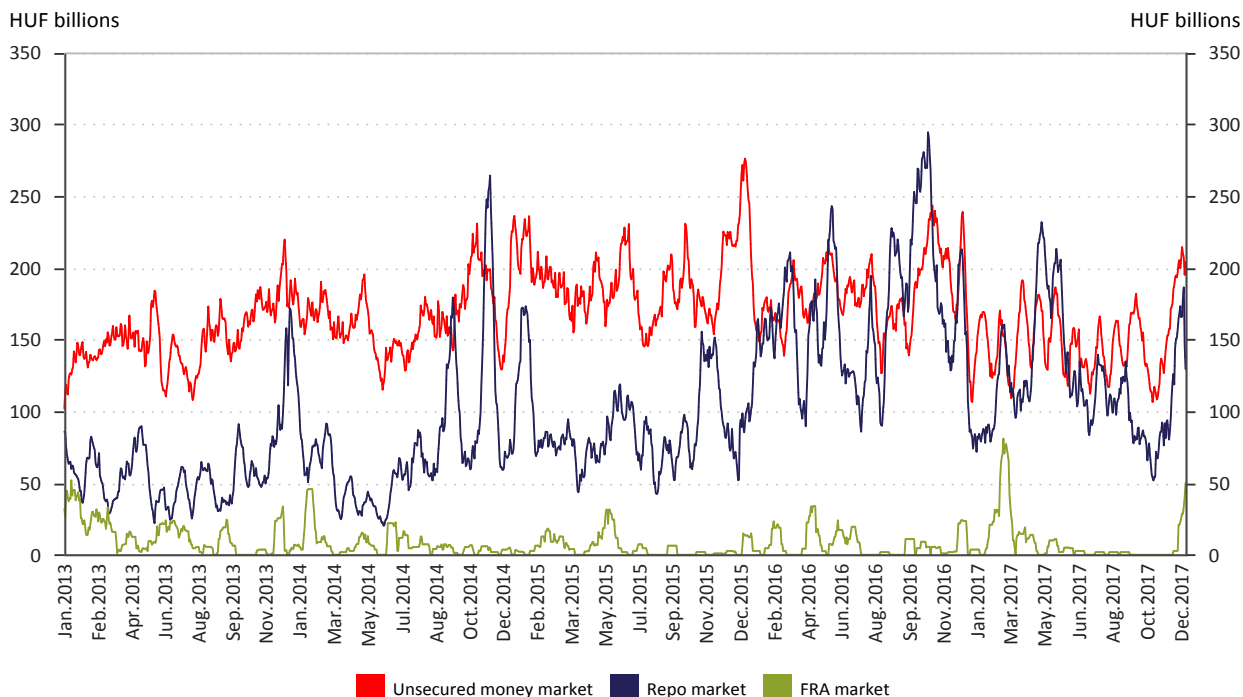
88. CEE base rates and forward rate agreements



Source: Bloomberg

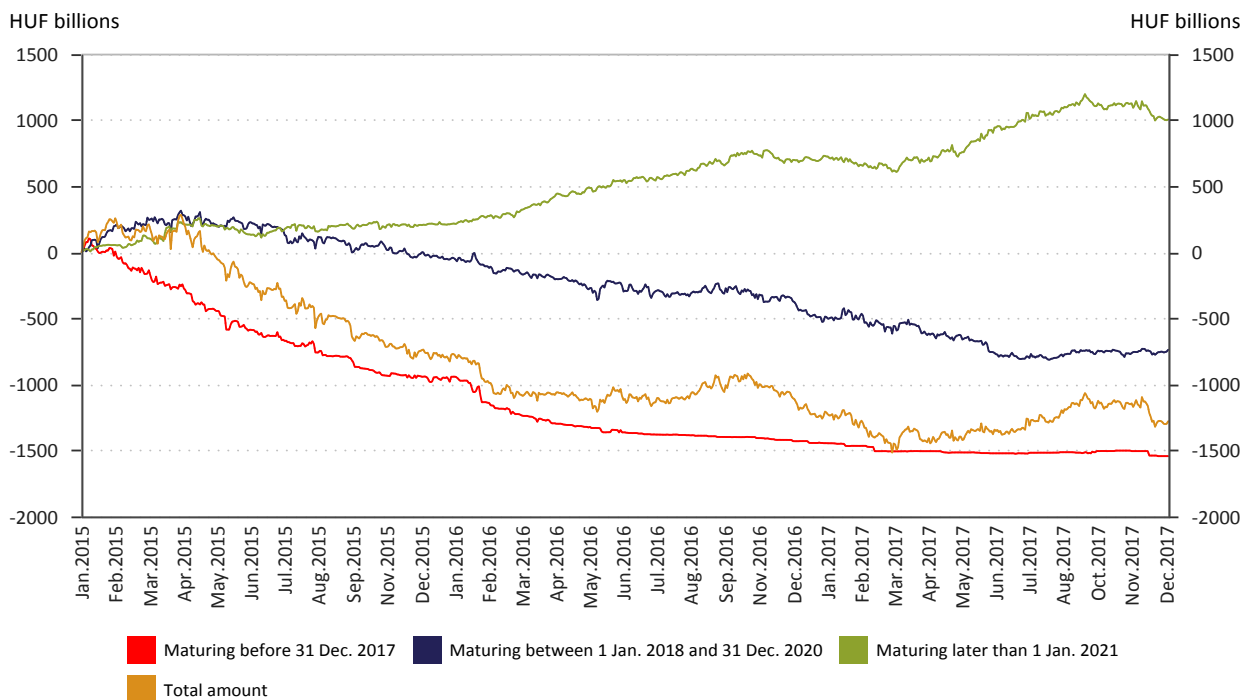
Note: Based on FRA transactions. Last update: (13/12/2017).

**89. Turnover on the interbank, HUF repo, and FRA markets (25 day moving average)**



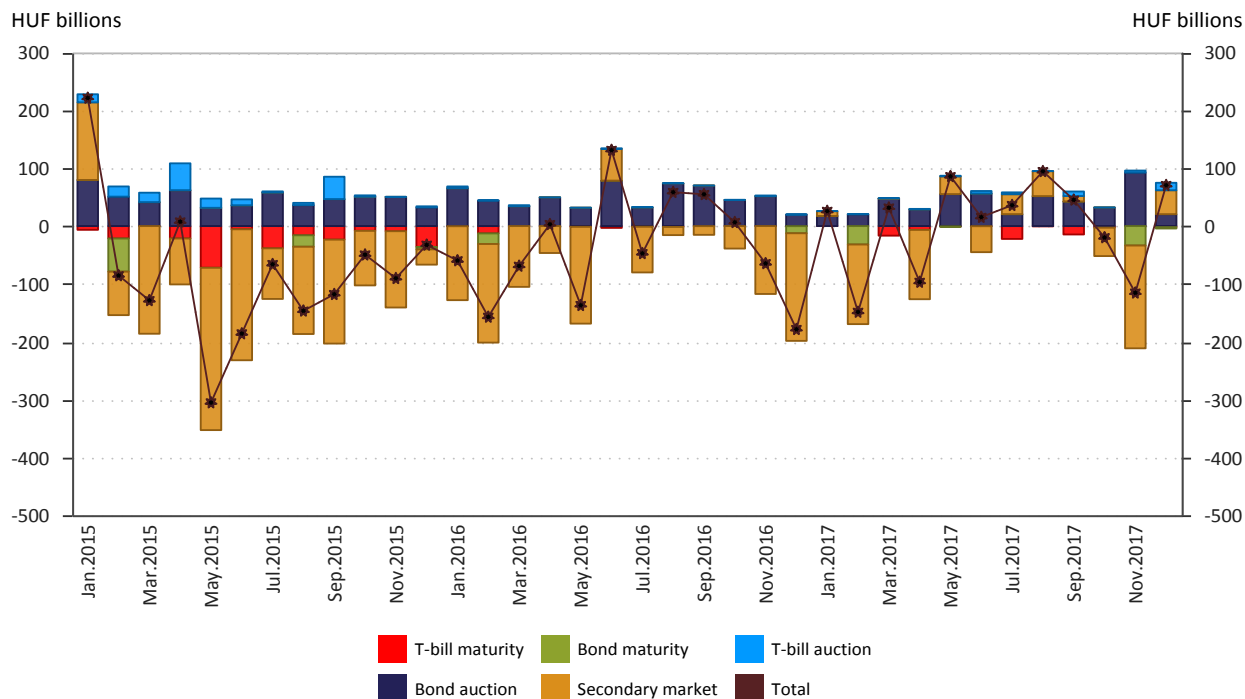
Source: MNB  
 Note: Based on reporting by domestic banks.

**90. Change in government securities of non-residents by tenor**



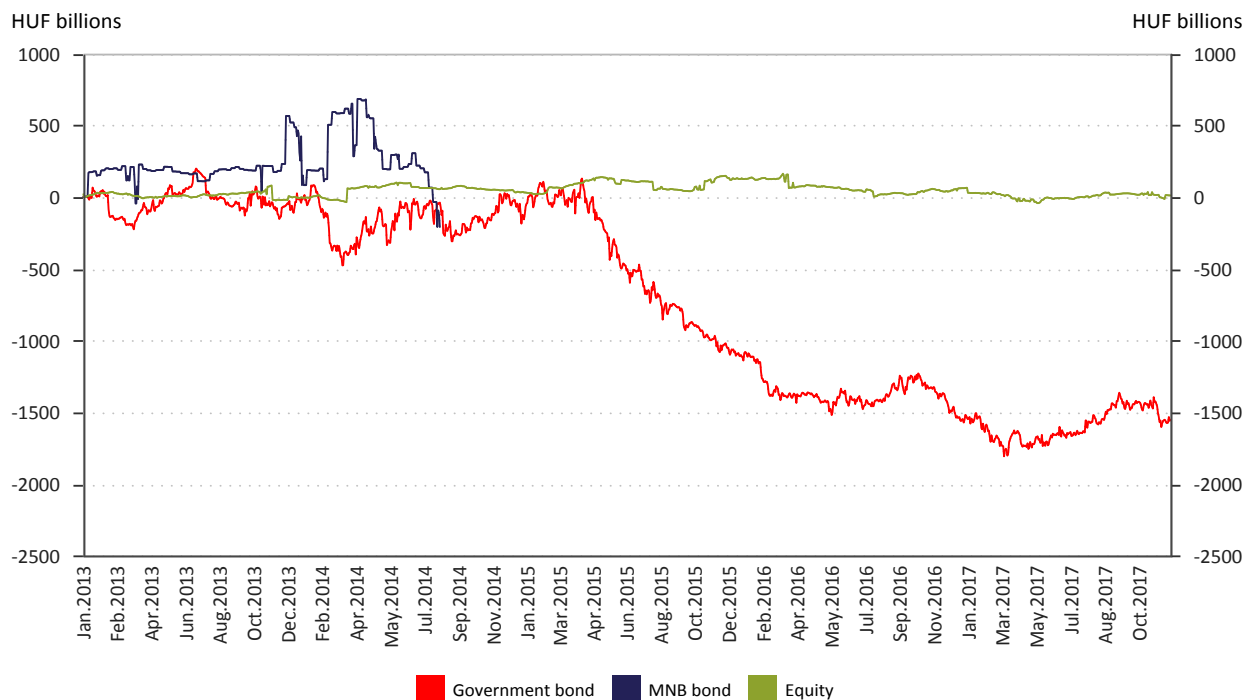
Source: MNB.

