

Brexit impact on EM currencies: gone with the wind

by Vasileios Gkionakis (UniCredit Bank London), Kathrin Goretzki (UniCredit Bank London) and Fadi Hassan* (UniCredit Bank London)

- We analyze the performance of EM currencies in the aftermath of the UK’s EU referendum. Contrary to popular belief, which argued that Brexit would generate global shockwaves and put EM under severe pressure, we find that EMFX has by now completely shrugged off the news.
- Following the initial sell-off – which prompted analysts and academics to quickly draw parallels with the taper tantrum in 2013 – we show that EM currencies have since staged an impressive and widespread rally.
- What the "Brexit Surprise" has actually done, is to send (the already very low) DM yields to historical lows, prompting even more hunt for yield and hence putting EMFX under considerable upside pressure.
- In fact, this is the exact opposite of what happened after the Fed's taper announcement, which sent US yields surging and led to an exodus of flows from emerging markets.

Taper tantrum vs. UK leave vote: what a difference a day makes!

The UK vote to leave the European Union was a negative shock to the British economy; the extent of ripple effects to the world economy and global markets remains an issue of controversy. All along, both during the pre-vote period and in the aftermath of the result, our view has been (and remains) that the impact of the UK’s exit from the EU should be largely confined to UK asset prices (mainly sterling), with few negative or lasting implications for global market sentiment. In this issue of *FX Perspectives*, we utilize the available data so far to put this view to the test and investigate the reasons behind the dynamics observed.

In an article published shortly after the referendum, [Eichengreen et al. \(2016\)](#)¹ look at EM currency depreciation in the first two post-surprise days of trading. They find that, similar to what occurred in the case of the taper announcement² (May 2013) "...a substantial number of emerging markets saw declines in their stock markets and dollar exchange rates...if anything, declines following the Brexit Surprise were more widespread and larger". The authors relate this to the nature of the shock, explaining that "where the taper tantrum was mainly a financial shock, the Brexit surprise is evidently perceived as

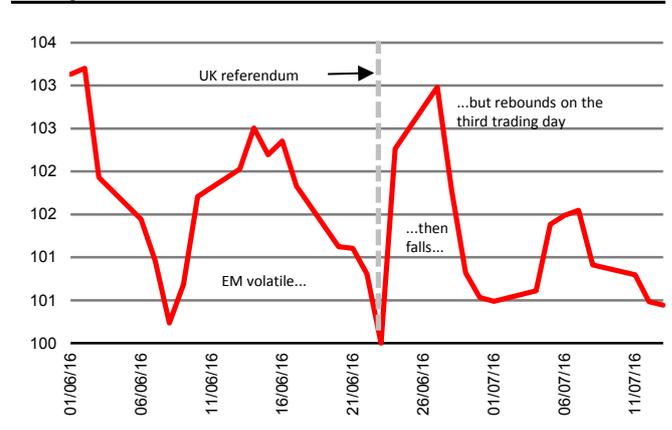
having real as well as financial consequences". We find two shortcomings here that can lead to incomplete conclusions.

First, a two-day window is too short. Although the choice of such a horizon may make sense from the perspective of an event study (as it limits the influence of other contributing factors), the reality is that EMFX rebounded sharply on the third trading day after the leave-vote surprise, without any relevant event occurring on that date (Chart 1).

Second, the taper tantrum and leave-vote surprise differ in that the timing of Mr. Bernanke’s announcement was unexpected (although there have been rumors about a potential leak previous to it), whereas markets had been preparing for a potential Brexit vote long before polling day. In fact, in the last few weeks before the vote, opinion polls took center stage in market reaction: the early-June shift in favor of Brexit made room for a switch back to "Bremain" in the last few days before the vote, leading to a sizeable rally in risky assets across the board.³ With risk-sensitive assets so volatile (Chart 1), it is hard to pick a specific date for comparison of price levels.

CHART 1: USD-EMFX (REFERENDUM DAY=100)

Average of 15 most tradable EMFX



Source: Bloomberg, UniCredit Research

With more trading days to go by now, we investigate how the results of the analysis change when 1. extending the two-day time window to the 14 trading days available up to now; 2. using the 20D average (prior to the event) as a baseline, to control for higher volatility before the vote.

*Fadi Hassan is an Assistant Professor of Economics at Trinity College Dublin and a Consultant for UniCredit Bank AG.

¹ See Eichengreen, B., Gupta P., and A. Ospino, 2016. "The Brexit Surprise and emerging markets", *VoxEu Column*.

² Taper announcement refers to Ben Bernanke’s testimony before the US Congress (22nd May 2013) when the chairman suggested that the Fed was contemplating reducing its asset purchases

³ The UK-oriented FTSE 250 index rose by more than 8% between 16 and 23 June after having declined by 7% since 7 June.

