BBVA | Research

# Country Risk Report

## A Quarterly Guide to Country Risks

June 2018

(Data as of May 31th)

# Summary

| Country Risk | | |
|---|---|---|
| | Ratings agencies | • **Turkey** was downgraded by S&P and Moody's. **Spain** was upgraded by S&P and Moody's. **Greece** and **Indonesia** were improved by Moody's, and **Croatia** by S&P |
| | Financial Markets | • **The recent turmoil in EMs has merely impacted on Global Risk Aversion (GRA).** VIX and FTI have actually decreased during the quarter, while corporate and sovereign spreads have increased only slightly<br>• Accordingly, **our newly developed indicator of EM FX synchronization indicates that the recent depreciation in EM FX rates has had a relatively low level of synchronization** among EMs currencies<br>• **During May we have seen the first overall increase in CDS spreads since Nov-2016**. The rise was felt more intensely in LatAm, EM Europe, Periphery Europe and EM Asia. However, the rise of CDS spreads was not enough to compensate the tightening of previous months, and therefore, market pressure on ratings remains similar to the previous quarter in most cases |
| | BBVA Research | • **Our fundamentals-based rating (BBVA Research) is in line with the upgrade pressures seen in CDS sovereign markets in EU-Periphery and EM-Europe**. On the other hand, our rating is slightly more positive in LatAm than both the agencies and markets. In EM-Asia, all three visions seem to currently coincide<br>• **Fiscal vulnerabilities seem to be worsening or improving too slowly** across the board (in both DMs and EMs). The years-long **private deleveraging process in Developed Markets** (DMs) and Emerging Europe has **lower their vulnerability** indicators<br>• **Deleveraging continues in both DMs and EMs**, with few exceptions in some DMs. **The credit slowdown in China continues**. **Housing prices growth are displaying a very mixed pattern** across the board and most recent data suggests a slowing down in several geographies<br>• Our EWS of currency tensions coincides with our new EM FX synchronization index in suggesting that **the recent repricing in FX EM markets was not a synchronized episode across EMs but a more differentiated event** |

# Index


## 01 Sovereign Markets and Ratings Update

Evolution of sovereign ratings
Evolution of sovereign CDS by country
Market downgrade/upgrade pressure

## 02 Financial Tensions and Global Risk Aversion

Global Risk Aversion Evolution According to Different Measures
Financial Tensions

## 03 Macroeconomic Vulnerability and In-house Regional Country Risk Assessment

Equilibrium CDS by regions
BBVA-Research sovereign ratings by regions
Vulnerability Radars by regions

## 04 Special Topic: EM FX Synchronization Indicator

## 05 Assessment of Financial and External Disequilibria

Private Credit Growth by Country
Housing Prices Growth by Country
Early Warning System of Banking Crises by regions
Early Warning System of Currency Crises by regions

- Vulnerability Indicators Table by Country
- Methodological Appendix

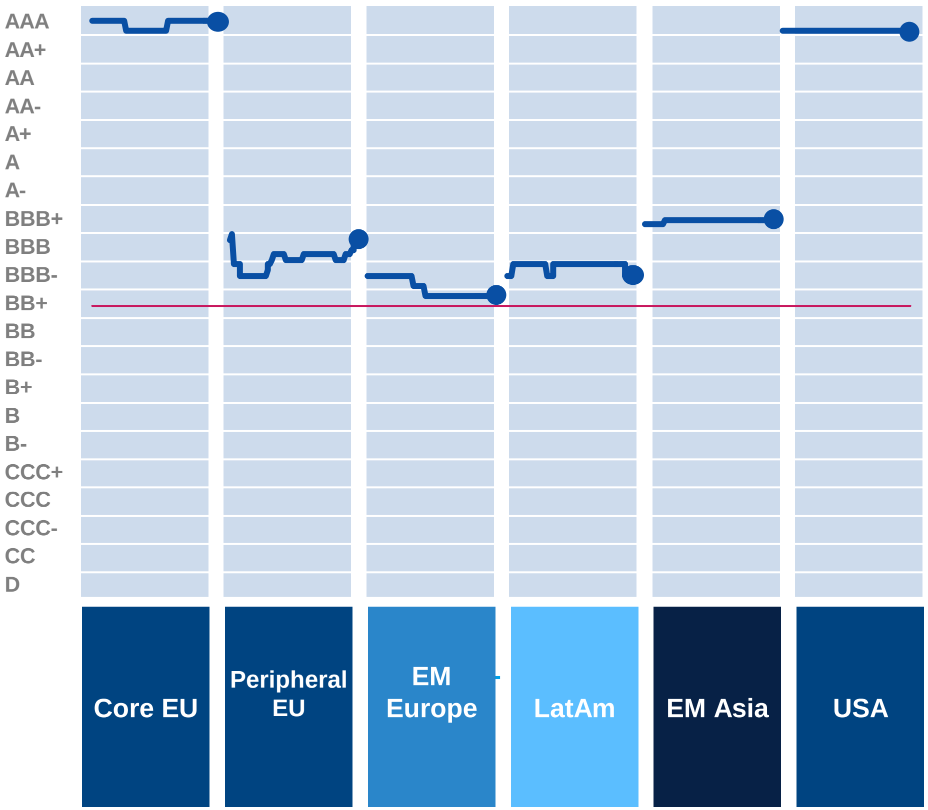
# 01

# Sovereign Markets and Ratings Update

Evolution of sovereign CDS by country
Evolution of sovereign ratings
The great tightening of sovereign spreads: CDS vs Rating
Market downgrade/upgrade pressure