91. Decomposition of change in government securities held by non-residents (last months)



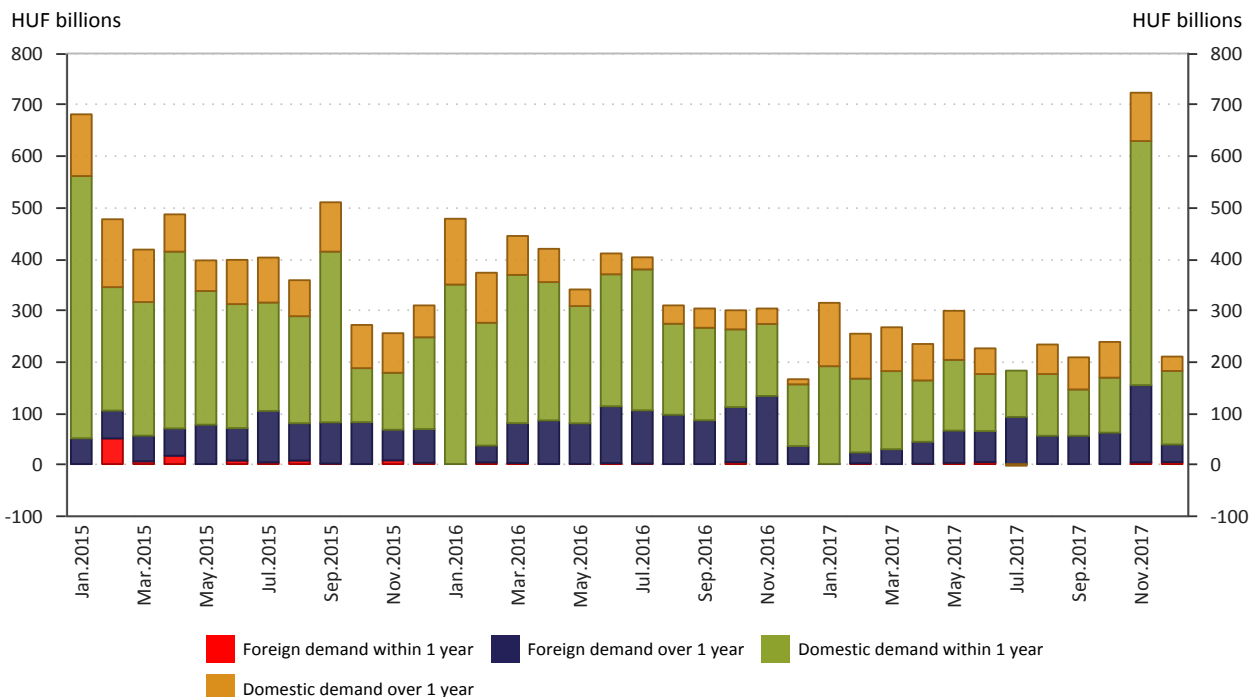
Source: MNB  
 Note: Last month is incomplete.

92. Forint financial assets held by non-residents



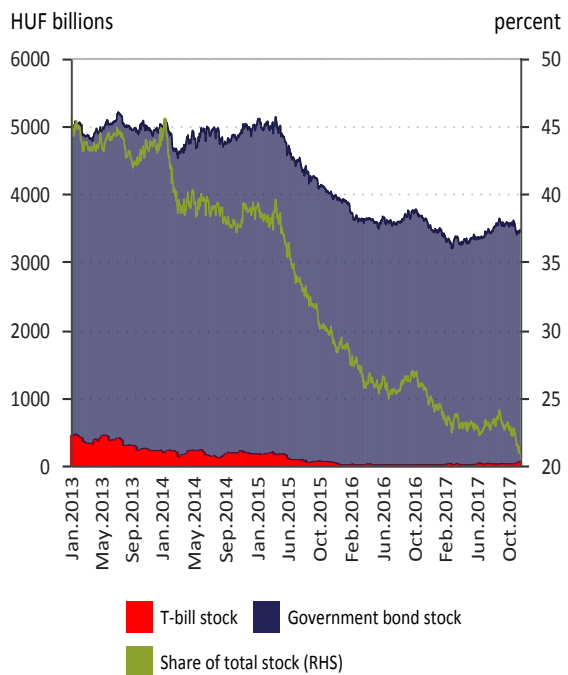
Source: MNB, KELER  
 Note: Cumulative change. Equity data are not comprehensive, it contains data for large- and mid-cap stocks quoted on the Budapest Stock Exchange.

**93. Primary market government security purchase of domestic and non-resident investors**



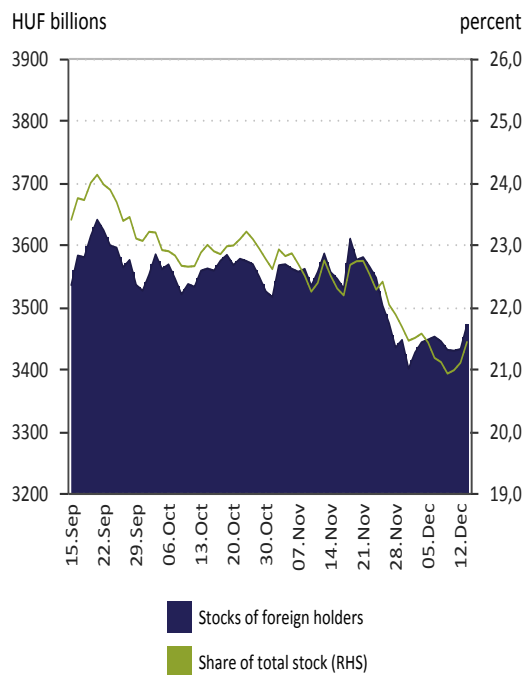
Source: MNB  
Note: Last month is incomplete.

**94. Government securities held by non-residents and the proportion to the total amount outstanding**



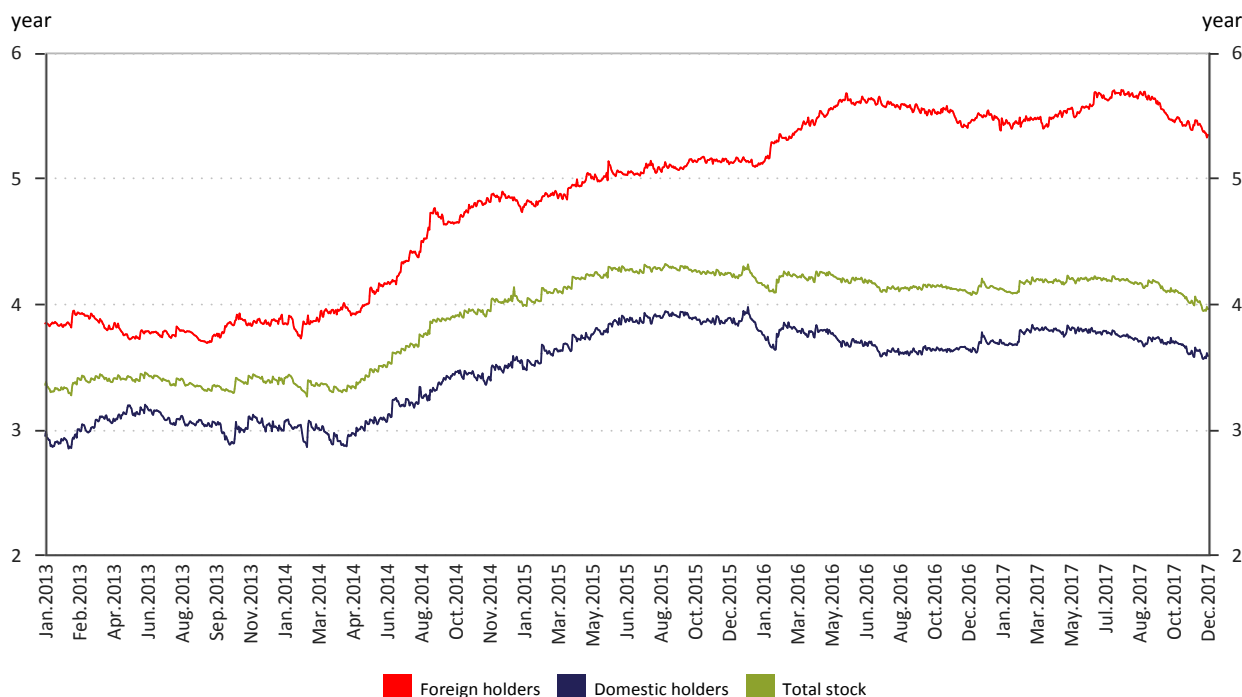
Source: MNB.