TABLE 1: EMFX RESPONSE TO BREXIT AND TAPER TANTRUM

	2 trading days following event	14 trading days following event	14 trading days vs. 20-day avg. prior to event
% of EMFX that depreciated against the USD			
50 EM currencies			
Brexit	78%	68%	52%
Taper tantrum	70%	66%	74%
15 most tradable EM currencies			
Brexit	100%	60%	20%
Taper tantrum	87%	80%	87%
Average EMFX return vs. USD			
50 EM currencies			
Brexit	1.9%	0.7%	0.0%
Taper tantrum	0.2%	0.7%	1.4%
15 most tradable EM currencies			
Brexit	2.9%	0.4%	-1.4%
Taper tantrum	0.4%	2.7%	3.8%

Source: Bloomberg, UniCredit Research

We do this exercise for the universe of 50 EM currencies (as reported in Eichengreen et al.) but also for the 15 most tradable EMFX⁴ (according to the BIS tri-annual survey). The results are reported in Table 1. We summarize our findings:

1. In line with the Eichengreen et al. results, the immediate (two-day) response of EMFX was materially larger than the reaction to the taper announcement: the vast majority of the EM currencies depreciated against the USD, with the average USD-EMFX return (for the 15 most tradable EMFX) standing at nearly 3%; the USD-EMFX reaction to Ben Bernanke's testimony in May 2013 was largely muted in the two days following his testimony (see first column of Table 1).
2. But looking beyond the very short-term response, things change quite significantly: not only the percentage of EMFX that has depreciated against the USD falls dramatically in the case of Brexit (most evident in the 15 most tradable currencies) but, more importantly, average USD gains evaporate rather quickly. In contrast, the USD consolidated its gains against EMFX following the taper announcement (see second column of Table 1).
3. The diverging paths of EMFX in the aftermath of two events become even more palpable when we control for short-term volatility and compare prices 14 trading days⁵ after the events with their 20-day averages prior to the events. When doing so, we find that most EMFX (80% of the most liquidity FX) has by now appreciated (Brexit) with the average gain 1.4% against the USD; but the same calculations reveal substantial and widespread EMFX losses in the case of the taper announcement (see third column of Table 1).

⁴ The 15 most tradable EMFX are: MXN, CNY, RUB, SGD, TRY, KRW, ZAR, BRL, INR, PLN, TWD, HUF, MYR, THB and CLP (we have excluded HKD and CZK due to the pegs)

⁵ Here, we use the close of 13 July 2016

This story is corroborated by the reaction of global equity markets to each event, with EM stocks staging a pretty strong rally following their initial sell-off in the aftermath of the UK vote (see Table 2).

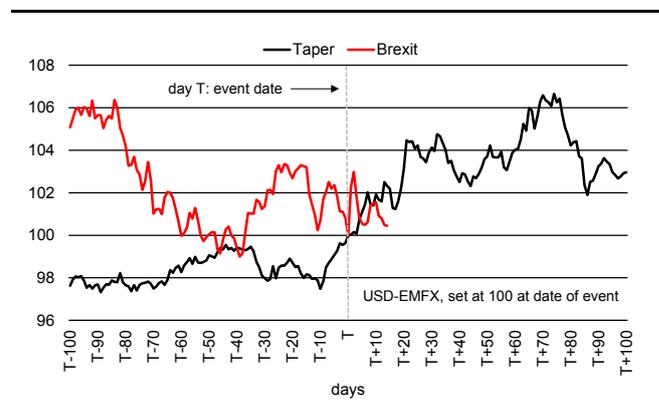
TABLE 2: EM EQUITY RESPONSE TO BREXIT AND TAPER TANTRUM (USING 25 EM EQUITY INDICES)

	2 trading days following event	14 trading days following event	14 trading days vs. 20-day avg. prior to event
% of EM equity indices that declined			
Brexit	100%	60%	48%
Taper tantrum	48%	84%	72%
Average EM equity performance			
Brexit	-3.3%	-0.4%	0.5%
Taper tantrum	0.3%	-4.2%	-2.9%

Source: Bloomberg, UniCredit Research

In short, the UK referendum on EU membership generated plenty of market volatility around the event but examination of only the short-term asset-price reaction can lead to incomplete conclusions: the impact was very short-lived and the event has not escalated to one of global proportions. This is in sharp contrast to the taper announcement in May 2013, which set in motion a pronounced and widespread decline in EMFX prices (see Chart 2).⁶

CHART 2: TAPER ANNOUNCEMENT SETS IN MOTION WIDESPREAD DECLINE IN EMFX



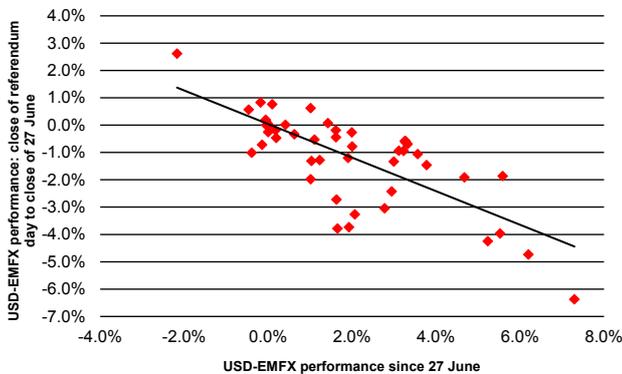
Source: Bloomberg; UniCredit Research

EMFX reaction: looking under the hood

We think that the currency depreciation emerging markets experienced in the first two days after the Brexit vote mainly reflected some mispricing as investors started to digest the ramifications of the result. Chart 3 shows a negative and significant correlation between the exchange-rate movements two days following the referendum result (23 June close to 27 June close) and movements since then. This means that those currencies that initially depreciated the most have been the ones that rebounded more strongly in the following days.

⁶ Notice that EM depreciation started about ten days before Bernanke's testimony as rumors about tapering were leaked to the Wall Street Journal.

