



DIRECTORATE MONETARY POLICY AND FINANCIAL MARKET ANALYSIS
FINANCIAL MARKET ANALYSIS DEPARTMENT

**CHART-PACK ON RECENT
ECONOMIC AND FINANCIAL
MARKET DEVELOPMENTS**

2020
OCTOBER



Chart-pack on recent economic and financial market developments *

20 October 2020

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.

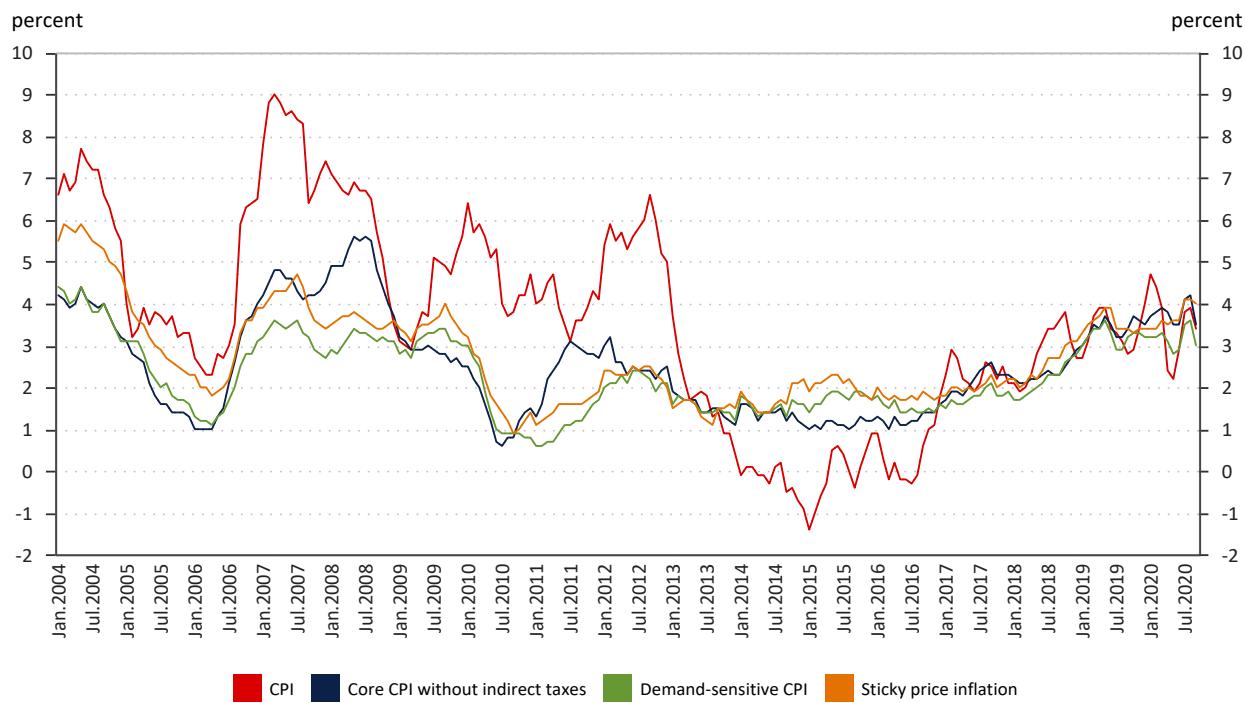
Earlier versions of the chart-pack are accessible on the website of Magyar Nemzeti Bank via the following address.

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

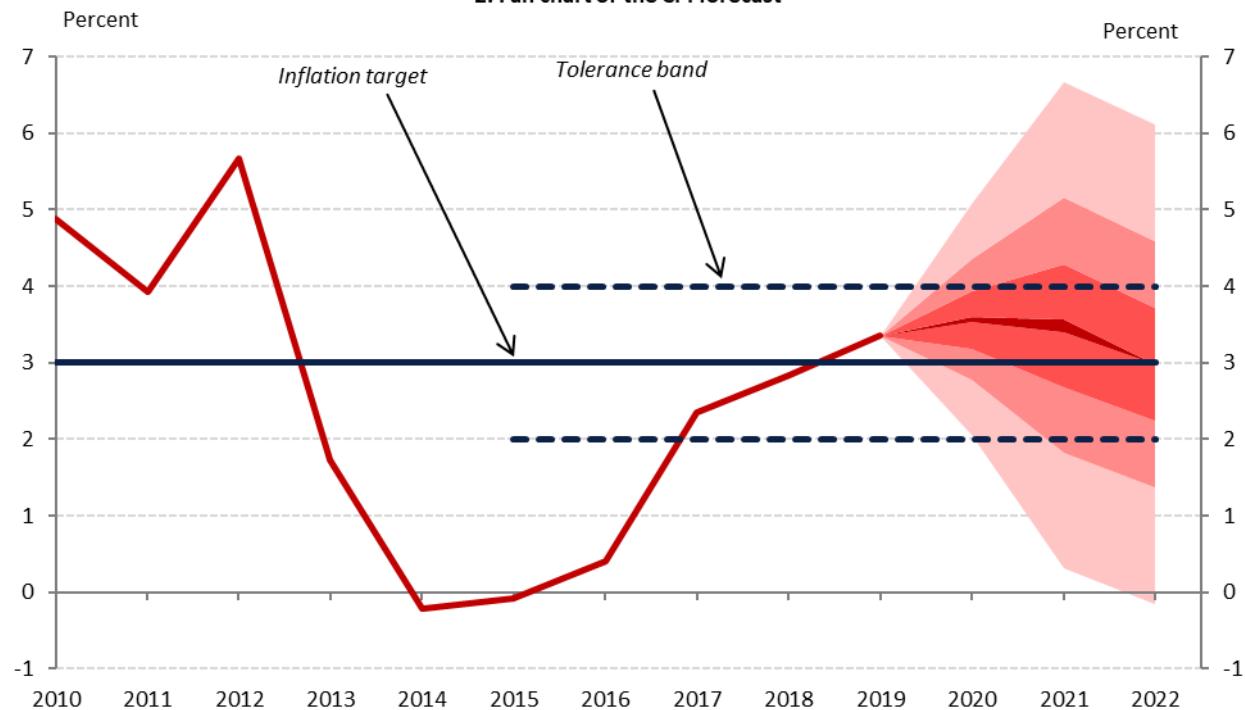
Questions and comments are welcome, and should be addressed to info@mnb.hu.

* 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.

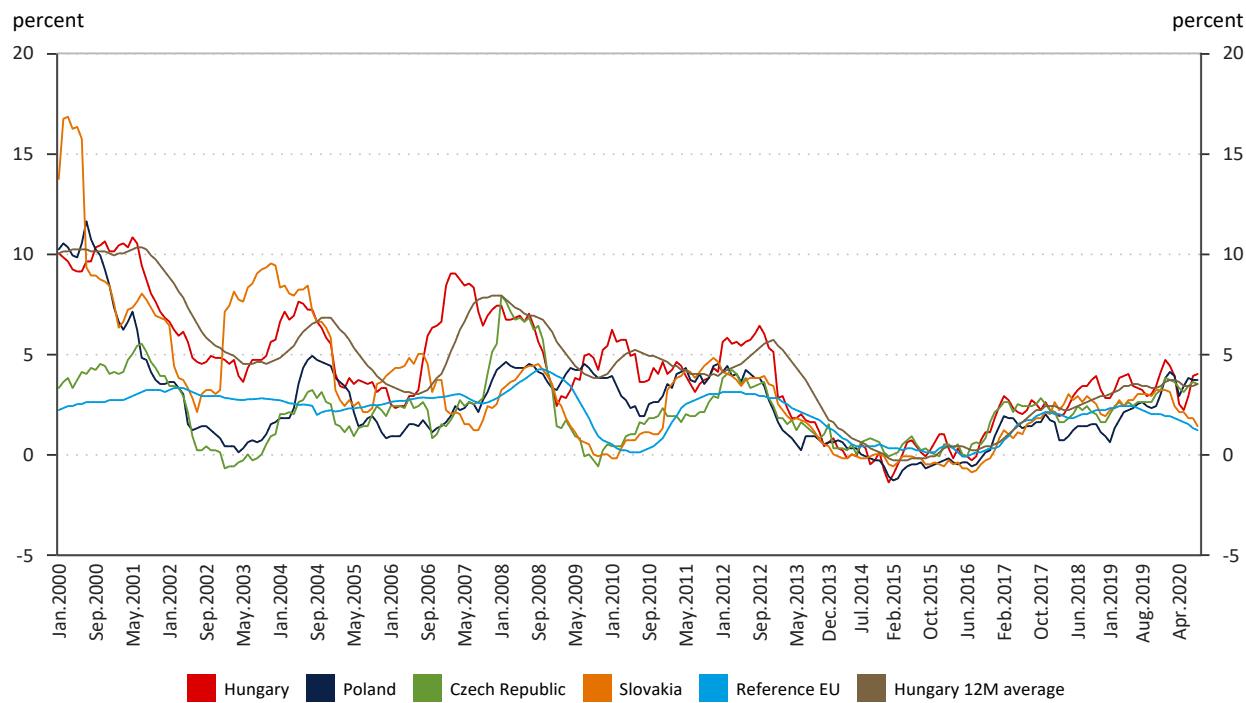
1. Development of inflation and underlying inflation indicators



2. Fan chart of the CPI forecast



3. Harmonised index of consumer prices



Source: Eurostat

Note: annual growth rate.

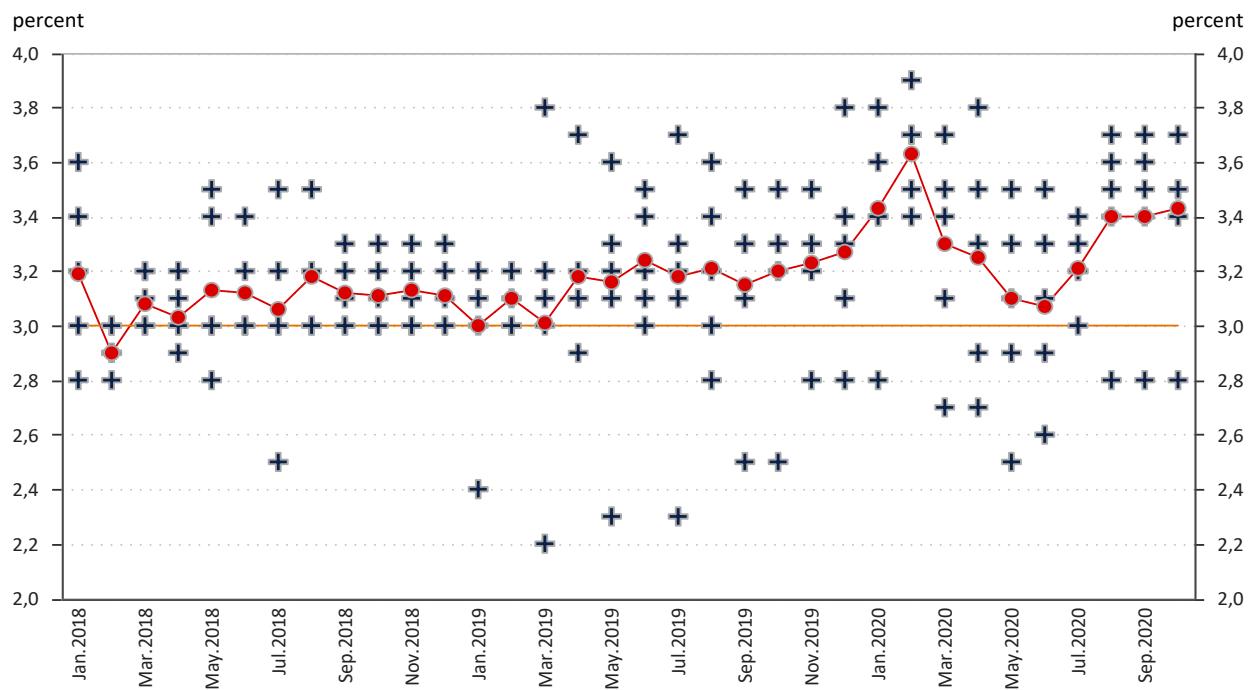
4. Decomposition of the Consumer Price Index

	Weight 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020
Consumer Price Index	100.0	2.9	3.8	3.9	3.4
Thereof:					
- Unprocessed food	6.5	13.9	12.4	11.9	11.6
- Processed food	13.0	6.1	6.5	6.9	6.1
- Manufactured goods	23.9	0.9	2.1	2.1	2.3
- Market services	23.5	4.7	4.9	5.0	3.7
- Non-regulated household energy	0.9	2.1	1.9	2.0	2.7
- Alcohol, tobacco	10.3	6.7	6.3	6.8	6.3
- Gasoline prices	6.7	-11.6	-4.1	-4.7	-3.4
- Regulated prices	15.3	-0.4	1.0	1.0	0.5
Core Consumer Price Index	70.6	4.0	4.5	4.7	4.0
CPI without tax changes	100.0	2.8	3.7	3.7	3.3

Source HCSO, MNB decomposition

Notes: annual growth rates (%). Seasonally not adjusted data.

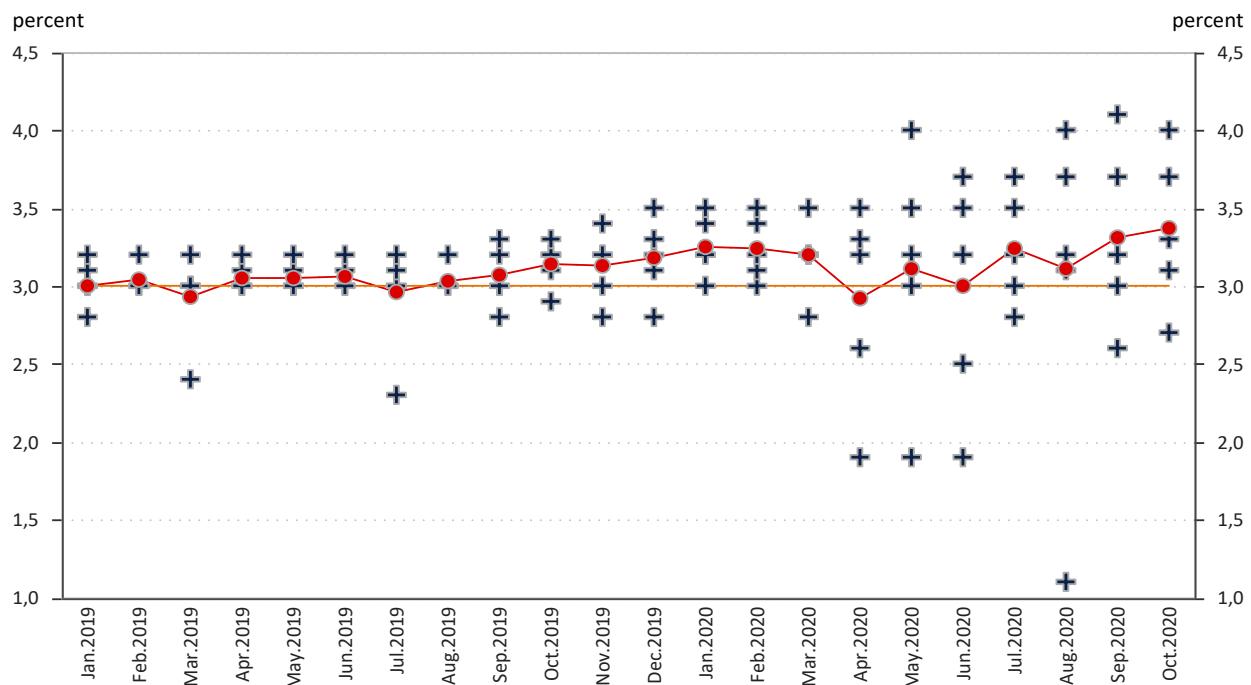
5. Market expectations for the inflation rate in current year



Source: Refinitiv

Note: crosses mark the quartiles of the analyst forecasts and the minimum and maximum values, the red continuous line represents the mean calculated by values, the brown line shows the inflation target of MNB.

6. Market expectations for the inflation rate next year



Source: Refinitiv

Note: crosses mark the quartiles of the analyst forecasts and the minimum and maximum values, the red continuous line represents the mean calculated by values, the brown line shows the inflation target of MNB.

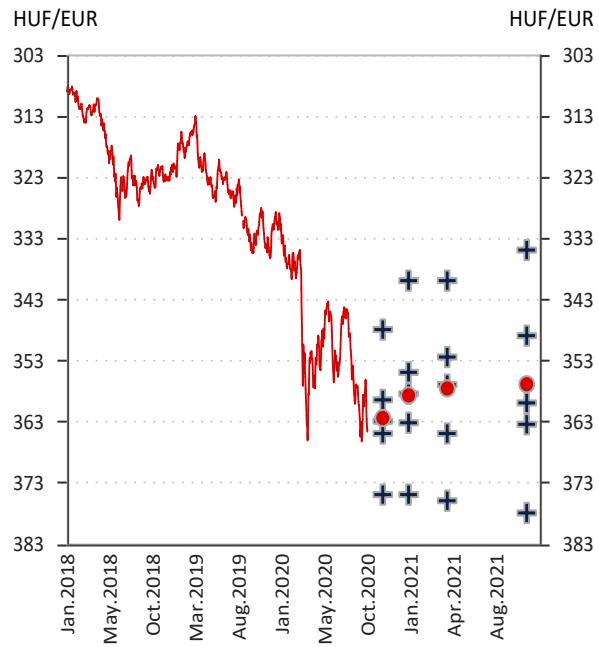
7. Expectations for HUF/EUR exchange rate (Bloomberg collection)



Source: Bloomberg

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

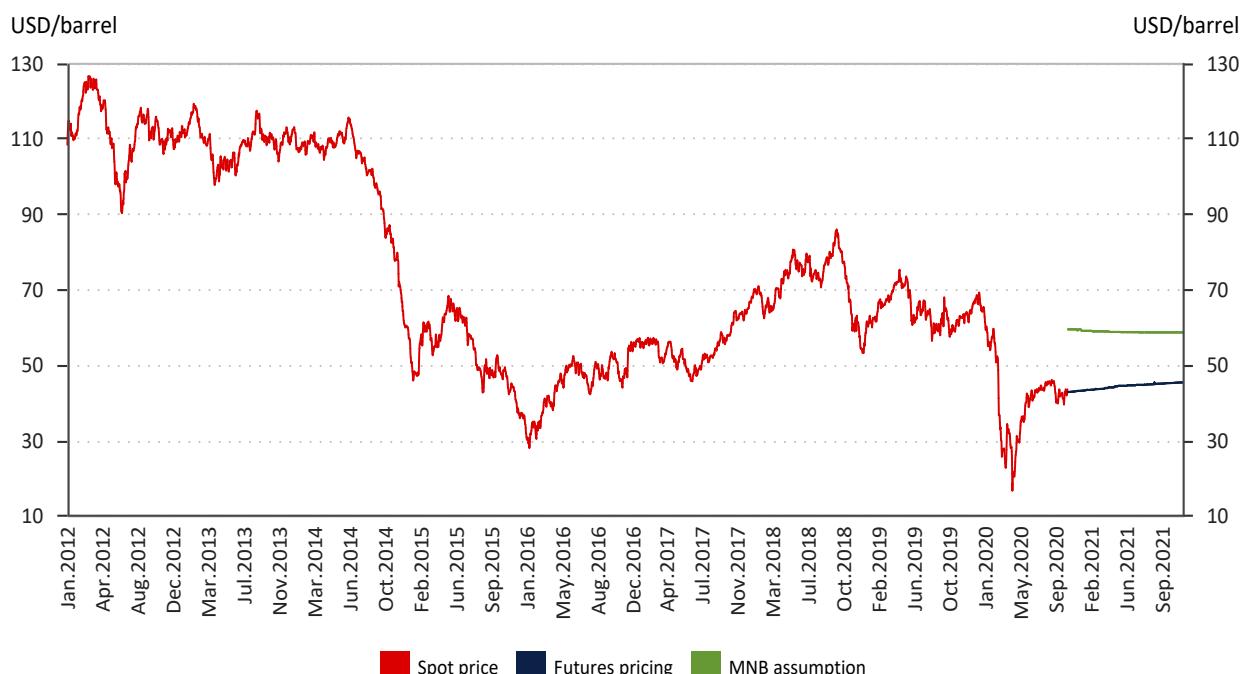
8. Expectations for HUF/EUR exchange rate



Source: Refinitiv, MNB.

Note: reverse scale, the crosses mark the quartiles of the analyst forecasts and the minimum and maximum values, the red continuous line represents the mean calculated by values.

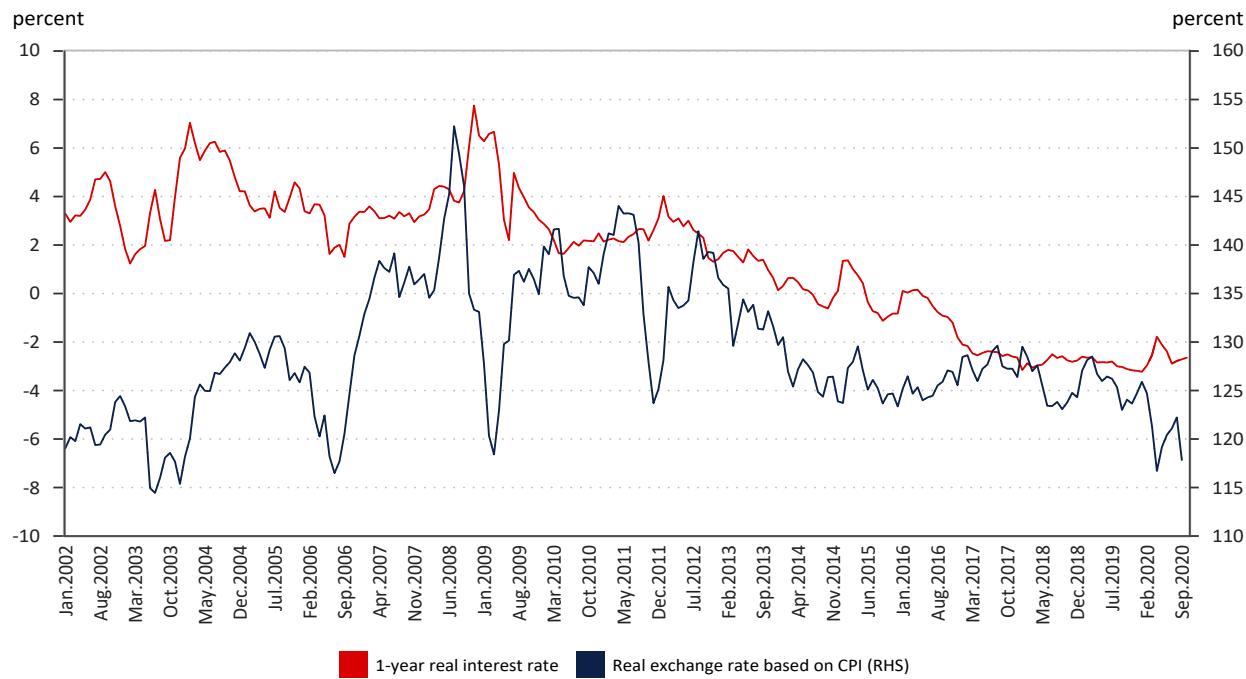
9. Spot and futures Brent crude oil price



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 Inflation Report

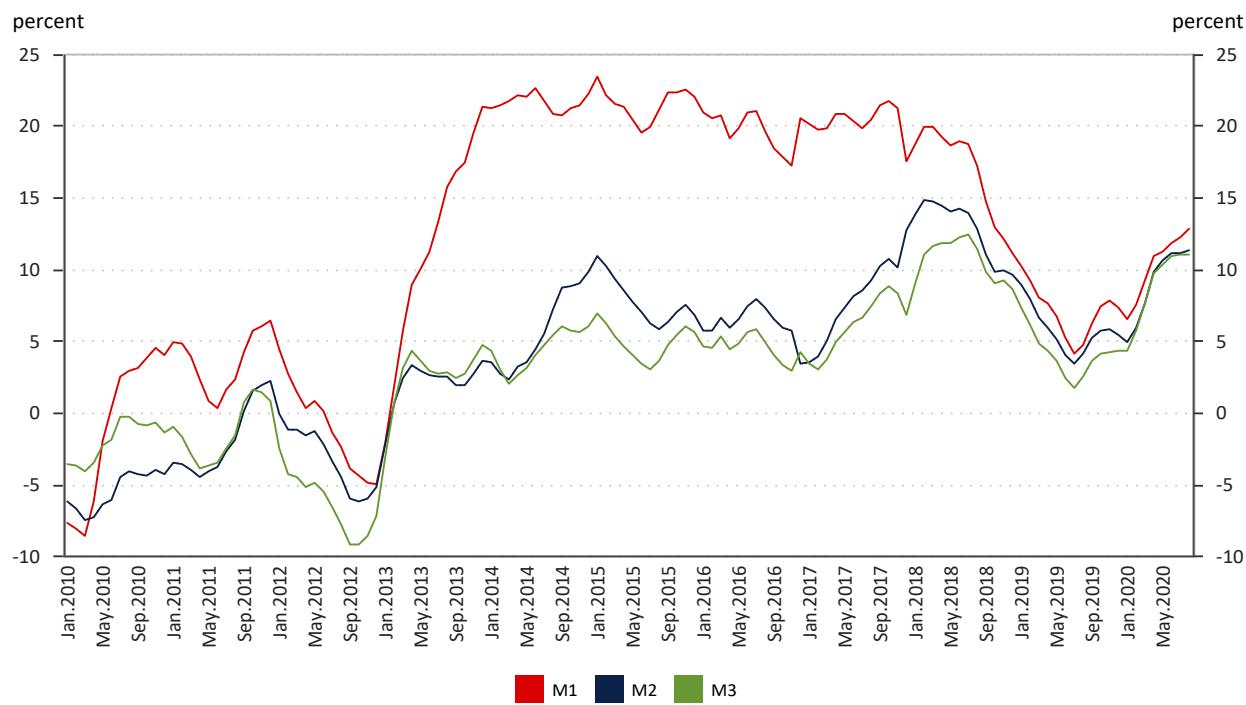
10. Monetary conditions



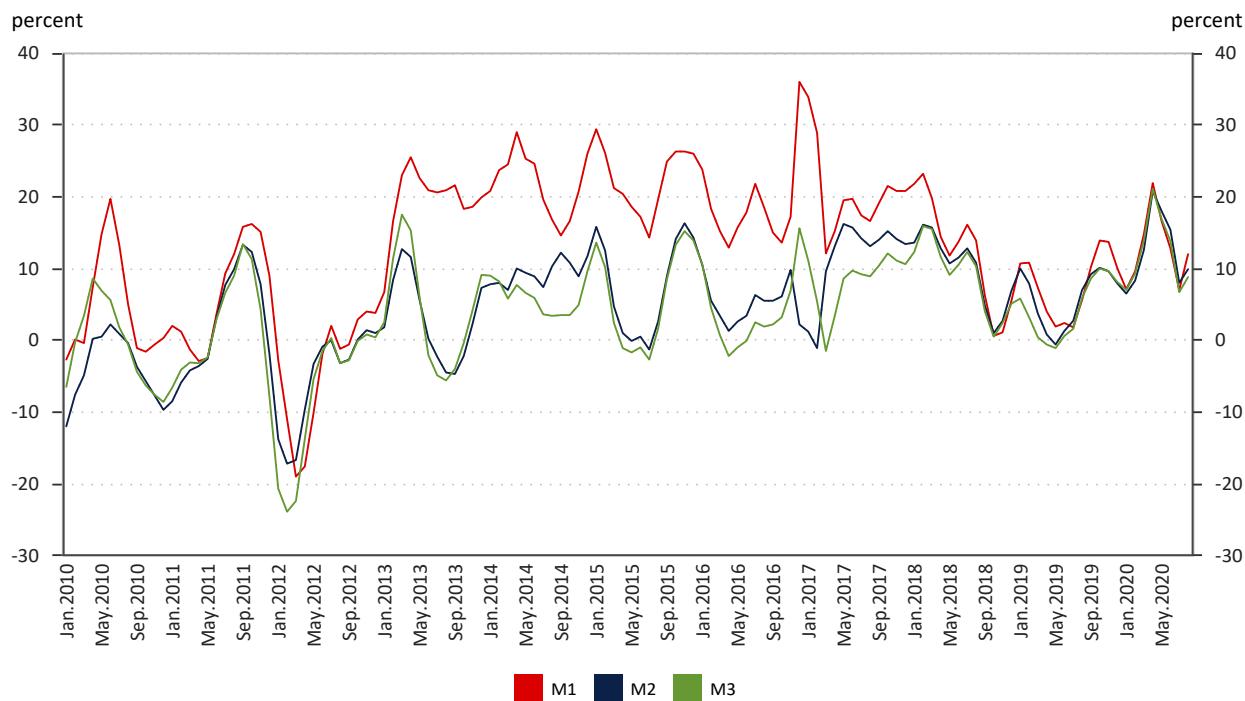
Source: Refinitiv, HCSO, Eurostat, ÁKK, MNB

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 2000=100%, increase represents appreciation)

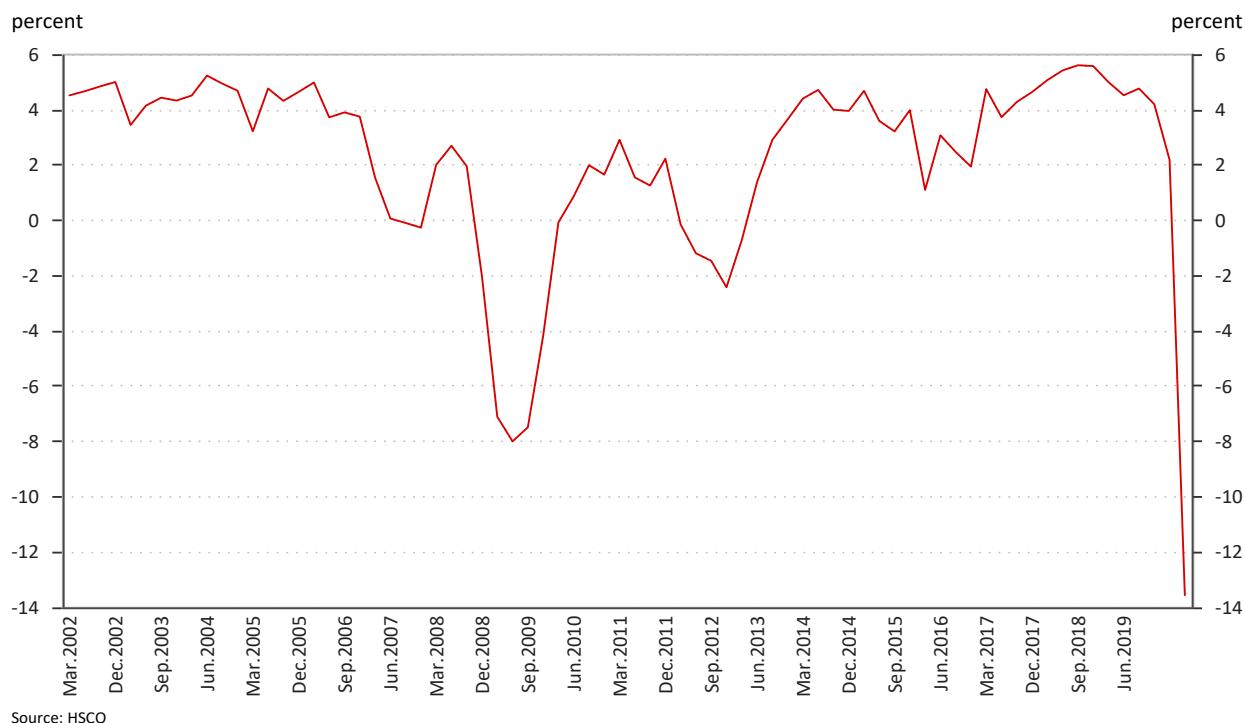
11. Real growth rate of monetary aggregates (year-on-year basis)



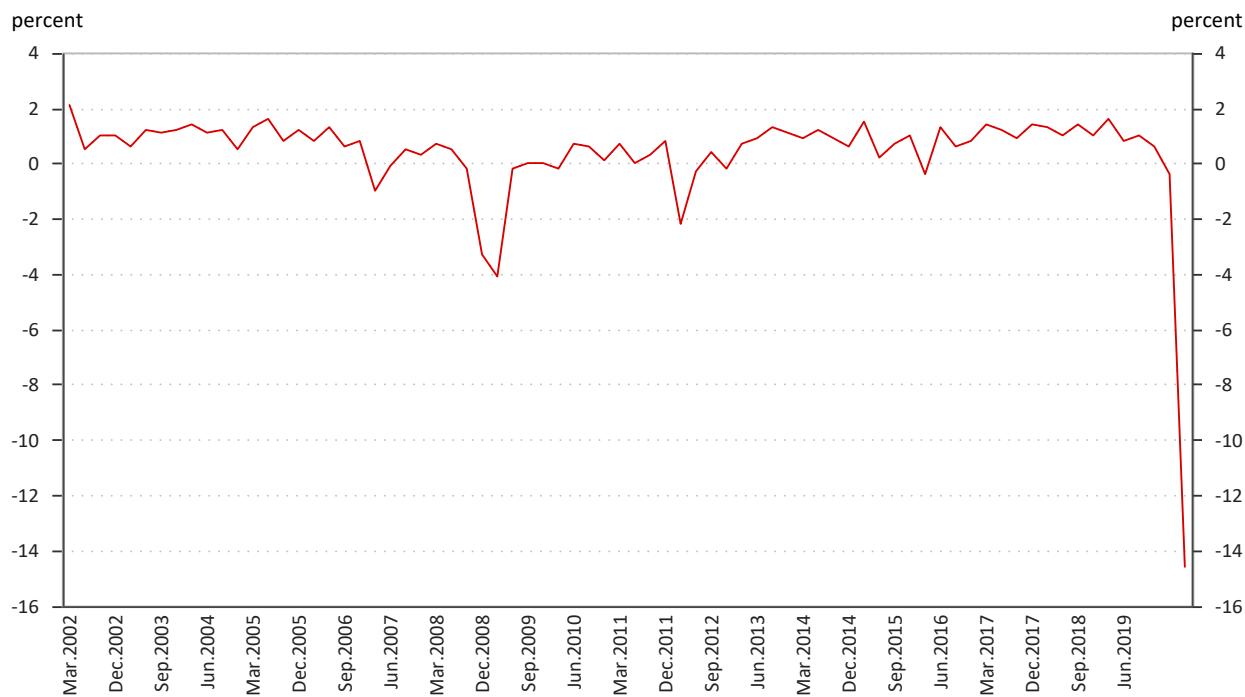
Source: MNB.

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

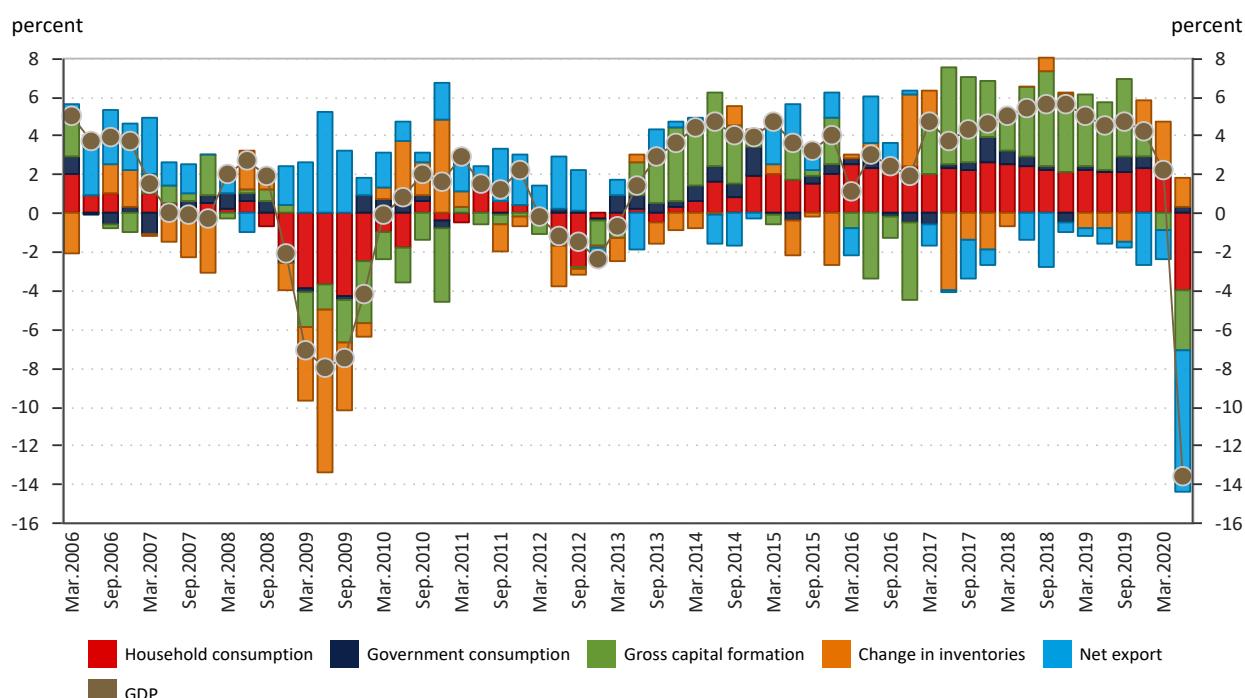
Source: MNB.