**95. Government bonds held by non-residents and the share of the total amount outstanding (last months)**



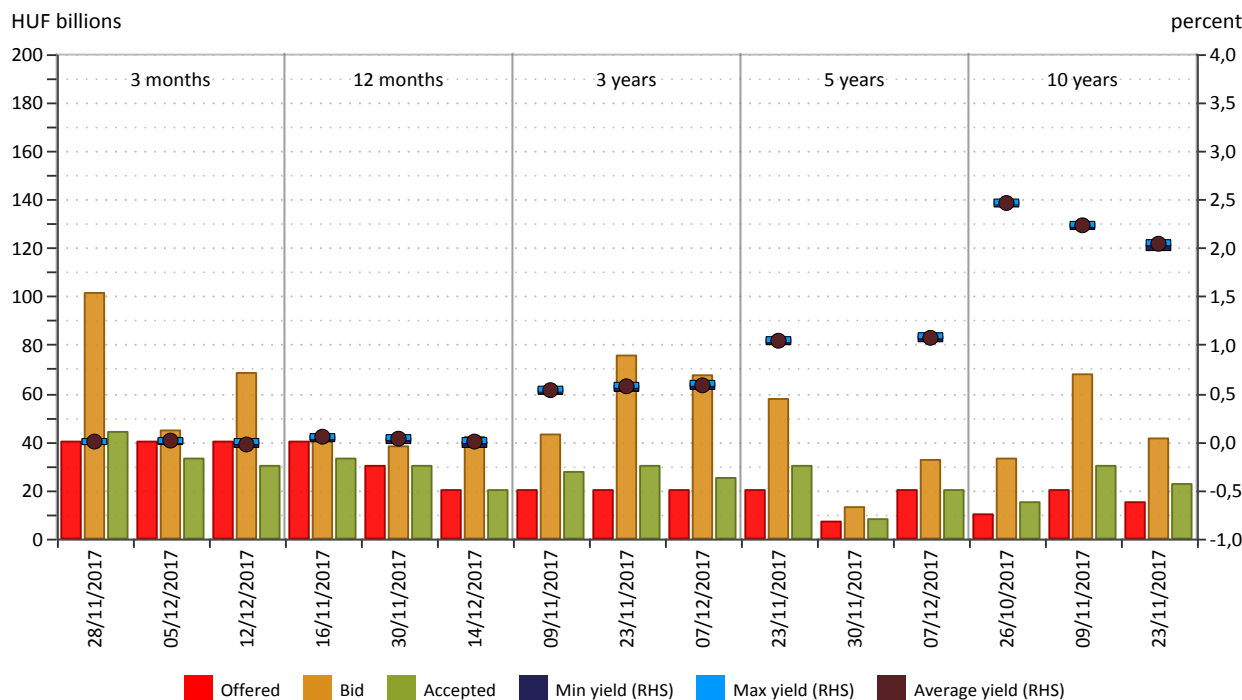
Source: MNB.

96. The average time to maturity of government security portfolio of residents and non-residents



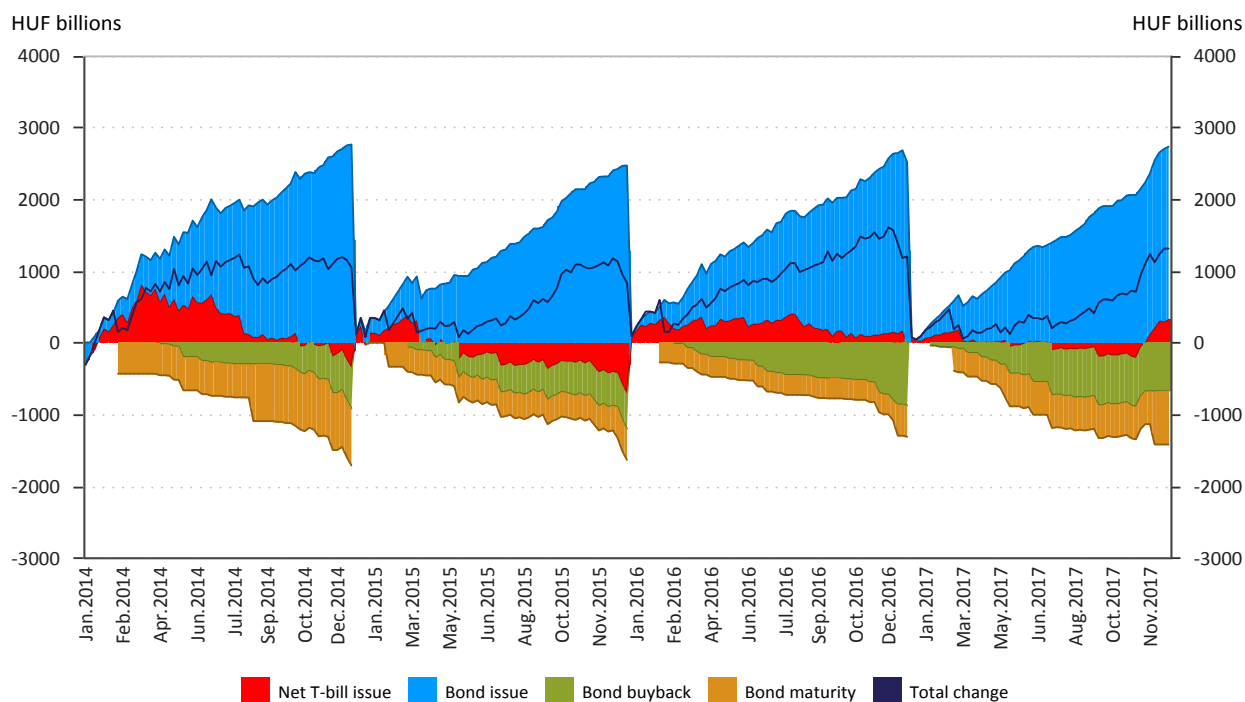
Source: MNB  
 Note: Based on HUF government bonds and T-bills.

97. The turnover and yield data of the Hungarian primary T-bill and T-bond issues



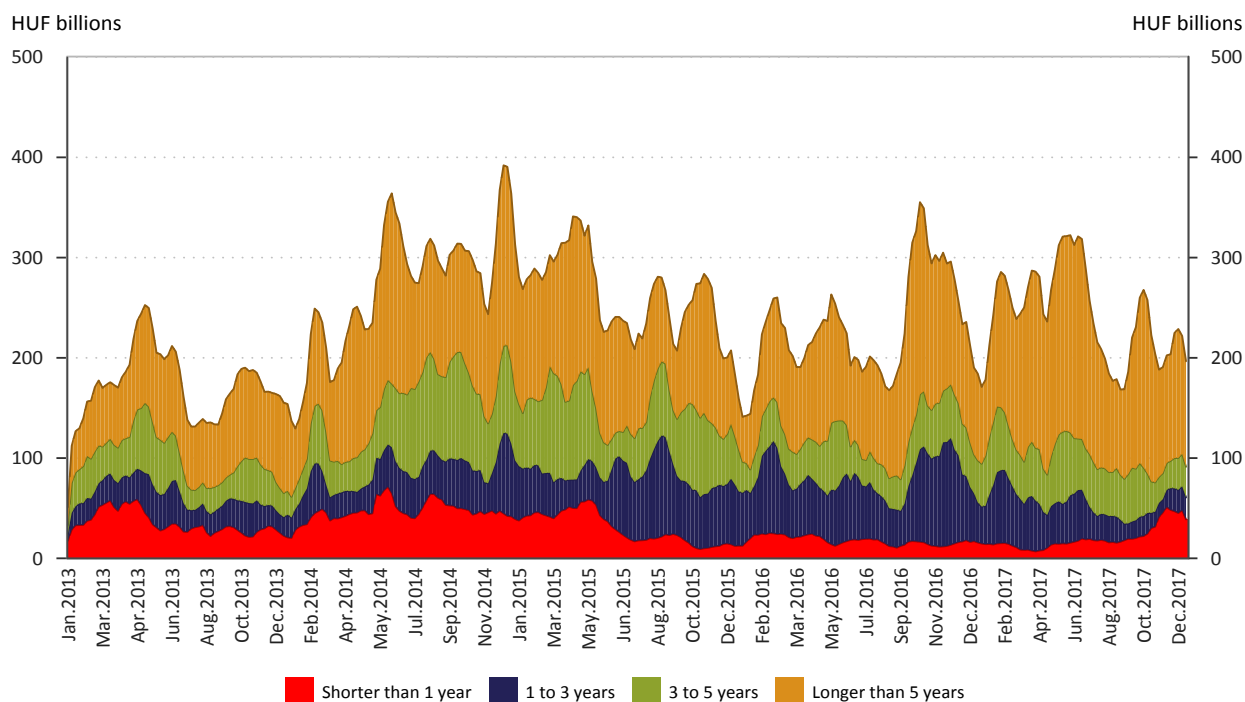
Source: ÁKK  
 Notes: the turnover and yield data of the Hungarian primary t-bill and t-bond issues. In case of floating rate bonds the yield data are not be plotted.

98. Government securities issues, buybacks, redemptions



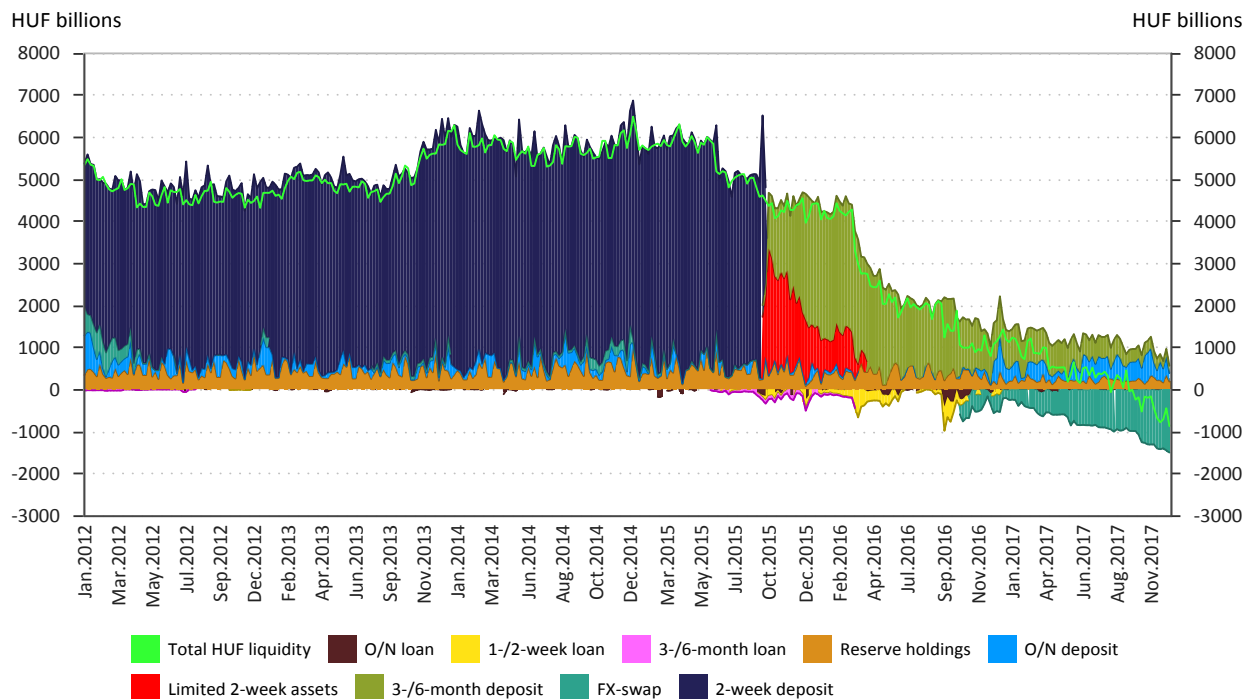
Source: MNB.