CHART 3: INITIAL MISPRICING REVERSING

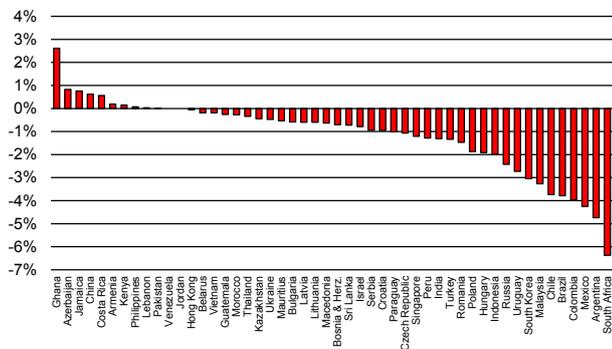


Source: Bloomberg, UniCredit Research

Having said that, there is significant heterogeneity in the degree of post-referendum appreciation across EM countries (see Chart 4). Looking at exchange-rate movements without accounting for the type of exchange-rate regime that characterizes each country (and the historical volatility of the currency) is admittedly a crude measure, but to a large extent still reflects market movements.

CHART 4: 50 SHADES OF DEPRECIATION

USD-EMFX performance since 27 June close

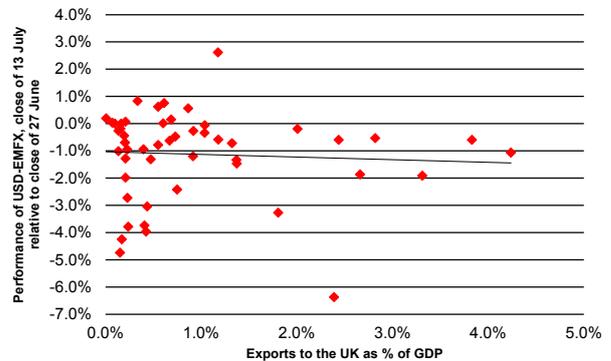


Source: Bloomberg, UniCredit Research

One of the points highlighted by Eichengreen et al. is that the depreciation that EM experienced in the two days after the Brexit referendum was related to trade links with the UK and in particular with the European Union. Their intuition was that markets recognized that in a Brexit scenario GDP growth would take the hardest hit in the UK and the EU and this would generate negative spillover to the countries with the highest export share to them.

If that was the case, the EMFX rebound since 27 June would be characterized by the currencies of countries with strong trade links with the UK appreciating the least. However, Chart 5 shows that this is not the case (we also looked at trade with the EU14 and the eurozone, and the results were very similar).

CHART 5: NO EVIDENCE OF TRADE LINKAGE



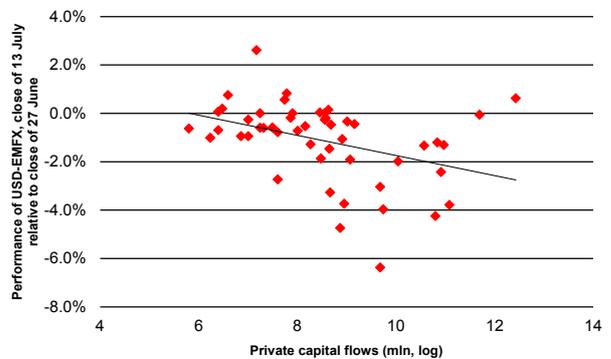
Source: Bloomberg, UniCredit Research

What we do find, however, is evidence that FX movements since 27 June are more correlated with the size of financial markets. The countries that experienced stronger exchange-rate rebounds have been the ones with larger markets.

Chart 6 shows a negative and significant correlation (at the 1% level) between post-referendum USD-EMFX movements and a proxy of financial market size: a 1% increase in the size of financial markets is on average associated with approximately 0.5% appreciation in EMFX against the US dollar (this estimated impact increases somewhat if we exclude managed currencies from our sample).

Similar to Eichengreen et al. (2016) we proxy financial-market size by looking at the average absolute value of private financial flows between 2013-2015 using data from the financial accounts of the IMF-BOPS. The results hold also if we look at a stock rather than a flow measure by taking the international investment position.

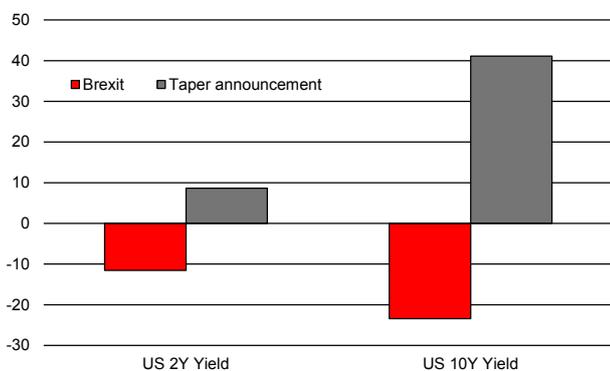
CHART 6: SIZE OF FINANCIAL MARKETS MATTERS MORE



Source: Bloomberg, UniCredit Research

This suggests that there is a liquidity story behind the post-referendum exchange-rate movements. In our view, the Brexit vote triggered expectations of a further low(er)-yield environment in developed countries due to upcoming monetary-policy easing by the BoE and potentially delayed interest-rate hikes by the Fed. This is leading investors to rebalance their portfolio towards emerging markets, hunting for yield on the back of falling US rates (in sharp contrast to the taper tantrum period – see Chart 7).