13. Change in annual GDP

Source: HSCO

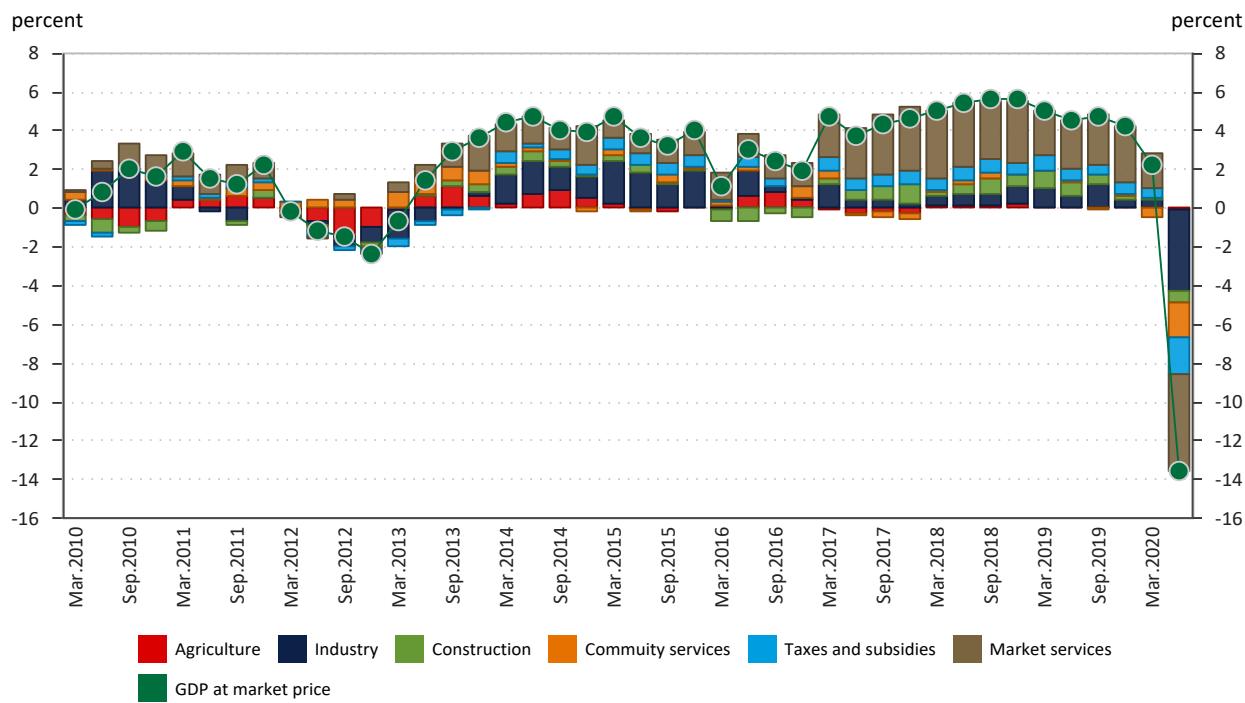
14. Quarterly GDP change

Source: MNB, HSCO.

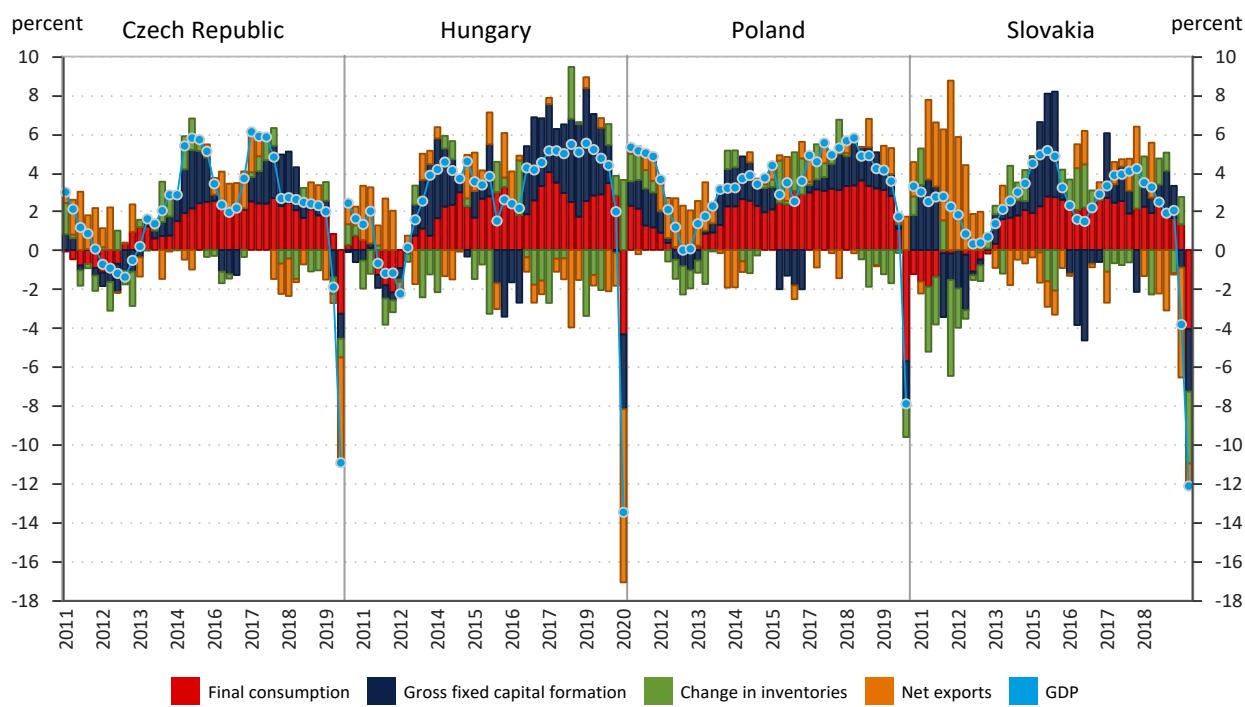
15. Contribution to annual GDP growth

Source: MNB, HSCO.

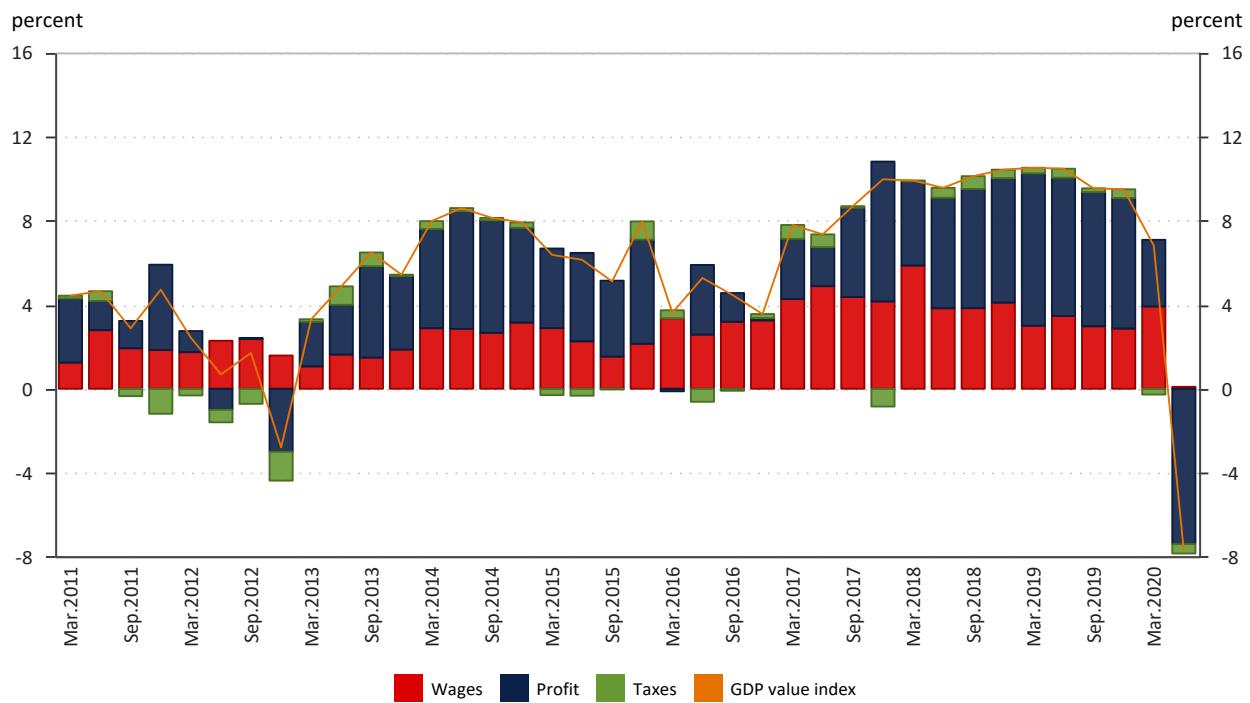
16. Decomposition of GDP growth



17. Contribution to annual GDP growth in the region



18. Decomposition of GDP growth (income approach)

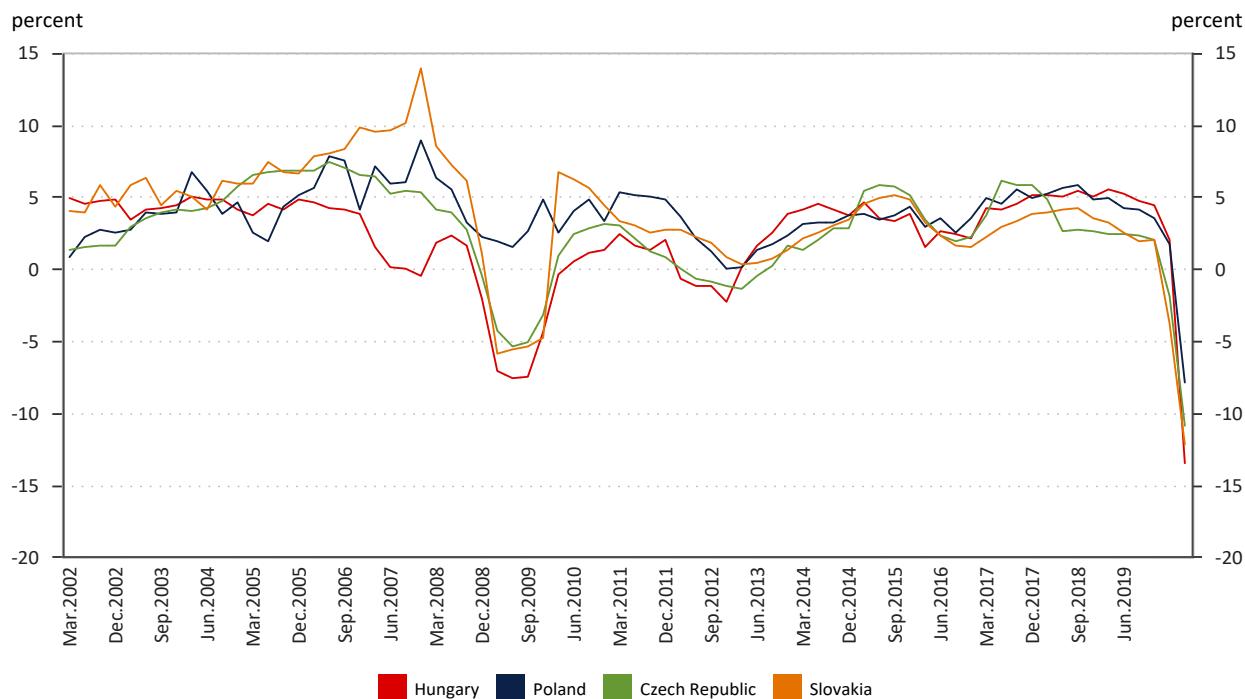


Source: MNB, HSCO Note: contribution in percentage points

19. Fan chart of the GDP forecast

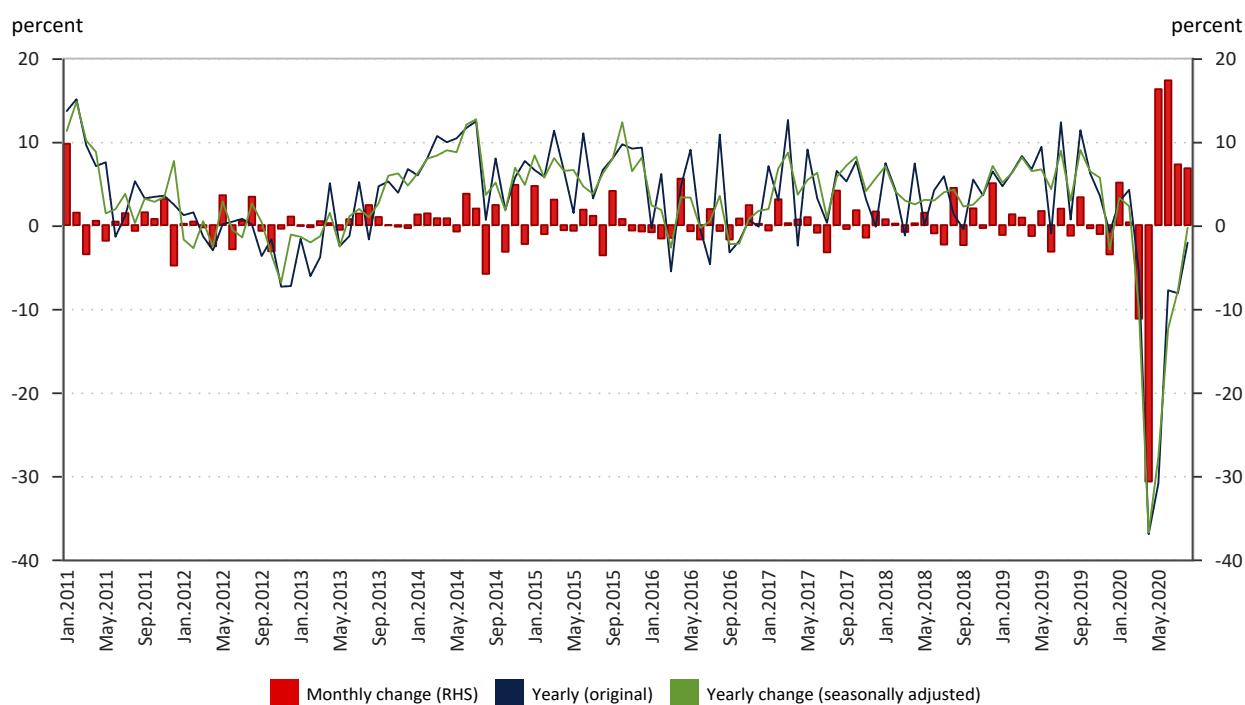


Source: HCSO, MNB

20. GDP growth rate in CEE

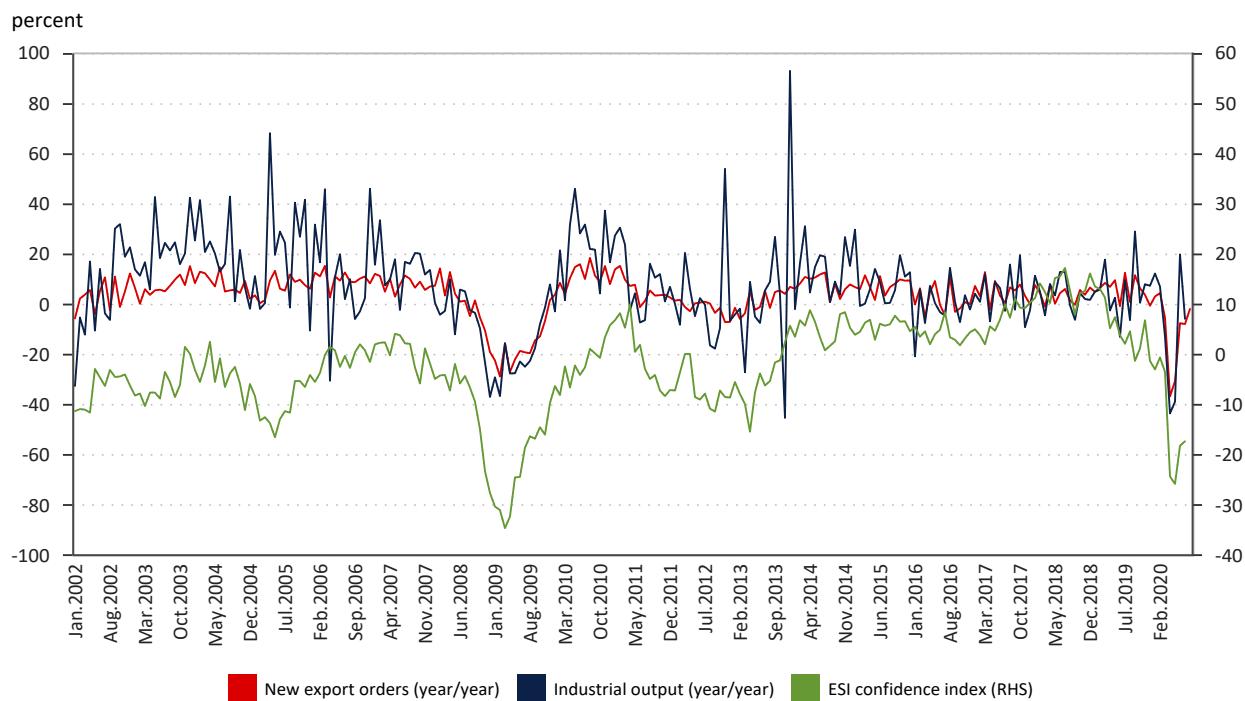
Source: Eurostat

Note: annual growth rate.

21. Change in industrial production

Source: MNB, HCSO.

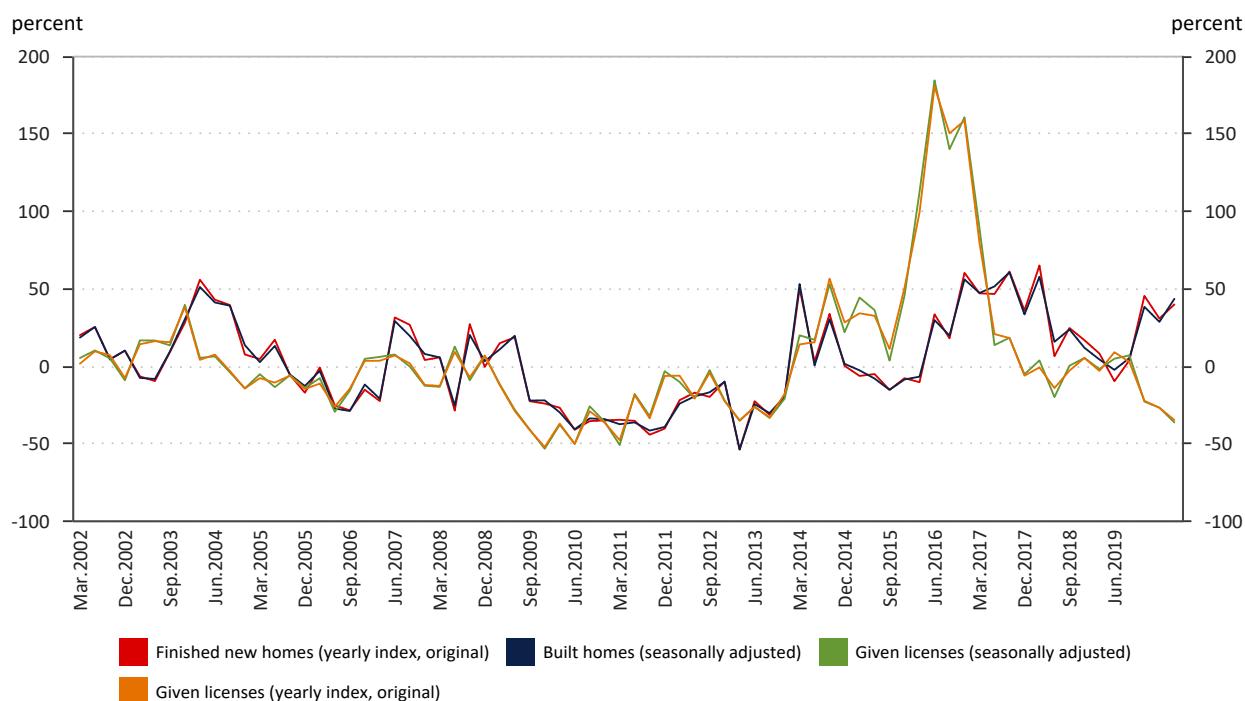
22. Industrial production and new export orders



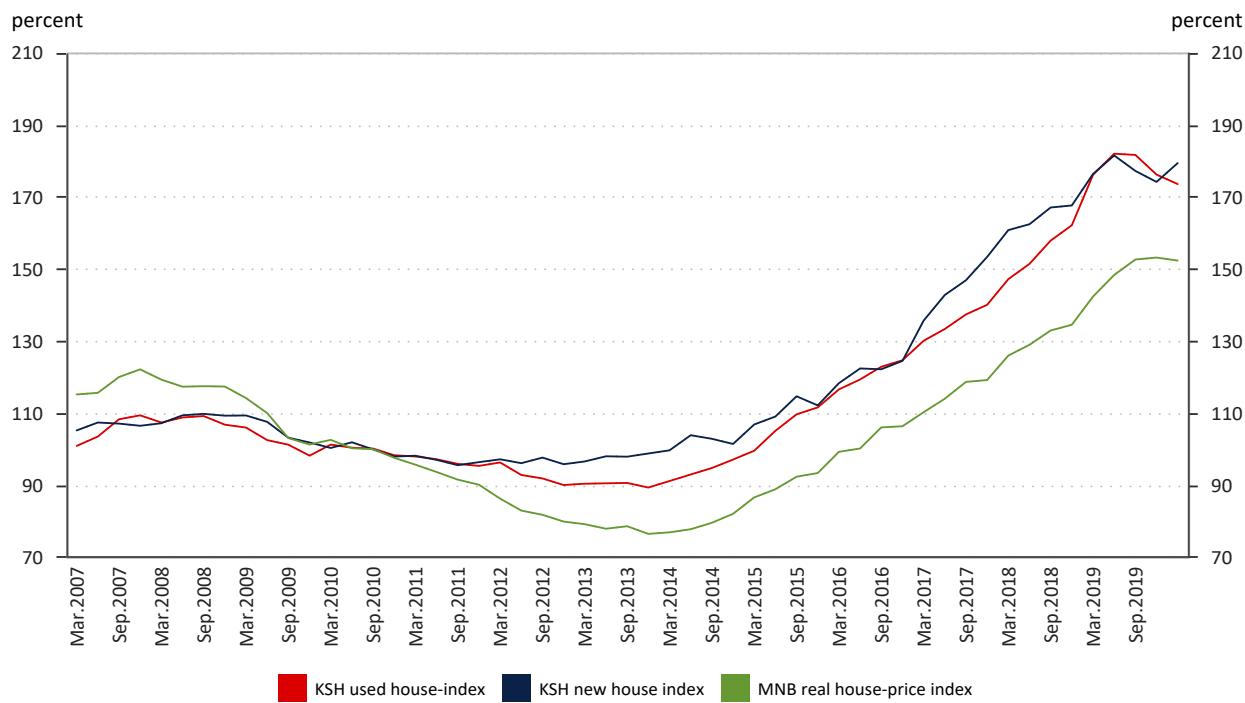
Source: HSCO, European Commission.

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

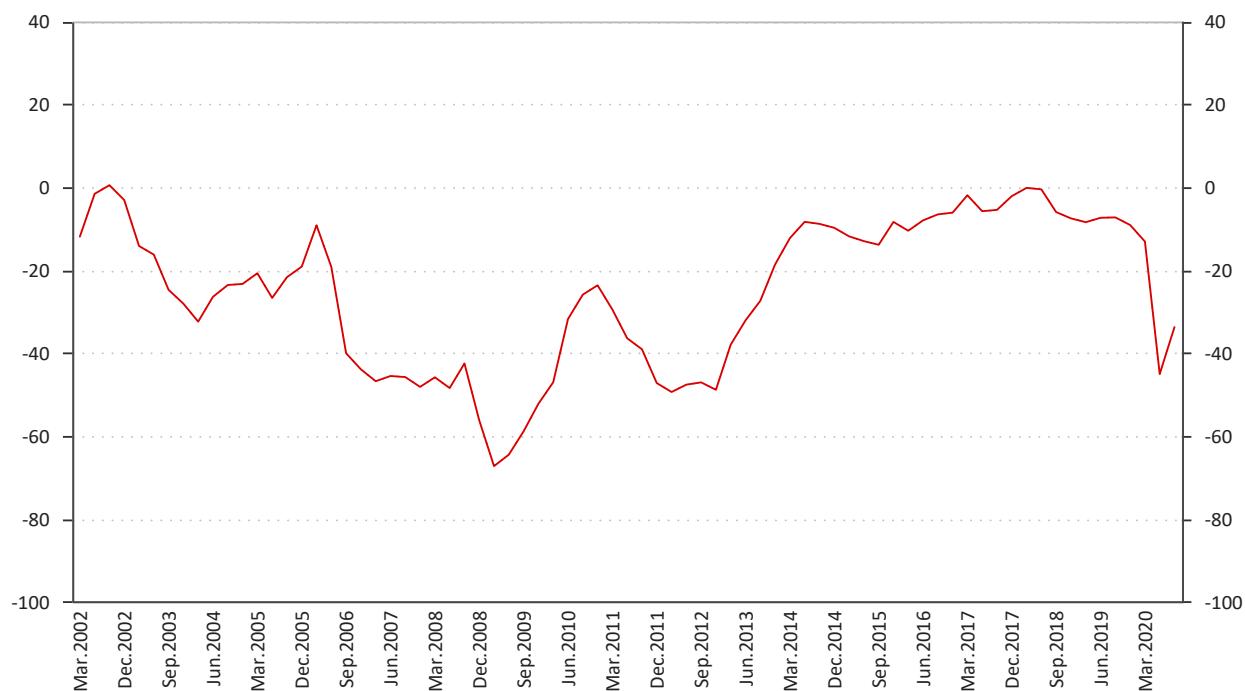


Source: MNB, HSCO.

24. Development of house prices

Source: HCSO

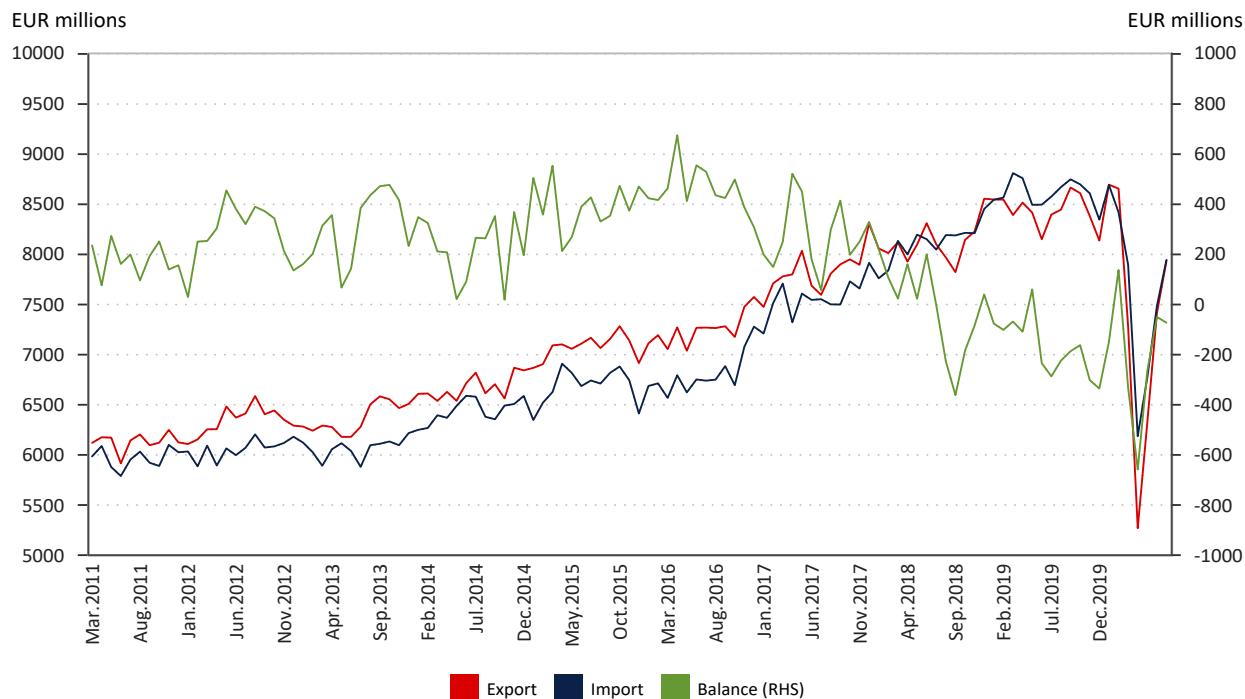
Note: 2010=100, inflation adjusted indices.

25. Household confidence index (reweighted)

Source: European Commission.

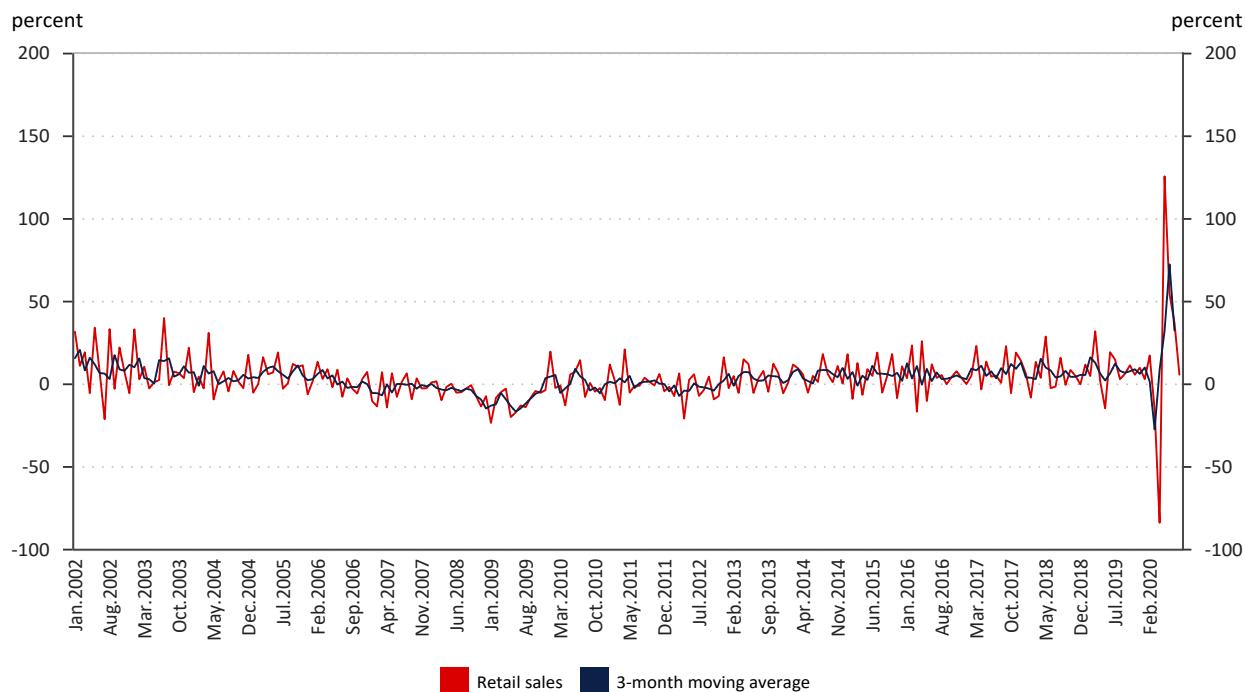
Note: Household confidence indicator is a composite indicator based on the ESI survey

26. Change in export and import volumes



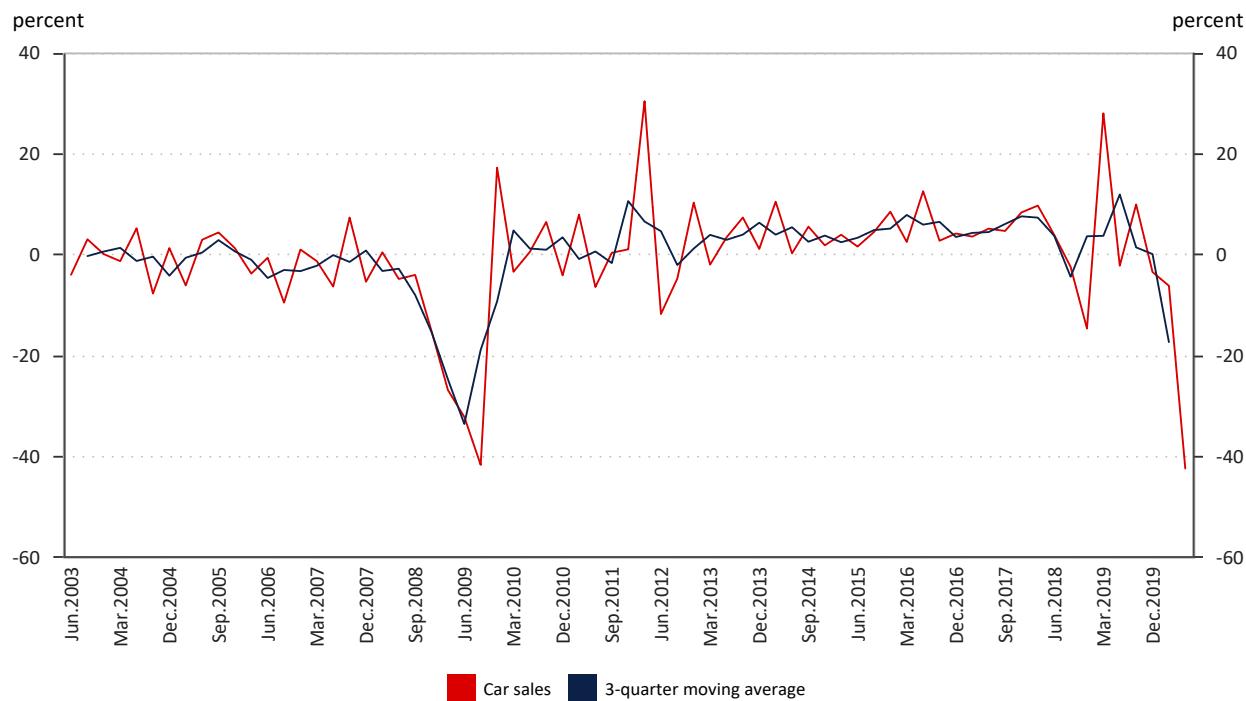
Source: HCSO, MNB calculation. Comment: Foreign trade was corrected due to slippage and missing items between specific months and the activity of VAT resident companies. The seasonal adjustment of the trade balance was done directly by MNB

27. Total volume of retail trade

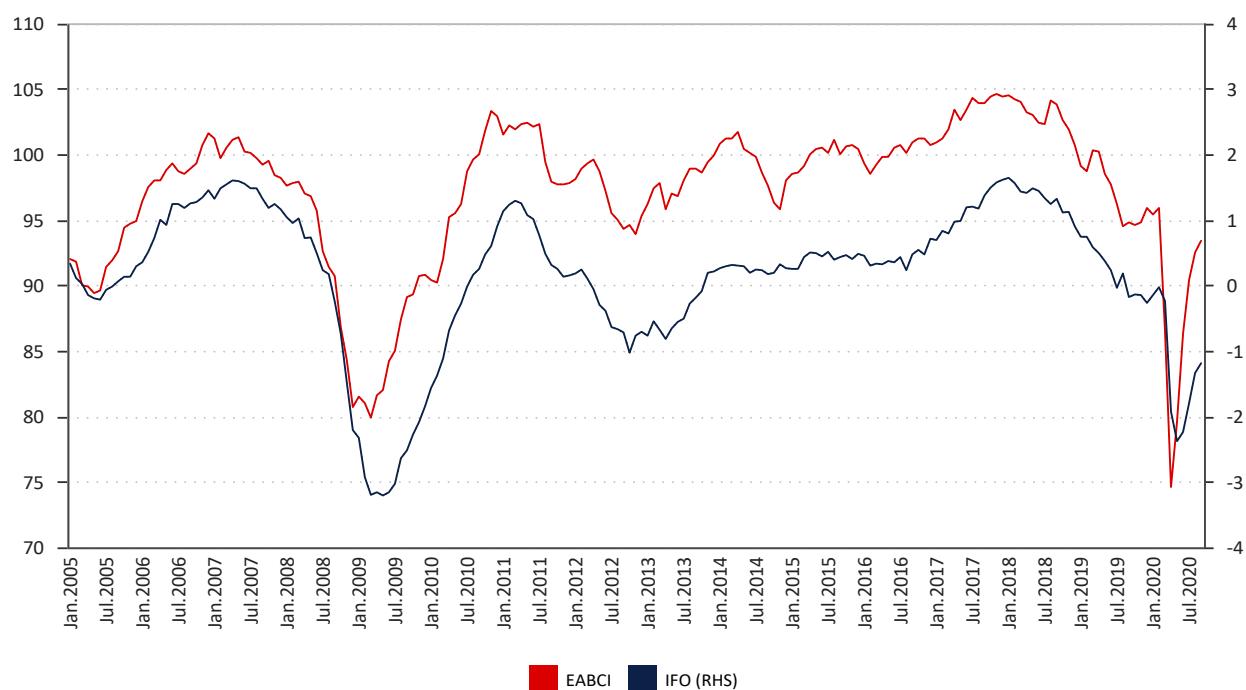


Source: HCSO.