99. Turnover on the secondary market of government securities



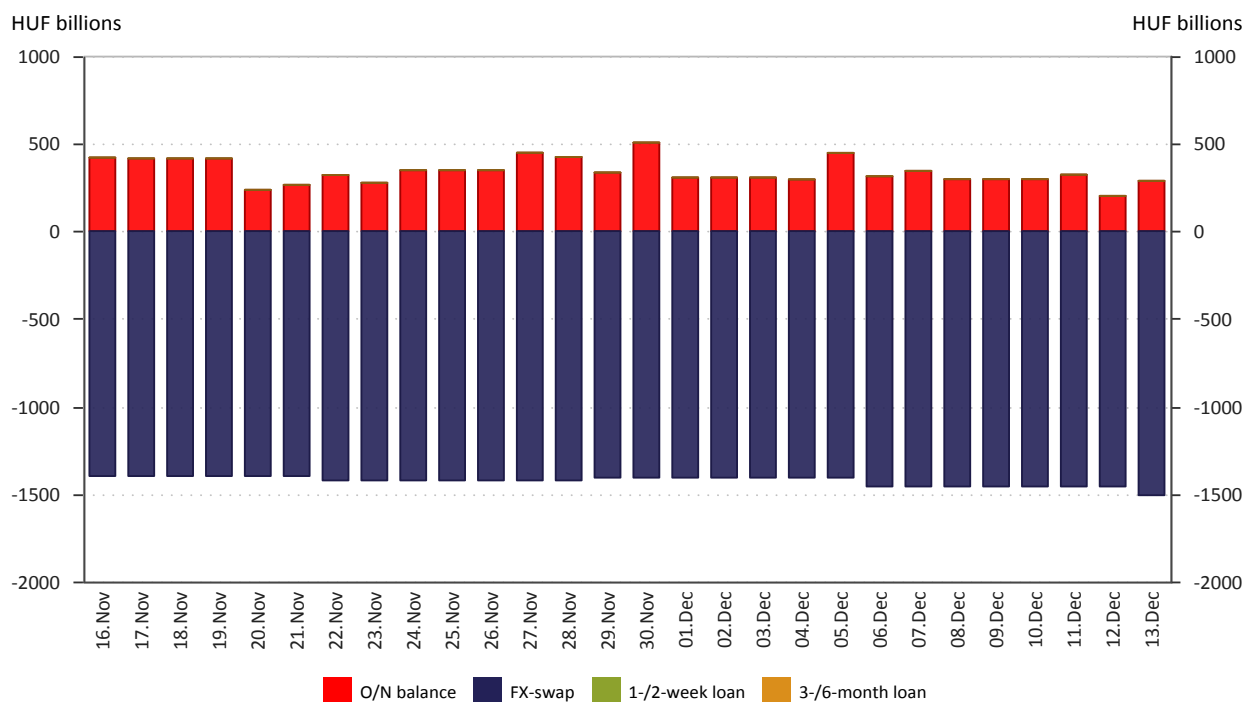
Source: MNB, KELER.

100. Selected assets and liabilities of the MNB



Source: MNB.

101. Use of facilities of the MNB beside the main instrument



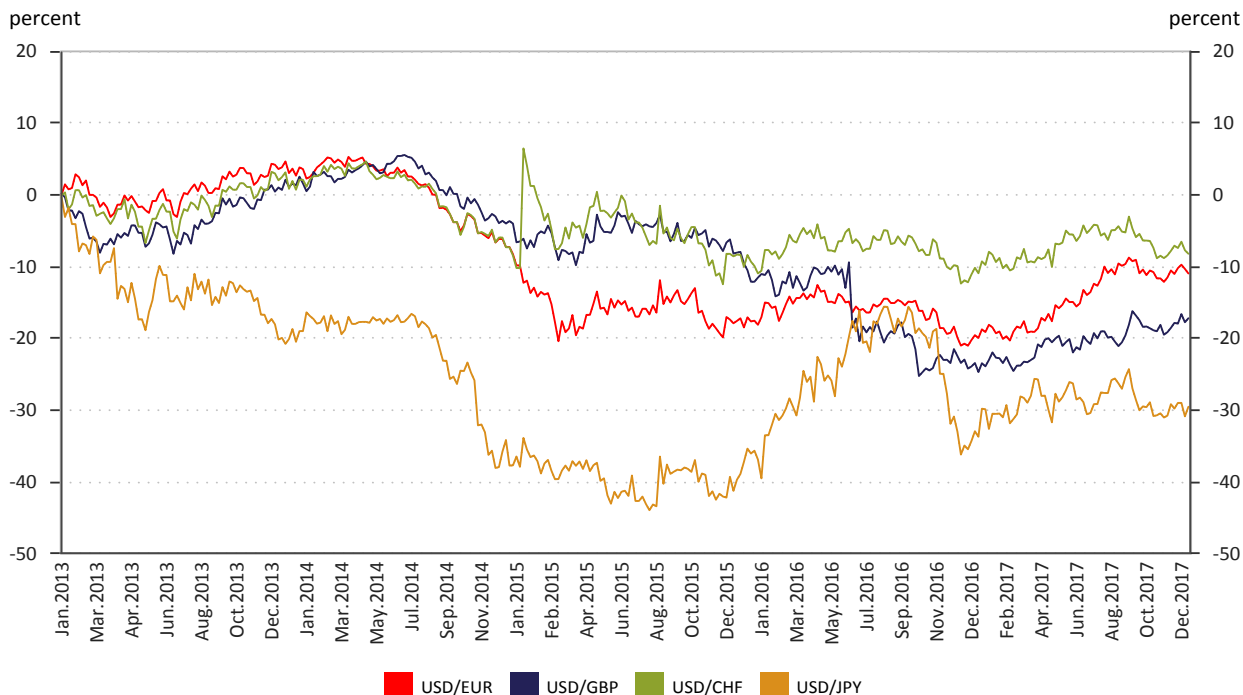
Source: MNB.



**102. International developments***Overview*

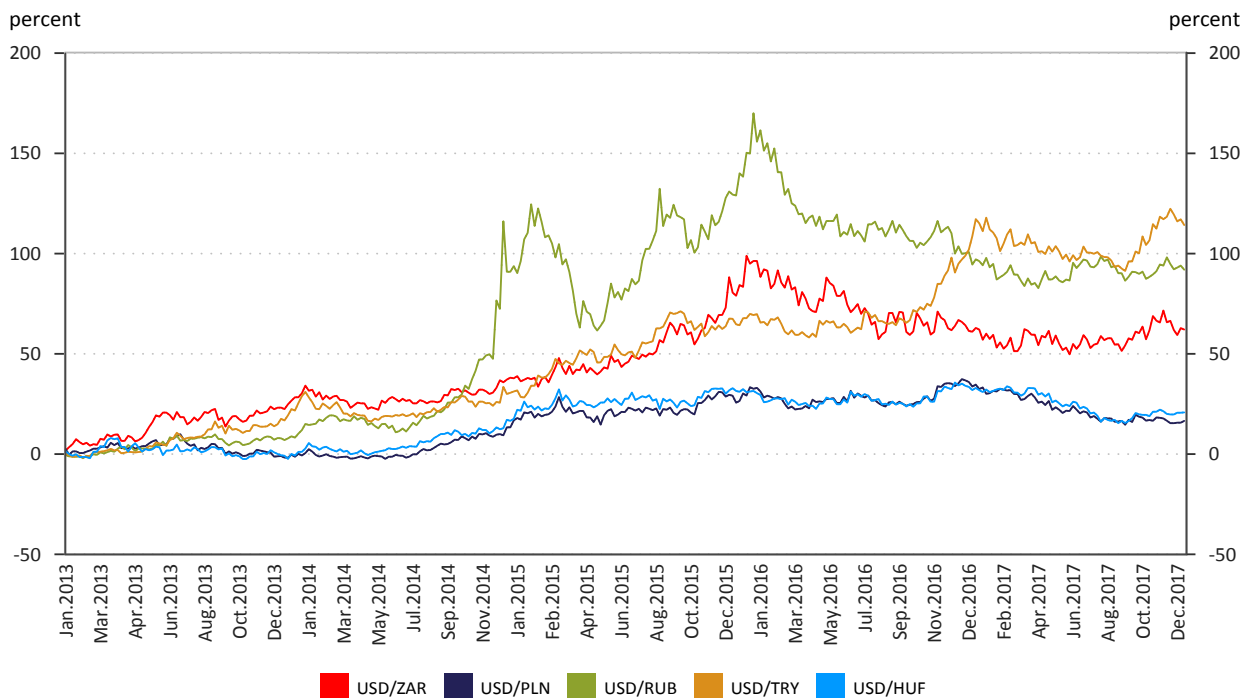
| <b>Indicator</b>           | <b>1 month ago</b> | <b>1 week ago</b> | <b>Current</b> |
|----------------------------|--------------------|-------------------|----------------|
| Fed base rate (%)          | 1.25               | 1.25              | 1.50           |
| ECB base rate (%)          | 0.00               | 0.00              | 0.00           |
| 10-year T-bond yield (%)   | 2.34               | 2.32              | 2.38           |
| 10-year euro yield (%)     | 0.38               | 0.31              | 0.32           |
| VIX Index (%)              | 13.1               | 9.6               | 10.1           |
| EMBI Global spread (bp)    | 328                | 316               | 317            |
| SP 500 Index               | 2565               | 2652              | 2663           |
| DAX Index                  | 12976              | 13154             | 13068          |
| NIKKEI Index               | 22380              | 22498             | 22694          |
| USD/EUR exchange rate      | 1.18               | 1.18              | 1.18           |
| USD/JPY exchange rate      | 112.88             | 113.49            | 112.39         |
| CHF/EUR exchange rate      | 1.19               | 1.19              | 1.18           |
| Brent oil (USD per barrel) | 62.0               | 63.3              | 64.0           |