# Sovereign markets and rating agencies update

## Sovereign Rating Index 2011-18



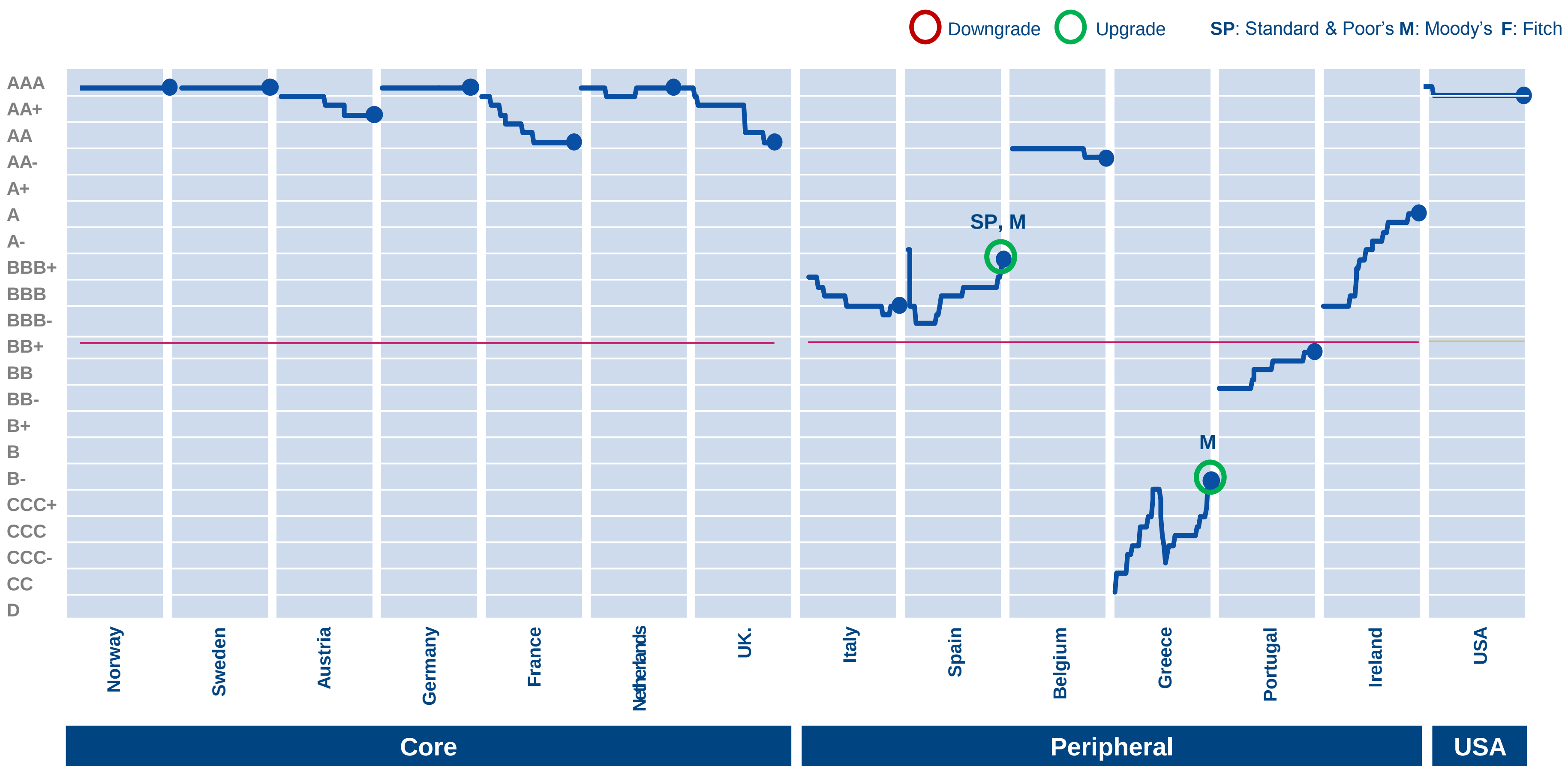

- Peripheral EU median rating has improved for a second quarter.
- **Turkey** was downgraded by S&P and Moody's.
- **Spain** was upgraded by S&P and Moody's.
- **Greece** and **Indonesia** were improved by Moody's, and **Croatia** by S&P.