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

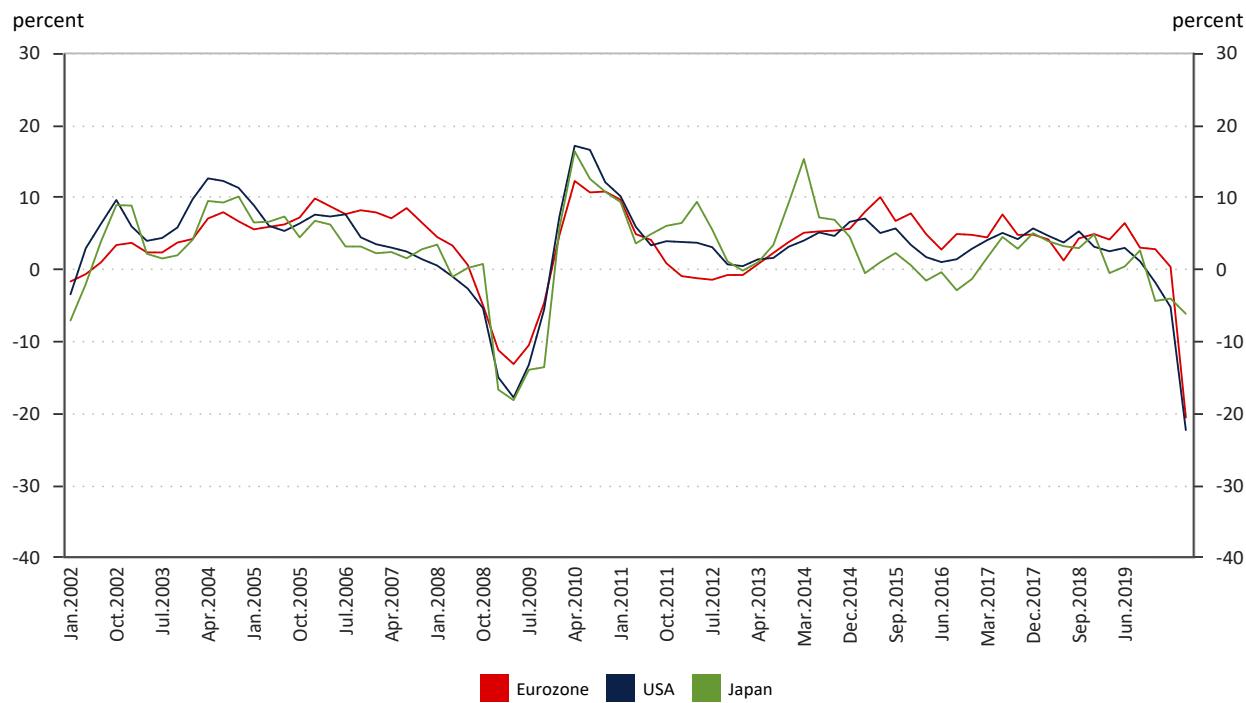
Source: ACEA.

29. Business climate indices in the EMU

Source: IFO; European Committee.

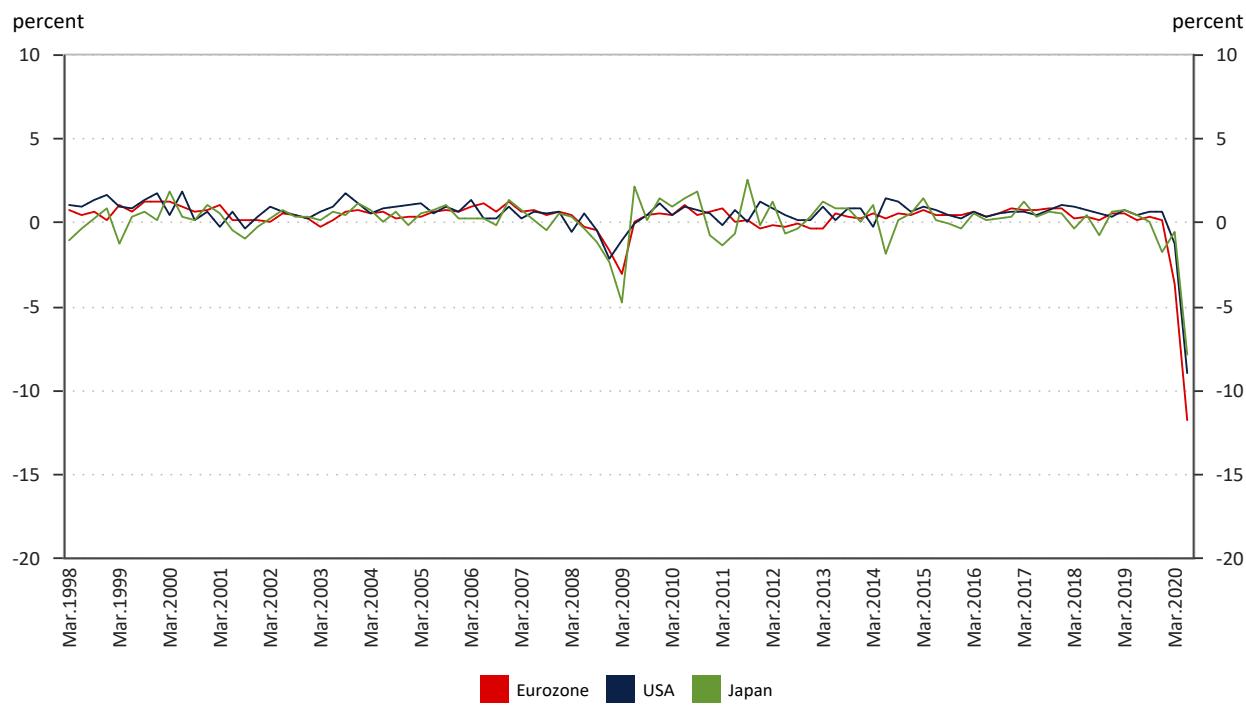
Note: IFO: Business Climate Index of the German Institut für Wirtschaftsforschung (Average of year 2000 = 100); EABCi: Business Climate Index of the European Committee (deviations from the long-run average), seasonally adjusted.

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



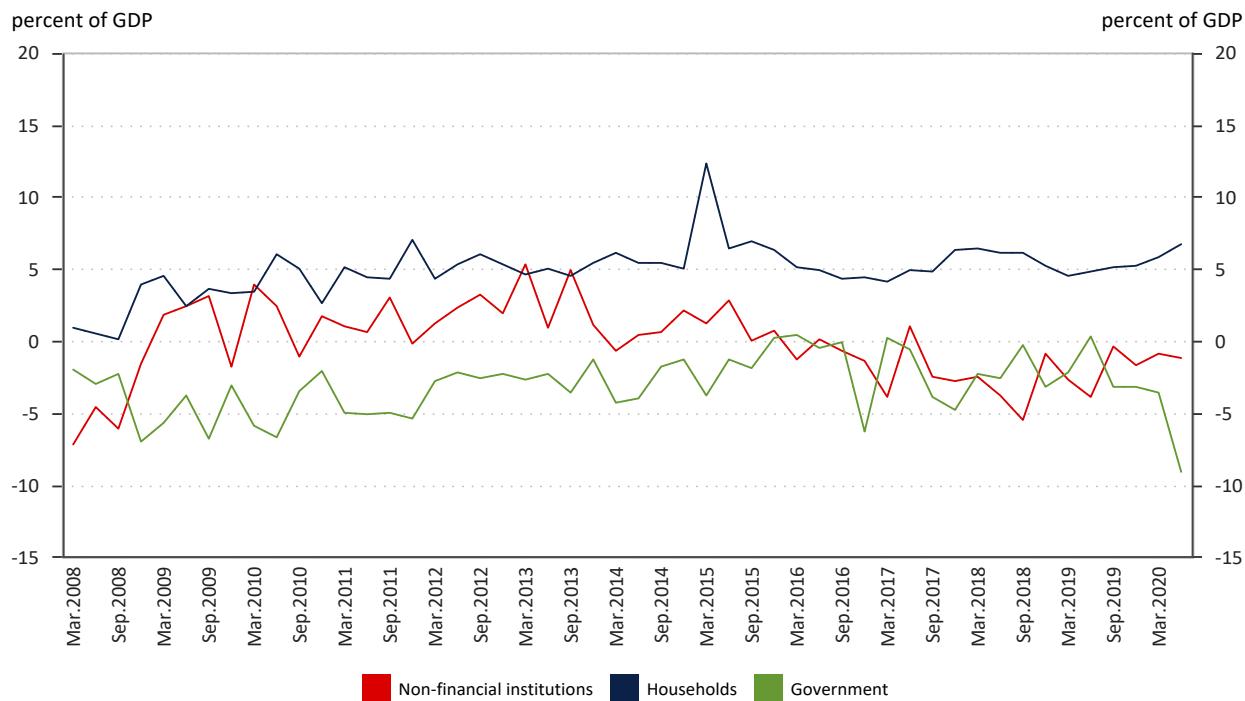
Source: Eurostat.

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



Source: Eurostat

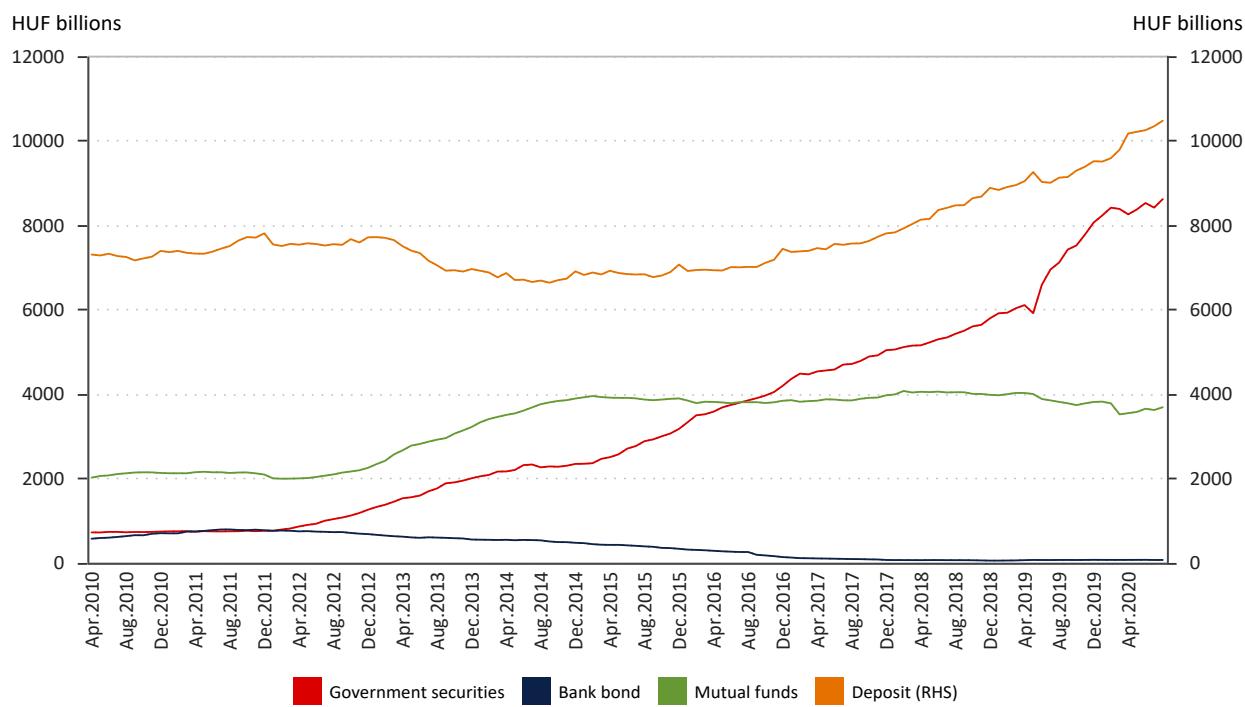
32. Net lending of domestic sectors



Source: MNB.

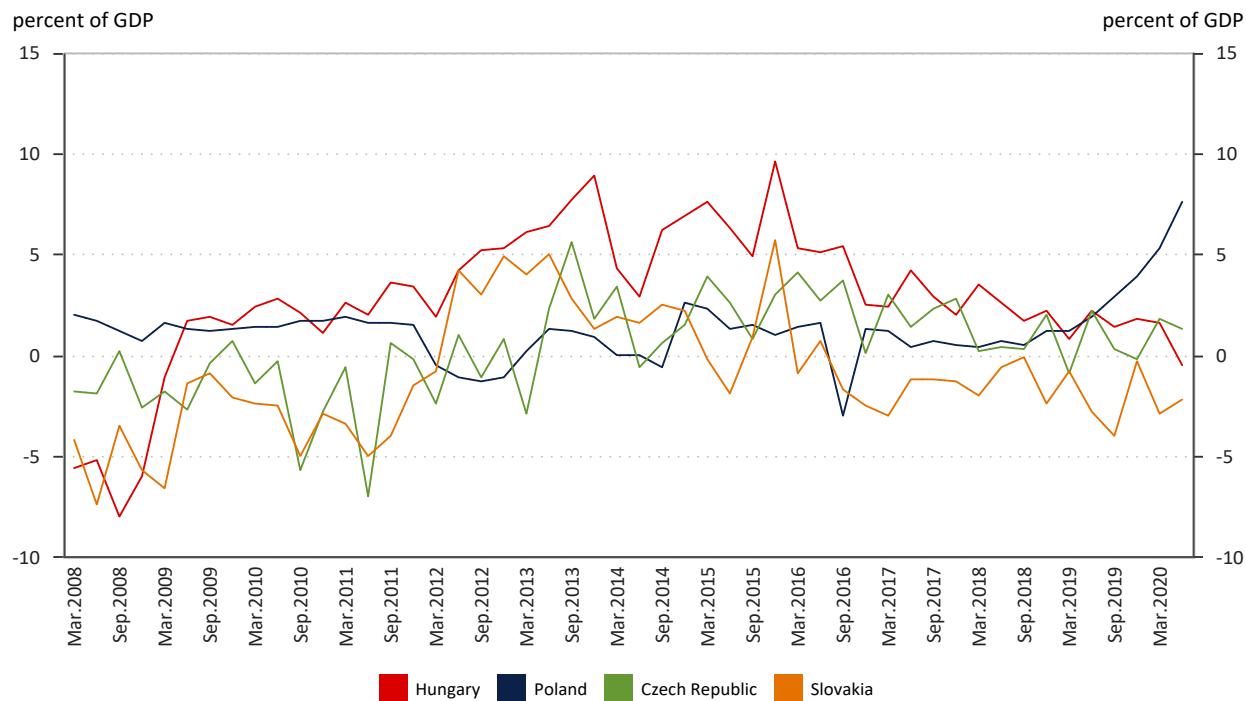
Note: Seasonally adjusted by MNB.

33. Main financial assets held by households



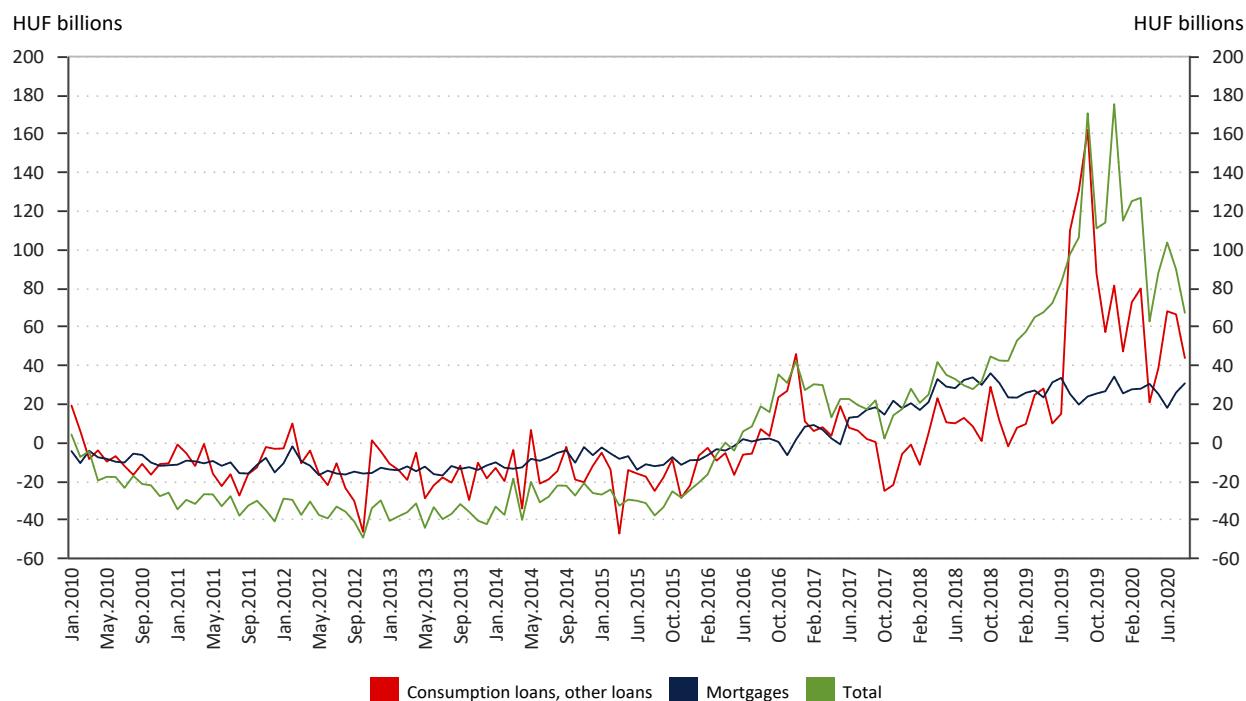
Source: MNB.

34. External financing capacity in the CEE countries



Source: MNB, Eurostat.

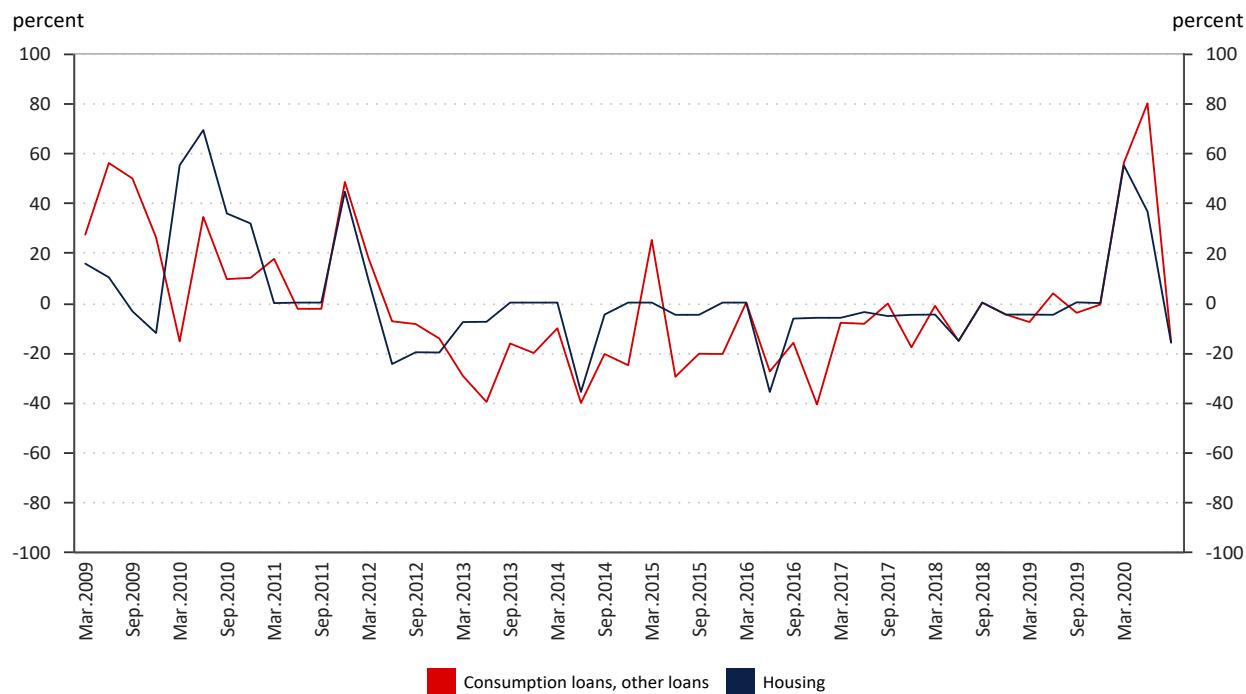
35. Net borrowing of the households



Source: MNB.

Notes: Figure showing underlying trends, adjusted for the impact of the forint conversion and settlement.

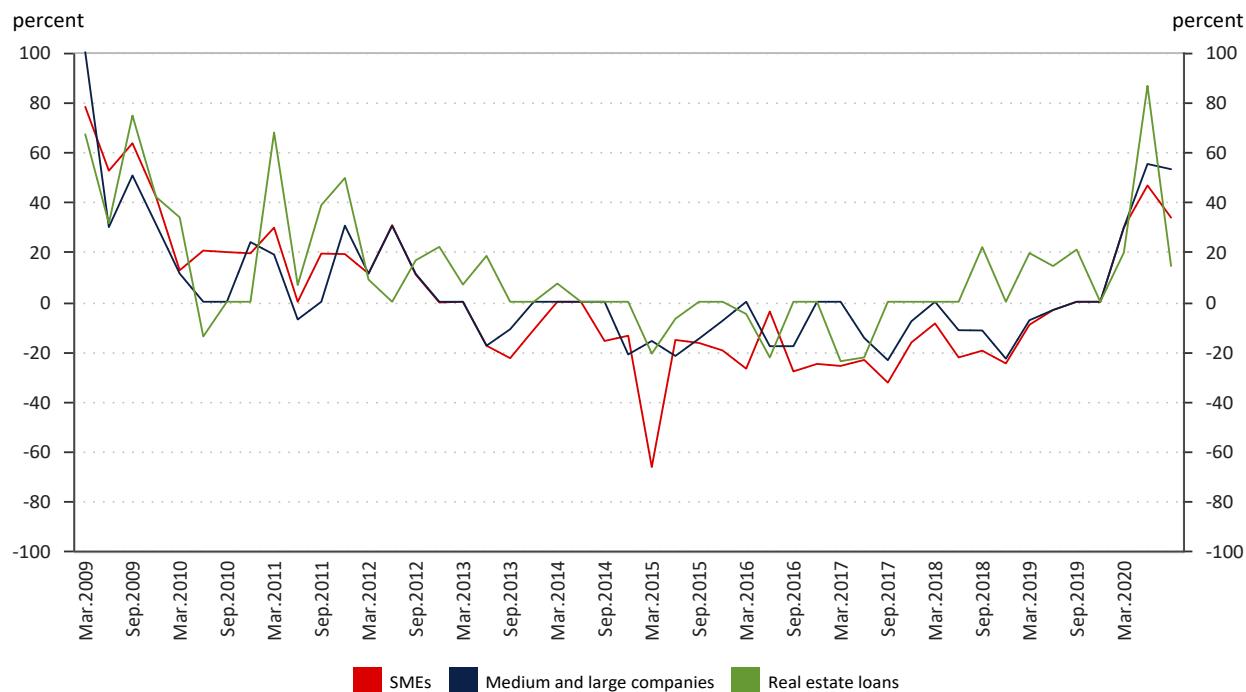
36. Creditworthiness standards and credit conditions in the household sector



Source: MNB

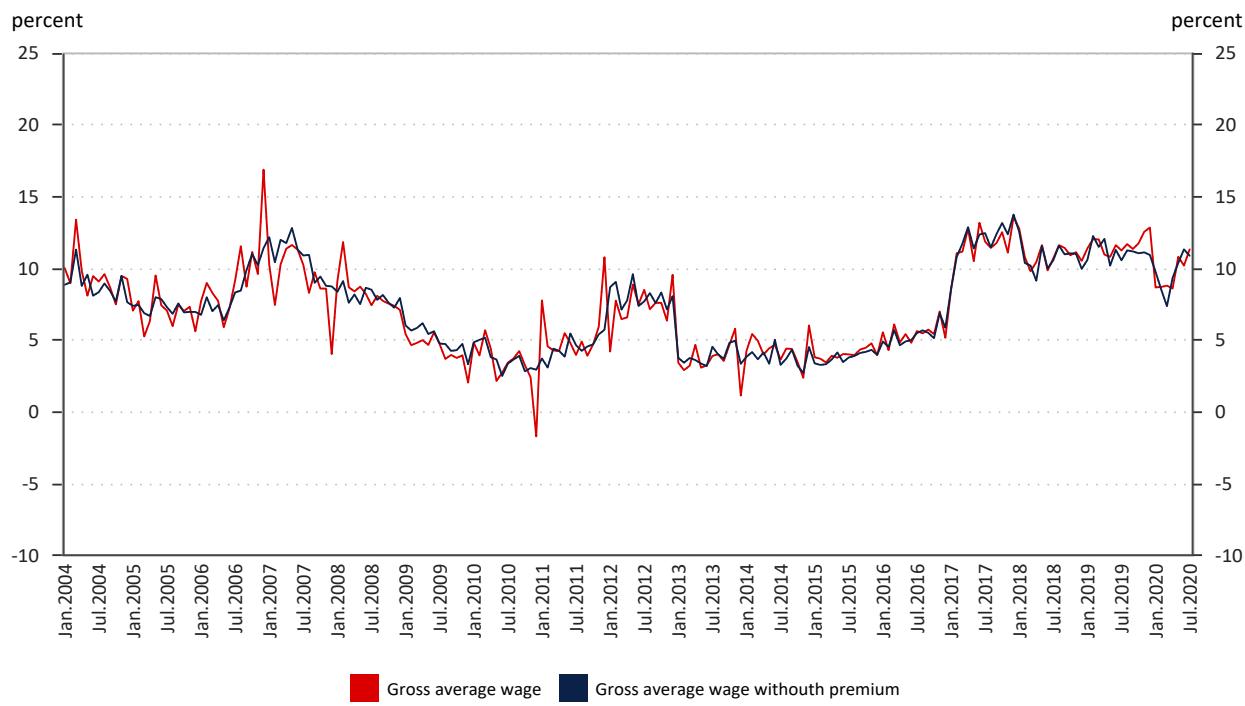
Note: credit conditions estimated by lending officers. Negative value indicates easing, positive indicates tightening compared to the last quarter (before 2009 to previous half a year). Last data is a forecast by MNB.

37. Creditworthiness standards and credit conditions in the corporate sector

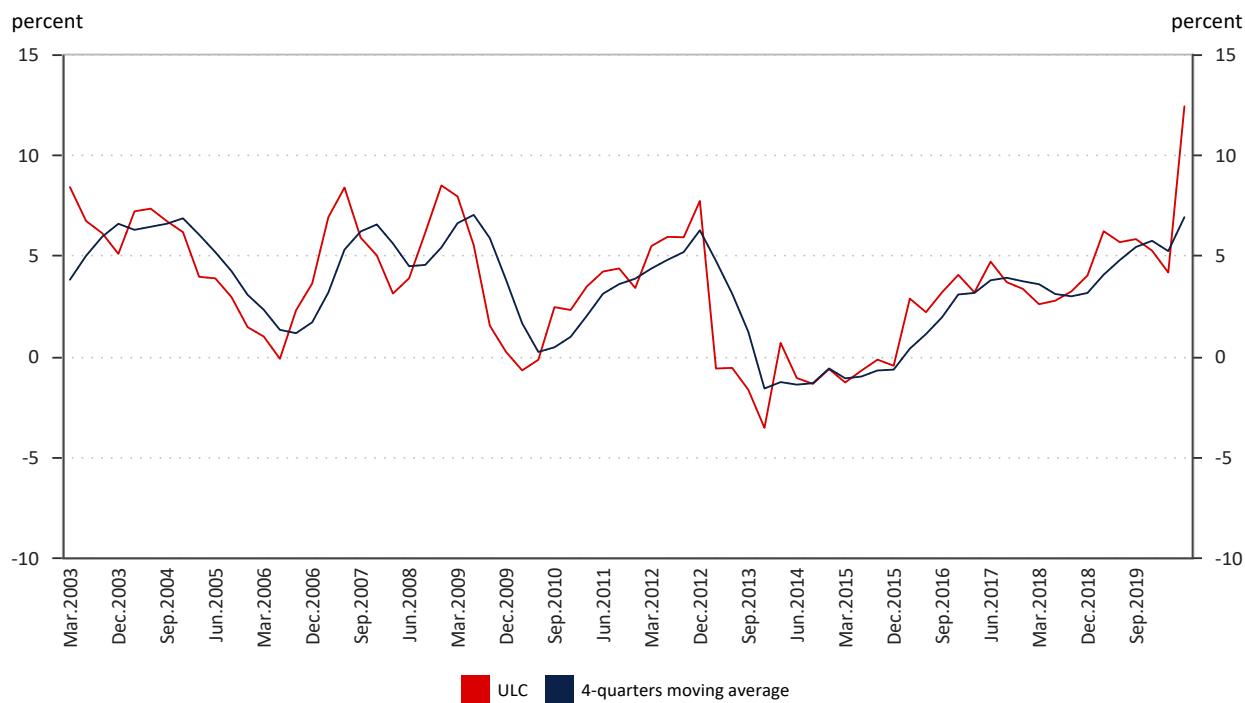


Source: MNB

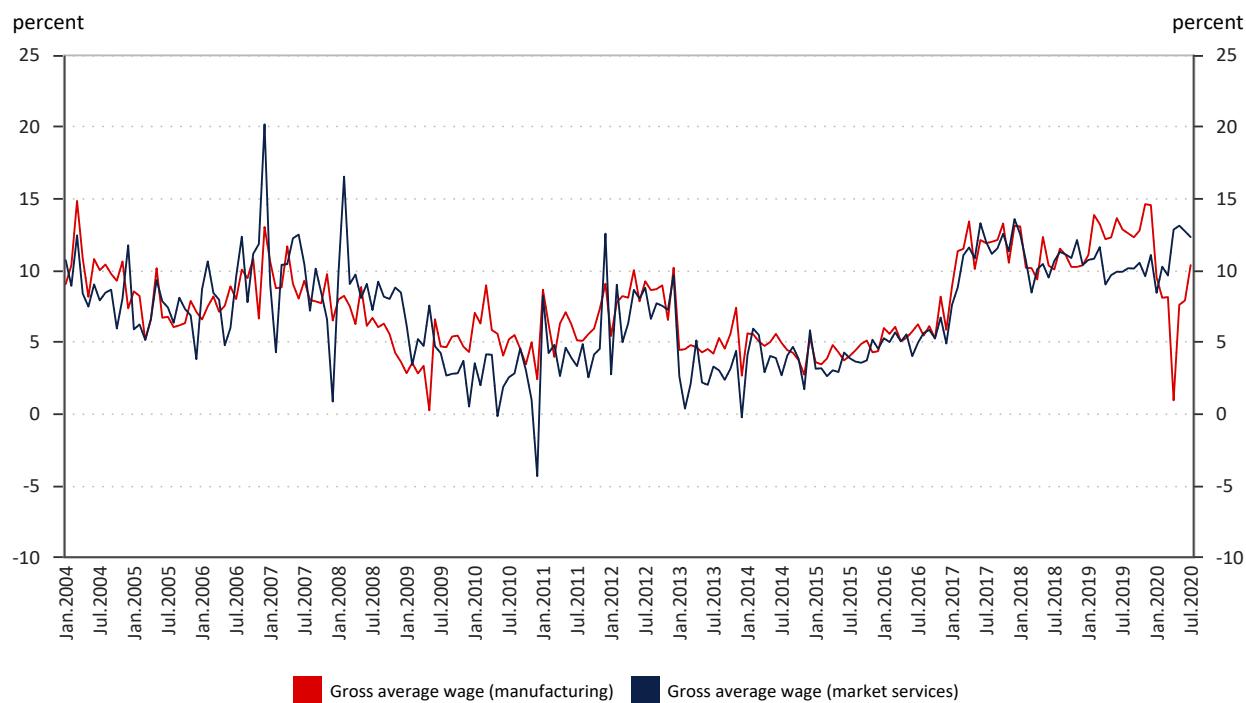
Note: credit conditions estimated by lending officers. Negative value indicates easing, positive indicates tightening compared to the last quarter (before 2009 to previous half a year). Last data is a forecast by MNB.