CHART 7: US YIELD MOVEMENTS (IN BP) – 14 TRADING DAYS AFTER EVENT RELATIVE TO 20-DAY AVERAGE PRIOR TO EVENT



Source: Bloomberg, UniCredit Research

In particular, the markets with higher liquidity are experiencing more pronounced currency appreciation due to ease of access, which potentially leads to larger inflows. In fact, this is the mirror of what happened after the taper tantrum when expectations of higher yields in the US triggered portfolio outflows and currency depreciation in the more-liquid EMs (see Eichengreen and Gupta 2013)⁷.

This leads us to an interesting conclusion: should yield remain at these historic lows in the short term, then there is a case to be made that liquid EMFX will keep on rallying, regardless of fundamentals.

Indeed, when we performed an analysis to see which factor has been more important during the recent rebound we found that financial size overshadowed both trade linkages as well as GDP forecasts.

In the end, fundamentals will matter; but we think investors should bear in mind that in this “low-yield induced rally” liquid EM currencies (like TRY and ZAR in CEEMEA) have the potential to rally further in the short-term.

Authors:

Dr. Vasileios Gkionakis, Global Head of FX Strategy (UniCredit Bank London)
 +44 207 826-7951
 vasileios.gkionakis@unicredit.eu

Kathrin Goretzki, CFA (UniCredit Bank London)
 +44 207 826-6076
 kathrin.goretzki@unicredit.eu

Dr. Fadi Hassan*, Economist – Consultant (UniCredit Bank London)
 +44 207 826-1209
 fhassan.external@unicredit.eu

⁷ See Eichengreen, B. and P. Gupta, 2013. “Tapering Talk: the impact of expectations of reduced federal security purchases on emerging markets”, Policy Research Working Paper n. 6754, The World Bank.

*Fadi Hassan is an Assistant Professor of Economics at Trinity College Dublin and a Consultant for UniCredit Bank AG.

Previous editions

- » FX Perspectives - Yen to bear the brunt of “flight to safety” in the event of Brexit - 16 June 2016
- » FX Perspectives - Discovering the untapped potential of the two Nordic currencies - 1 June 2016
- » FX Perspectives - Turkish lira – the fragile one - 19 May 2016
- » FX Perspectives - UK portfolio balance and sterling: what if the kind strangers turn cruel? - 5 May 2016
- » FX Perspectives - Slicing and dicing the commodity FX rally: upswing to remain in place with CAD continuing to outperform - 21 April 2016
- » FX Perspectives - EM FX: why the rally has further to run - 7 April 2016
- » FX Perspectives - Exploring FX hedging strategies using our BEER model - 22 March 2016
- » FX Perspectives - Why we are turning constructive on the yen - 10 March 2016
- » FX Perspectives - Brexit uncertainty leaves scope for further drag on sterling - 25 February 2016
- » FX Perspectives - Why the link between the Swiss franc and risk has been broken - 11 February 2016

Legal Notices

Glossary

A comprehensive glossary for many of the terms used in the report is available on our website: [Link](#)

Disclaimer

Our recommendations are based on information obtained from, or are based upon public information sources that we consider to be reliable but for the completeness and accuracy of which we assume no liability. All estimates and opinions included in the report represent the independent judgment of the analysts as of the date of the issue. This report may contain links to websites of third parties, the content of which is not controlled by UniCredit Bank. No liability is assumed for the content of these third-party websites. We reserve the right to modify the views expressed herein at any time without notice. Moreover, we reserve the right not to update this information or to discontinue it altogether without notice. This analysis is for information purposes only and (i) does not constitute or form part of any offer for sale or subscription of or solicitation of any offer to buy or subscribe for any financial, money market or investment instrument or any security, (ii) is neither intended as such an offer for sale or subscription of or solicitation of an offer to buy or subscribe for any financial, money market or investment instrument or any security nor (iii) as an advertisement thereof. The investment possibilities discussed in this report may not be suitable for certain investors depending on their specific investment objectives and time horizon or in the context of their overall financial situation. The investments discussed may fluctuate in price or value. Investors may get back less than they invested. Changes in rates of exchange may have an adverse effect on the value of investments. Furthermore, past performance is not necessarily indicative of future results. In particular, the risks associated with an investment in the financial, money market or investment instrument or security under discussion are not explained in their entirety.

This information is given without any warranty on an "as is" basis and should not be regarded as a substitute for obtaining individual advice. Investors must make their own determination of the appropriateness of an investment in any instruments referred to herein based on the merits and risks involved, their own investment strategy and their legal, fiscal and financial position. As this document does not qualify as an investment recommendation or as a direct investment recommendation, neither this document nor any part of it shall form the basis of, or be relied on in connection with or act as an inducement to enter into, any contract or commitment whatsoever. Investors are urged to contact their bank's investment advisor for individual explanations and advice.

Neither UniCredit Bank, UniCredit Bank London, UniCredit Bank Milan, UniCredit Bulbank, Zagrebačka banka, UniCredit Bank Czech Republic and Slovakia, Bank Pekao, UniCredit Russia, UniCredit Bank Romania nor any of their respective directors, officers or employees nor any other person accepts any liability whatsoever (in negligence or otherwise) for any loss howsoever arising from any use of this document or its contents or otherwise arising in connection therewith.