Source: BBVA Research by using S&P, Moody's and Fitch data

Sovereign Rating Index: An index that translates the three important rating agencies ratings letters codes (Moody's, Standard & Poors and Fitch) to numerical positions from 20 (AAA) to default (0). The index shows the average of the three rescaled numerical ratings.

# Sovereign markets and rating agencies update

## Sovereign Rating Index 2011-18: Developed Markets

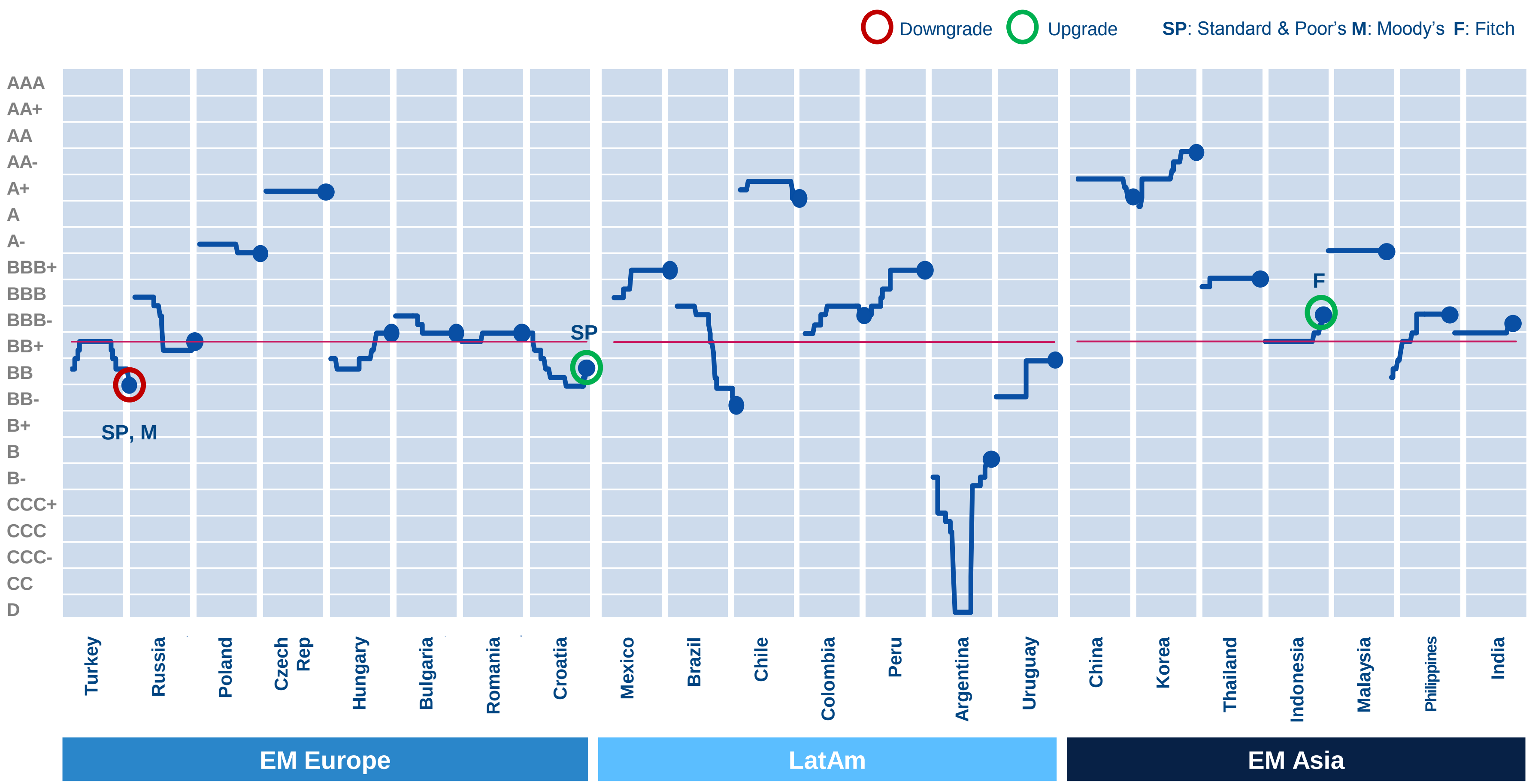



Source: BBVA Research

INDEX

# Sovereign markets and rating agencies update

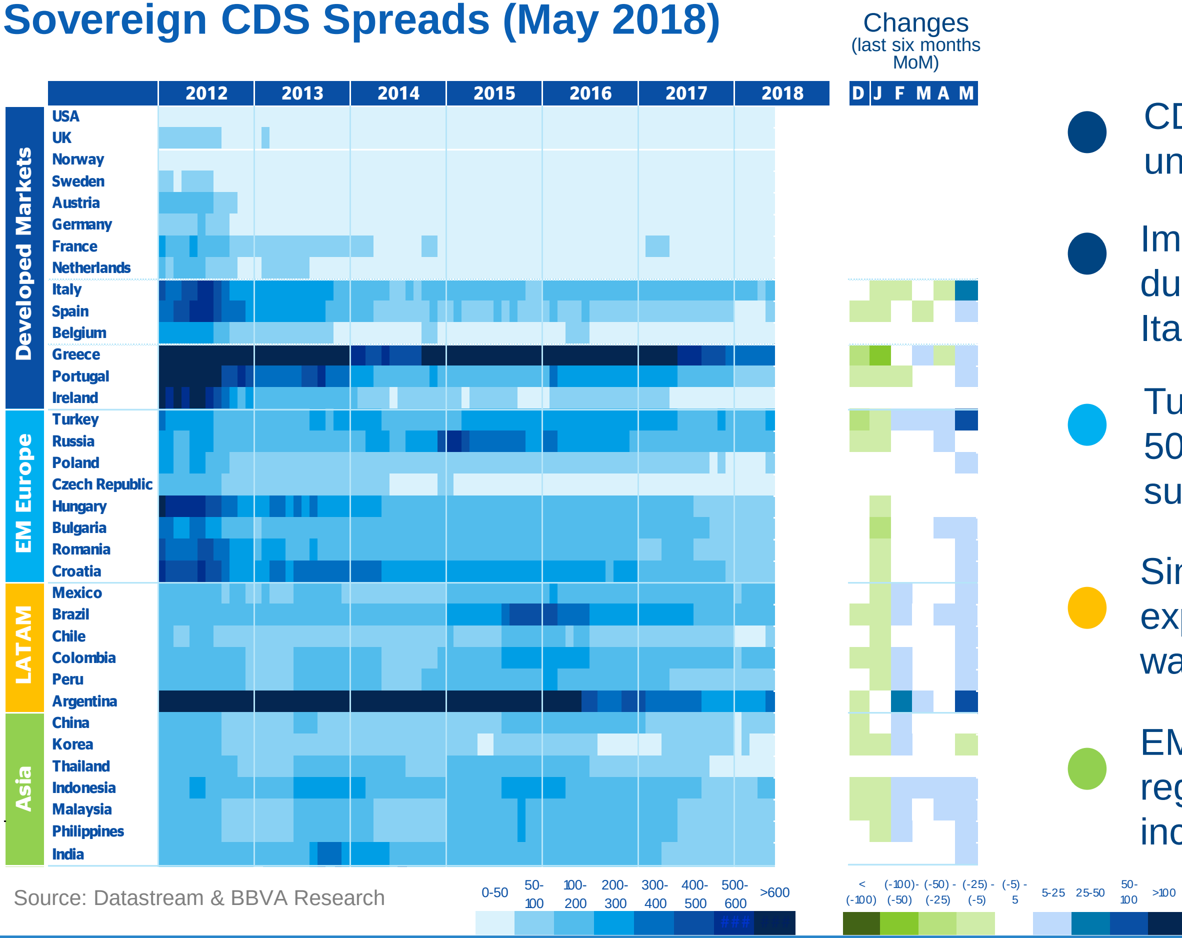
## Sovereign Rating Index 2011-18: Emerging Markets




Source: BBVA Research

# Sovereign Markets and Rating Agency Update

## Sovereign CDS Spreads (May 2018)




Source: Datastream & BBVA Research

- CDS of Advanced Economies were untouched by recent movements in EMs
- Important rise in EU Periphery CDS during May due to political instability in Italy and Spain.
- Turkey saw its spread surged more than 50 bps during May. Other countries suffered smaller increases.
- Similar to EM Europe, the whole region experienced a spike in spreads, but it was much higher in Argentina (+85bps)
- EM Asia was the least affected EM region, but most countries saw increases nevertheless