38. Wage growth in private sector

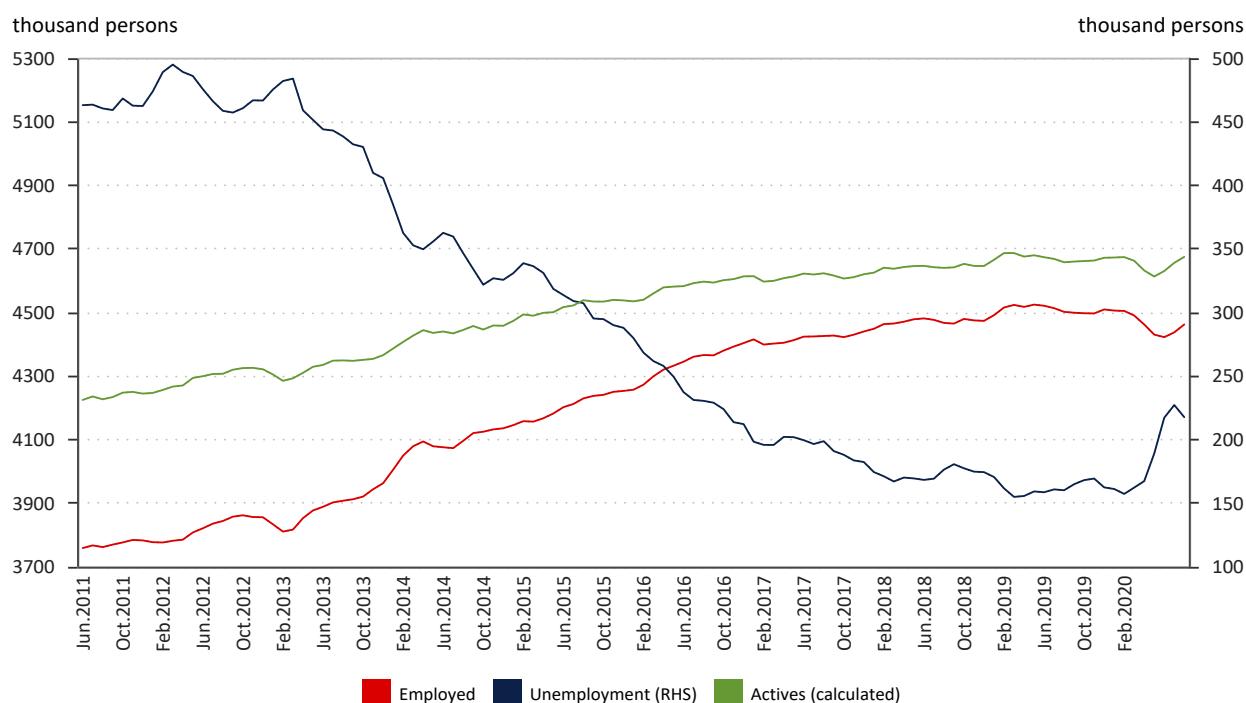
Source: HCSO, seasonally adjusted by MNB
Note: annual growth rates.

39. Unit labour cost in the private sector

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

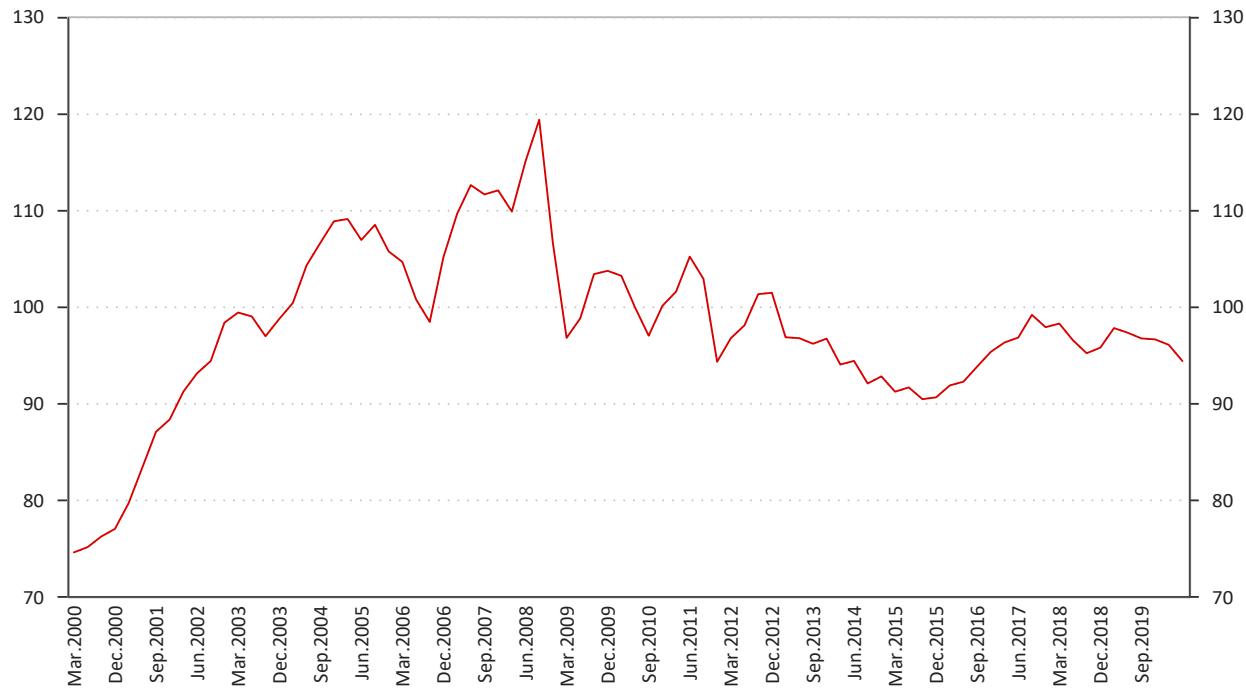
40. Wage growth in the manufacturing and market service sector

Source: MNB, HCSO.

41. Activity and unemployment

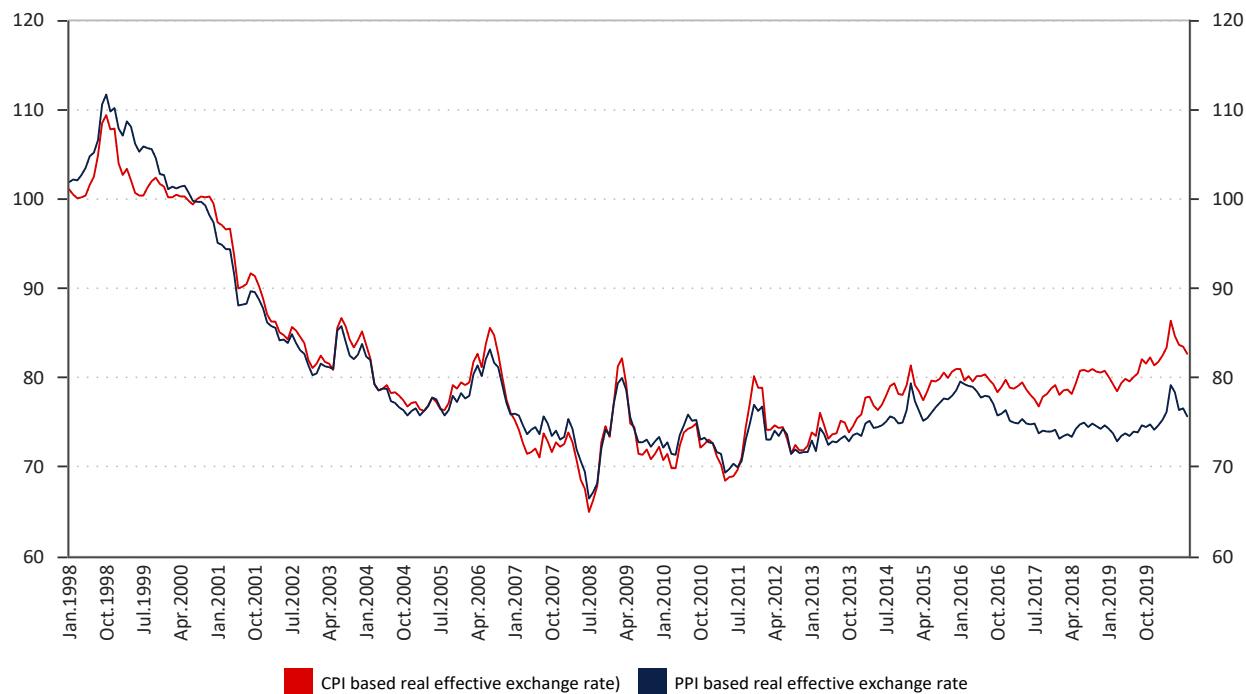
Source: HCSO.

Notes: levels, seasonally adjusted.

42. ULC based real effective exchange rate of the HUF

Source: Eurostat.

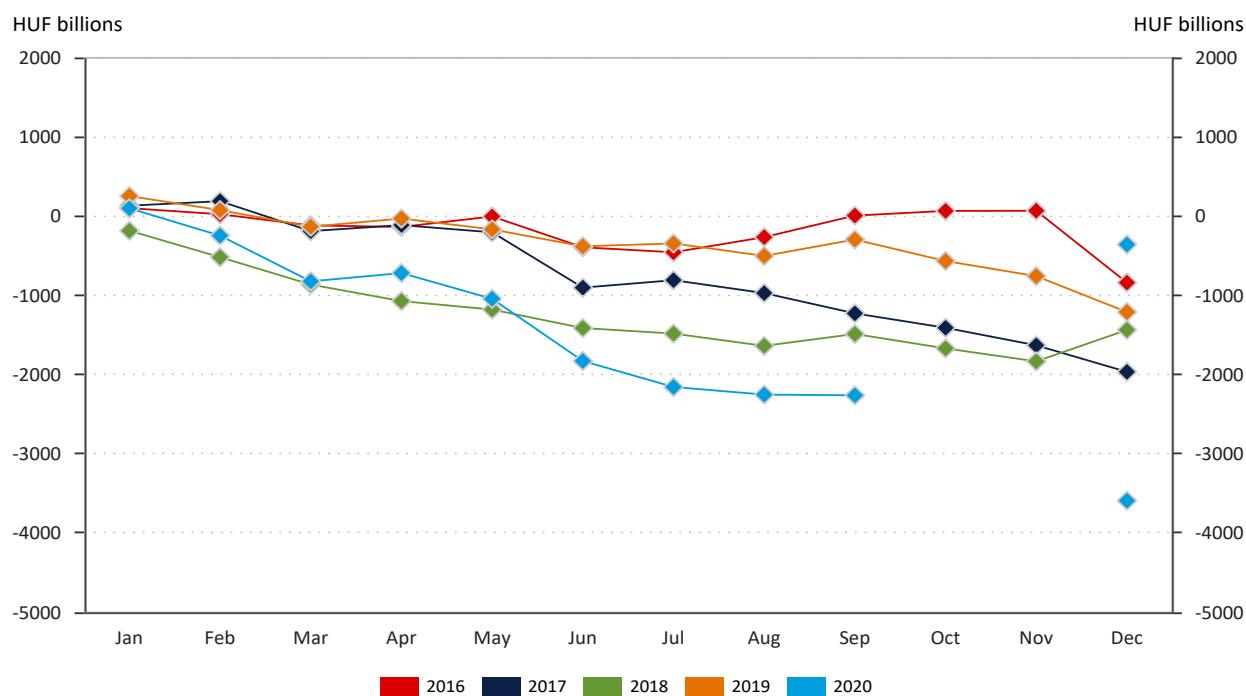
Note: average of year 2000 = 100%. Increase means real-effective appreciation of HUF.

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

Source: HCSO.

Note: average of year 2000 = 100%. Increase means real-effective depreciation of HUF.

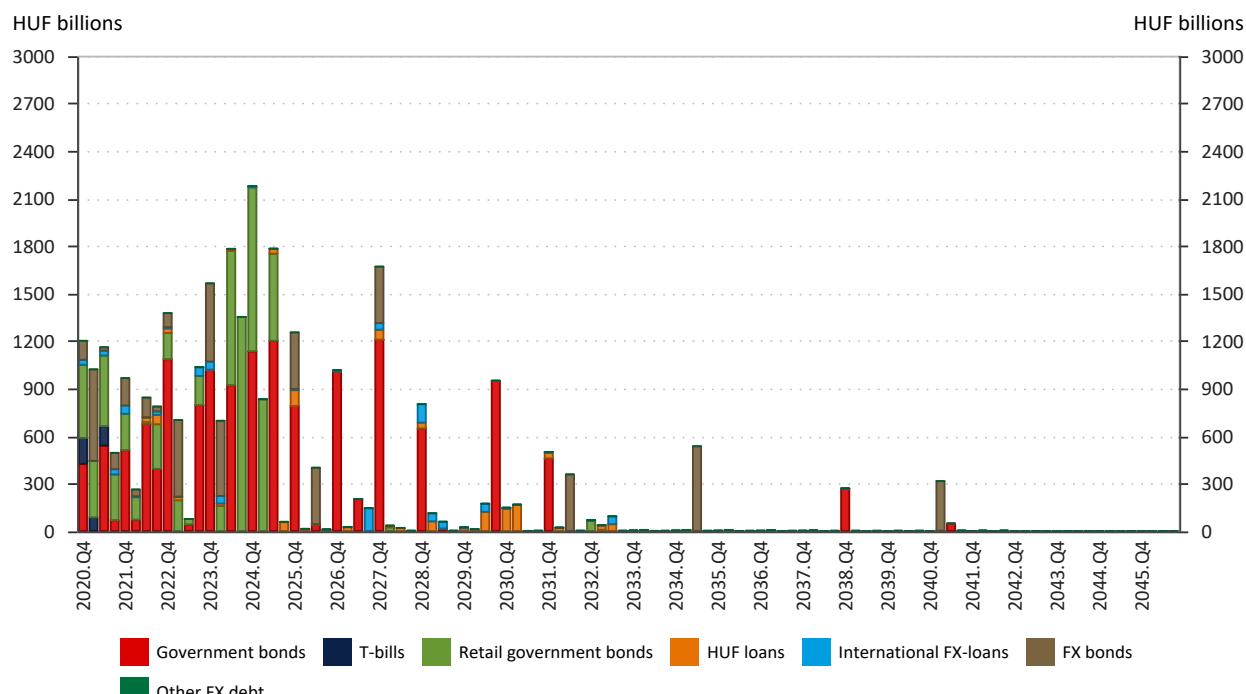
44. Monthly evolution of budget deficit



Source: Hungarian State Treasury

Note: Cumulated balance. For December 2020 the appropriation for cash-flow balance in the Budget Act is HUF -367 billion, while the financing plan of ÁKK at the end of August included a forecast of HUF -3600 billion.

45. Quarterly maturity structure of the government debt



Source: MNB, ÁKK.

Note: Redemptions in the recent quarter are included.

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

	2020	2021	2022
CPI (annual average growth rate, %)			
MNB (September 2020)	4.2 - 4.3	3.3 - 3.5	2.9
Consensus Economics (September 2020)	2.7 - 3.5 - 3.9	0.6 - 3.1 - 4.0	
European Commission (July 2020)	3.5	2.8	
IMF (April 2020)	3.3	3.2	
OECD (June 2020)	3.5	1.8 - 2.1	
Reuters survey (September 2020)	2.8 - 3.4 - 3.7	2.6 - 3.3 - 4.1	3.0 - 3.3 - 4.0
GDP (annual growth rate, %)			
MNB (September 2020)	(-6.8) - (-5.1)	4.4 - 6.8	4.5 - 5.7
Consensus Economics (September 2020)	(-7.8) - (-5.5) - (-3.5)	3.2 - 4.7 - 7.4	
European Commission (July 2020)	-7.0	6.0	
IMF (April 2020)	-3.1	4.2	
OECD (June 2020)	(-10.0) - (-8.0)	1.5 - 4.6	
Reuters survey (September 2020)	(-6.7) - (-5.5) - (-4.1)	3.5 - 4.8 - 7.2	3.0 - 4.0 - 5.4
Current account balance (as a percentage of GDP)			
MNB (September 2020)	(-1.3) - (-0.9)	(-1.0) - (-0.5)	(-0.9) - (-0.6)
European Commission (May 2020)	1.3	1.5	
IMF (April 2020)	-0.1	-0.6	
OECD (June 2020)	(-1.3) - (-1.2)	(-1.3) - (-0.4)	
Budget deficit (ESA-2010 method*, a percentage of GDP, with complete cancellation of free reserves)			
MNB (September 2020)	(-7.5) - (-7.0)	(-3.7) - (-2.9)	(-2.9) - (-2.2)
Consensus Economics (September 2020)	(-8.7) - (-6.3) - (-4.7)	(-7.1) - (-4.3) - (-2.9)	
European Commission (May 2020)	-5.2	-4.0	
IMF (April 2020)	-3.0	-1.6	
OECD (June 2020)	(-9.9) - (-8.8)	(-9.0) - (-7.3)	
Reuters survey (September 2020)	(-8.0) - (-6.8) - (-5.0)	(-5.0) - (-3.9) - (-3.2)	(-3.0) - (-2.7) - (-2.0)
Forecasts on the GDP growth rate of Hungary's trade partners (annual growth rate, %)			
MNB (September 2020)	(-8.6) - (-7.1)	3.7 - 6.4	3.1 - 4.3
ECB (September 2020)	(-10.0) - (-8.0) - (-7.2)	0.5 - 5.0 - 8.9	3.2 - 3.4 - 3.5
Consensus Economics (August 2020)**	-6.4	4.8	
European Commission (July 2020)**	-7.3	5.6	
IMF (June 2020)**	-7.3	5.1	

Explanation:

*The lower value of the forecast band shows the ESA balance if the Country Protection Fund is used, while the higher value shows the ESA balance if the Country Protection Fund is not used.

**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 forecasts for all partner countries.

Note:

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

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

47. Domestic financial developments

Overview

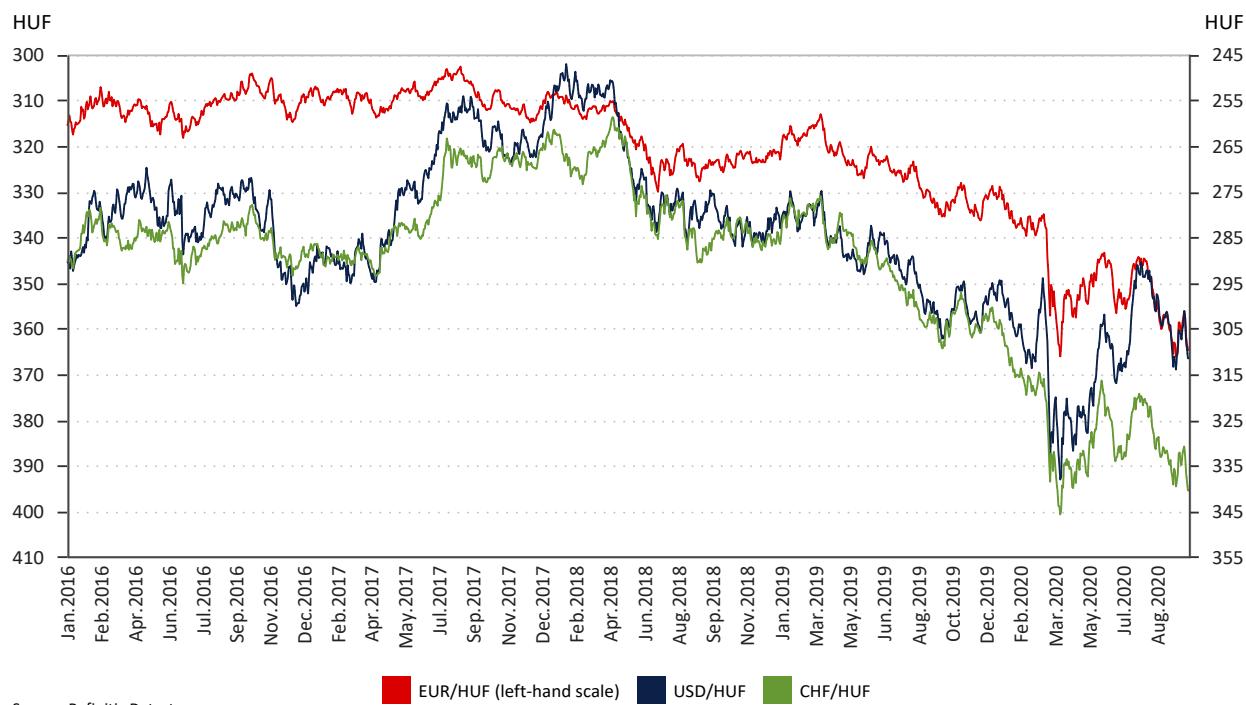
Indicator	One month ago	One week ago	Current
HUF/EUR spot exchange rate	357.9	357.0	364.6
Skewness of expectations on HUF/EUR exchange rate	1.05	1.13	1.12
HUF-positions of foreign investors (HUF billions)	-2867	-2922	-2938
Forward positions of domestic investors (HUF billions)	1289	1302	1296
MNB base rate (%)	0.60	0.60	0.60
Expected short-term interbank rate at the end of the year (%)*	0.77	0.96	0.89
3-months interbank rate (%)	0.66	0.77	0.81
3x6 FRA rate (%)	0.71	0.85	0.92
3 month T-bill yield (%)	0.33	0.45	0.44
5 year T-bond yield (%)	1.73	1.69	1.71
Slope of yield curve (10Y-1Y, bp)	183	148	155
O/N FX-swap spread (bp)	11	47	11
3-month FX-swap spread (bp)	10	5	2
5-year FX-swap spread (bp)	0	-2	-4
5-year CDS spread (bp)	61	67	64
5x5 government bond spread (bp)**	222	210	227
Average spread of USD-denominated government bonds (bp)	114	118	120
Foreign holdings of HUF-government securities (HUF billion)	4165	4283	4373

Notes:

* Based on forward yield curve.

** Over German yield.

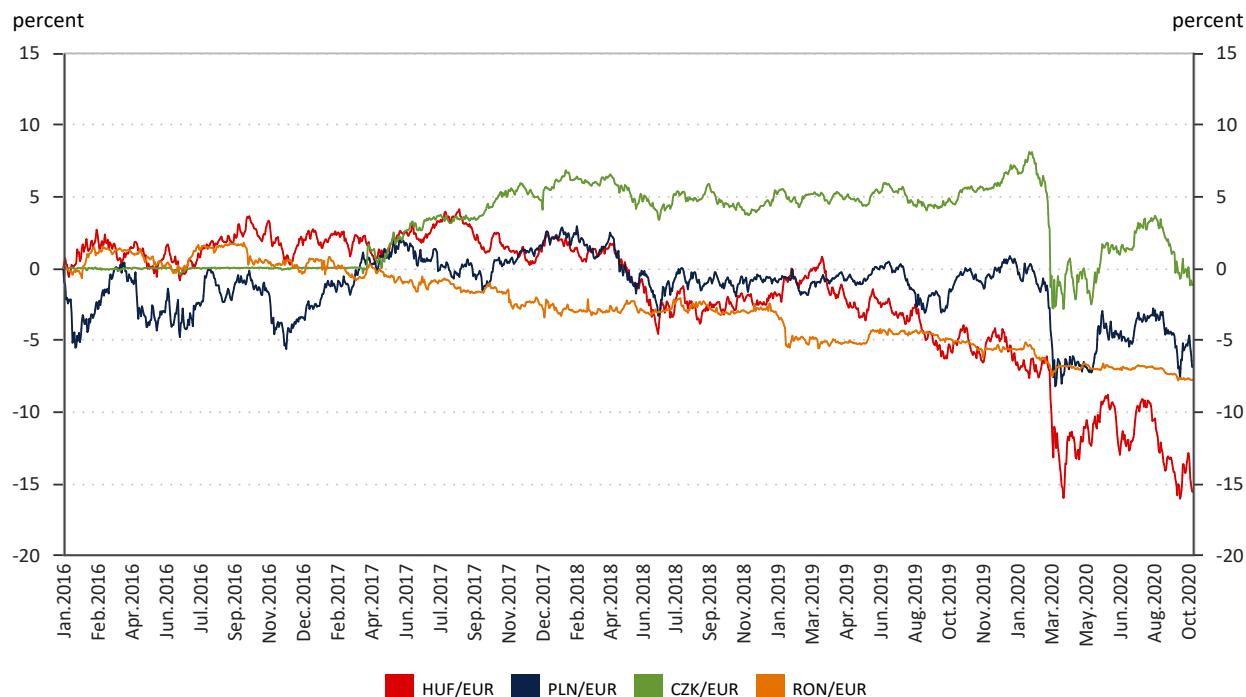
48. Developments in HUF exchange rate



49. Developments in HUF exchange rate (last month)



50. Emerging markets exchange rate



Source: Refinitiv

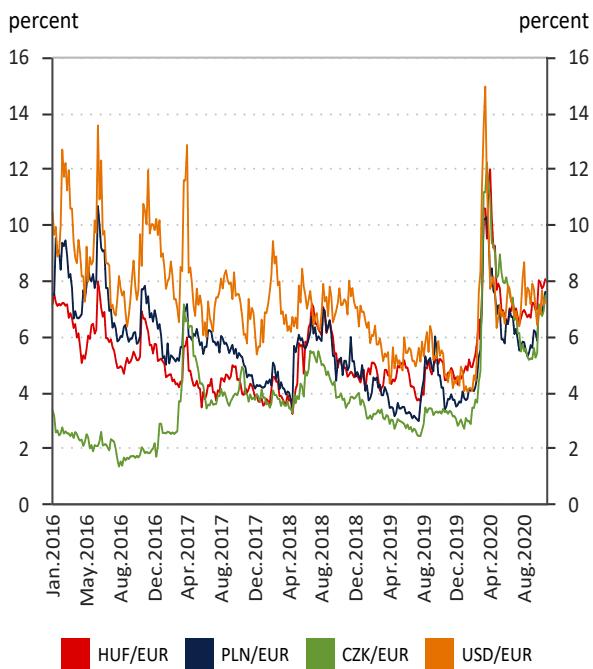
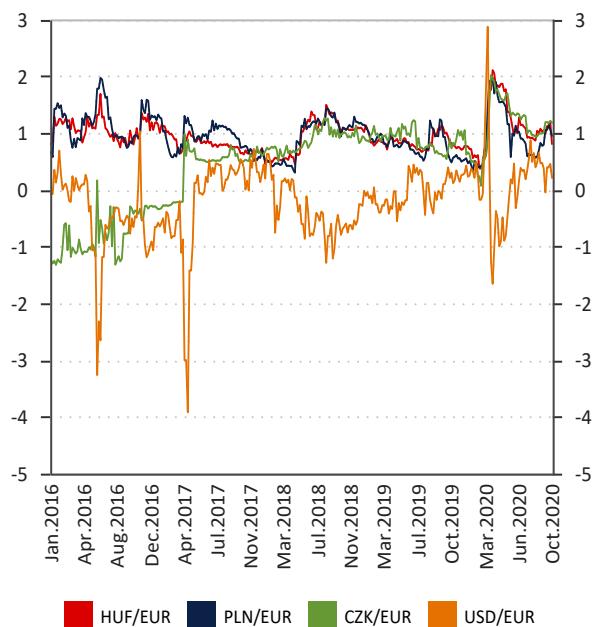
Note: cumulative change. Positive values mean appreciation.

51. Emerging markets exchange rate (last month)

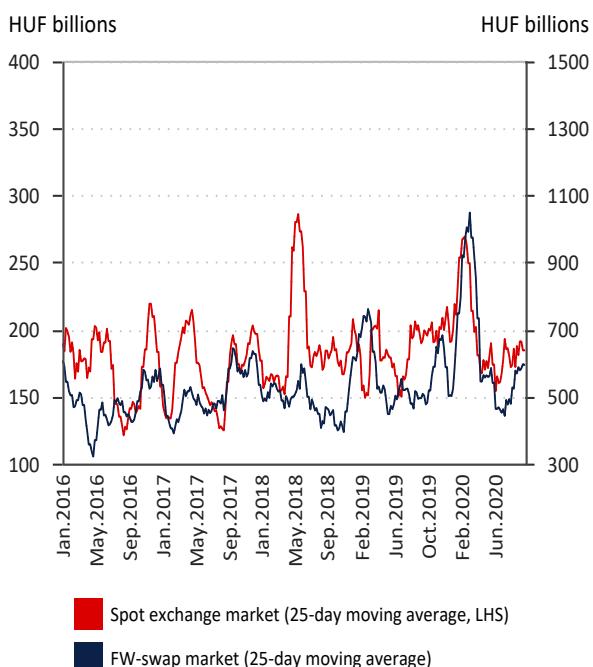
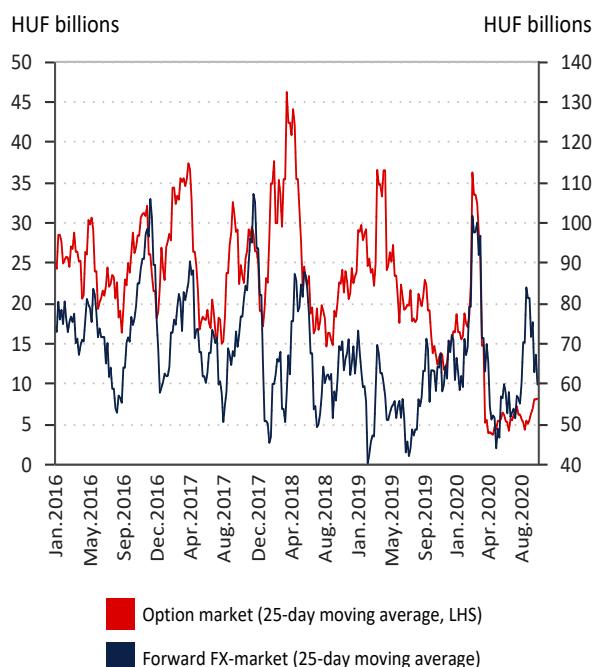


Source: Refinitiv.

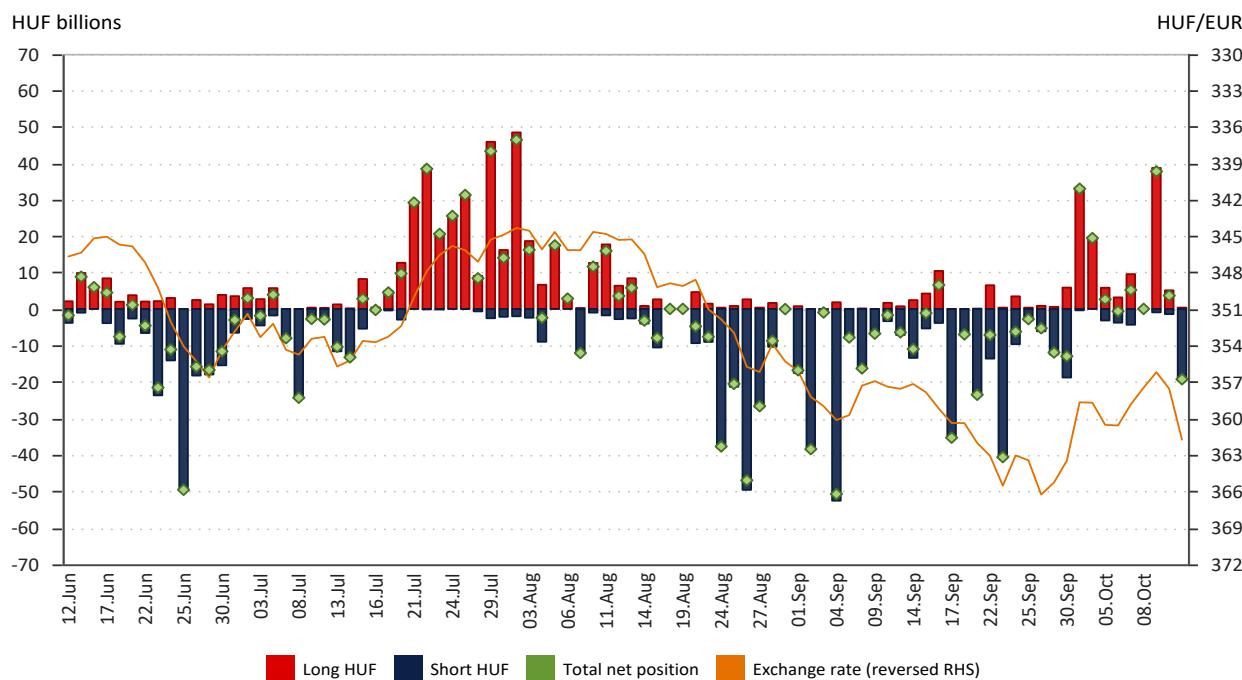
Note: cumulative change, negative value means depreciation of the local currency.