103. Major currencies versus the dollar



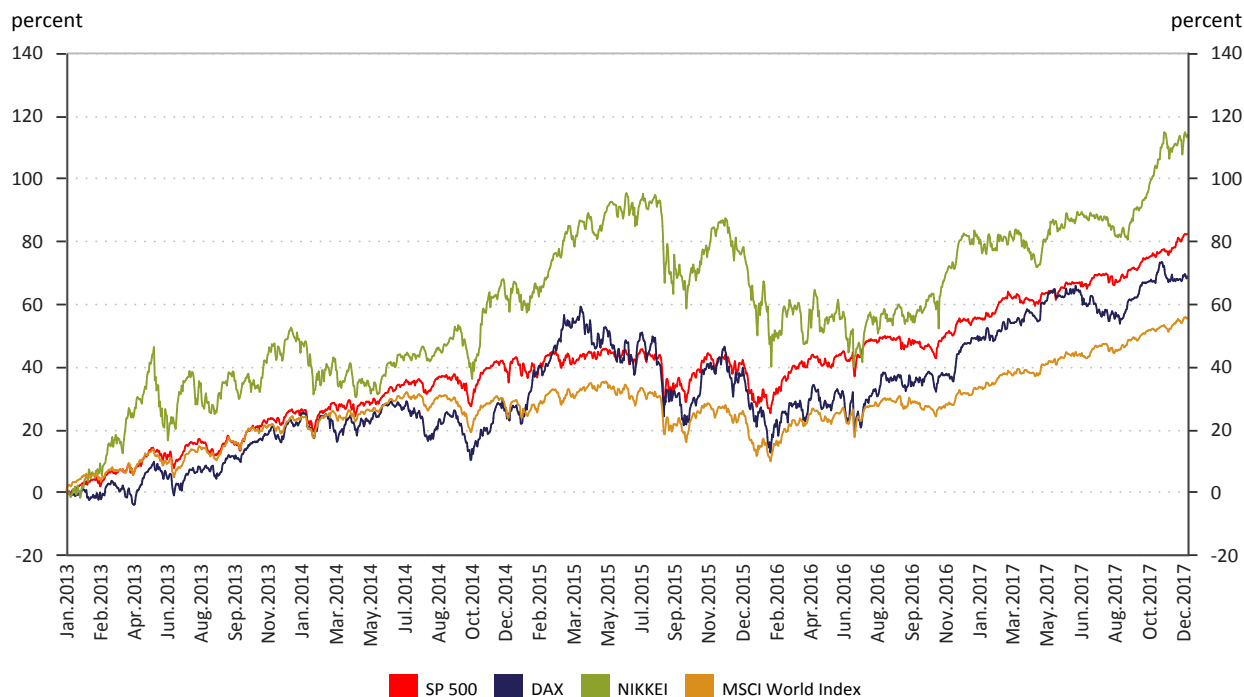
Source: Thomson Reuters  
 Note: cumulative change. Positive values indicate USD depreciation.

104. Emerging currencies versus the dollar



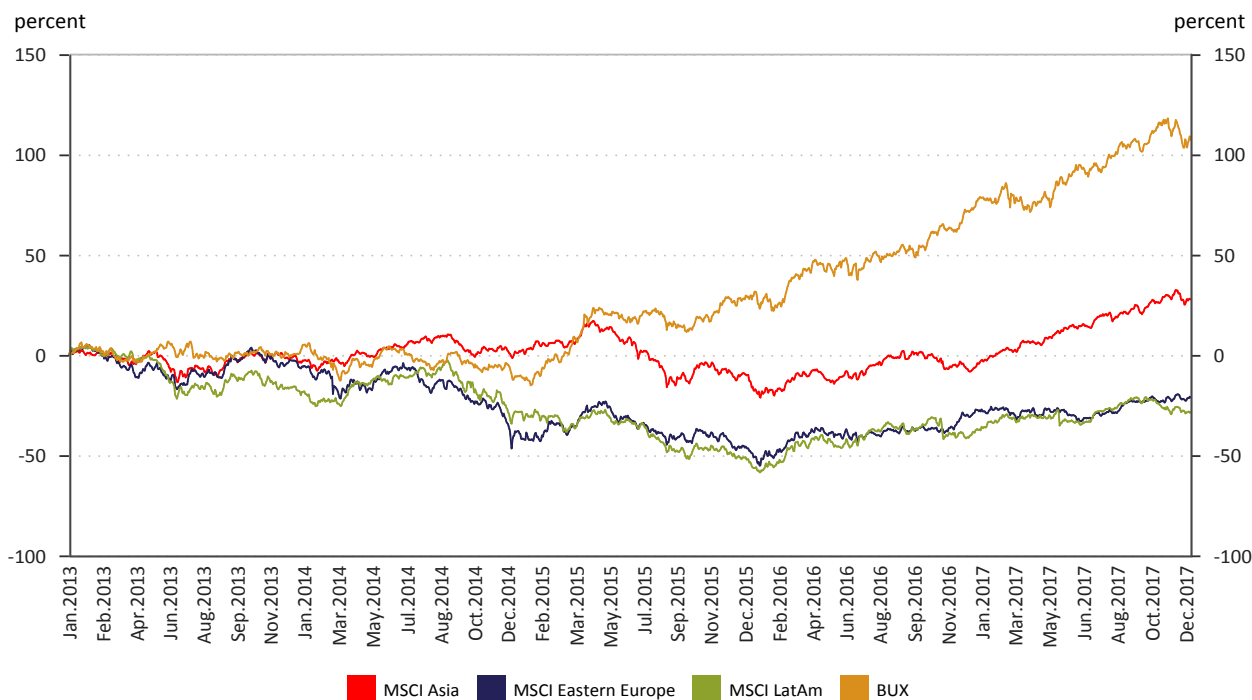
Source: Thomson Reuters Notes: positive value means depreciation of the emerging currency. Cumulative change.

105. Developed market stock indices



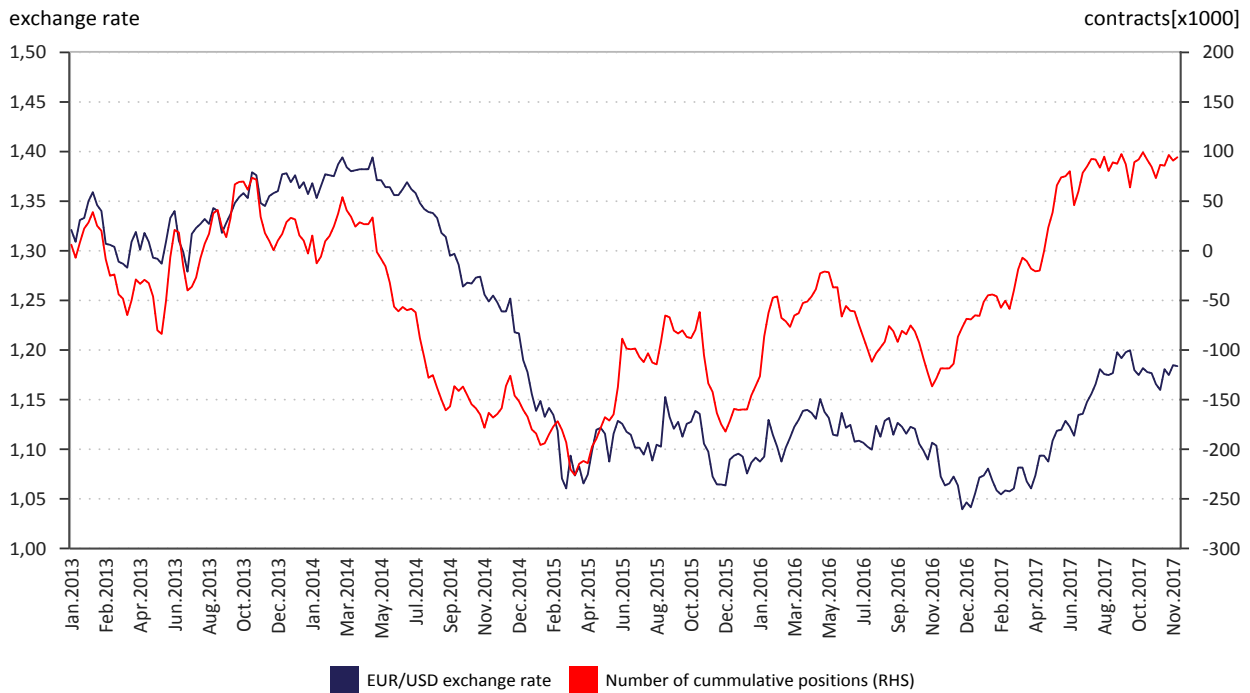
Source: Thomson Reuters  
Notes: cumulative change.