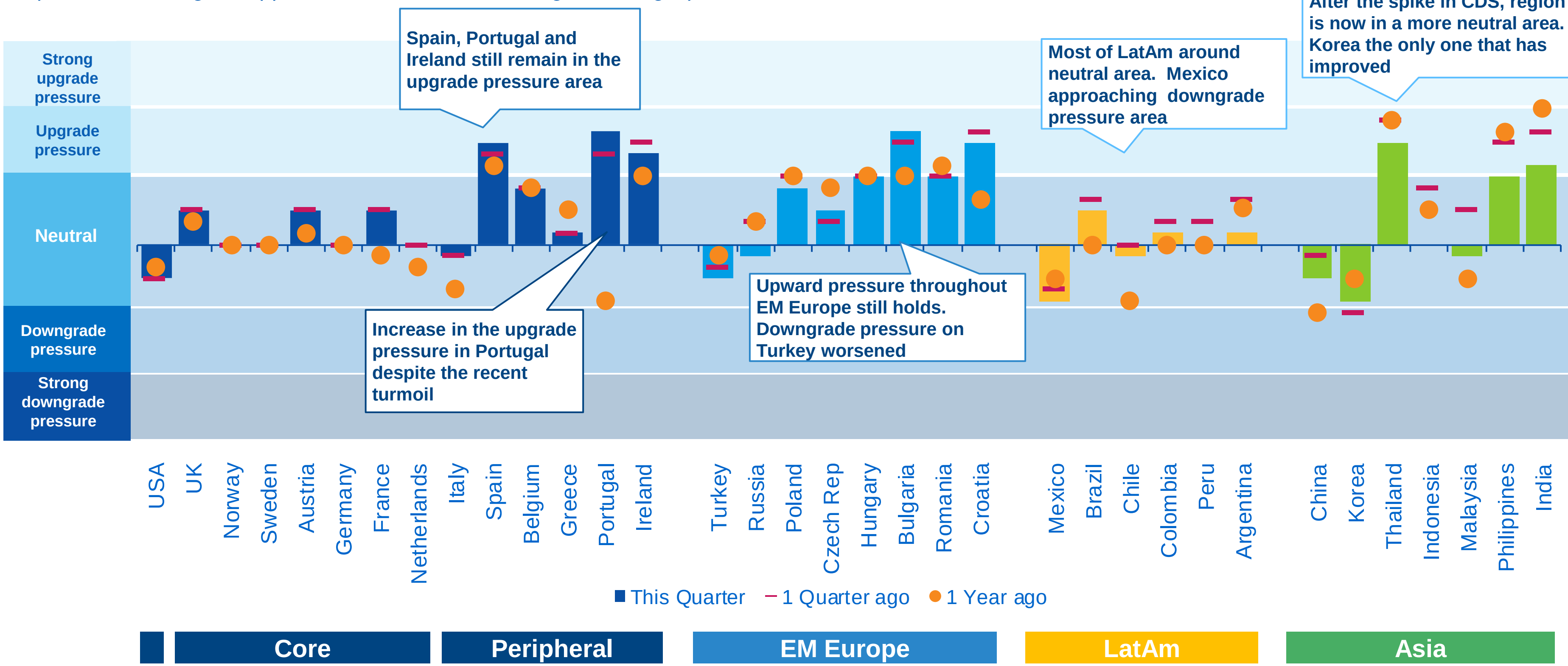
**During May we saw the first overall increase in CDS spreads since Nov-2016. The rise was felt more intensely in LatAm, EM Europe, Periphery Europe and EM Asia**

# Sovereign markets and agency ratings update

## Markets vs. ratings pressure gap (May 2018)

(difference between CDS-implied rating and actual sovereign rating, in notches, **quarterly average**)

*(See Methodological Appendix for recent methodological changes)*




Source: BBVA Research

**The rise of CDS spreads in May was not enough to compensate the tightening of the previous months, and therefore, pressure remains similar to the previous quarter in most countries. LatAm and EM-Asia are the regions where pressure has turned more negative/less positive**

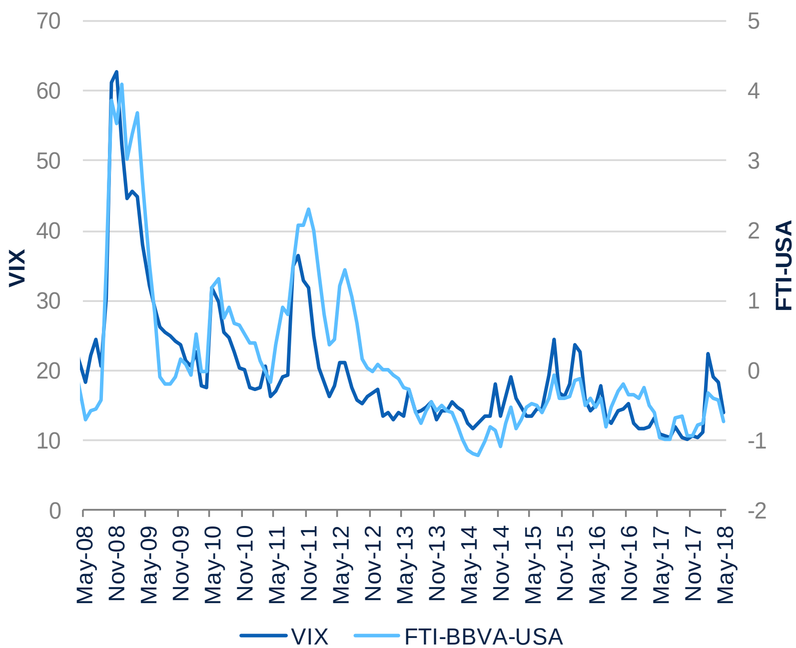
# 02

# Financial Tensions and Global Risk Aversion

Global Risk Aversion Evolution according to Different Measures
Financial Tensions Index