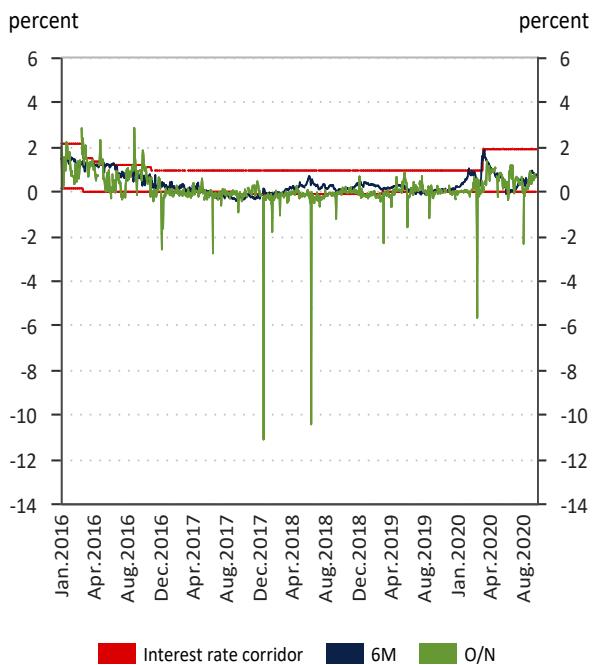
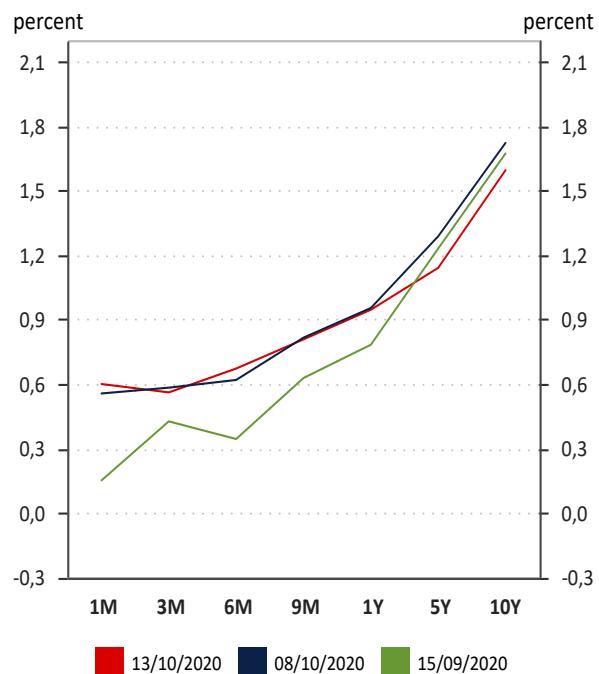
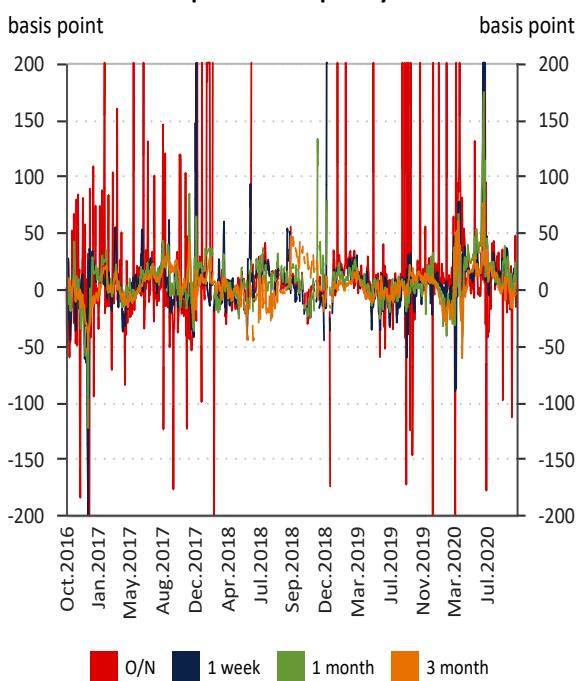
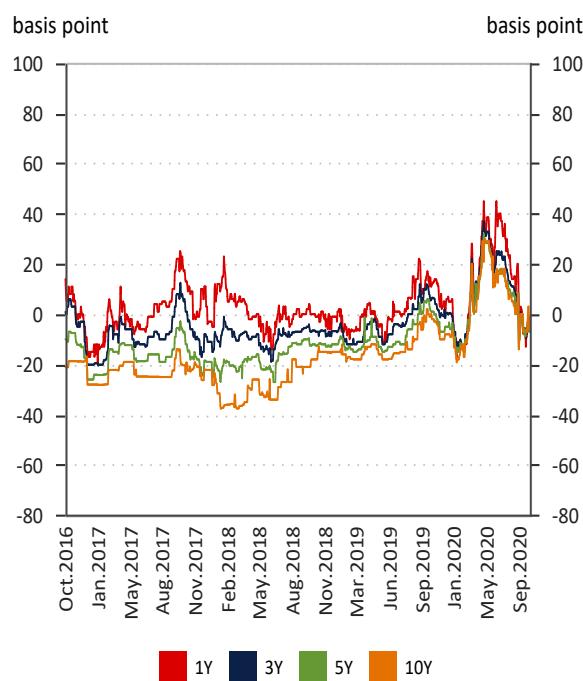
52. Volatility of exchange rate expectations**53. Skewness of exchange rate expectations**

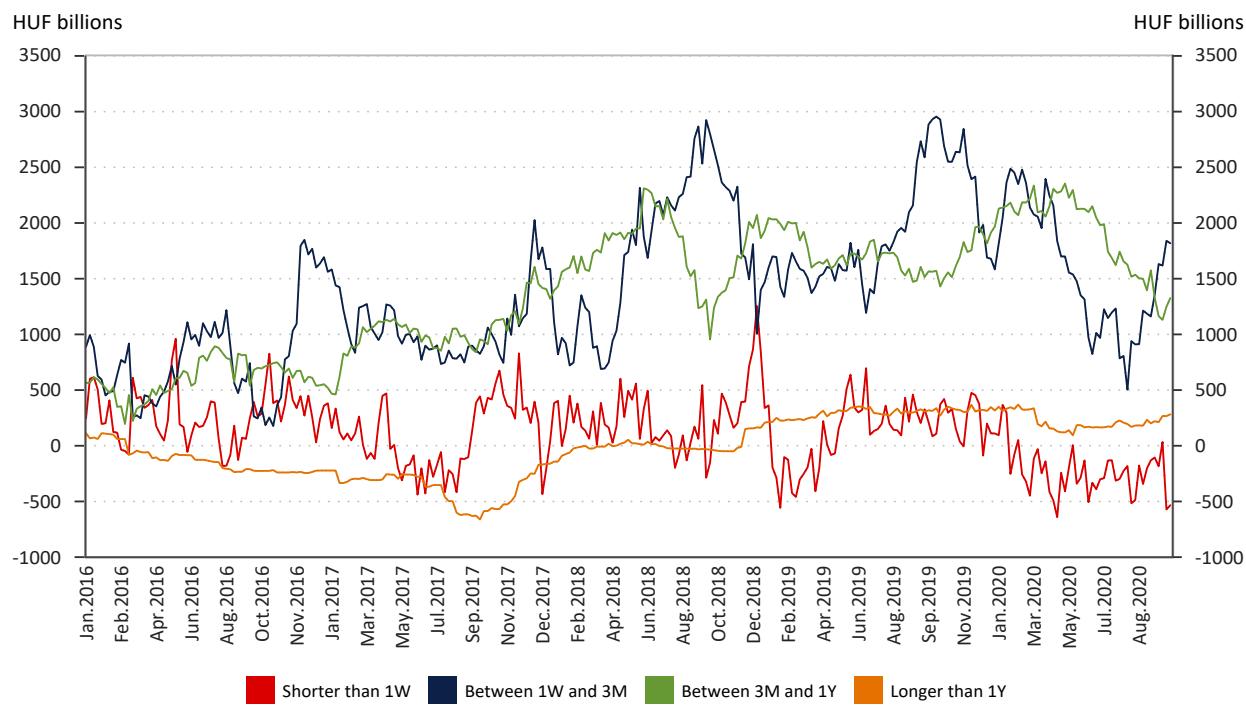
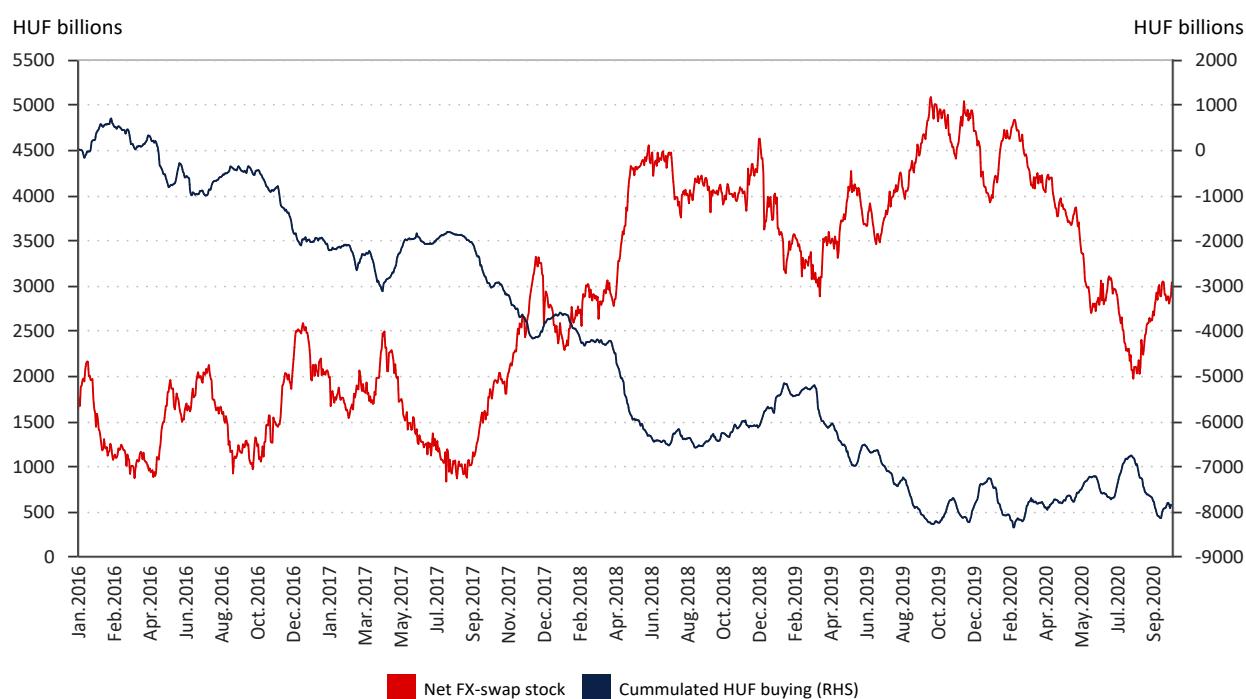
Source: Bloomberg
Notes: based on option quotes for 1-month 2SD risk reversal; skewness=RR/Volatility*10. Risk reversal can be regarded as a nominal indicator for the skewness of the distribution of exchange rate expectations, while skewness eliminates the effect of changes in volatility.

54. Turnover on the spot and the FX-swap market**55. Turnover on the forward and option market**

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

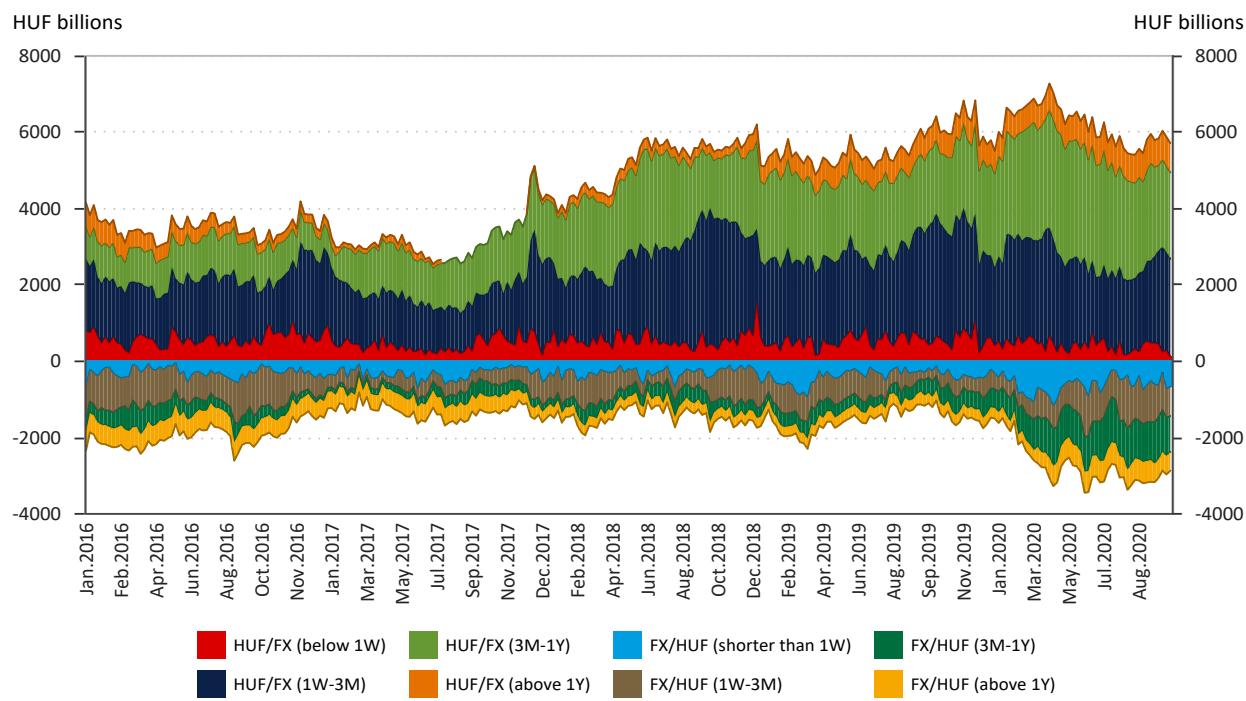
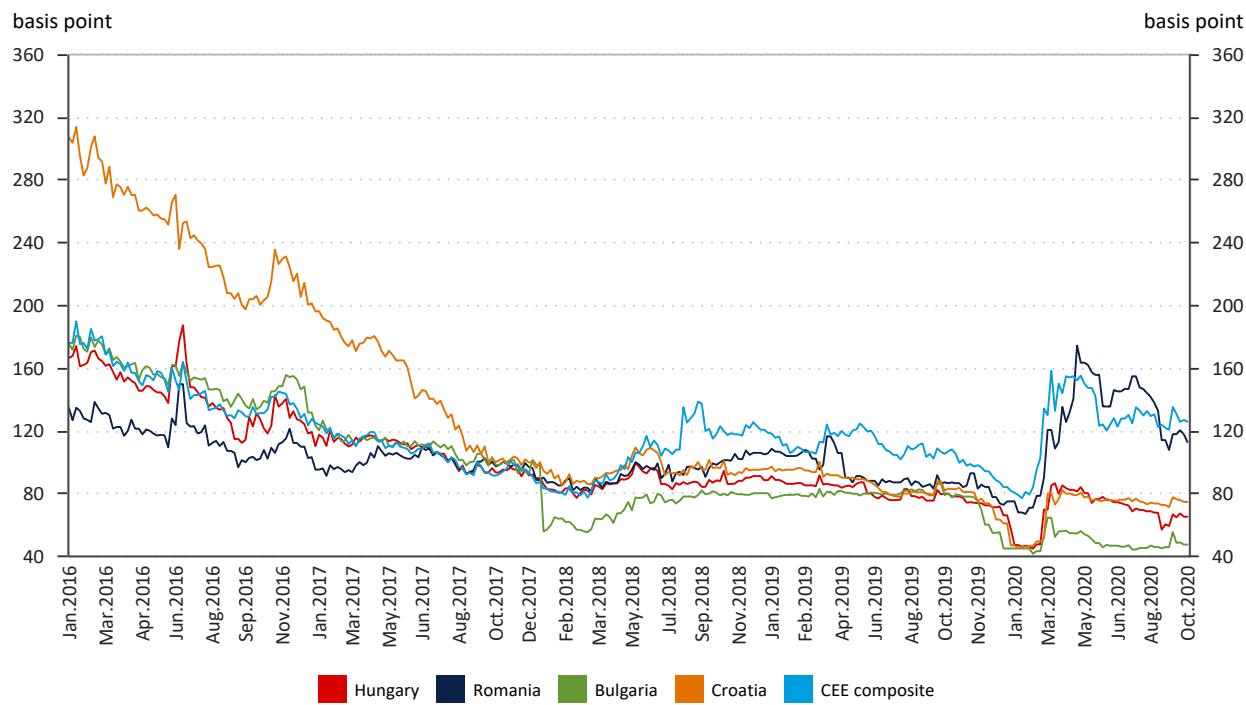


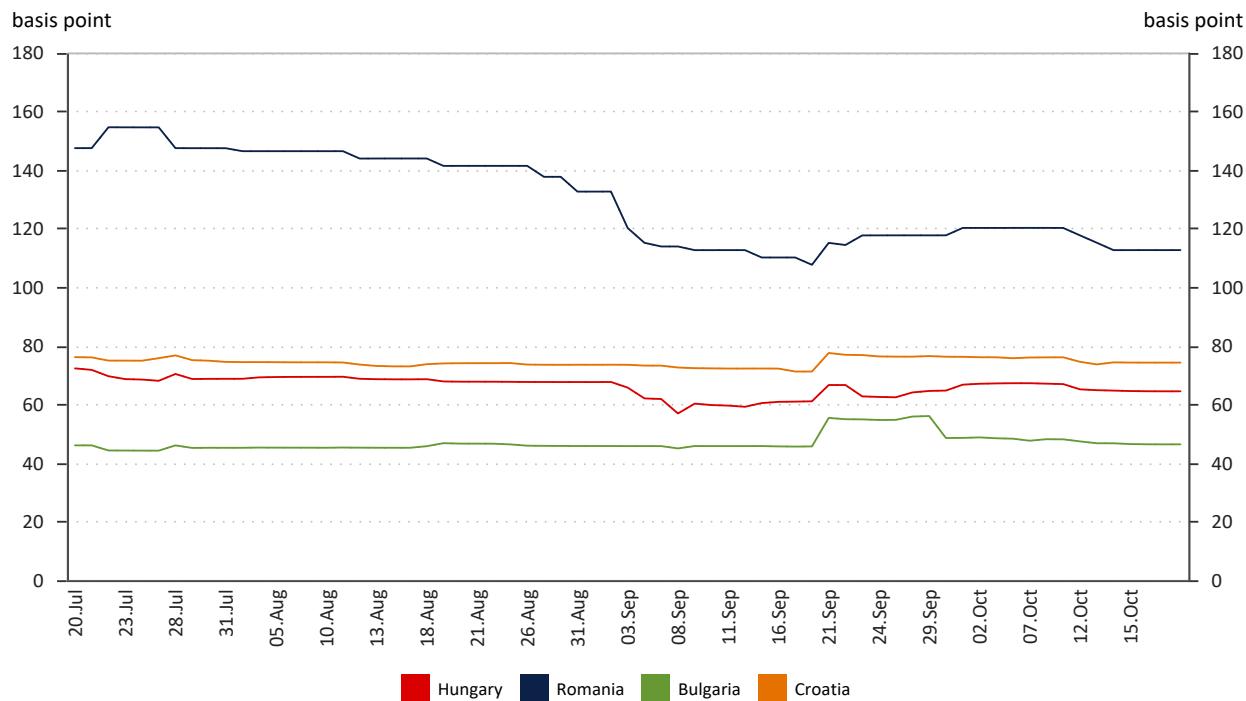
59. Implied HUF rates on FX-swap market**60. Implied yield curve on FX-swap markets****61. Difference between short-term interbank yields and FX-swap market implied yields****62. Development of the EUR/HUF basis swap spread**

63. Net FX-swap stock of non-residents by maturity**64. Forint FX-swap stock and cumulated HUF purchase of non-residents**

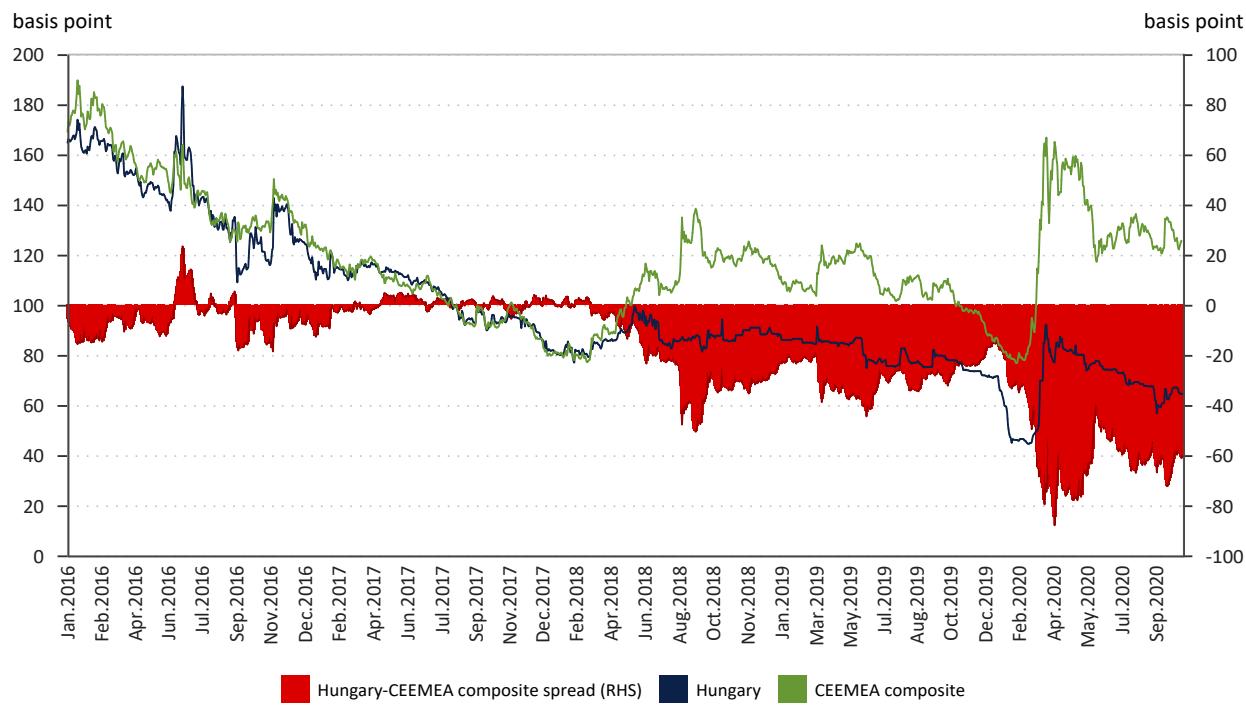
Source: MNB

Notes: Based on the daily FX reports of the transactions with non-residents of credit institutions. An increase in the net swap stock stands for swaps with an excess of swap transactions with long forint spot leg, while a decrease stands for swaps with an excess of swap stock with short forint spot leg.

65. Gross FX-swap stocks of foreign investors by maturity**66. 5 year sovereign CDS spreads in CEE**

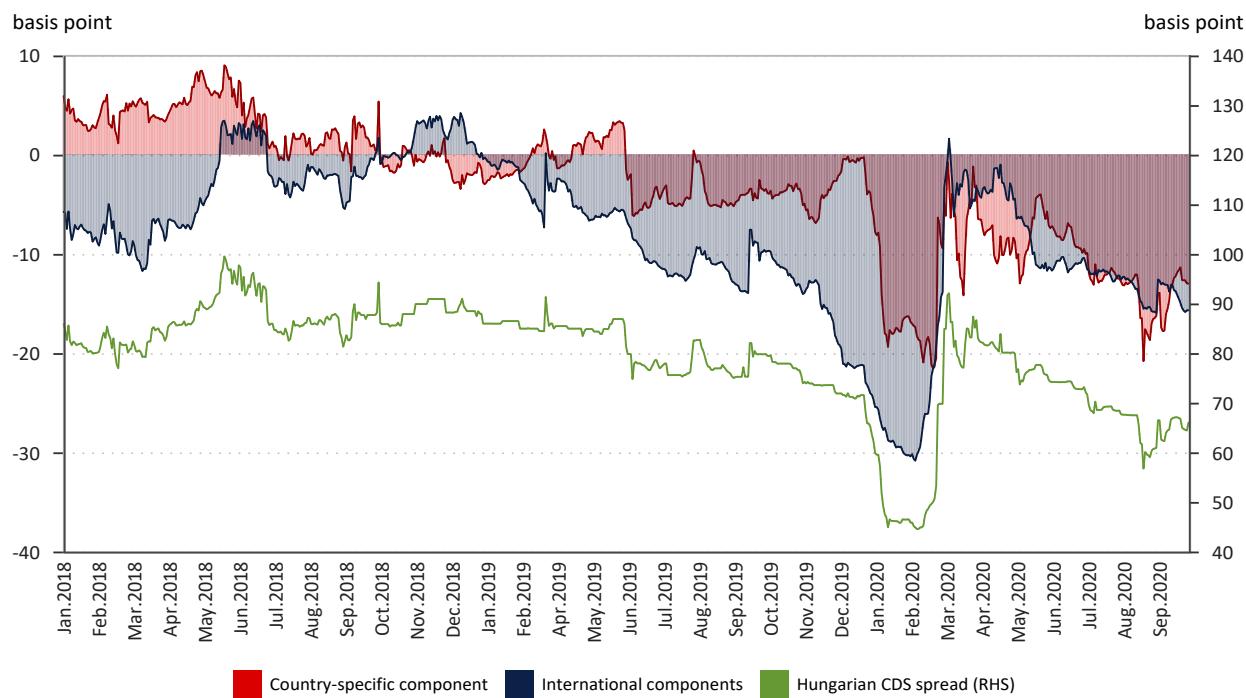
67. 5 year sovereign CDS spreads in CEE (last months)

Source: Refinitiv.

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

Source: Refinitiv.

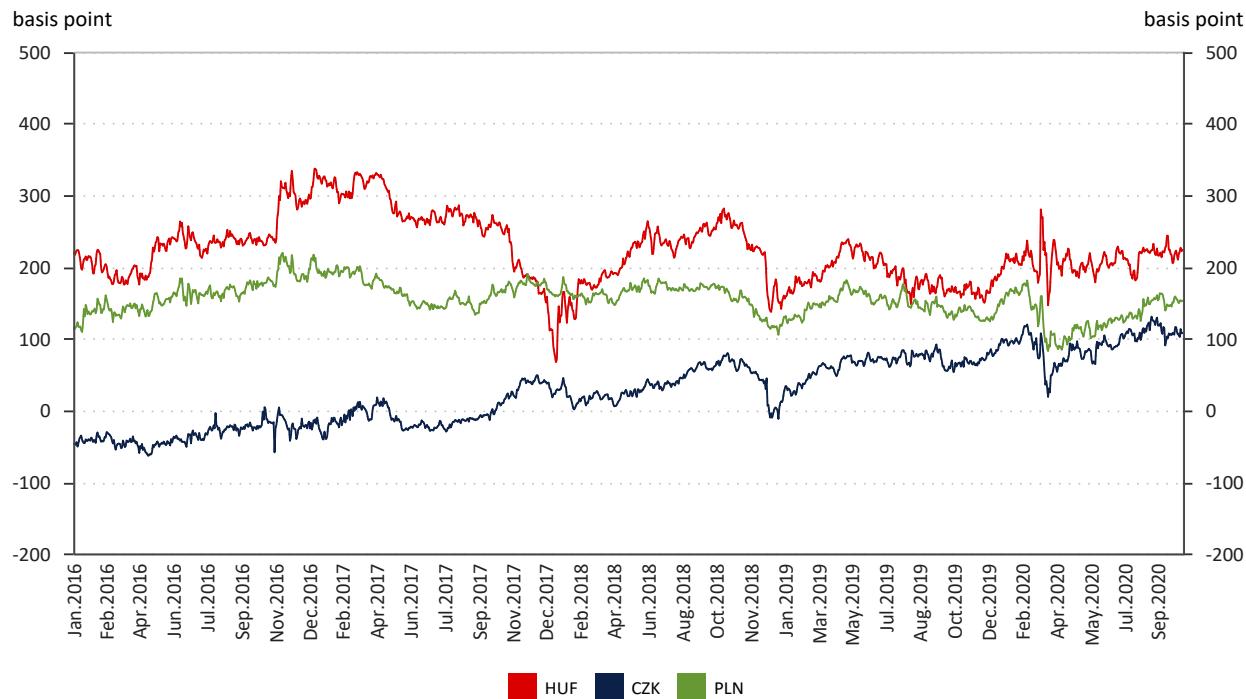
69. Components of Hungarian 5 year sovereign CDS



Source: Bloomberg

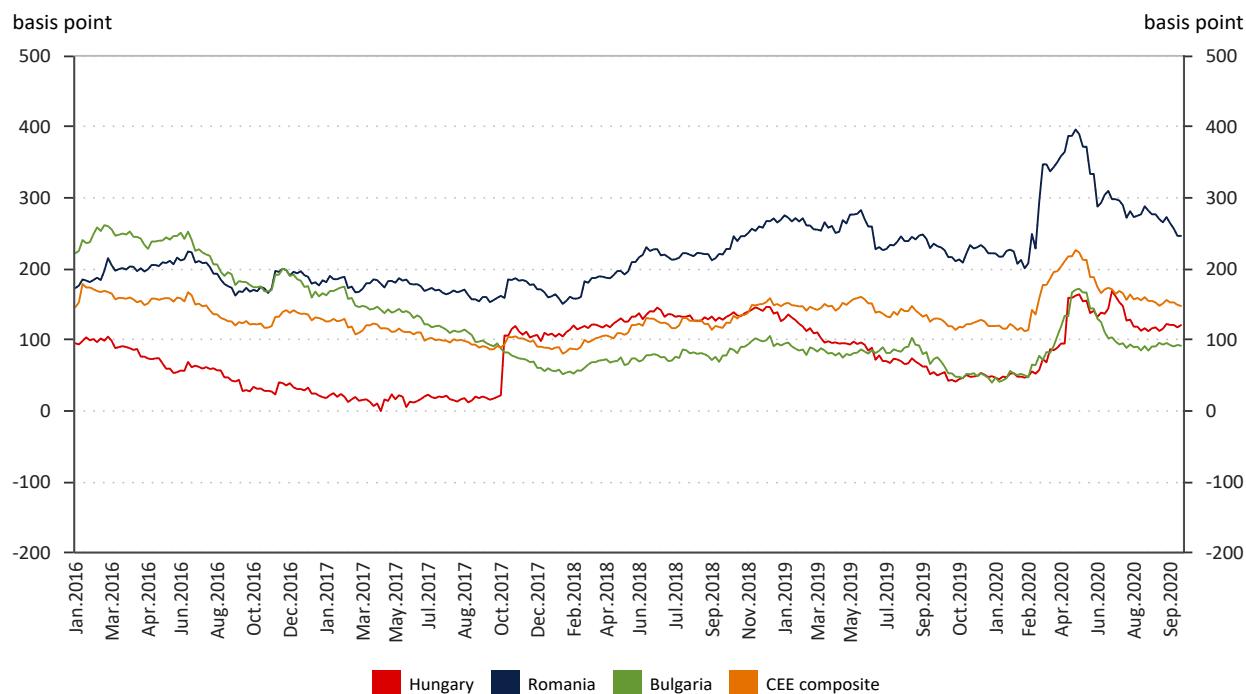
Note: based on factor analysis on daily CDS spread changes with volatility calculated on half-year windows. Cumulated series. Increases/decreases of component time series denote contributions to CDS spread increases/decreases.

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



Note: Based on swap rates by Refinitiv

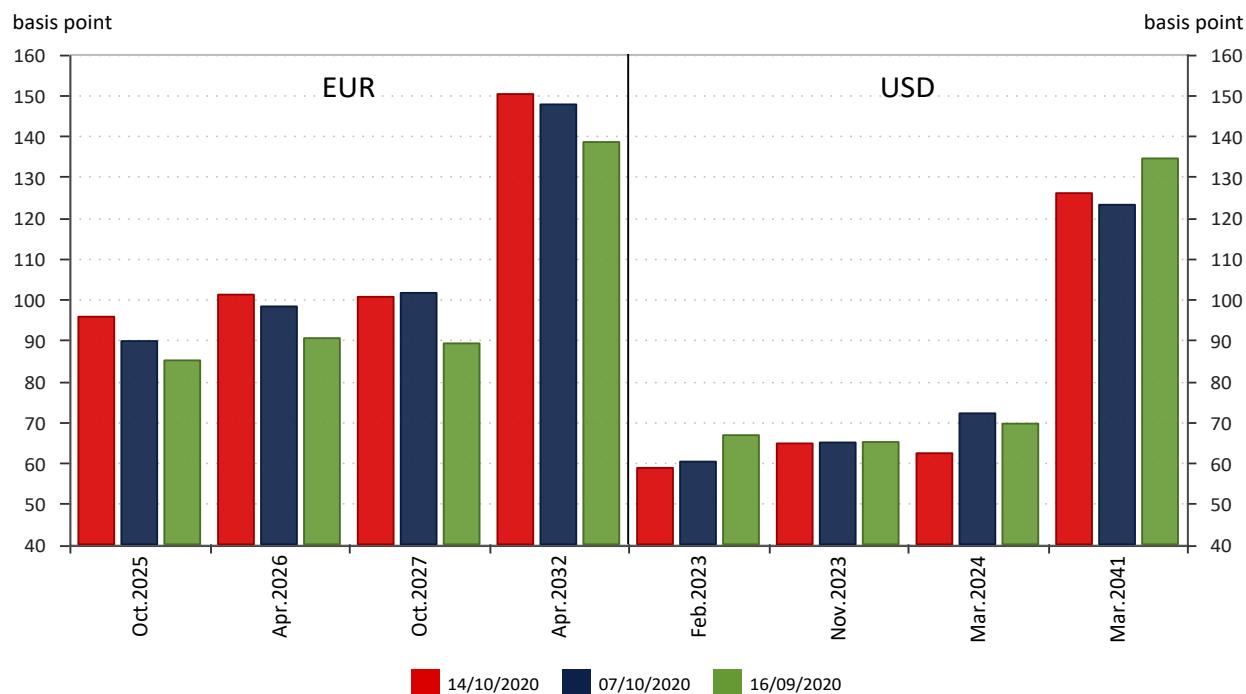
71. Emerging markets FX denominated government bond spreads



Source: Refinitiv Datastream.

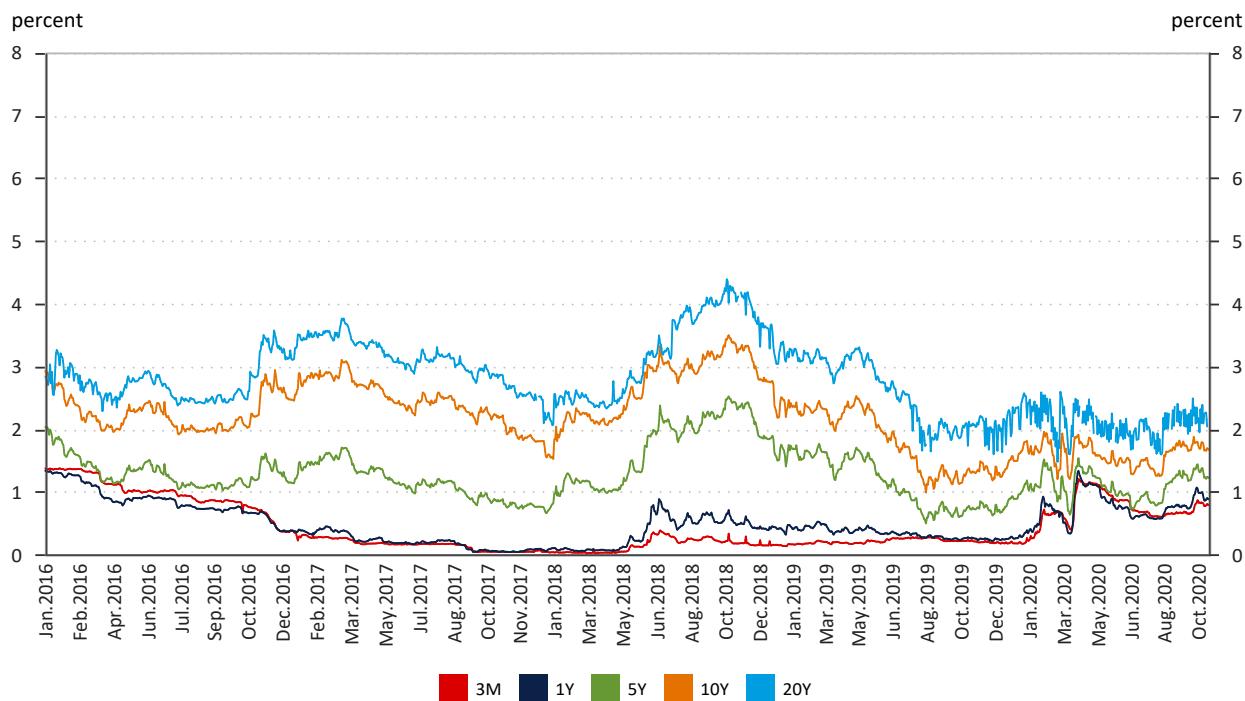
Notes: calculated from JP Morgan Euro EMBI data. The series are differences between euro denominated (liquid) foreign currency bond yields and euro zero coupon yields of the corresponding maturities. Different durations may result in significant difference in the level of spreads.

72. Domestic FX-government bond

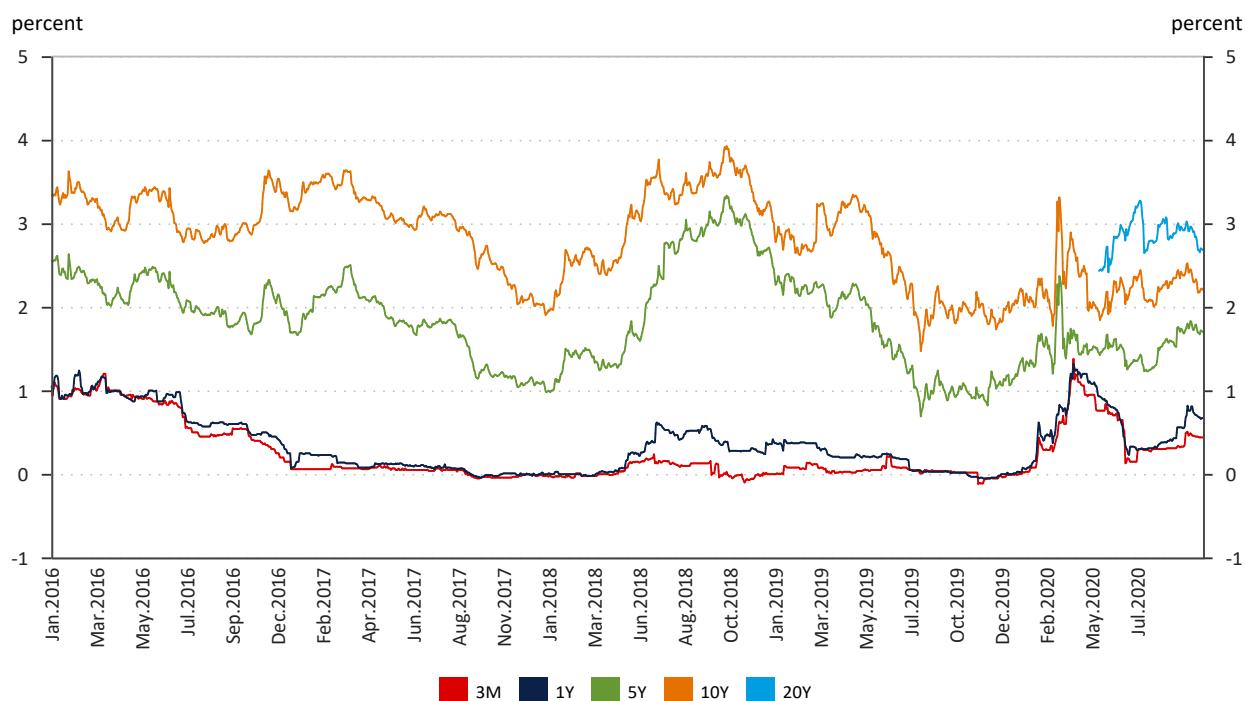


Source: Bloomberg.

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.