106. Emerging stock exchange markets



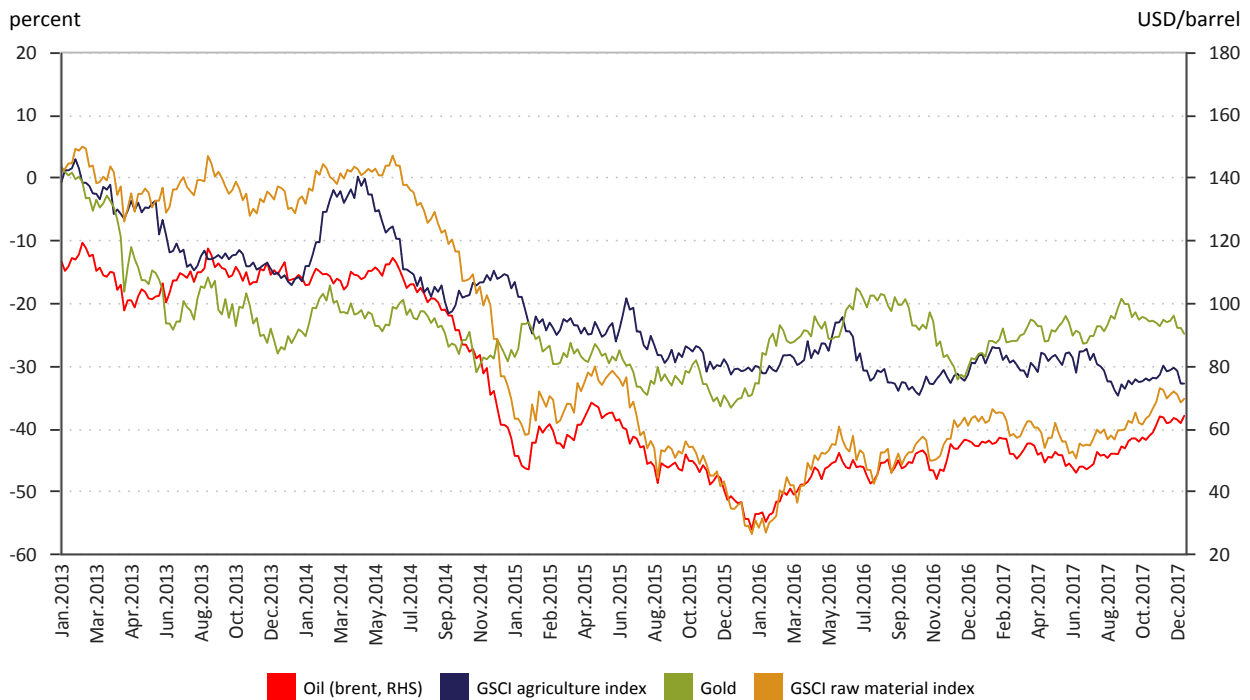
Source: Thomson Reuters Note: cumulative change, MSCI stock indices.

107. EUR/USD exchange rate and speculative positions



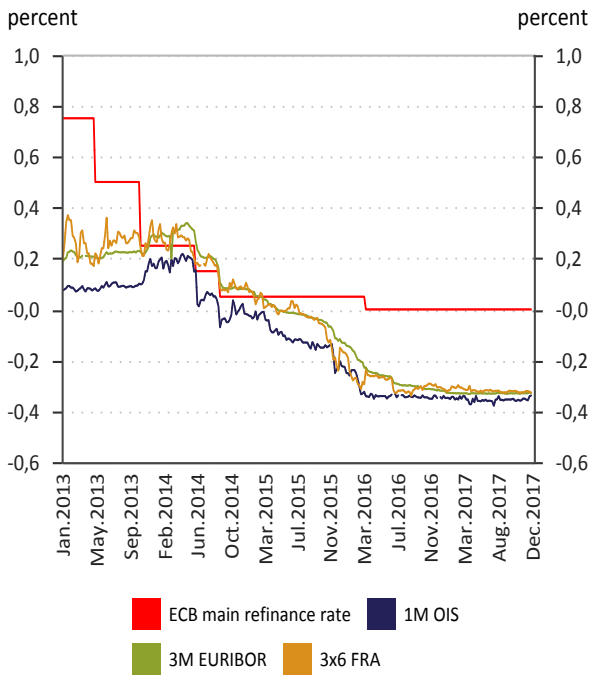
Source: Bloomberg, CFTC.  
 Notes: Speculative position is defined as a net of long and short transactions. Positive value means the majority of open positions on euro strengthening. Weekly datab by Commodity Futures Trading Commission.

108. Price of raw materials



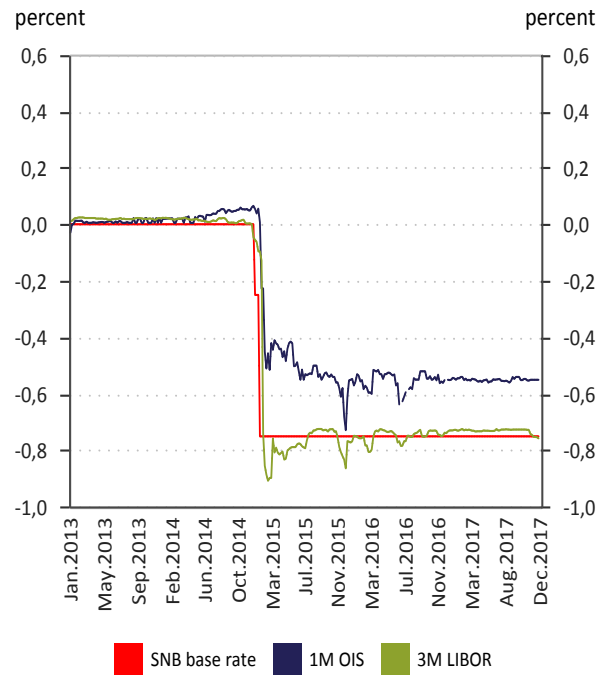
Source: Thomson Reuters Note: cumulative change except the Brent oil where the scale is nominal.

109. Short term interbank rates in the eurozone



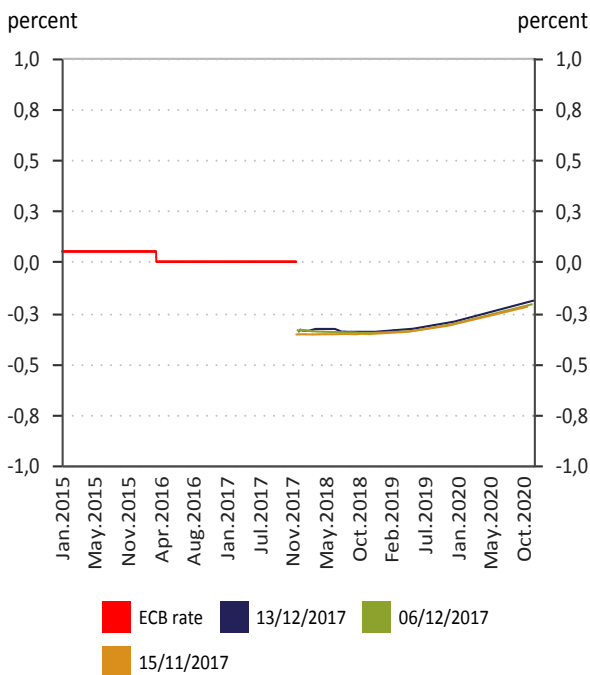
Source: Thomson Reuters.

110. Short term interbank rates in Switzerland



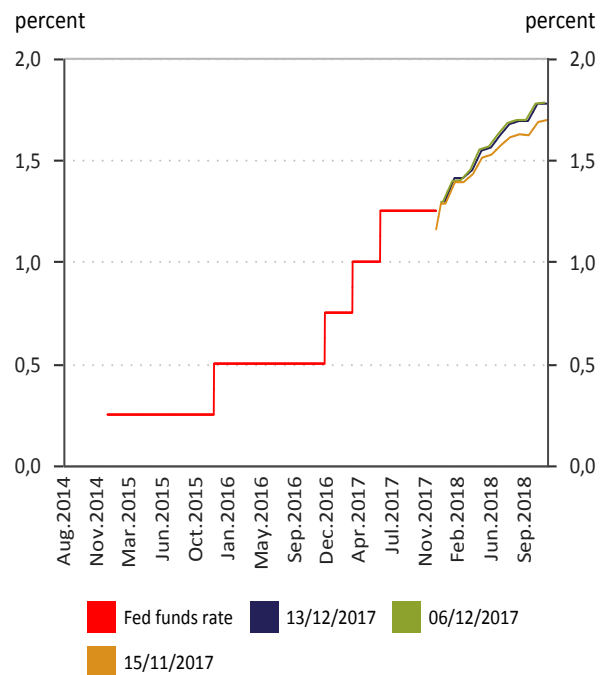
Source: Thomson Reuters.

111. Forecasts on ECB policy rate



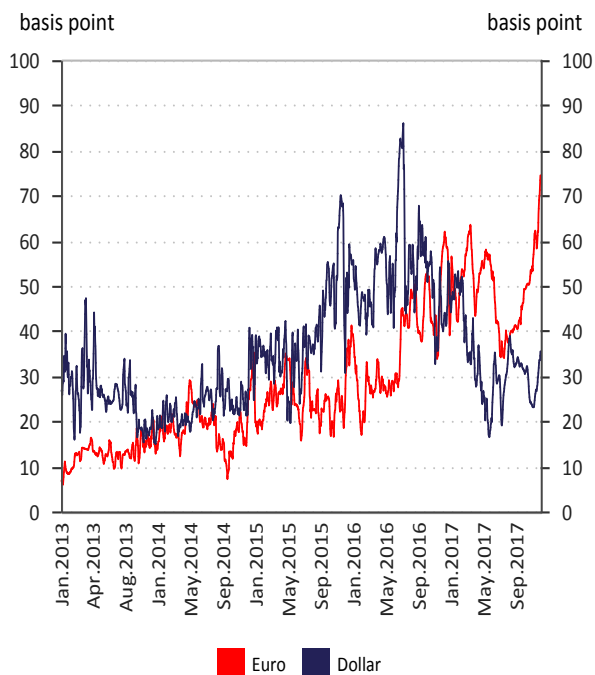
Source: ECB.  
Note: Calculated 3-months forward yield curve based on German government bonds.

112. Forecasts on Fed policy rate



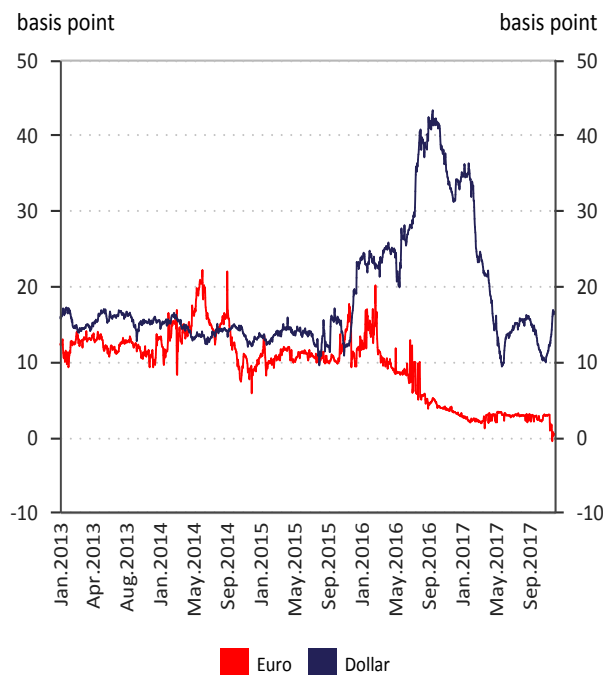
Source: Bloomberg.