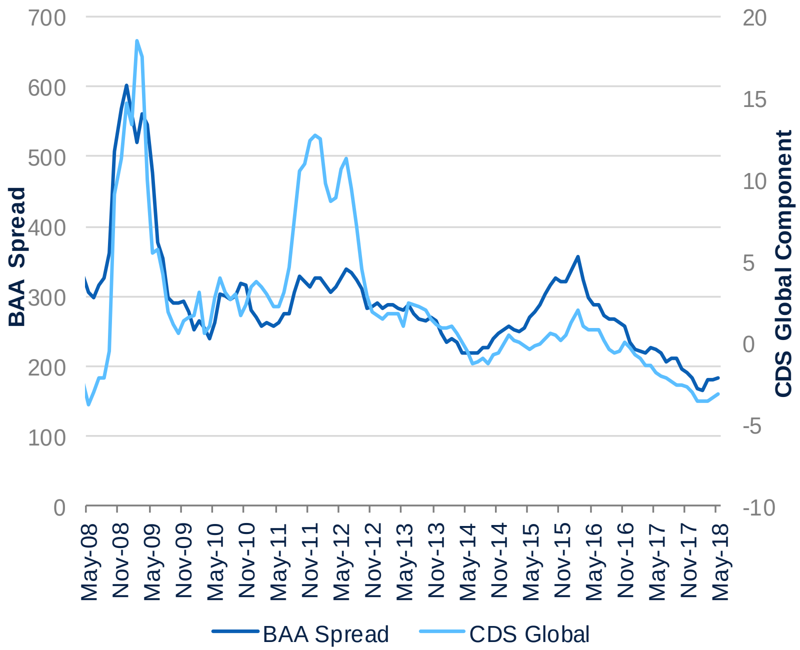
# Financial Tensions and Global Risk Aversion (GRA)