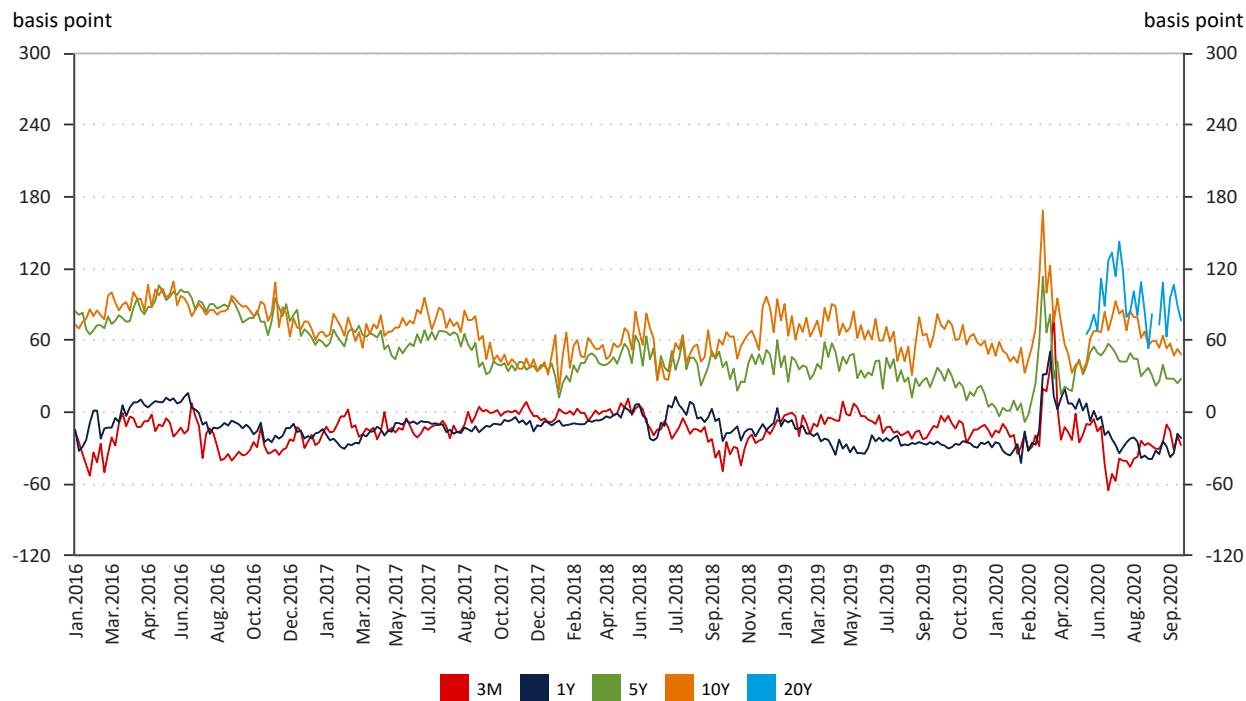
73. Interbank yields

Source: Refinitiv.

74. Yields of benchmark government securities

Source: Refinitiv.

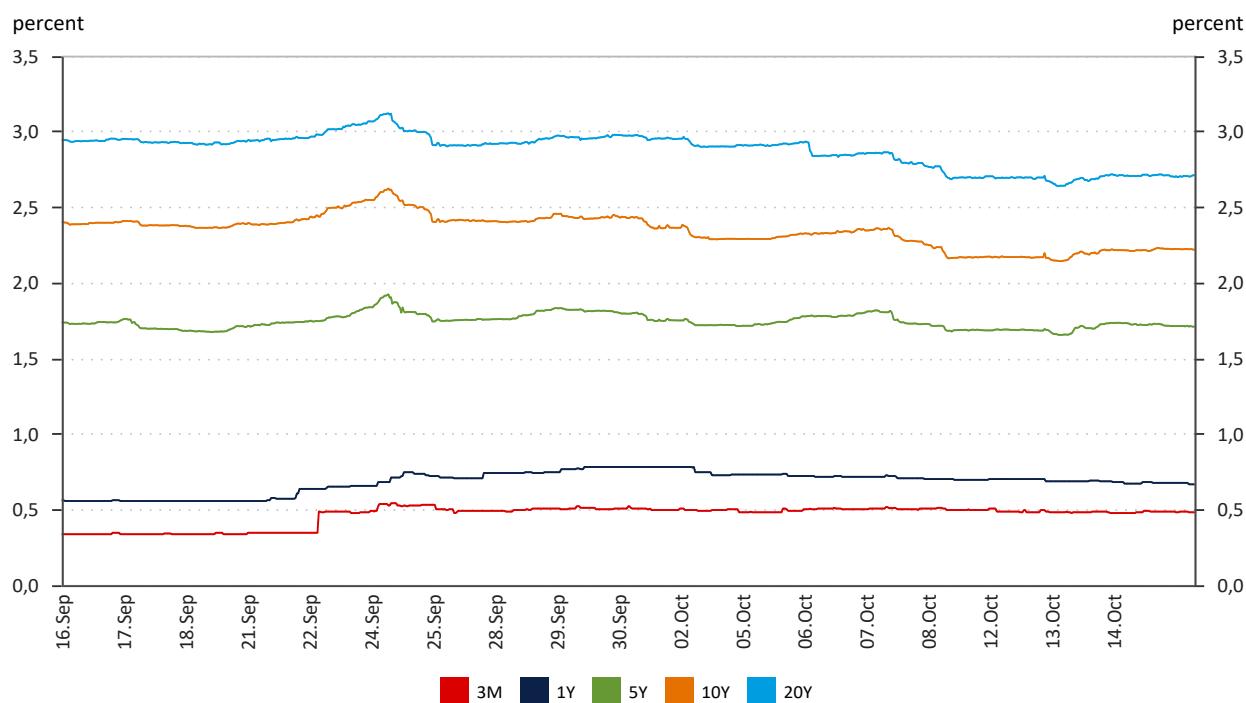
75. Government securities - interbank yield spreads



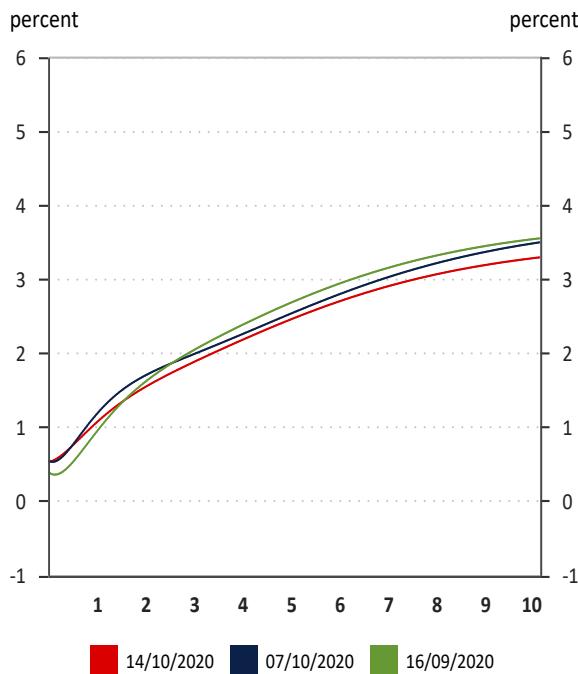
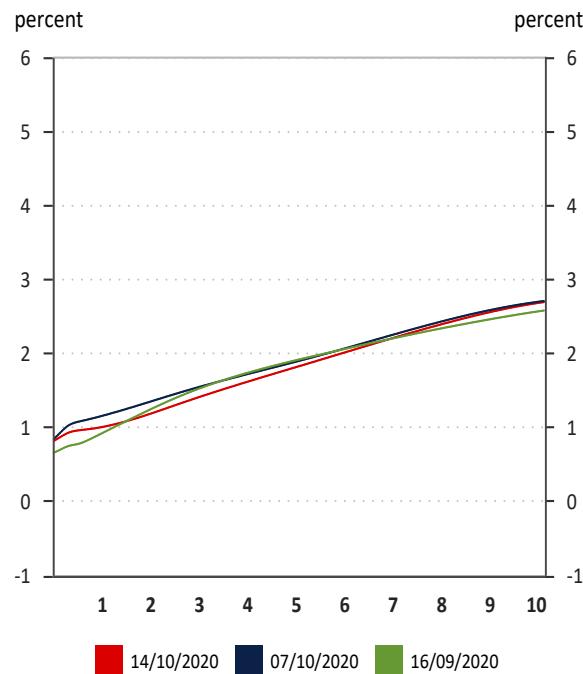
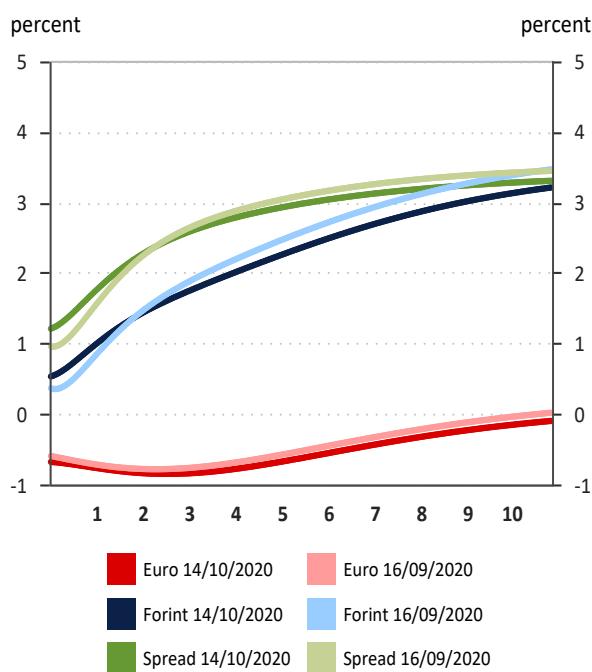
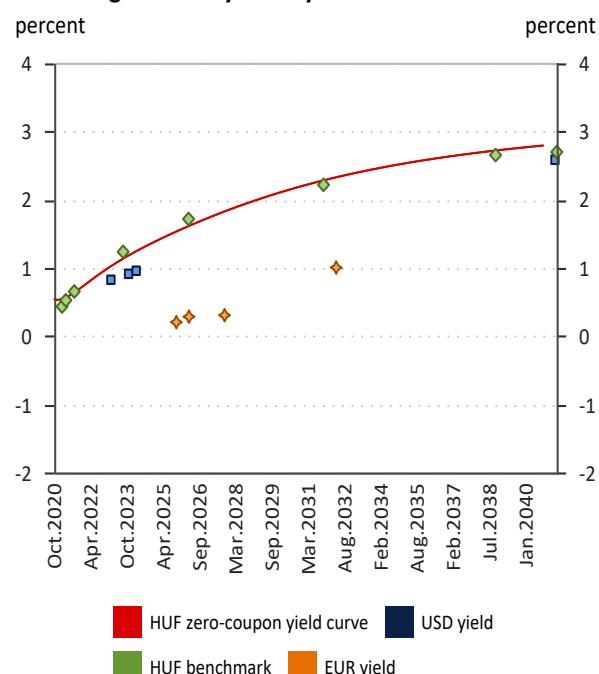
Source: Refinitiv

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

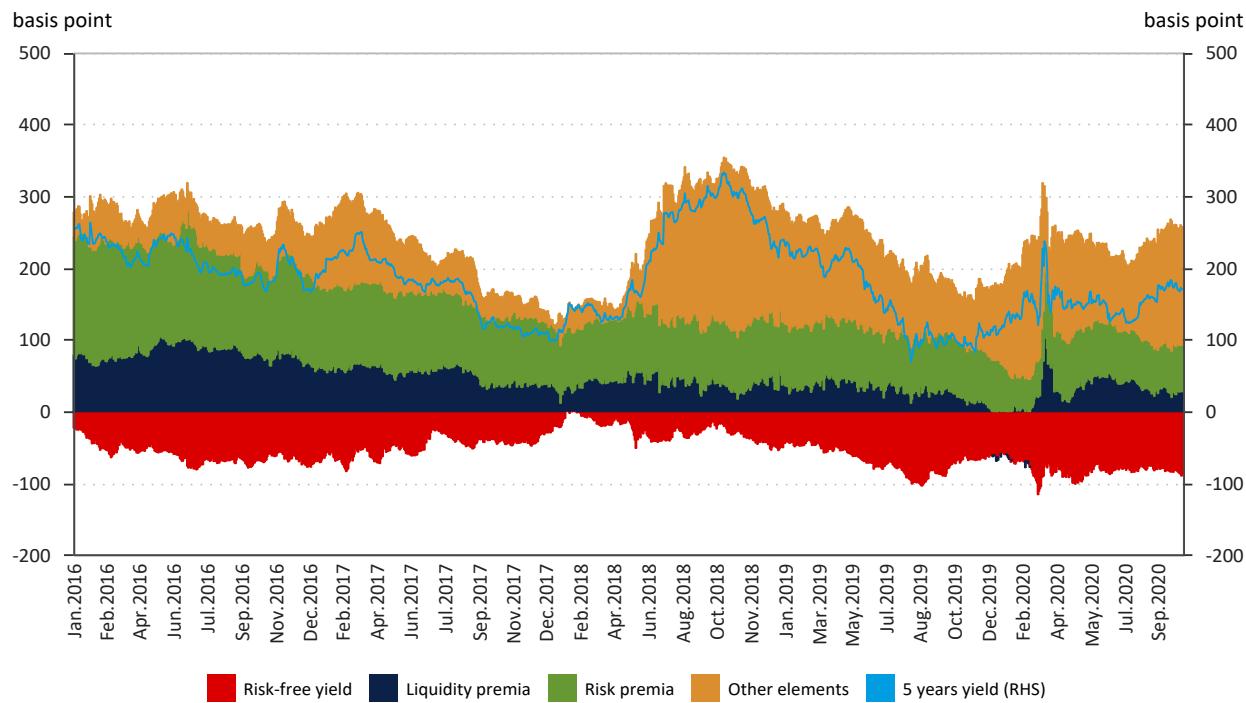
76. Yields of benchmark government securities (last month)



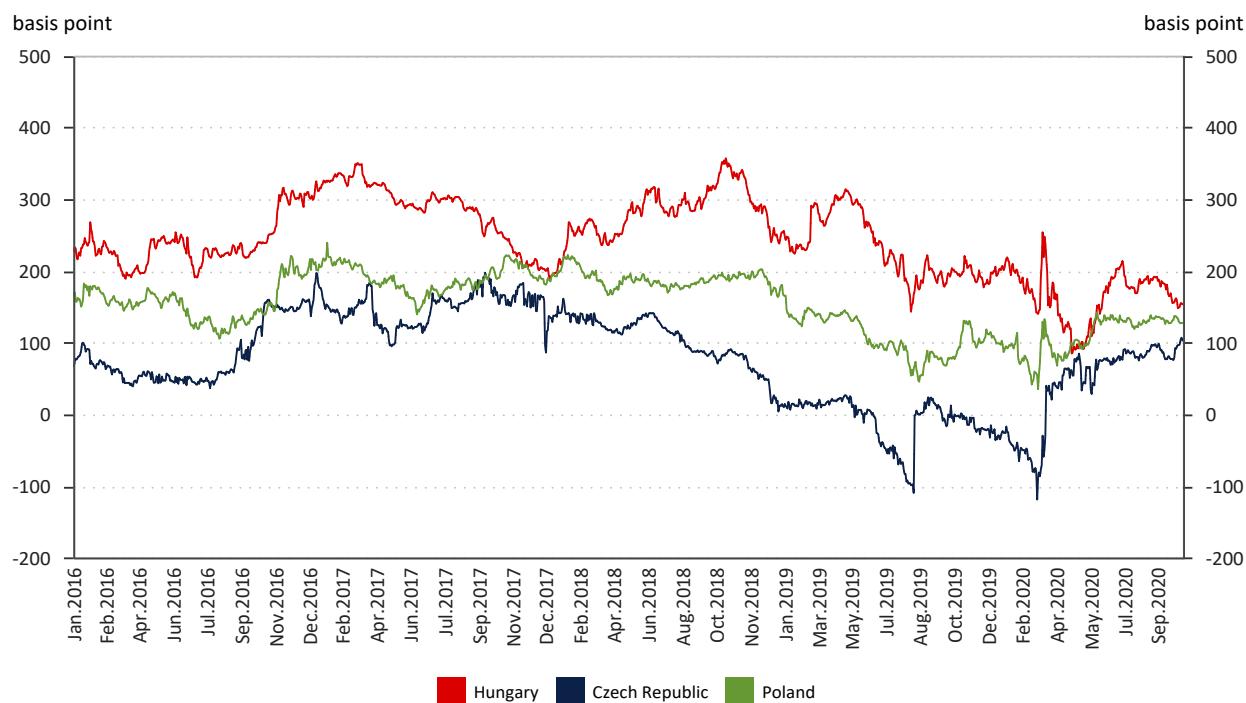
Source: Bloomberg.

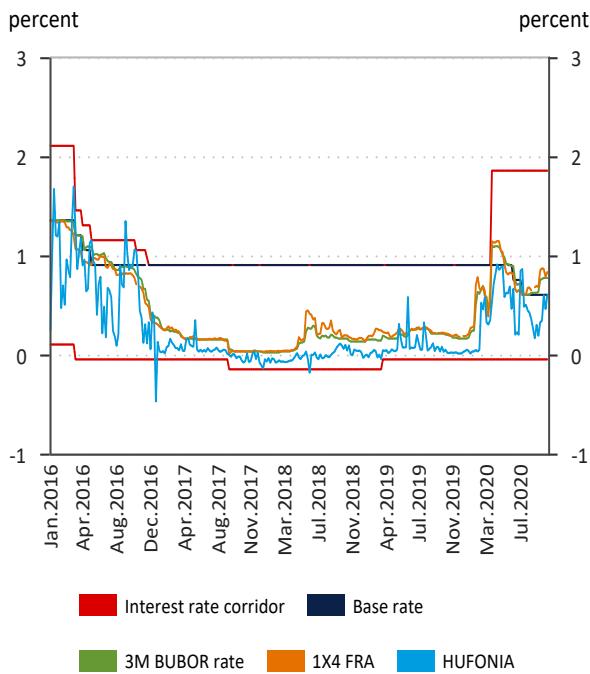
**77. Implied 3 month forward interest rate yield curve
(based on government securities yields)**

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

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

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


81. Decomposition of 5 year government bond yield

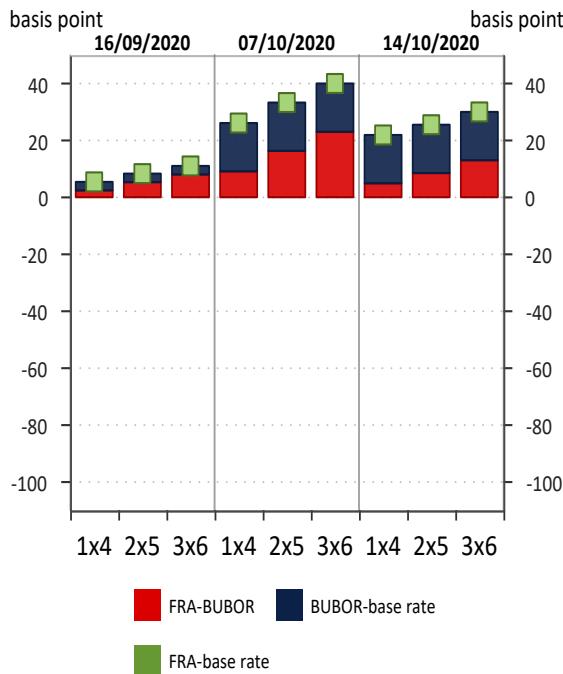


82. Slope of yield curve in CEE

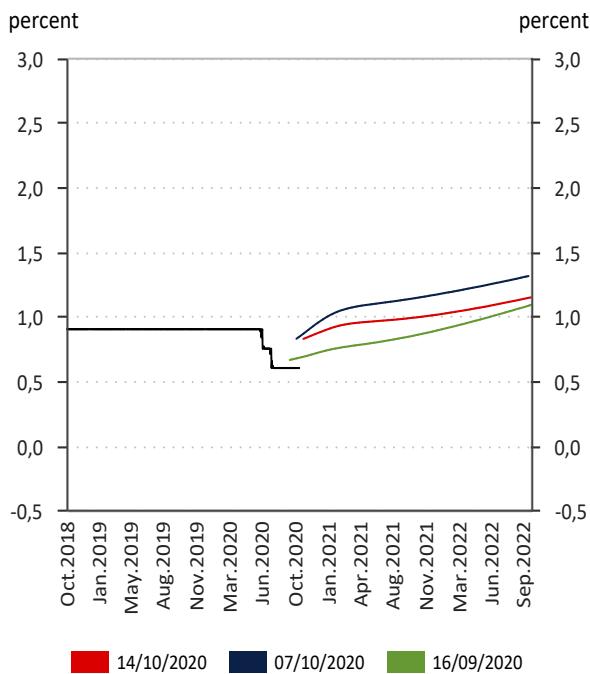


83. MNB base rate and money market rates

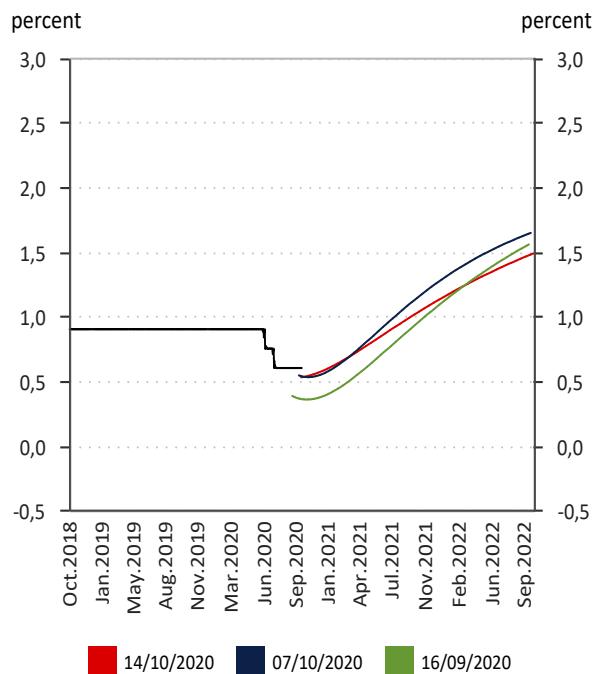
Source: Refinitiv, MNB

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

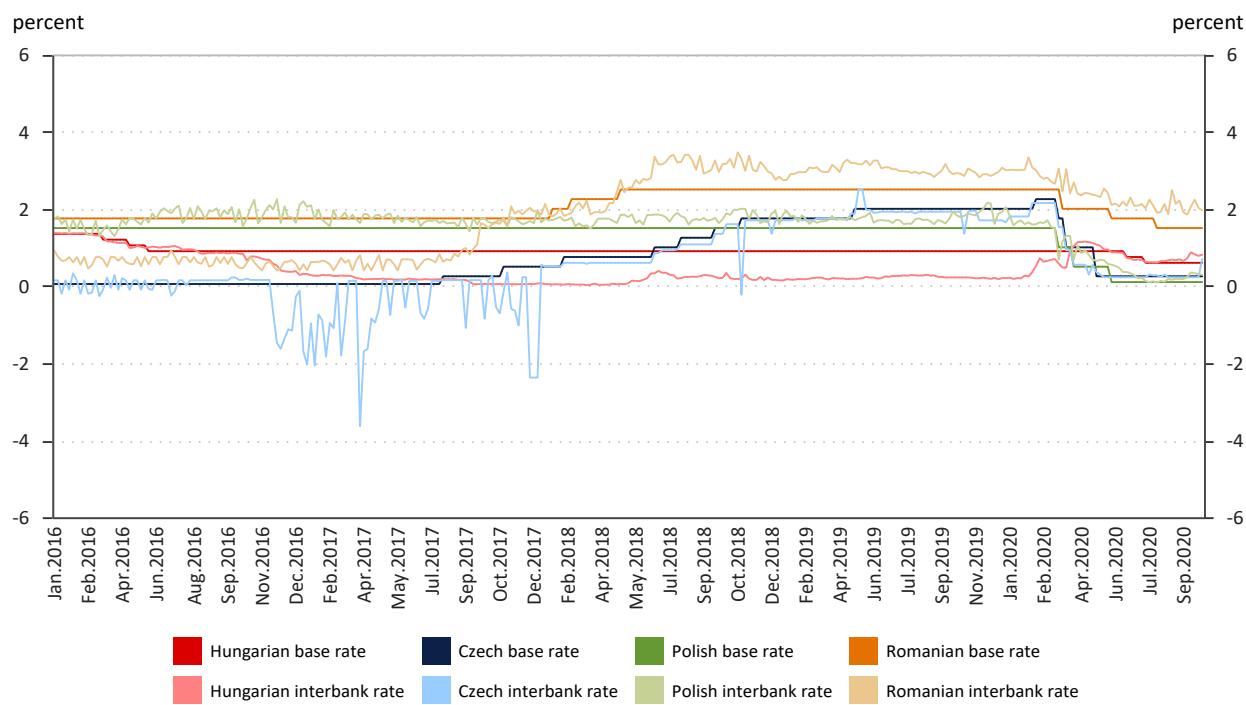
Source: Refinitiv, MNB.

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

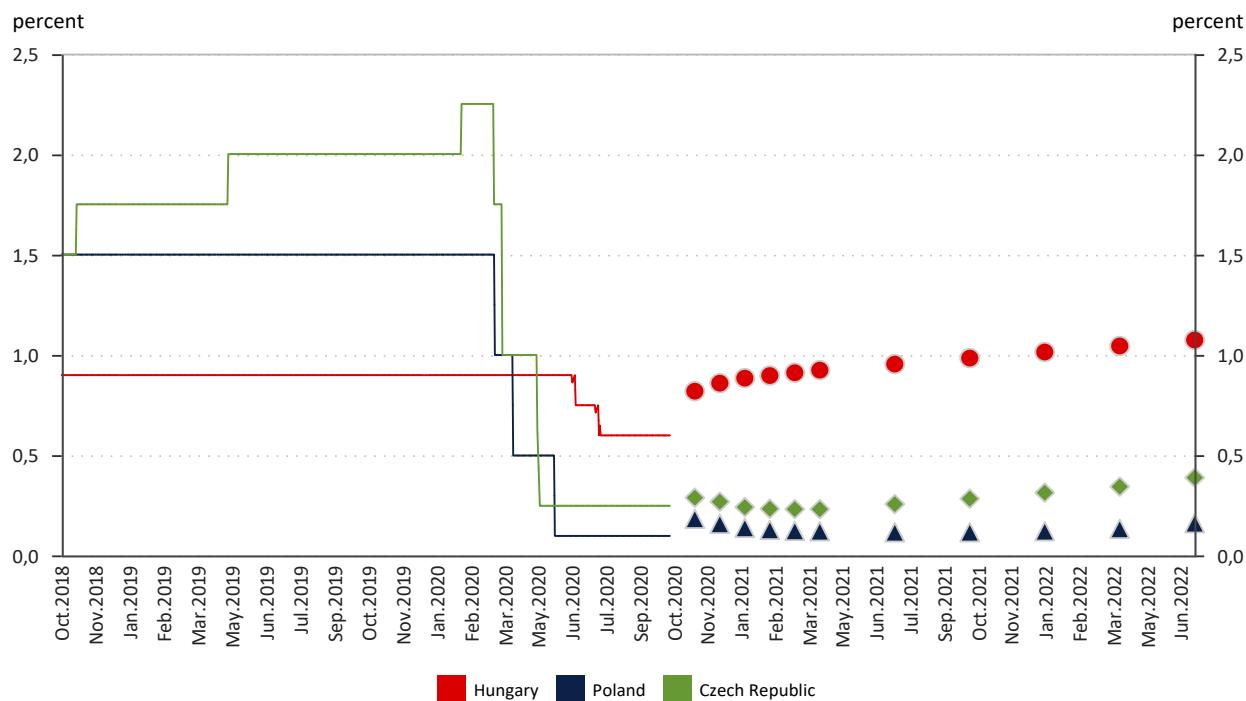
Source: MNB.

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

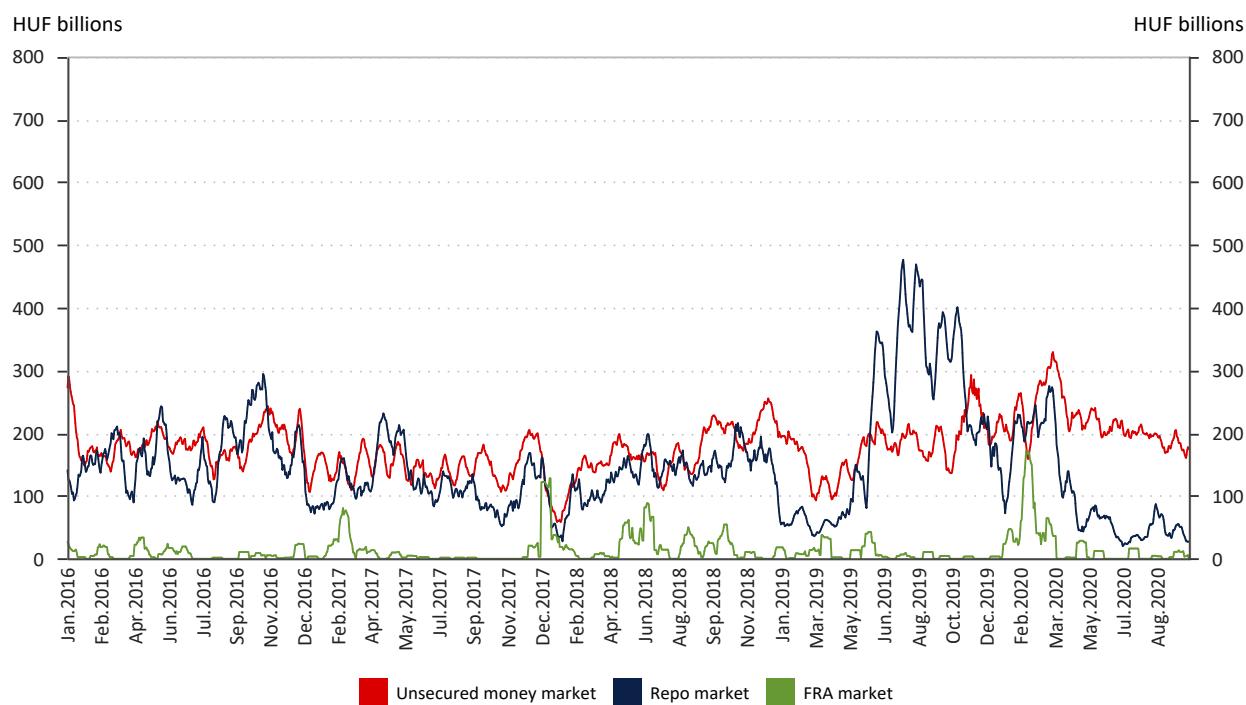
Source: Refinitiv.

88. CEE base rates and forward rate agreements

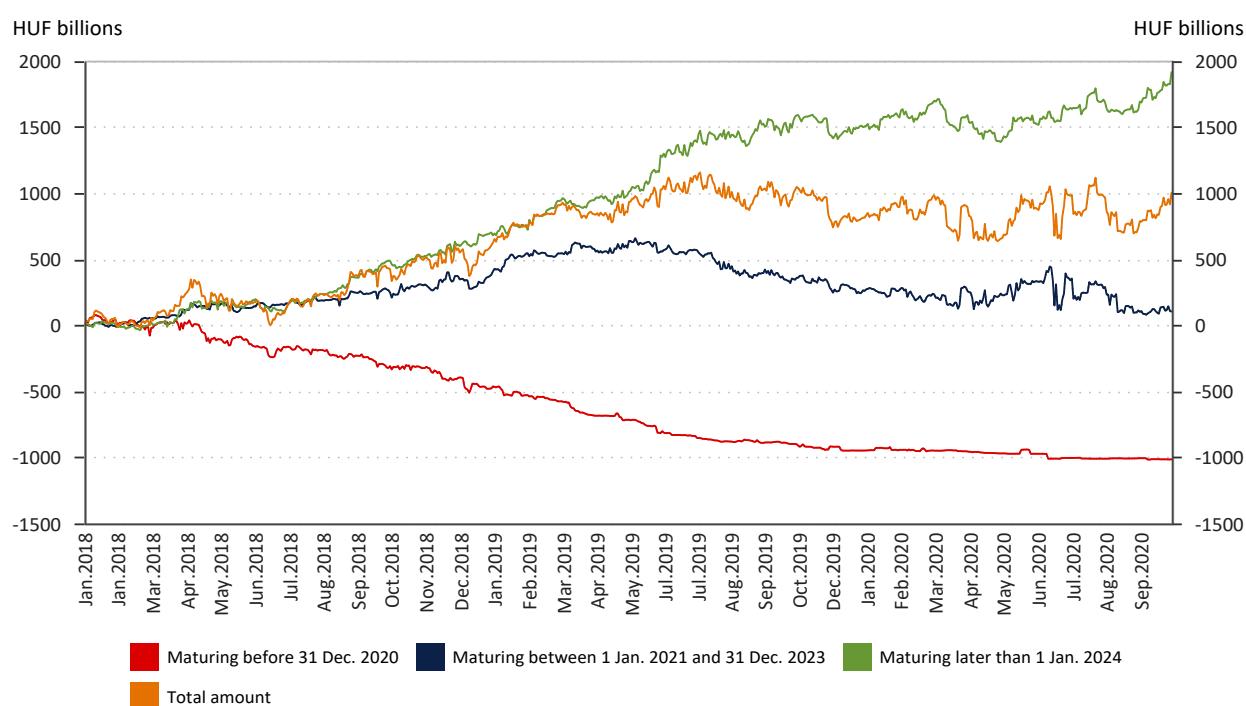
Source: Bloomberg

Note: Based on FRA transactions. Last update: (14/10/2020).