113. 3M interbank and government bond yield spread



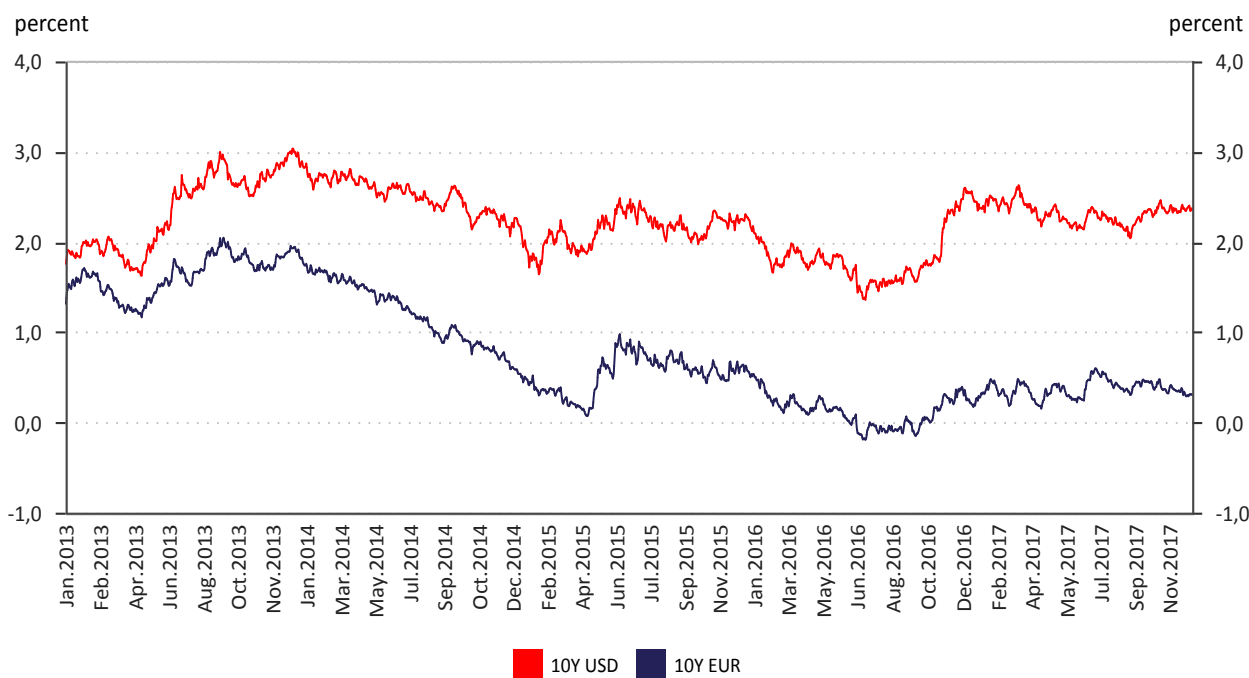
Source: Thomson Reuters.  
Notes: Spread between 3-month interbank rates and 3-month T-bill yield.

114. 3M interbank and OIS yield spread



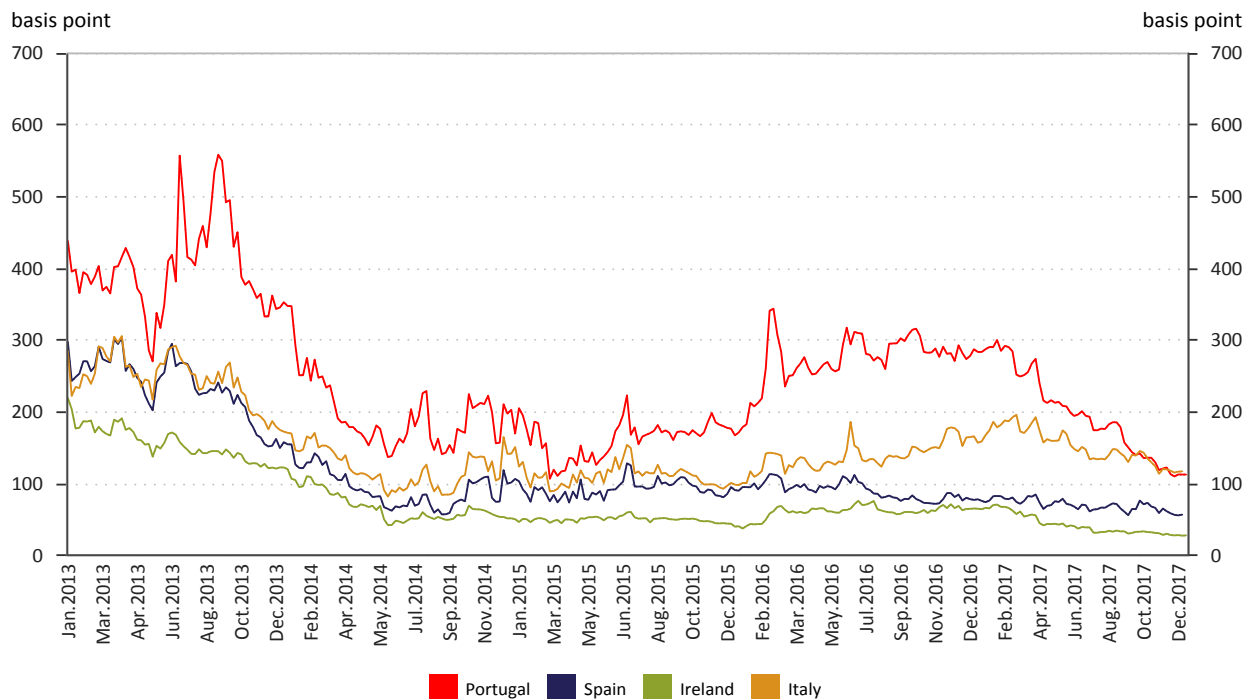
Source: Thomson Reuters

115. Long term euro and dollar benchmark yields



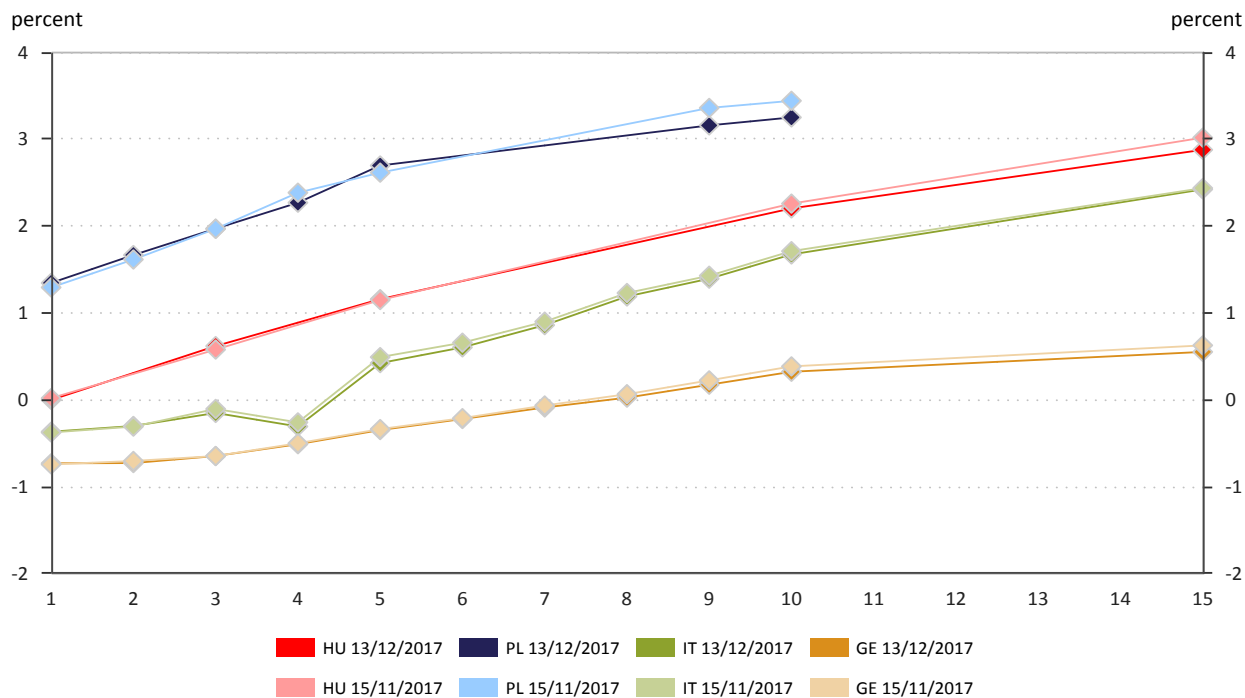
Source: Thomson Reuters.

116. 5Y sovereign CDS in the eurozone periphery



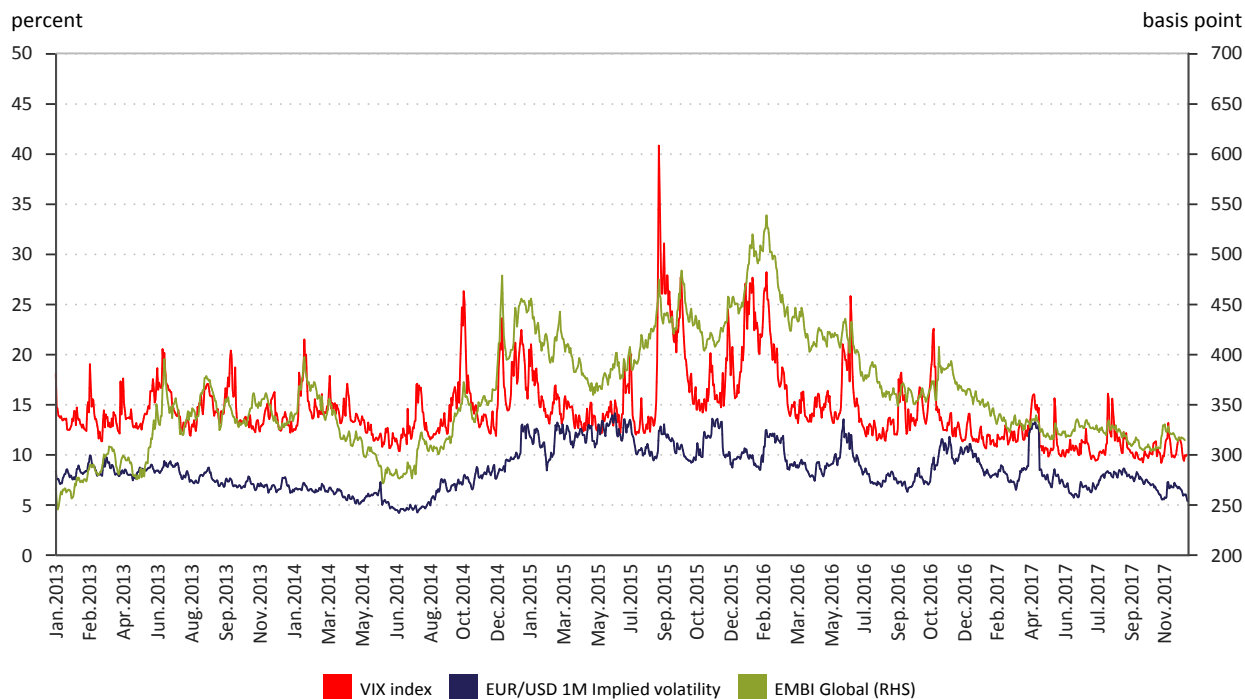
Source: Thomson Reuters.