## Global risk aversion indicators: VIX & FTI
(Monthly average)




Source: Bloomberg and BBVA Research

## Global risk aversion indicators: BAA Spread & Global component in sovereign CDS
(Monthly Average)



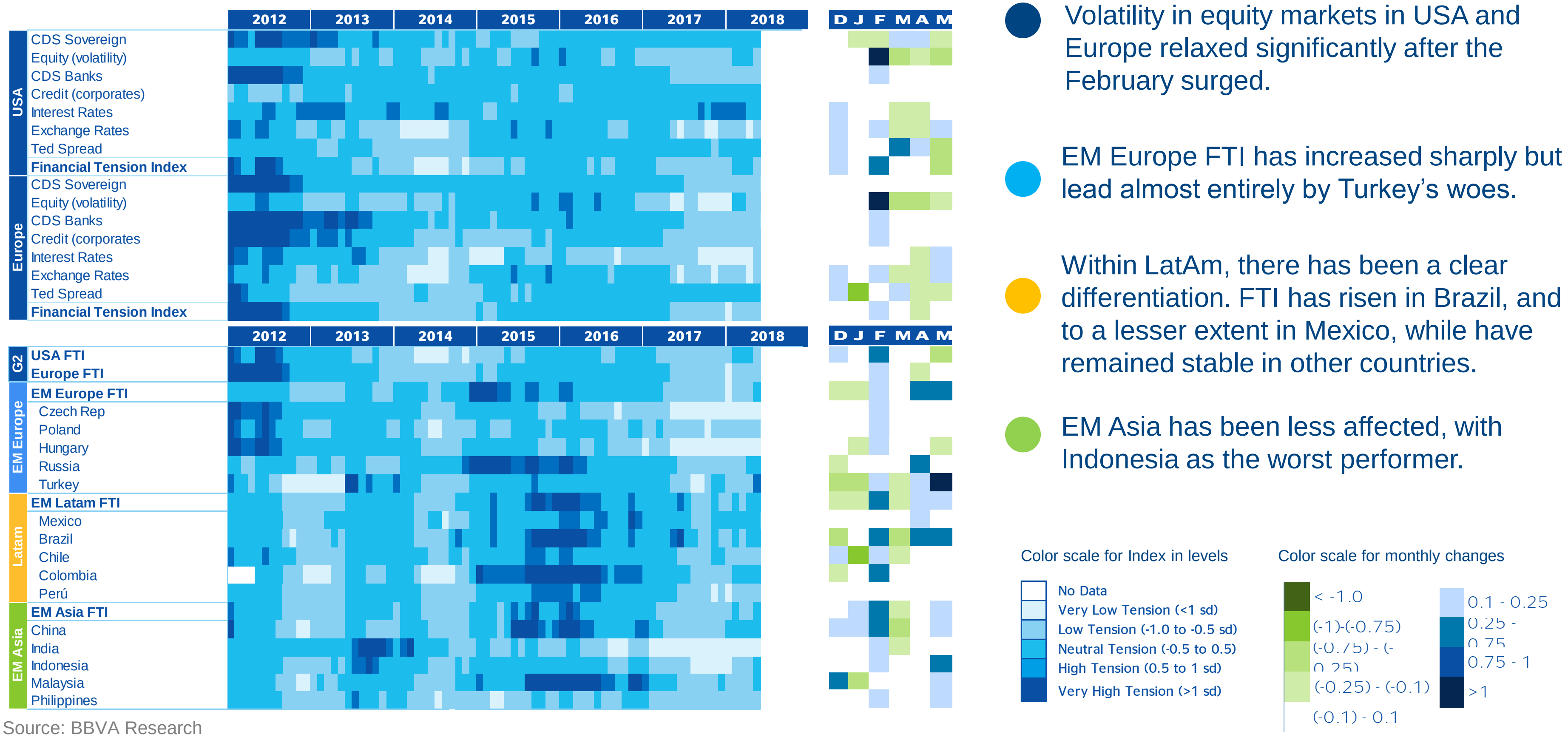

Source: FED and BBVA Research

**The recent unrest in EMs has merely affected the different GRA indicators. VIX and FTI have actually decreased during the quarter, while corporate and sovereign spreads have increased only slightly**

INDEX

# Financial tensions and global risk aversion

## BBVA Research Financial Stress Map




Source: BBVA Research

- Volatility in equity markets in USA and Europe relaxed significantly after the February surged.
- EM Europe FTI has increased sharply but lead almost entirely by Turkey's woes.
- Within LatAm, there has been a clear differentiation. FTI has risen in Brazil, and to a lesser extent in Mexico, while have remained stable in other countries.
- EM Asia has been less affected, with Indonesia as the worst performer.

**We have seen some decoupling of Financial Tensions between DMs and EMs. FTI has relaxed in USA and Europe but surged across EMs, although with a remarkable differentiation within different regions**

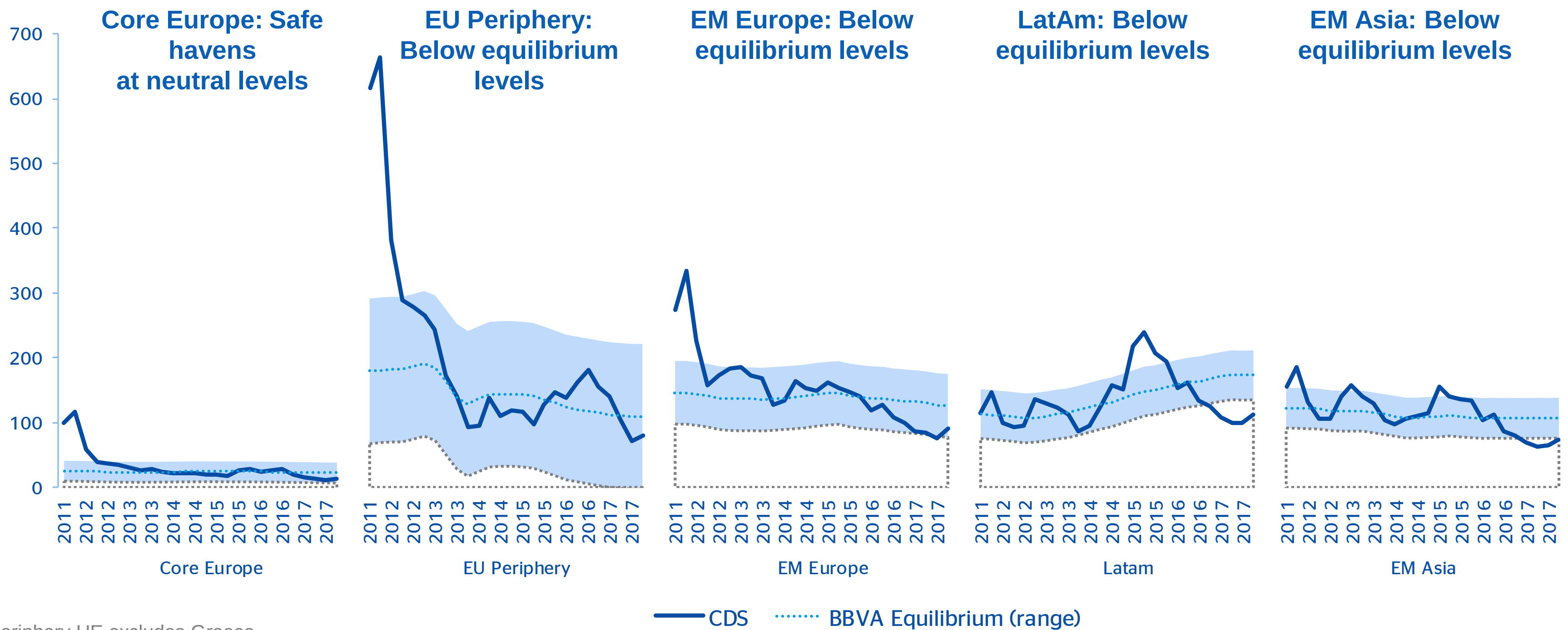
# 03

# Macroeconomic vulnerability and in-house Regional country risk assessment

BBVA-Research sovereign ratings by regions
Equilibrium CDS by regions
Vulnerability Radars by regions
Public and private debt levels