This analysis is being distributed by electronic and ordinary mail to investors, who are expected to make their own investment decisions without undue reliance on this publication, and may not be redistributed, reproduced or published in whole or in part for any purpose.

Responsibility for the content of this publication lies with:

UniCredit Group and its subsidiaries are subject to regulation by the European Central Bank

- a) UniCredit Bank AG (UniCredit Bank), Am Tucherpark 16, 80538 Munich, Germany, (also responsible for the distribution pursuant to §34b WpHG). The company belongs to UniCredit Group. Regulatory authority: "BaFin" – Bundesanstalt für Finanzdienstleistungsaufsicht, Lurgiallee 12, 60439 Frankfurt, Germany.
- b) UniCredit Bank AG London Branch (UniCredit Bank London), Moor House, 120 London Wall, London EC2Y 5ET, United Kingdom.
Regulatory authority: "BaFin" – Bundesanstalt für Finanzdienstleistungsaufsicht, Lurgiallee 12, 60439 Frankfurt, Germany and subject to limited regulation by the Financial Conduct Authority, 25 The North Colonnade, Canary Wharf, London E14 5HS, United Kingdom and Prudential Regulation Authority 20 Moorgate, London, EC2R 6DA, United Kingdom. Further details regarding our regulatory status are available on request.
- c) UniCredit Bank AG Milan Branch (UniCredit Bank Milan), Piazza Gae Aulenti, 4 - Torre C, 20154 Milan, Italy, duly authorized by the Bank of Italy to provide investment services.
Regulatory authority: "Bank of Italy", Via Nazionale 91, 00184 Roma, Italy and Bundesanstalt für Finanzdienstleistungsaufsicht, Lurgiallee 12, 60439 Frankfurt, Germany.
- d) UniCredit Bulbank, Sveta Nedelya Sq. 7, BG-1000 Sofia, Bulgaria
Regulatory authority: Financial Supervision Commission (FSC), 33 Shar Planina str., 1303 Sofia, Bulgaria
- e) Zagrebačka banka d.d., Trg bana Jelacića 10, HR-10000 Zagreb, Croatia
Regulatory authority: Croatian Agency for Supervision of Financial Services, Miramarska 24B, 10000 Zagreb, Croatia
- f) UniCredit Bank Czech Republic and Slovakia, Na Příkopě 858/20, CZ-11121 Prague, Czech Republic
Regulatory authority: CNB Czech National Bank, Na Příkopě 28, 115 03 Praha 1, Czech Republic
- g) Bank Pekao, ul. Grzybowska 53/57, PL-00-950 Warsaw, Poland
Regulatory authority: Polish Financial Supervision Authority, Plac Powstańców Warszawy 1, 00-950 Warsaw, Poland
- h) ZAO UniCredit Bank Russia (UniCredit Russia), Prechistsenskaya emb. 9, RF-19034 Moscow, Russia
Regulatory authority: Federal Service on Financial Markets, 9 Leninsky prospekt, Moscow 119991, Russia
- i) UniCredit Bank Czech Republic and Slovakia, Slovakia Branch, Šancova 1/A, SK-813 33 Bratislava, Slovakia
Regulatory authority: CNB Czech National Bank, Na Příkopě 28, 115 03 Praha 1, Czech Republic and subject to limited regulation by the National Bank of Slovakia, Imricha Karvaša 1, 813 25 Bratislava, Slovakia. Regulatory authority: National Bank of Slovakia, Imricha Karvaša 1, 813 25 Bratislava, Slovakia
- j) UniCredit Bank Romania, Bucharest 1F Expozitiei Boulevard, RO-012101 Bucharest 1, Romania
Regulatory authority: National Bank of Romania, 25 Lipskani Street, RO-030031, 3rd District, Bucharest, Romania
- k) UniCredit Bank AG Hong Kong Branch (UniCredit Bank Hong Kong), 25/F Man Yee Building, 68 Des Voeux Road Central, Hong Kong.
Regulatory authority: Hong Kong Monetary Authority, 55th Floor, Two International Financial Centre, 8 Finance Street, Central, Hong Kong
- l) UniCredit Bank AG Singapore Branch (UniCredit Bank Singapore), Prudential Tower, 30 Cecil Street, #25-01, Singapore 049712
Regulatory authority: Monetary Authority of Singapore, 10 Shenton Way MAS Building, Singapore 079117
- m) UniCredit Bank AG Tokyo Branch (UniCredit Tokyo), Otemachi 1st Square East Tower 18/F, 1-5-1 Otemachi, Chiyoda-ku, 100-0004 Tokyo, Japan
Regulatory authority: Financial Services Agency, The Japanese Government, 3-2-1 Kasumigaseki Chiyoda-ku Tokyo, 100-8967 Japan, The Central Common Government Offices No. 7.
- n) UniCredit Bank New York (UniCredit Bank NY), 150 East 42nd Street, New York, NY 10017
Regulatory authority: "BaFin" – Bundesanstalt für Finanzdienstleistungsaufsicht, Lurgiallee 12, 60439 Frankfurt, Germany and New York State Department of Financial Services, One State Street, New York, NY 10004-1511

POTENTIAL CONFLICTS OF INTEREST

UniCredit Bank AG acts as a Specialist or Primary Dealer in government bonds issued by the Italian, Portuguese and Greek Treasury. Main tasks of the Specialist are to participate with continuity and efficiency to the governments' securities auctions, to contribute to the efficiency of the secondary market through market making activity and quoting requirements and to contribute to the management of public debt and to the debt issuance policy choices, also through advisory and research activities.