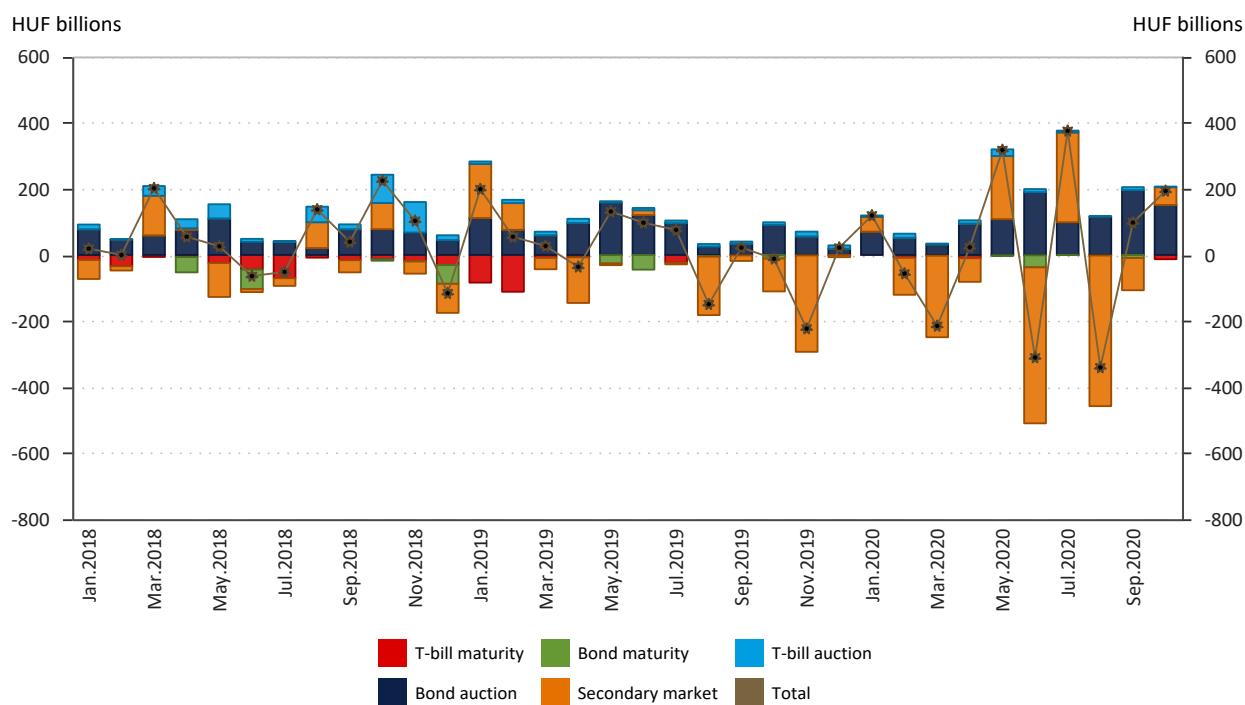
89. Turnover on the interbank, HUF repo, and FRA markets (25 day moving average)



90. Change in government bonds of non-residents by tenor



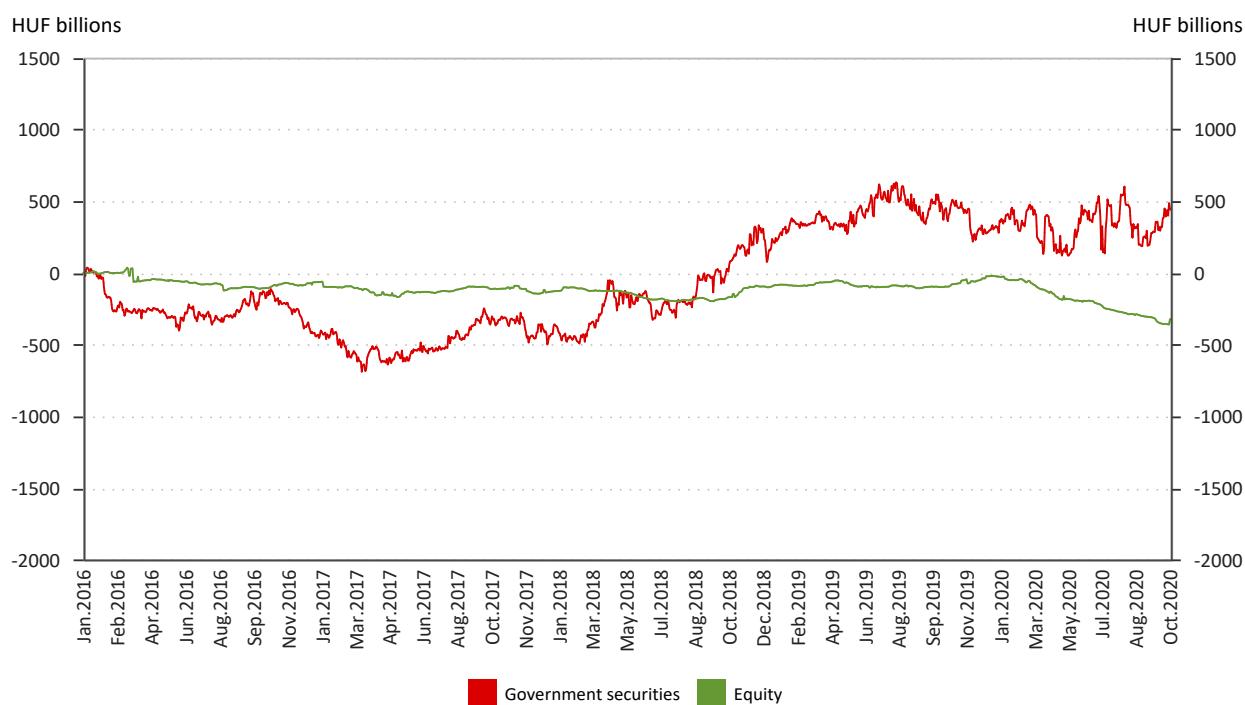
91. Decomposition of change in government securities held by non-residents (last months)



Source: MNB

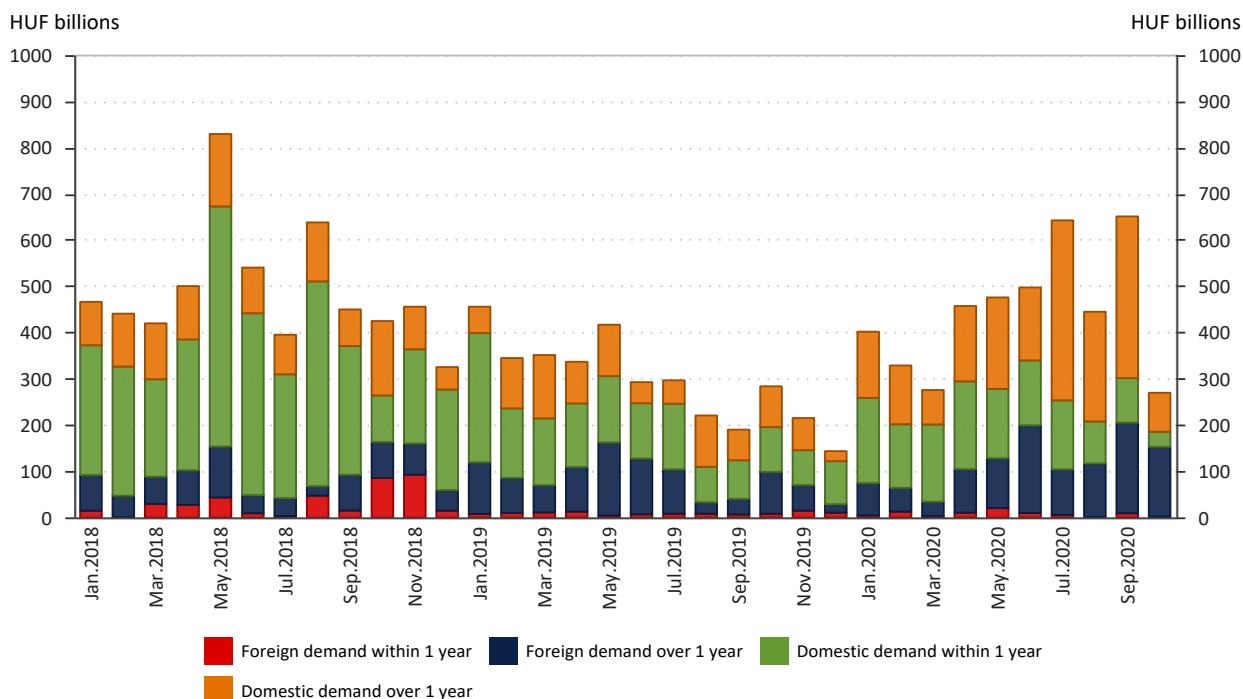
Note: Last month is incomplete.

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.

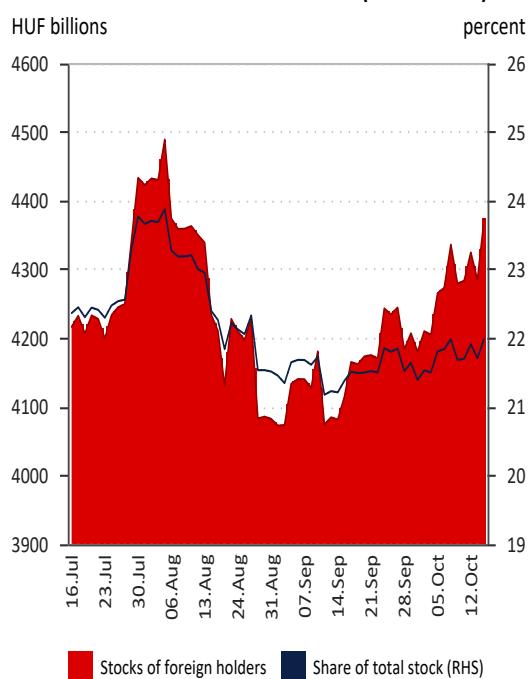
93. Primary market government security purchase of domestic and non-resident investors

Source: MNB

Note: Last month is incomplete.

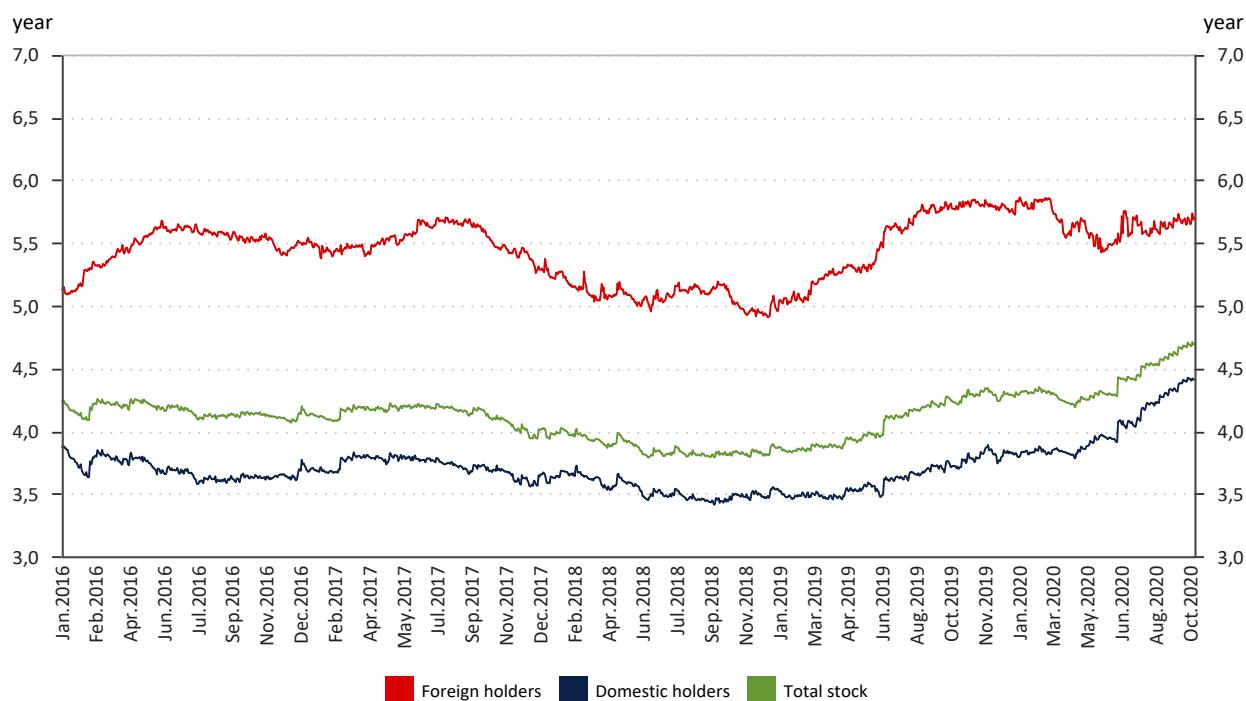
94. Government securities held by non-residents and the proportion to the total amount outstanding

Source: MNB.

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

Source: MNB.

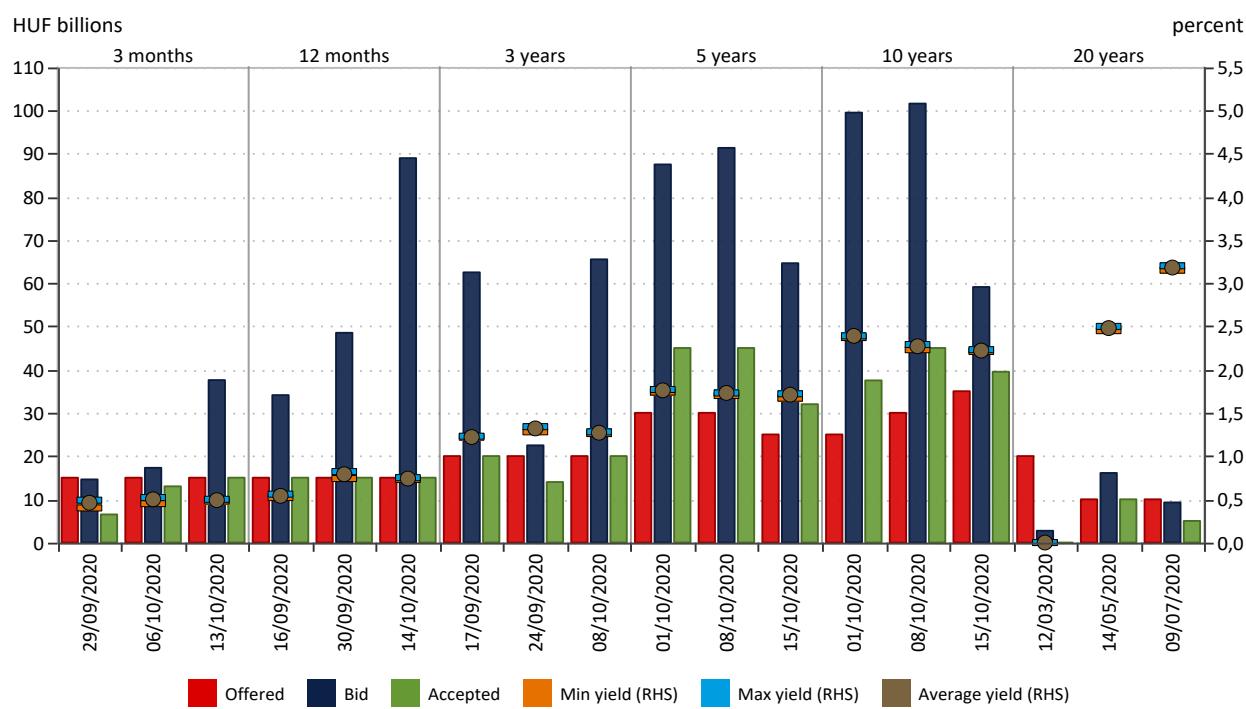
96. The average time to maturity of government security portfolio of residents and non-residents



Source: MNB

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

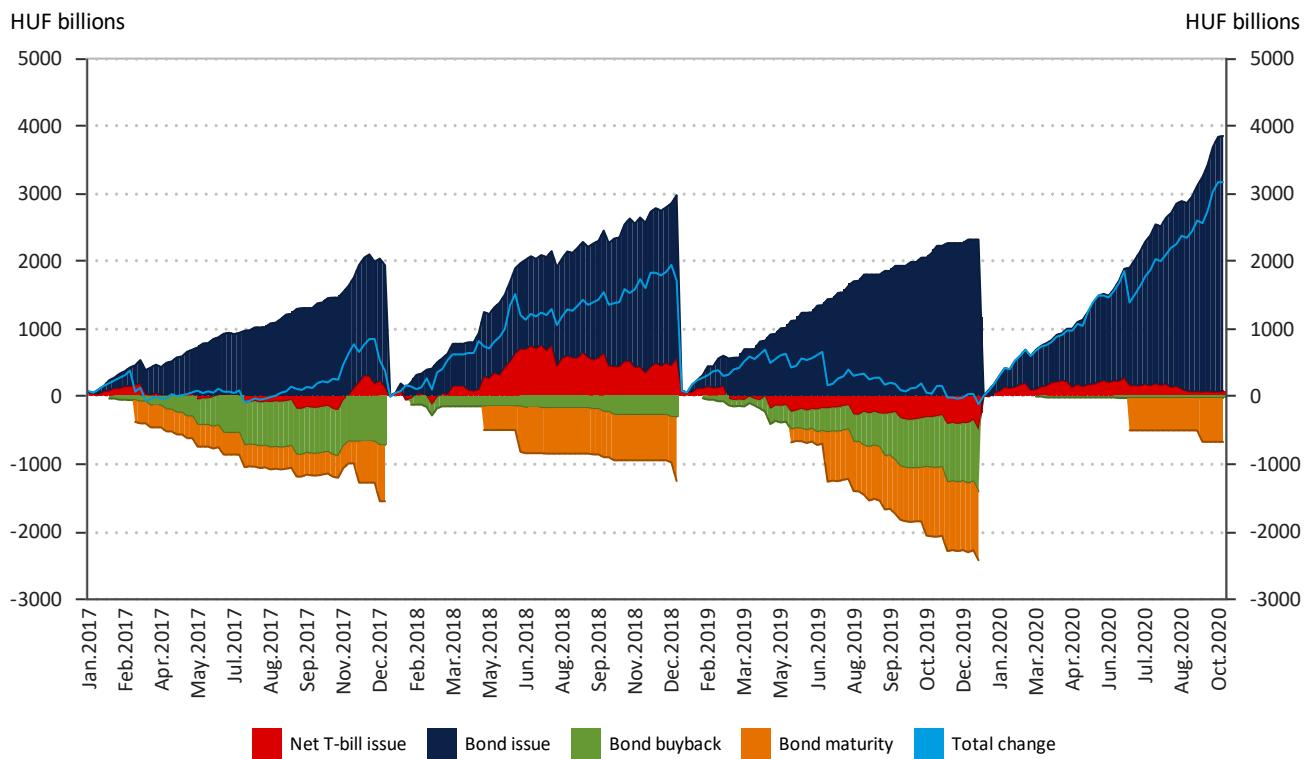
97. The turnover and yield data of the Hungarian primary T-bill and T-bond issues



Source: ÁKK

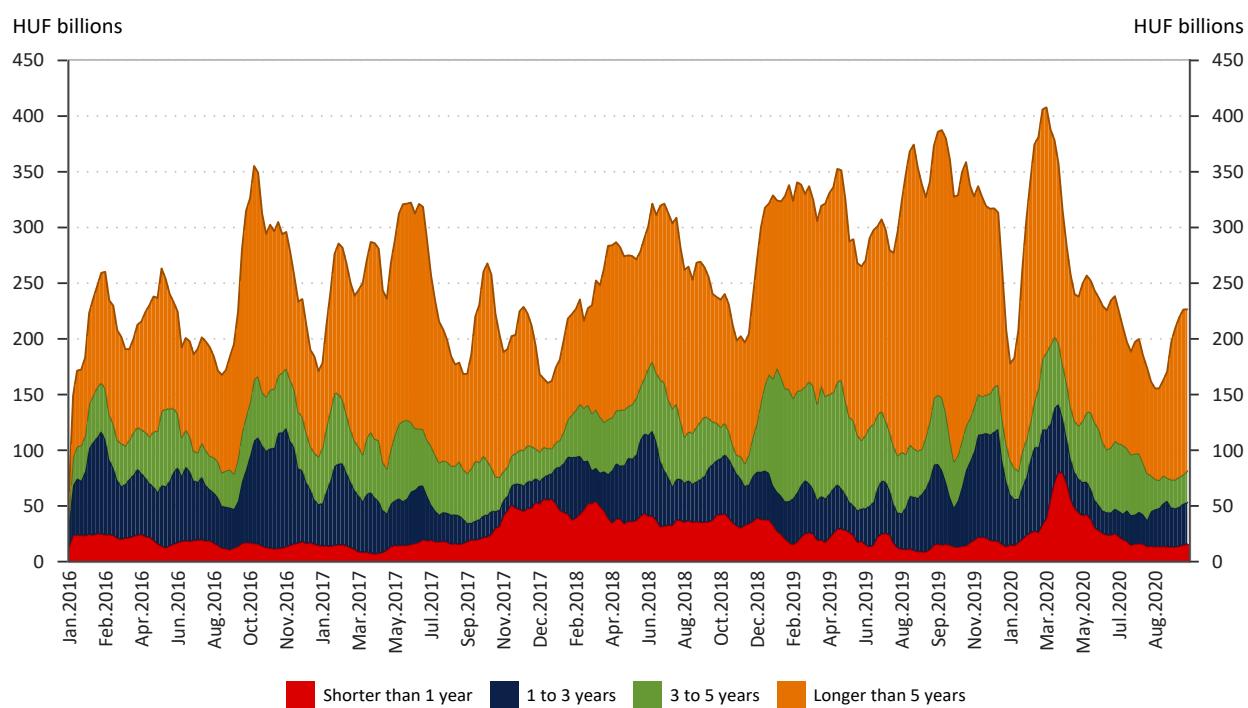
Notes: In case of floating rate bonds the yield data are not plotted. The accepted amount at the bond auctions also include the results of the non-competitive tenders.

98. Government securities issues, buybacks, redemptions

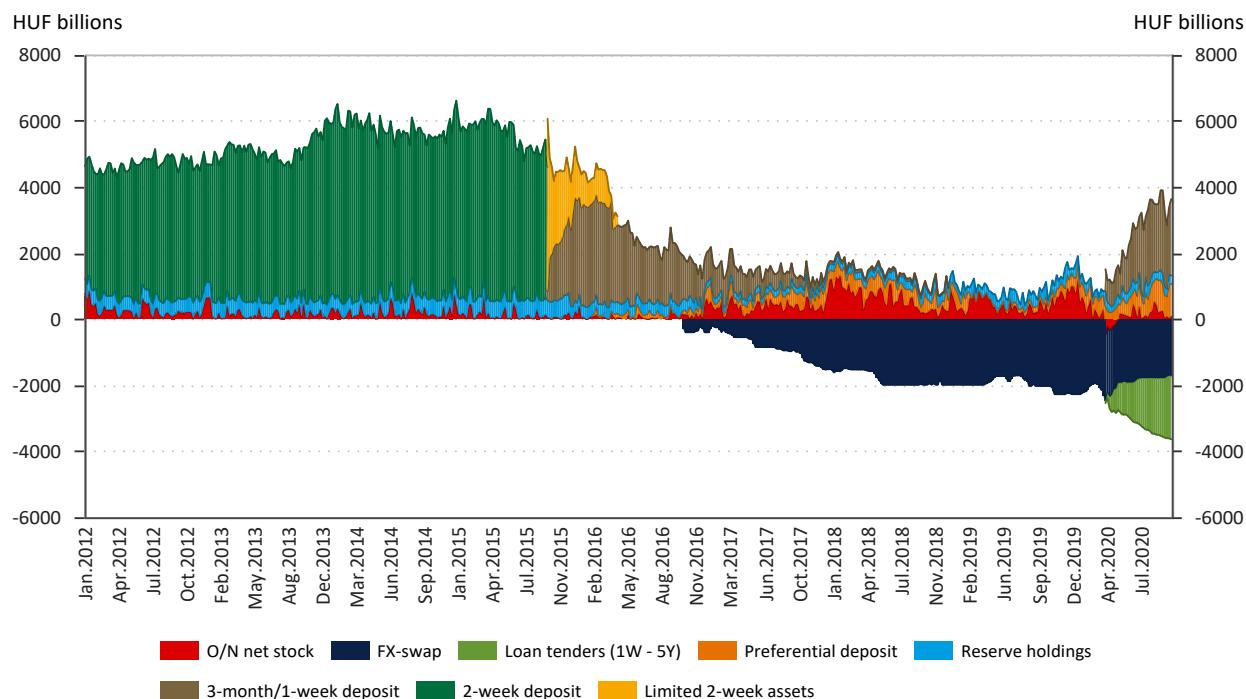


Source: MNB.

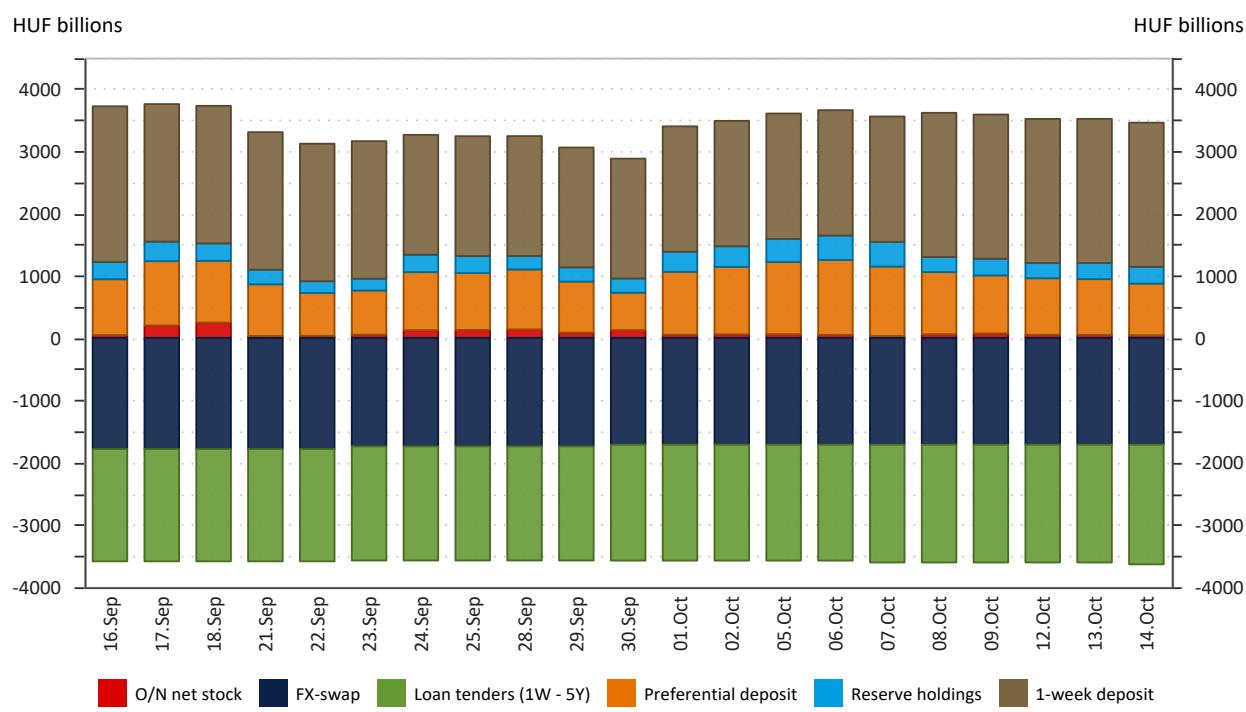
99. Turnover on the secondary market of government securities



Source: MNB, KELER.

100. Selected assets and liabilities of the MNB

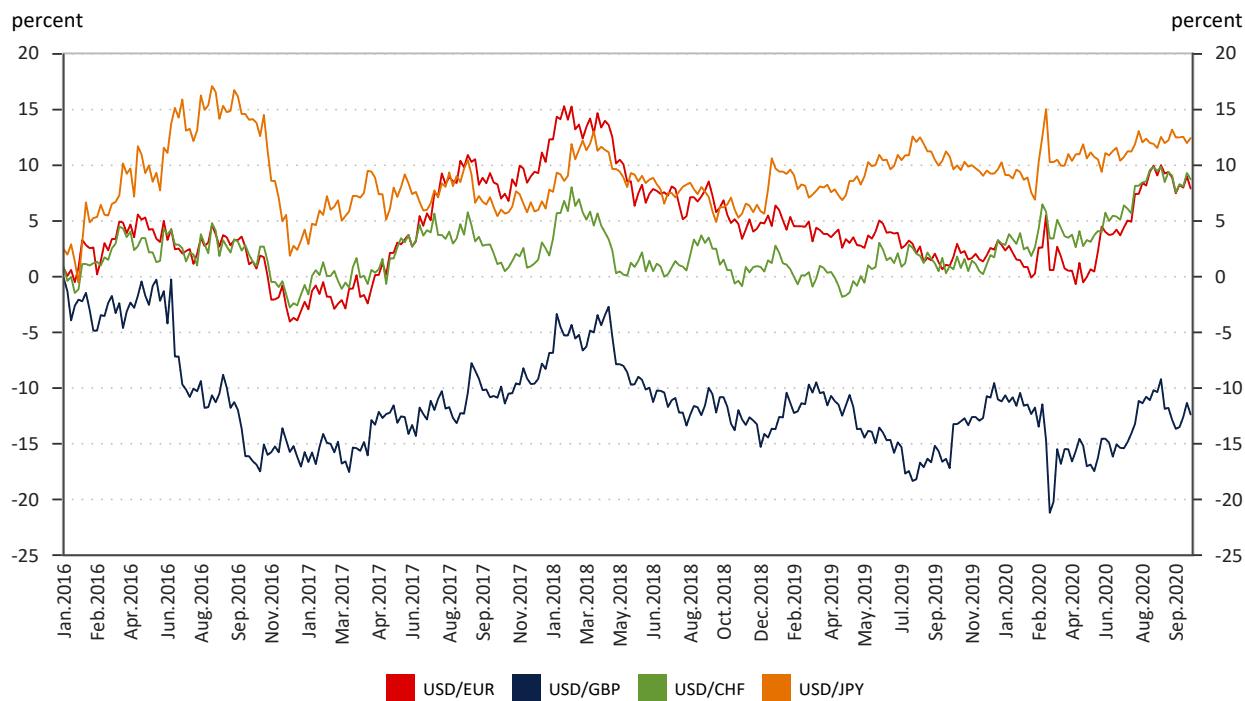
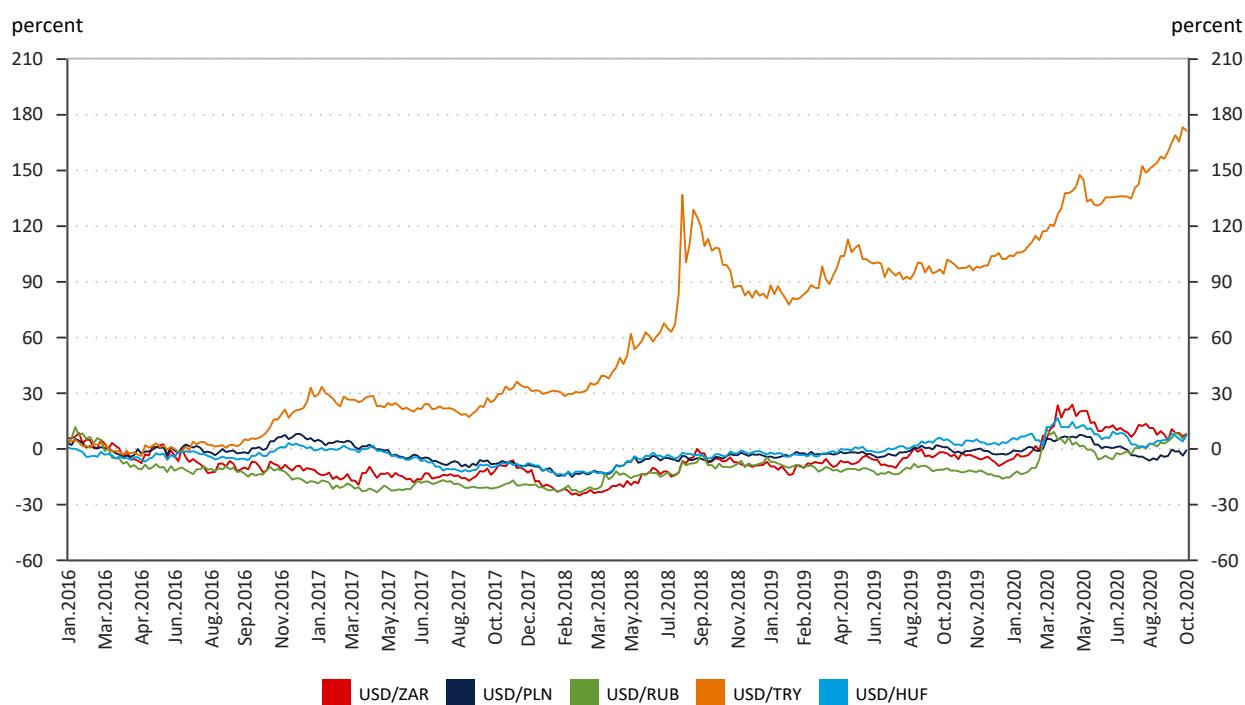
Source: MNB.

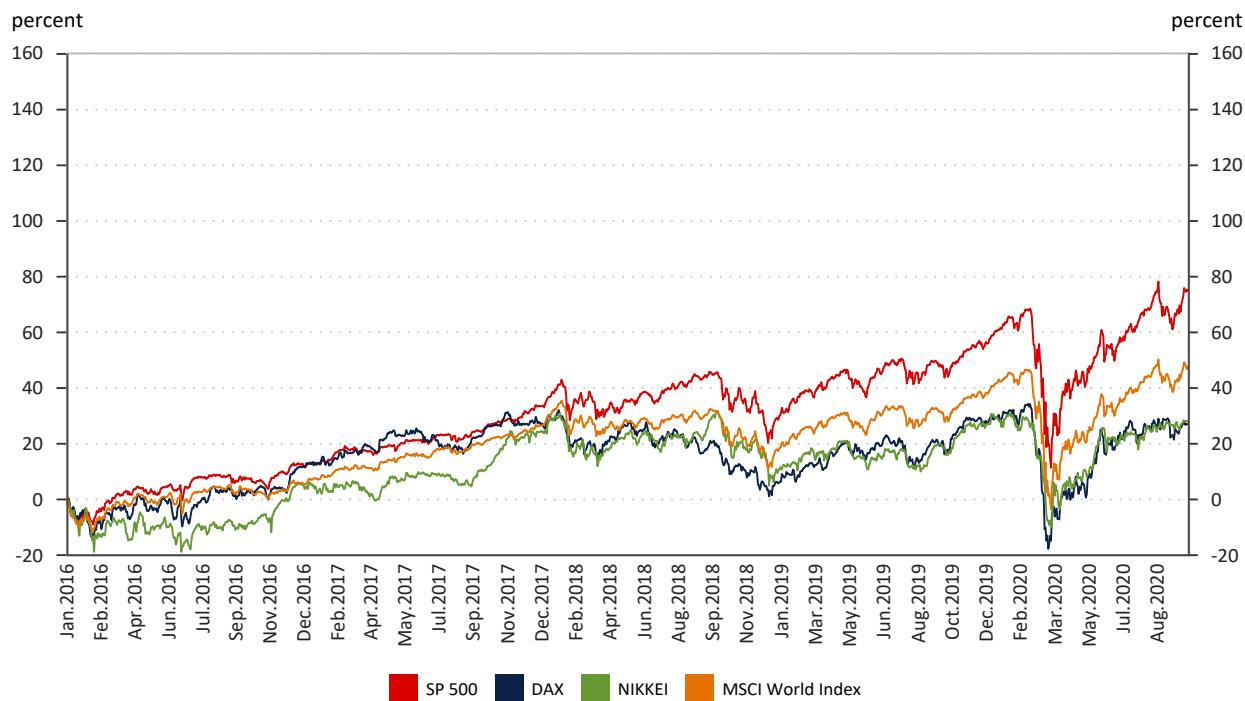
101. Use of selected facilities of the MNB beside the main instrument

Source: MNB.