117. Benchmark yield curves of Hungary, Poland, Italy and Germany



Source: Bloomberg  
Note: X axis is displayed in years.

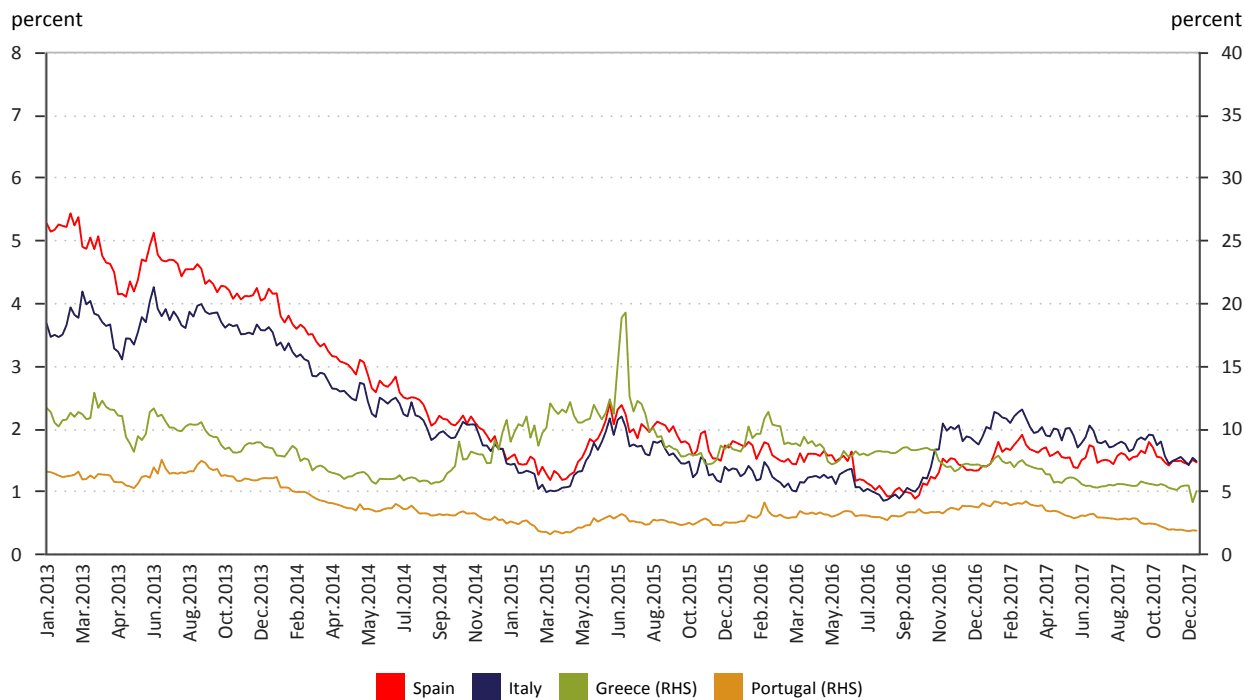
118. Main risk indicators



Source: Thomson Reuters

Note: An upward move indicates declining risk appetite or increasing risk aversion. VIX is the implied volatility of SP500 index.

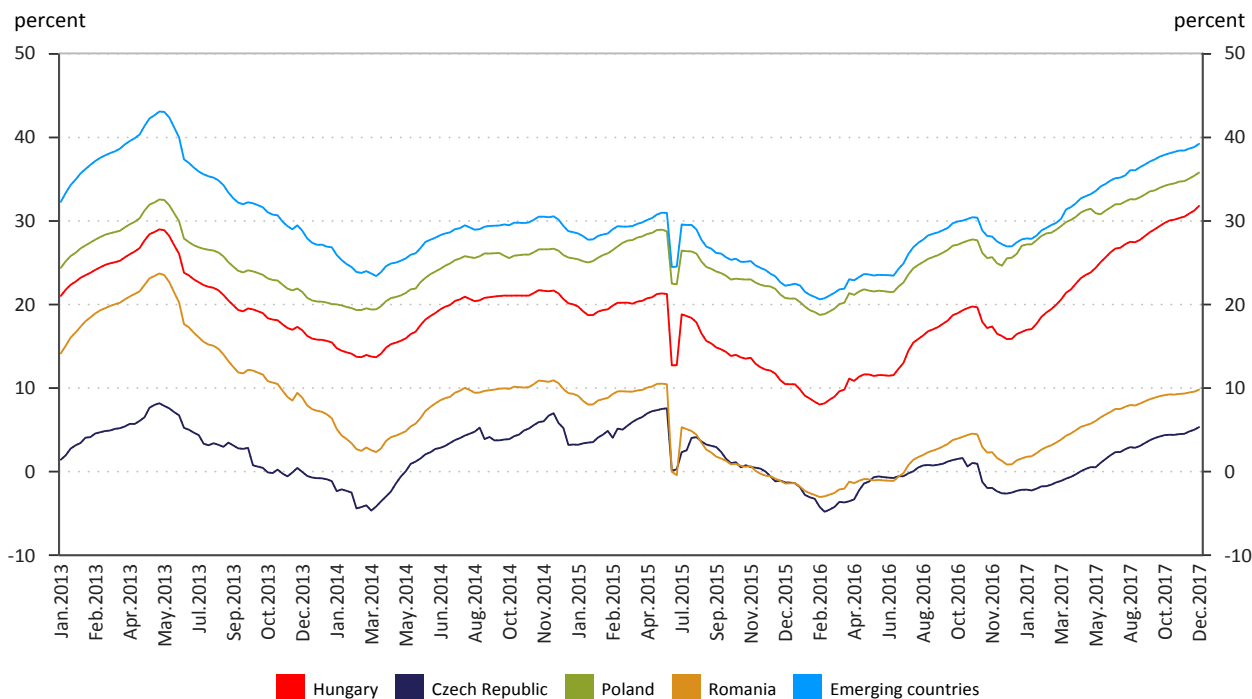
119. Long term government bond yields in the Eurozone periphery



Source: Bloomberg.



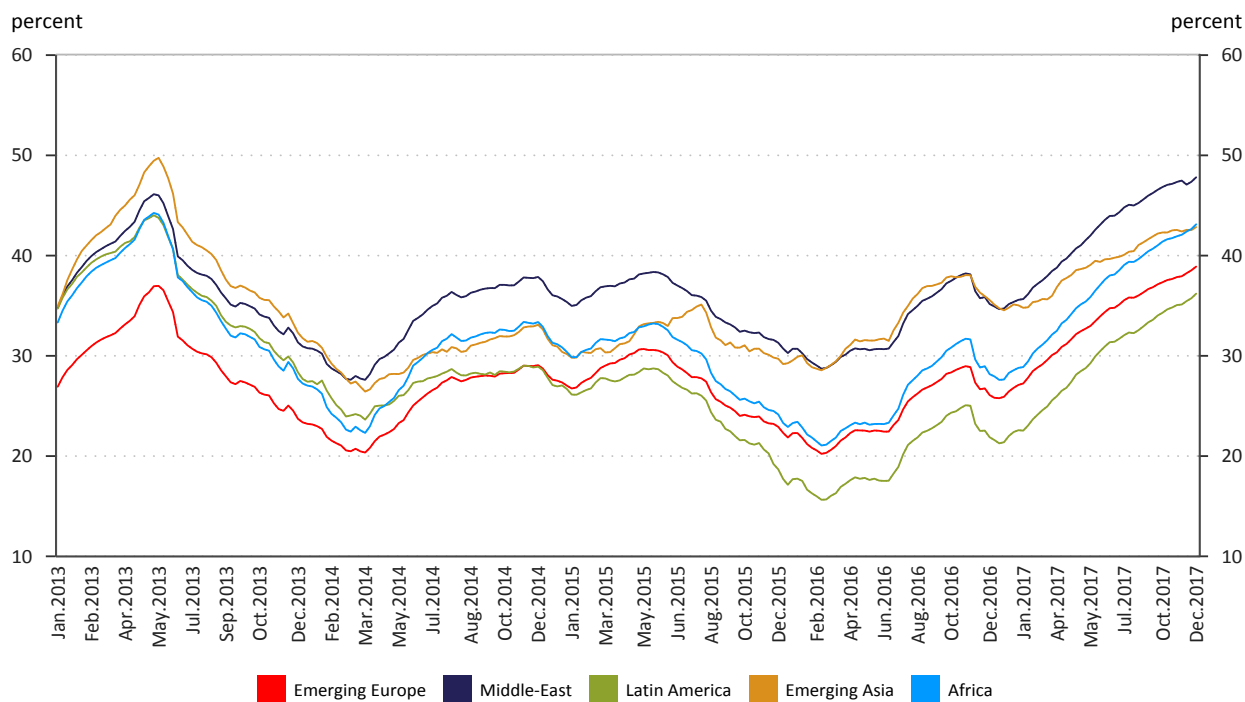
120. Emerging bond-market flows



Source:EPFR

Note: Percentage change of asset under management, 1/1/2011=0

121. Global bond-market flows



Source:EPFR

Note: Percentage change of asset under management, 1/1/2011=1