ANALYST DECLARATION

The author's remuneration has not been, and will not be, geared to the recommendations or views expressed in this study, neither directly nor indirectly.

ORGANIZATIONAL AND ADMINISTRATIVE ARRANGEMENTS TO AVOID AND PREVENT CONFLICTS OF INTEREST

To prevent or remedy conflicts of interest, UniCredit Bank, UniCredit Bank London, UniCredit Bank Milan, UniCredit Bulbank, Zagrebačka banka, UniCredit Bank Czech Republic and Slovakia, Bank Pekao, UniCredit Russia, and UniCredit Bank Romania have established the organizational arrangements required from a legal and supervisory aspect, adherence to which is monitored by its compliance department. Conflicts of interest arising are managed by legal and physical and non-physical barriers (collectively referred to as "Chinese Walls") designed to restrict the flow of information between one area/department of UniCredit Bank, UniCredit Bank London, UniCredit Bank Milan, UniCredit Bulbank, Zagrebačka banka, UniCredit Bank Czech Republic and Slovakia, Bank Pekao, UniCredit Russia, UniCredit Bank Romania, and another. In particular, Investment Banking units, including corporate finance, capital market activities, financial advisory and other capital raising activities, are segregated by physical and non-physical boundaries from Markets Units, as well as the research department. In the case of equities execution by UniCredit Bank AG Milan Branch, other than as a matter of client facilitation or delta hedging of OTC and listed derivative positions, there is no proprietary trading. Disclosure of publicly available conflicts of interest and other material interests is made in the research. Analysts are supervised and managed on a day-to-day basis by line managers who do not have responsibility for Investment Banking activities, including corporate finance activities, or other activities other than the sale of securities to clients.

ADDITIONAL REQUIRED DISCLOSURES UNDER THE LAWS AND REGULATIONS OF JURISDICTIONS INDICATED

You will find a list of further additional required disclosures under the laws and regulations of the jurisdictions indicated on our website www.cib-unicredit.com/research-disclaimer.

Notice to Austrian investors: This analysis is only for distribution to professional clients (Professionelle Kunden) as defined in article 58 of the Securities Supervision Act.

Notice to investors in Bosnia and Herzegovina: This report is intended only for clients of UniCredit in Bosnia and Herzegovina who are institutional investors (Institucionalni investitori) in accordance with Article 2 of the Law on Securities Market of the Federation of Bosnia and Herzegovina and Article 2 of the Law on Securities Markets of the Republic of Srpska, respectively, and may not be used by or distributed to any other person. This document does not constitute or form part of any offer for sale or subscription for or solicitation of any offer to buy or subscribe for any securities and neither this document nor any part of it shall form the basis of, or be relied on in connection with or act as an inducement to enter into, any contract or commitment whatsoever.

Notice to Brazilian investors: The individual analyst(s) responsible for issuing this report represent(s) that: (a) the recommendations herein reflect exclusively the personal views of the analysts and have been prepared in an independent manner, including in relation to UniCredit Group; and (b) except for the potential conflicts of interest listed under the heading "Potential Conflicts of Interest" above, the analysts are not in a position that may impact on the impartiality of this report or that may constitute a conflict of interest, including but not limited to the following: (i) the analysts do not have a relationship of any nature with any person who works for any of the companies that are the object of this report; (ii) the analysts and their respective spouses or partners do not hold, either directly or indirectly, on their behalf or for the account of third parties, securities issued by any of the companies that are the object of this report; (iii) the analysts and their respective spouses or partners are not involved, directly or indirectly, in the acquisition, sale and/or trading in the market of the securities issued by any of the companies that are the object of this report; (iv) the analysts and their respective spouses or partners do not have any financial interest in the companies that are the object of this report; and (v) the compensation of the analysts is not, directly or indirectly, affected by UniCredit's revenues arising out of its businesses and financial transactions. UniCredit represents that: except for the potential conflicts of interest listed under the heading "Potential Conflicts of Interest" above, UniCredit, its controlled companies, controlling companies or companies under common control (the "UniCredit Group") are not in a condition that may impact on the impartiality of this report or that may constitute a conflict of interest, including but not limited to the following: (i) the UniCredit Group does not hold material equity interests in the companies that are the object of this report; (ii) the companies that are the object of this report do not hold material equity interests in the UniCredit Group; (iii) the UniCredit Group does not have material financial or commercial interests in the companies or the securities that are the object of this report; (iv) the UniCredit Group is not involved in the acquisition, sale and/or trading of the securities that are the object of this report; and (v) the UniCredit Group does not receive compensation for services rendered to the companies that are the object of this report or to any related parties of such companies.

Notice to Canadian investors: This communication has been prepared by UniCredit Bank AG, which does not have a registered business presence in Canada. This communication is a general discussion of the merits and risks of a security or securities only, and is not in any way meant to be tailored to the needs and circumstances of any recipient. The contents of this communication are for information purposes only, therefore should not be construed as advice and do not constitute an offer to sell, nor a solicitation to buy any securities.