102. International developments*Overview*

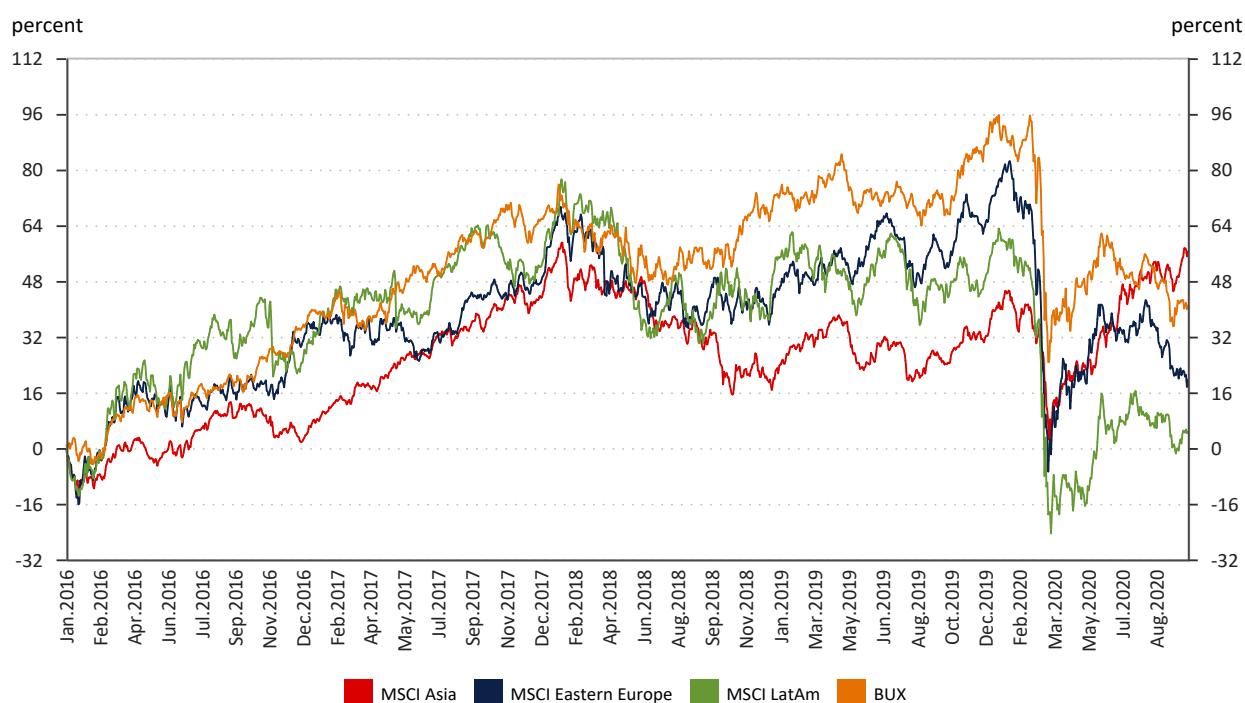
Indicator	1 month ago	1 week ago	Current
Fed base rate (%)	0.25	0.25	0.25
ECB base rate (%)	0.00	0.00	0.00
10-year T-bond yield (%)	0.70	0.77	0.73
10-year euro yield (%)	-0.48	-0.53	-0.61
VIX Index (%)	25.4	26.1	27.5
EMBI Global spread (bp)	373	374	379
SP 500 Index	3385	3477	3489
DAX Index	13255	13051	12704
NIKKEI Index	23455	23647	23627
USD/EUR exchange rate	1.18	1.18	1.17
USD/JPY exchange rate	104.95	105.61	105.46
CHF/EUR exchange rate	1.07	1.08	1.07
Brent oil (USD per barrel)	42.3	43.0	43.4

103. Major currencies versus the dollar**104. Emerging currencies versus the dollar**

105. Developed market stock indices

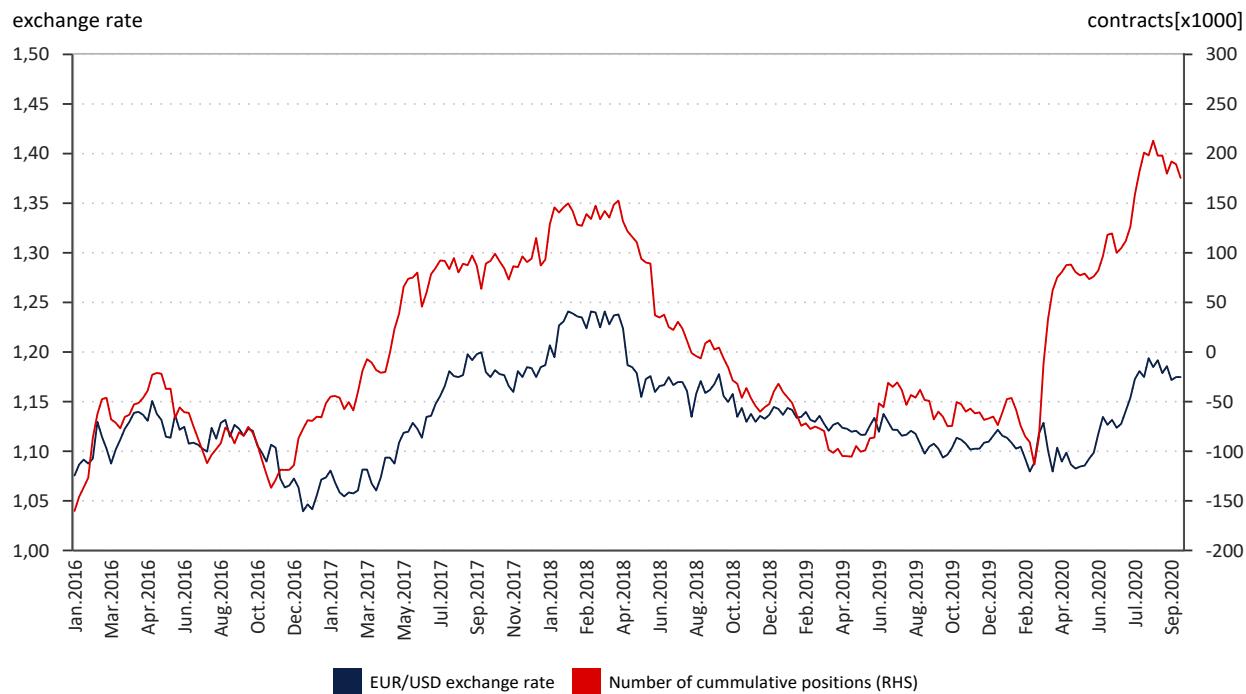
Source: Refinitiv

Notes: cumulative change.

106. Emerging stock exchange markets

Source: Refinitiv Datastream Note: cummulative change, MSCI stock indices.

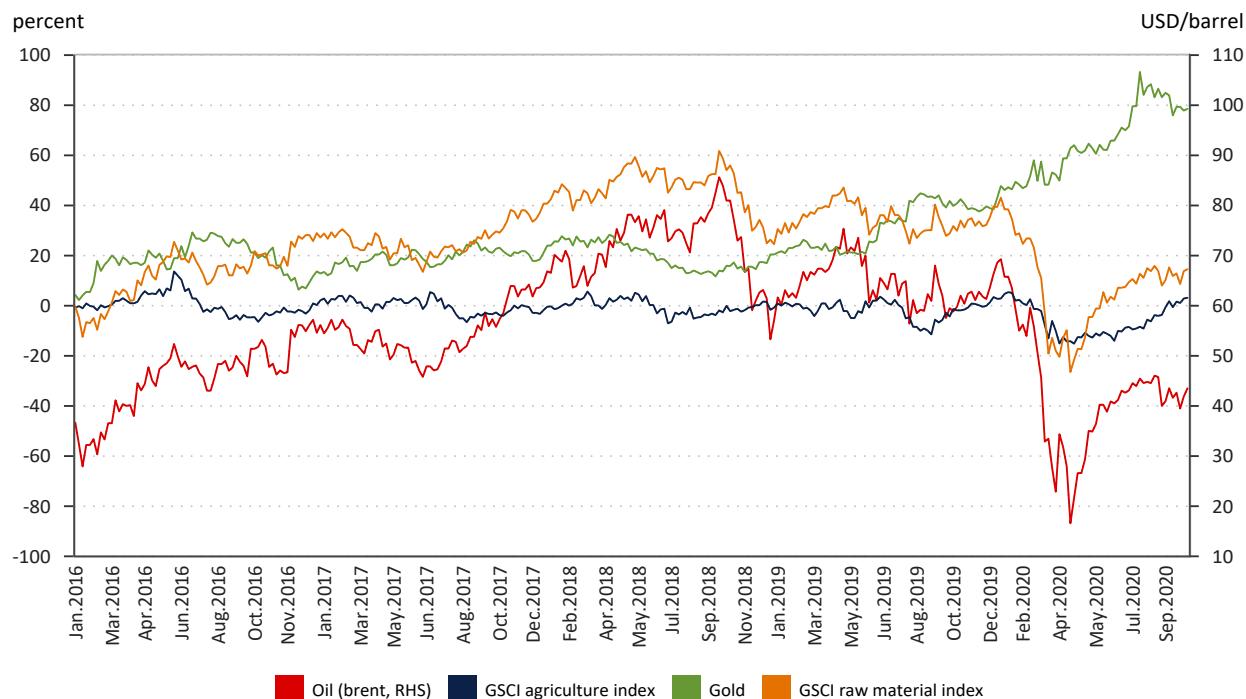
107. EUR/USD exchange rate and speculative positions



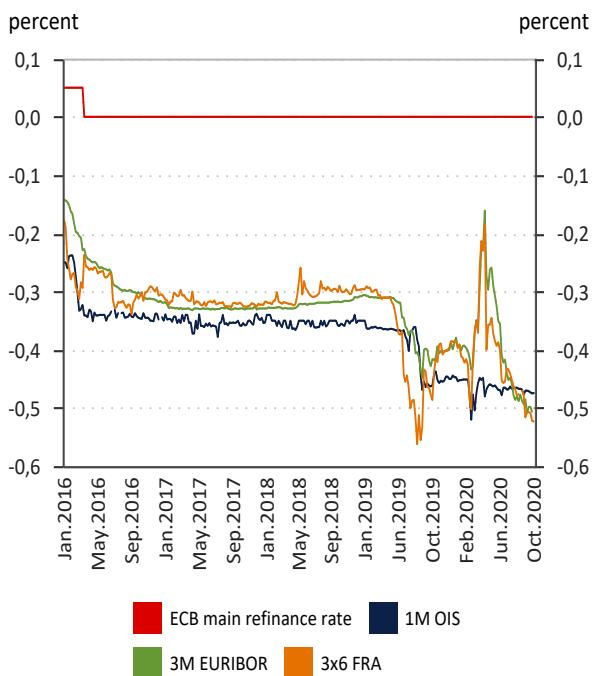
Source: Bloomberg, CFTC.

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 data by Commodity Futures Trading Commission.

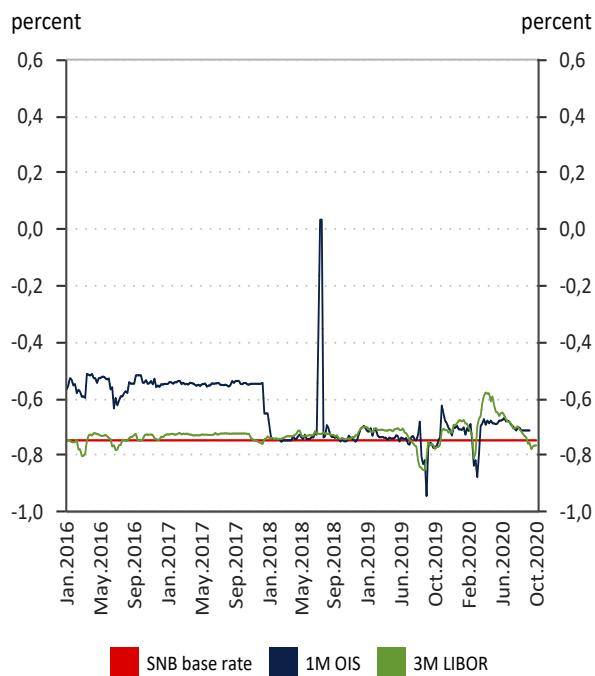
108. Price of raw materials



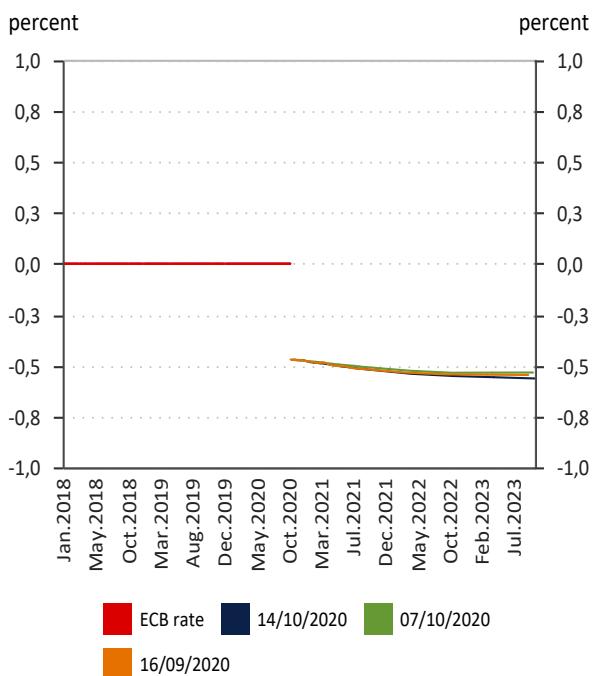
Source: Refinitiv Datastream Note: cumulative change except the Brent oil where the scale is nominal.

109. Short term interbank rates in the eurozone

Source: Refinitiv.

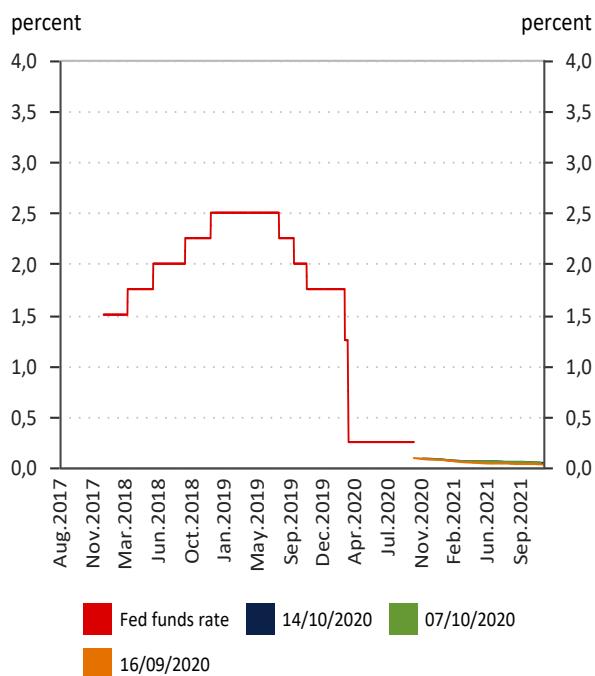
110. Short term interbank rates in Switzerland

Source: Refinitiv.

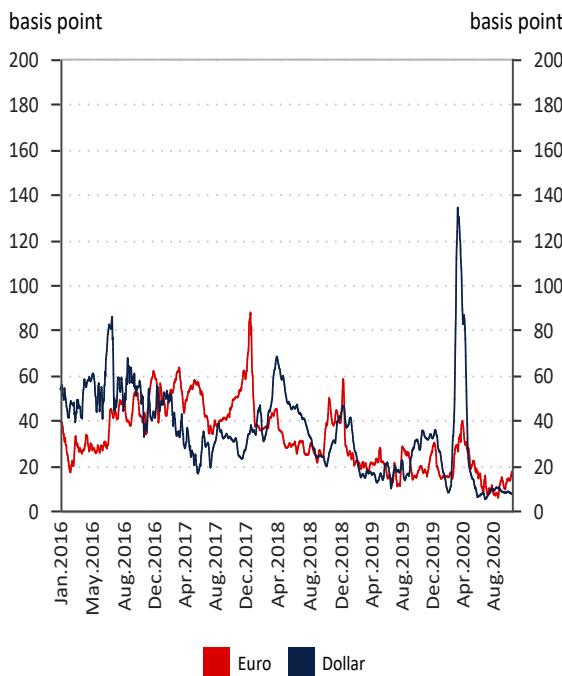
111. Forecasts on ECB policy rate

Source: ECB.

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

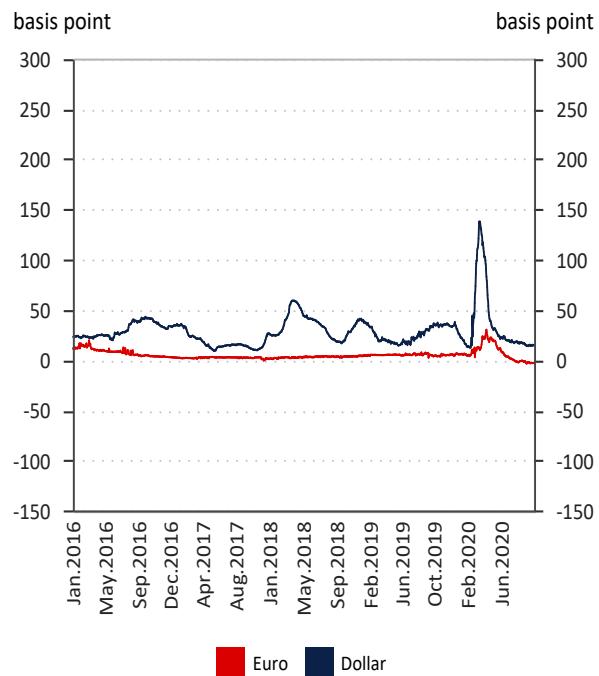
112. Forecasts on Fed policy rate

Source: Bloomberg.

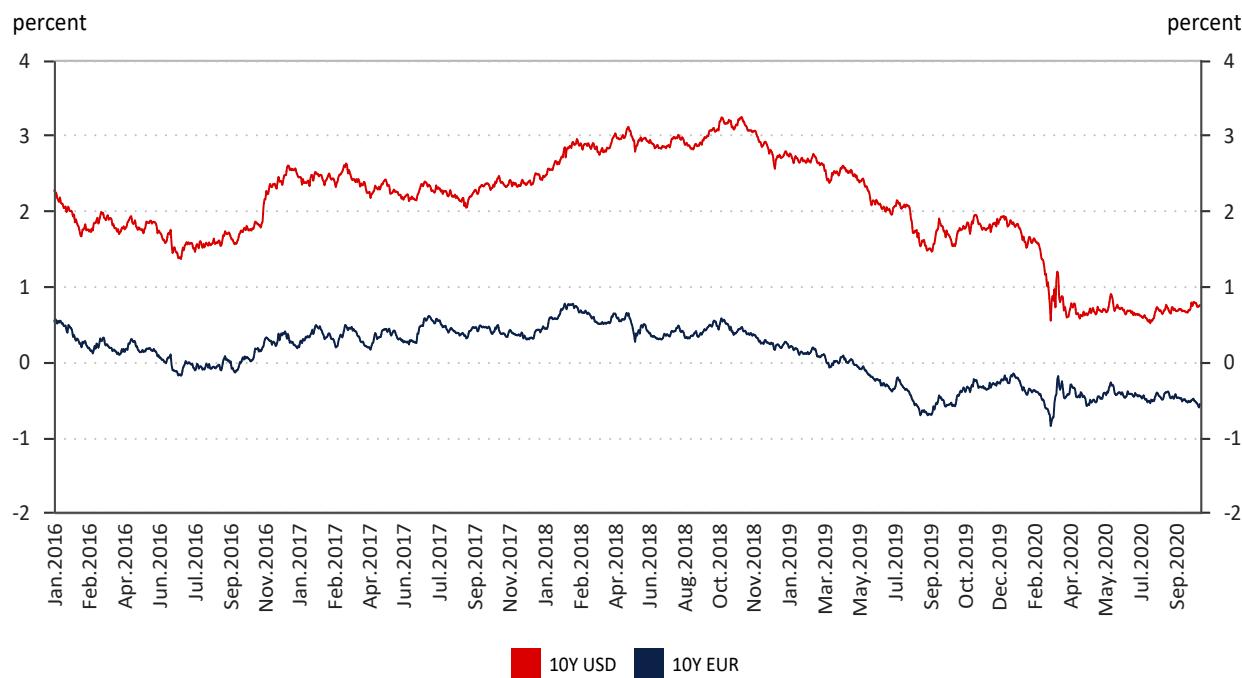
113. 3M interbank and government bond yield spread

Source: Refinitiv.

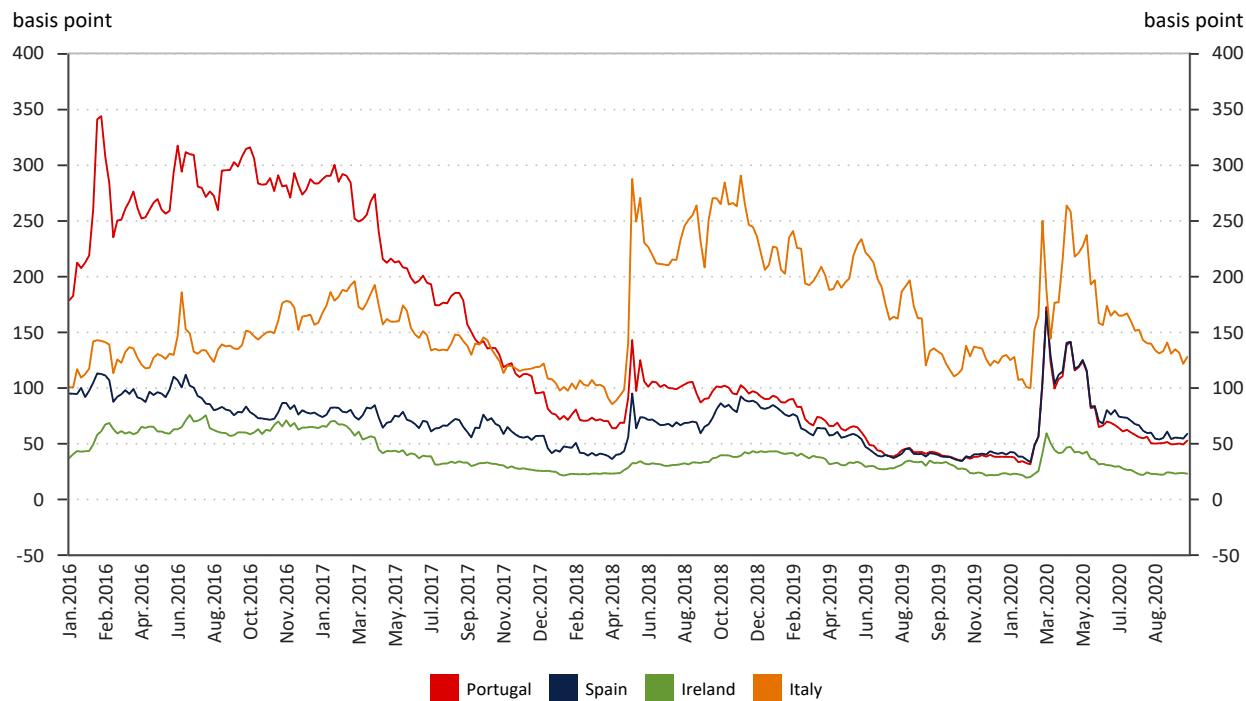
Notes: Spread between 3-month interbank rates and 3-month T-bill yield.

114. 3M interbank and OIS yield spread

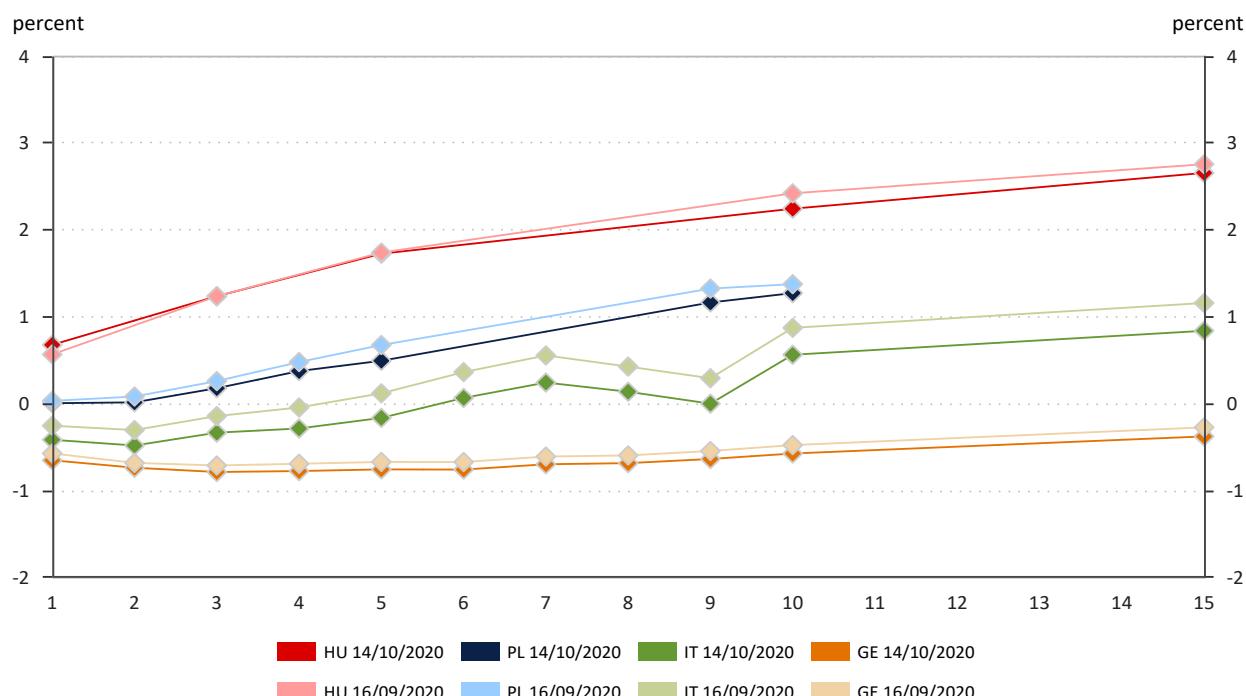
Source: Refinitiv.

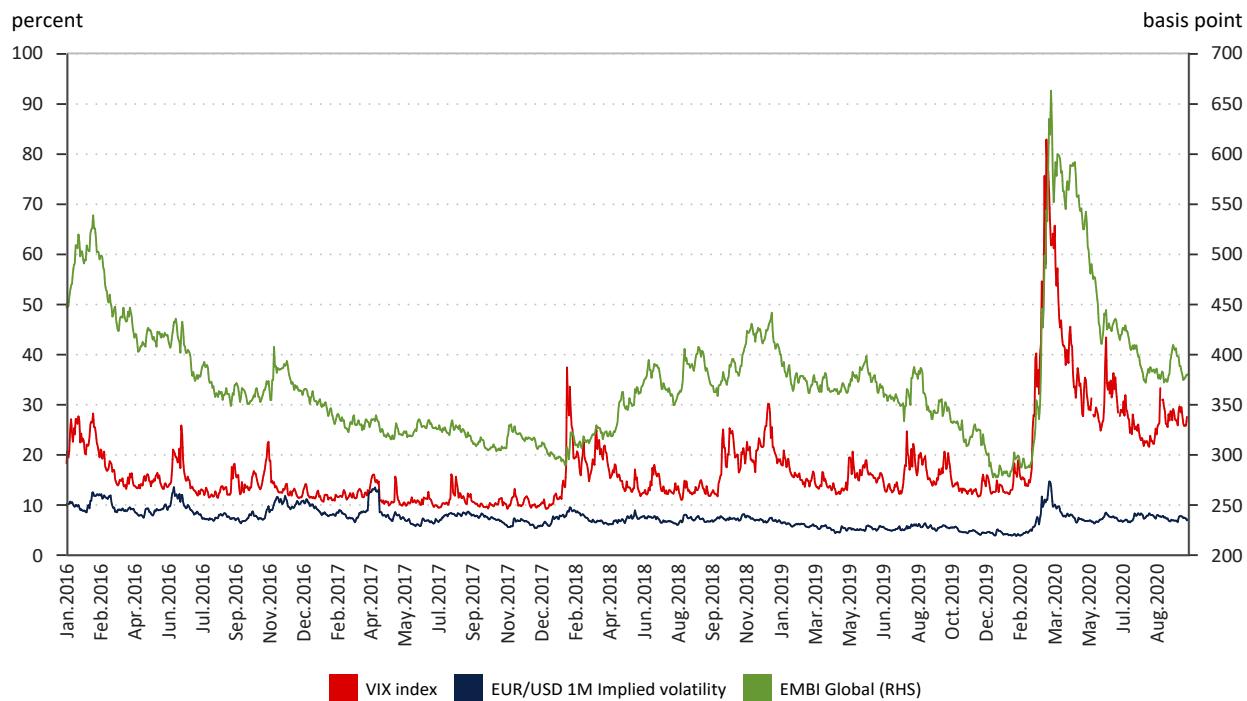
115. Long term euro and dollar benchmark yields

Source: Refinitiv.

116. 5Y sovereign CDS in the eurozone periphery

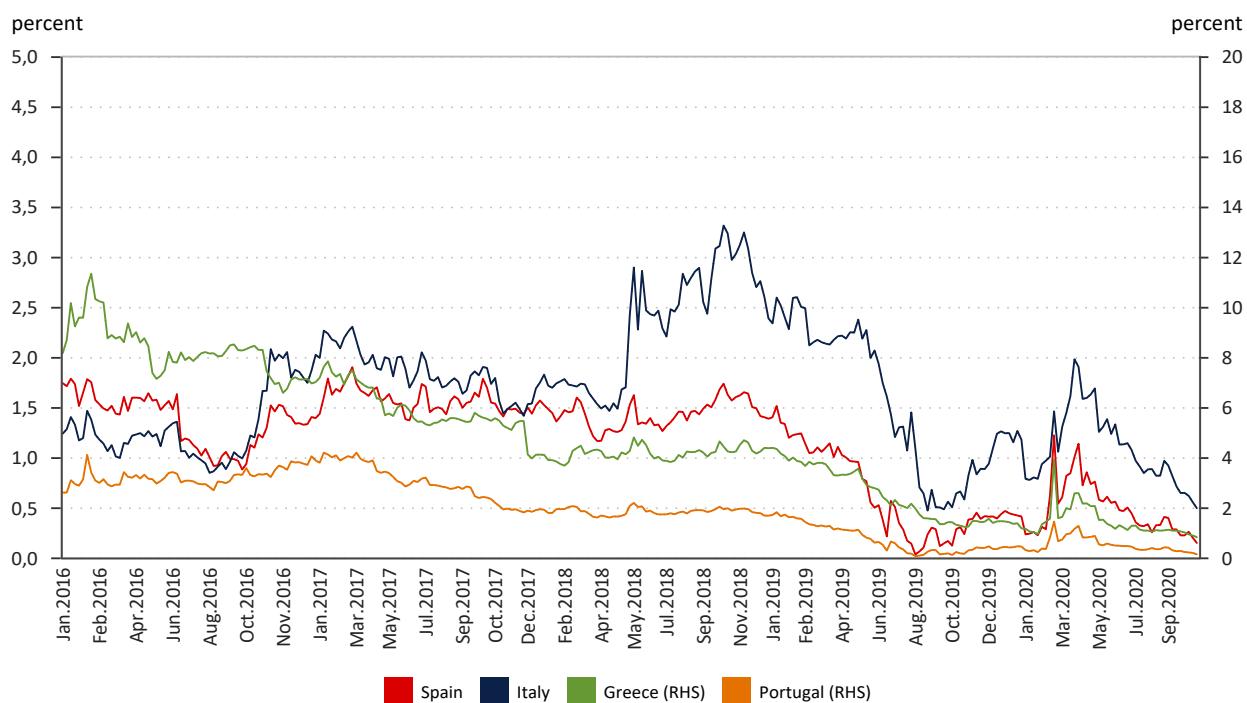
Source: Refinitiv.

117. Benchmark yield curves of Hungary, Poland, Italy and GermanySource: Bloomberg
Note: X axis is displayed in years.

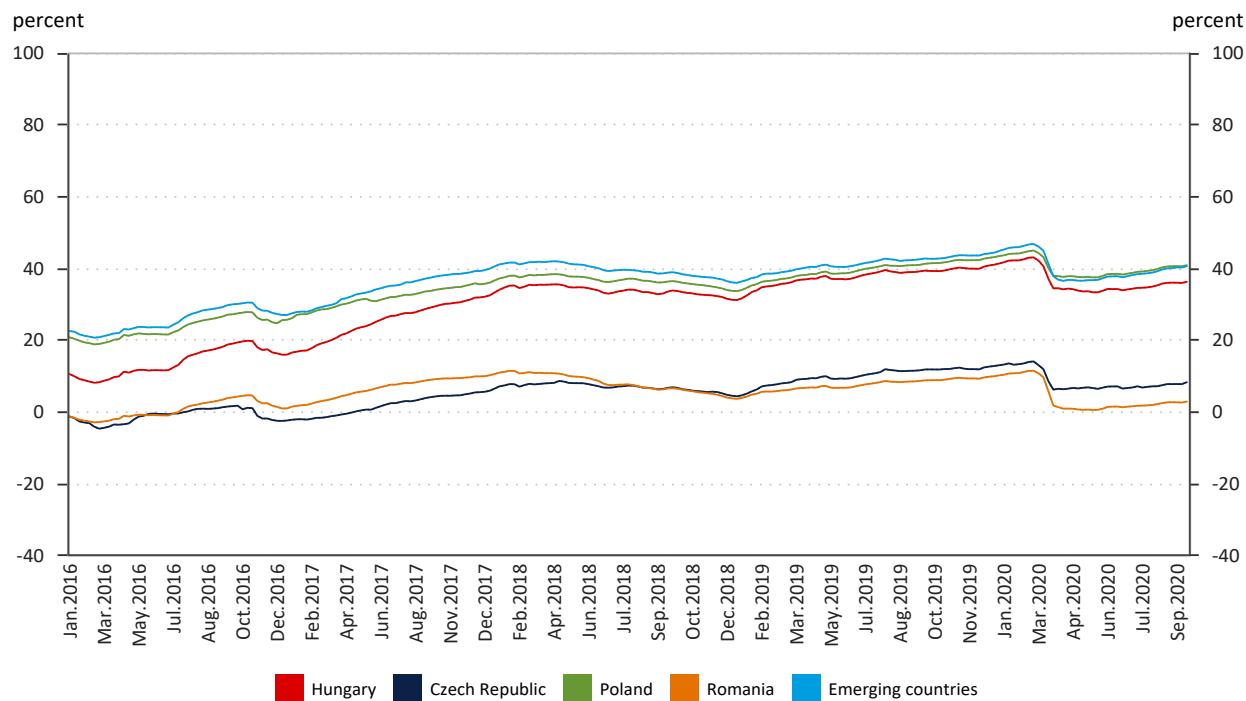
118. Main risk indicators

Source: Refinitiv Datastream

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

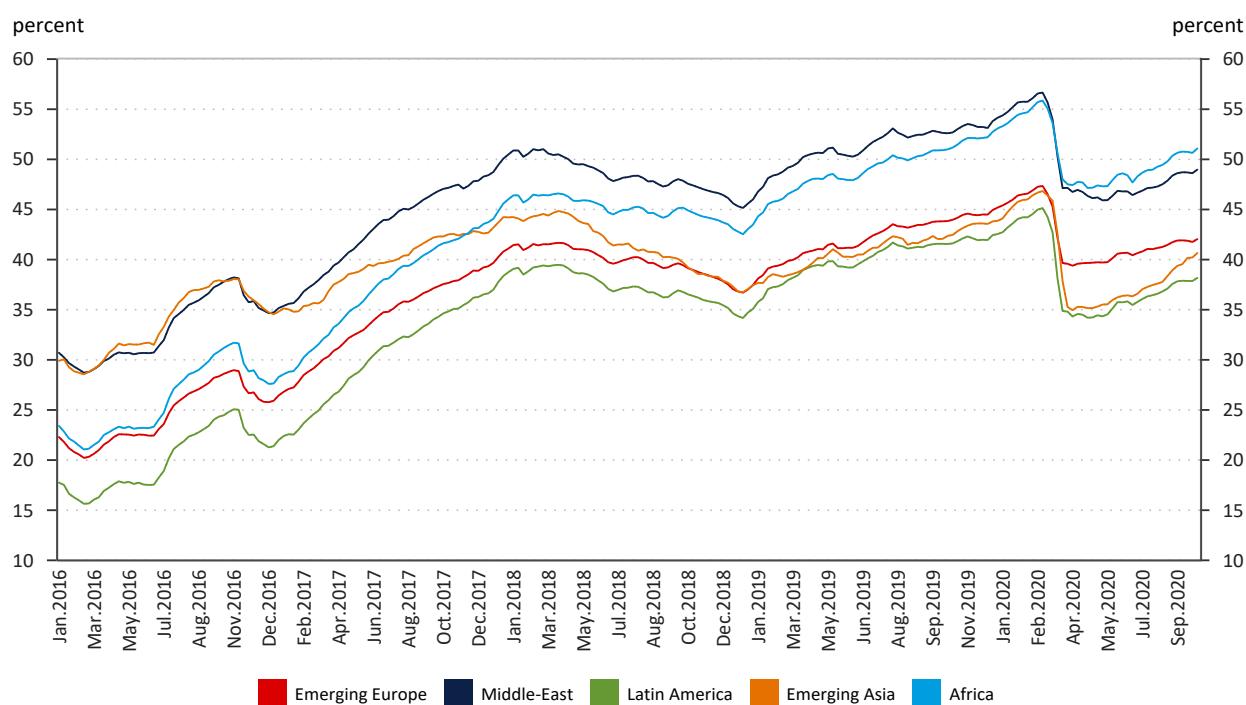
119. Long term government bond yields in the Eurozone periphery

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