Notice to Cyprus investors: This document is directed only at clients of UniCredit Bank who are persons falling within the Second Appendix (Section 2, Professional Clients) of the law for the Provision of Investment Services, the Exercise of Investment Activities, the Operation of Regulated Markets and other Related Matters, Law 144(I)/2007 and persons to whom it may otherwise lawfully be communicated who possess the experience, knowledge and expertise to make their own investment decisions and properly assess the risks that they incur (all such persons together being referred to as "relevant persons"). This document must not be acted on or relied on by persons who are not relevant persons or relevant persons who have requested to be treated as retail clients. Any investment or investment activity to which this communication relates is available only to relevant persons and will be engaged in only with relevant persons. This document does not constitute an offer or solicitation to any person to whom it is unlawful to make such an offer or solicitation.

Notice to Hong Kong investors: This report is for distribution only to "professional investors" within the meaning of Schedule 1 to the Securities and Futures Ordinance (Chapter 571, Laws of Hong Kong) and any rules made thereunder, and may not be reproduced, or used by or further distributed to any other person, in whole or in part, for any purpose. This report does not constitute or form part of an offer or solicitation of any offer to buy or sell any securities, nor should it or any part of it form the basis of, or be relied upon in connection with, any contract or commitment whatsoever. By accepting this report, the recipient represents and warrants that it is entitled to receive such report in accordance with, and on the basis of, the restrictions set out in this "Disclaimer" section, and agrees to be bound by those restrictions.

Notice to investors in Ivory Coast: The information contained in the present report have been obtained by Unicredit Bank AG from sources believed to be reliable, however, no express or implied representation or warranty is made by Unicredit Bank AG or any other person as to the completeness or accuracy of such information. All opinions and estimates contained in the present report constitute a judgement of Unicredit Bank AG as of the date of the present report and are subject to change without notice. They are provided in good faith but without assuming legal responsibility. This report is not an offer to sell or solicitation of an offer to buy or invest in securities. Past performance is not an indicator of future performance and future returns cannot be guaranteed, and there is a risk of loss of the initial capital invested. No matter contained in this document may be reproduced or copied by any means without the prior consent of Unicredit Bank AG.

Notice to New Zealand investors: This report is intended for distribution only to persons who are "wholesale clients" within the meaning of the Financial Advisers Act 2008 ("FAA") and by receiving this report you represent and agree that (i) you are a "wholesale client" under the FAA (ii) you will not distribute this report to any other person, including (in particular) any person who is not a "wholesale client" under the FAA. This report does not constitute or form part of, in relation to any of the securities or products covered by this report, either (i) an offer of securities for subscription or sale under the Securities Act 1978 or (ii) an offer of financial products for issue or sale under the Financial Markets Conduct Act 2013.

Notice to Omani investors: This communication has been prepared by UniCredit Bank AG. UniCredit Bank AG does not have a registered business presence in Oman and does not undertake banking business or provide financial services in Oman and no advice in relation to, or subscription for, any securities, products or financial services may or will be consummated within Oman. The contents of this communication are for the information purposes of sophisticated clients, who are aware of the risks associated with investments in foreign securities and neither constitutes an offer of securities in Oman as contemplated by the Commercial Companies Law of Oman (Royal Decree 4/74) or the Capital Market Law of Oman (Royal Decree 80/98), nor does it constitute an offer to sell, or the solicitation of any offer to buy non-Omani securities in Oman as contemplated by Article 139 of the Executive Regulations to the Capital Market Law (issued vide CMA Decision 1/2009). This communication has not been approved by and UniCredit Bank AG is not regulated by either the Central Bank of Oman or Oman's Capital Market Authority.

Notice to Pakistani investors: Investment information, comments and recommendations stated herein are not within the scope of investment advisory activities as defined in sub-section I, Section 2 of the Securities and Exchange Ordinance, 1969 of Pakistan. Investment advisory services are provided in accordance with a contract of engagement on investment advisory services concluded with brokerage houses, portfolio management companies, non-deposit banks and the clients. The distribution of this report is intended only for informational purposes for the use of professional investors and the information and opinions contained herein, or any part of it shall not form the basis of, or be relied on in connection with or act as an inducement to enter into, any contract or commitment whatsoever.

Notice to Polish investors: This document is intended solely for professional clients as defined in Art. 3.39b of the Trading in Financial Instruments Act of 29 July 2005 (as amended). The publisher and distributor of the document certifies that it has acted with due care and diligence in preparing it, however, assumes no liability for its completeness and accuracy. This document is not an advertisement. It should not be used in substitution for the exercise of independent judgment.

Notice to Serbian investors: This analysis is only for distribution to professional clients (profesionalni klijenti) as defined in article 172 of the Law on Capital Markets.

Notice to UK investors: This communication is directed only at clients of UniCredit Bank who (i) have professional experience in matters relating to investments or (ii) are persons falling within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations, etc.") of the United Kingdom Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 or (iii) to whom it may otherwise lawfully be communicated (all such persons together being referred to as "relevant persons"). This communication must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this communication relates is available only to relevant persons and will be engaged in only with relevant persons.

UniCredit Research*

Erik F. Nielsen
 Group Chief Economist
 Global Head of CIB Research
 +44 207 826-1765
 erik.nielsen@unicredit.eu

Dr. Ingo Heimig
 Head of Research Operations
 +49 89 378-13952
 ingo.heimig@unicredit.de

Economics & FI/FX Research
Economics Research
European Economics

Marco Valli, Chief Eurozone Economist
 +39 02 8862-0537
 marco.valli@unicredit.eu

Dr. Andreas Rees, Chief German Economist
 +49 69 2717-2074
 andreas.rees@unicredit.de

Stefan Bruckbauer, Chief Austrian Economist
 +43 50505-41951
 stefan.bruckbauer@unicreditgroup.at

Tullia Bucco, Economist
 +39 02 8862-0532
 tullia.bucco@unicredit.eu

Edoardo Campanella, Economist
 +39 02 8862-0522
 edoardo.campanella@unicredit.eu

Dr. Loredana Federico, Lead Italy Economist
 +39 02 8862-0534
 loredanamaria.federico@unicredit.eu

Dr. Tobias Rühl, Economist
 +49 89 378-12560
 tobias.ruehl@unicredit.de

Chiara Silvestre, Economist
 chiara.silvestre@unicredit.eu

Dr. Thomas Strobel, Economist
 +49 89 378-13013
 thomas.strobel@unicredit.de

Daniel Vernazza, Ph.D., Lead UK Economist
 +44 207 826-7805
 daniel.vernazza@unicredit.eu

US Economics

Dr. Harm Bandholz, CFA, Chief US Economist
 +1 212 672-5957
 harm.bandholz@unicredit.eu

EEMEA Economics & FI/FX Strategy

Lubomir Mitov, Chief CEE Economist
 +44 207 826-1772
 lubomir.mitov@unicredit.eu

Artem Arkhipov, Head, Macroeconomic Analysis
 and Research, Russia
 +7 495 258-7258
 artem.arkhipov@unicredit.ru

Anca Maria Aron, Senior Economist, Romania
 +40 21 200-1377
 anca.aron@unicredit.ro

Anna Bogdyukevich, CFA, Russia
 +7 495 258-7258 ext. 11-7562
 anna.bogdyukevich@unicredit.ru

Dan Bucsa, Lead CEE Economist
 +44 207 826-7954
 dan.bucsa@unicredit.eu

Hrvoje Dolenc, Chief Economist, Croatia
 +385 1 6006 678
 hrvoje.dolenc@unicreditgroup.zaba.hr

Dr. Ágnes Halász, Chief Economist, Head, Economics and
 Strategic Analysis, Hungary
 +36 1 301-1907
 agnes.halasz@unicreditgroup.hu

Lubomír Koršňák, Chief Economist, Slovakia
 +421 2 4950 2427
 lubomir.korsnak@unicreditgroup.sk

Marcin Mrowiec, Chief Economist, Poland
 +48 22 524-5914
 marcin.mrowiec@pekao.com.pl

Kristofor Pavlov, Chief Economist, Bulgaria
 +359 2 9269-390
 kristofor.pavlov@unicreditgroup.bg

Pavel Sobisek, Chief Economist, Czech Republic
 +420 955 960-716
 pavel.sobisek@unicreditgroup.cz

Dumitru Vicol, Economist
 +44 207 826-6081
 dumitru.vicol@unicredit.eu

Global FI Strategy

Michael Rottmann, Head, FI Strategy
 +49 89 378-15121
 michael.rottman1@unicredit.de

Dr. Luca Cazzulani, Deputy Head, FI Strategy
 +39 02 8862-0640
 luca.cazzulani@unicredit.eu

Chiara Cremonesi, FI Strategy
 +44 207 826-1771
 chiara.cremonesi@unicredit.eu

Alessandro Giongo, FI Strategy
 +39 02 8862-0538
 alessandro.giongo@unicredit.eu

Elia Lattuga, FI Strategy
 +44 207 826-1642
 elia.lattuga@unicredit.eu

Kornelius Purps, FI Strategy
 +49 89 378-12753
 kornelius.purps@unicredit.de

Herbert Stocker, Technical Analysis
 +49 89 378-14305
 herbert.stocker@unicredit.de

Global FX Strategy

Dr. Vasileios Gkionakis, Global Head, FX Strategy
 +44 207 826-7951
 vasileios.gkionakis@unicredit.eu

Kathrin Goretzki, CFA, FX Strategy
 +44 207 826-6076
 kathrin.goretzki@unicredit.eu

Kiran Kowshik, EM FX Strategy
 +44 207 826-6080
 kiran.kowshik@unicredit.eu

Roberto Mialich, FX Strategy
 +39 02 8862-0658
 roberto.mialich@unicredit.eu

Publication Address

UniCredit Research
 Corporate & Investment Banking
 UniCredit Bank AG
 Arabellastrasse 12
 D-81925 Munich
 globalresearch@unicredit.de

Bloomberg
 UCCR

Internet
 www.research.unicredit.eu

*UniCredit Research is the joint research department of UniCredit Bank AG (UniCredit Bank), UniCredit Bank AG London Branch (UniCredit Bank London), UniCredit Bank AG Milan Branch (UniCredit Bank Milan), UniCredit Bank New York (UniCredit Bank NY), UniCredit Bulbank, Zagrebačka banka d.d., UniCredit Bank Czech Republic and Slovakia, Bank Pekao, ZAO UniCredit Bank Russia (UniCredit Russia), UniCredit Bank Romania.

EFI 35