# Macroeconomic Vulnerability and Risk Assessment

## CDS and equilibrium risk premium: May 2018



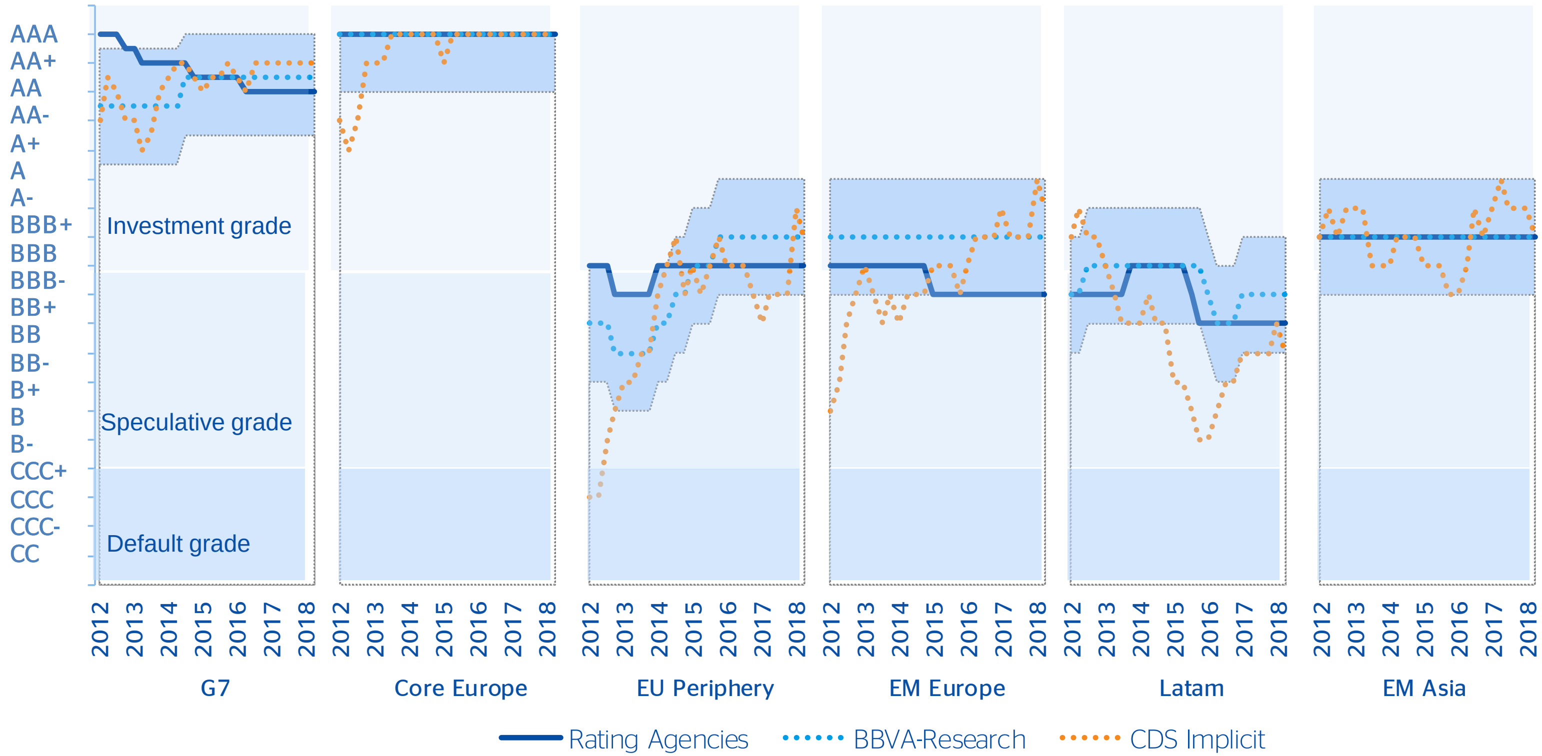

Periphery UE excludes Greece
Source: BBVA Research and Datastream

**Widespread rise in CDS towards the Equilibrium CDS level in all regions. LatAm and EM Asia are the regions further away from those Equilibrium levels.**

# Macroeconomic Vulnerability and Risk Assessment

## Agencies' sovereign rating vs. BBVA Research rating and Market's Implicit rating

Agencies' Rating, BBVA's rating average (+/-1 std. dev.) and CDS implicit rating




Source: Standard & Poors, Moody's, Fitch & BBVA Research

**Our fundamentals-based rating (BBVA Research) is in line with the upgrade pressures seen in CDS sovereign markets in EU-Periphery and EM-Europe. On the other hand, our rating is slightly more positive in LatAm than both the agencies and markets. In EM-Asia, all three visions seem to currently coincide**

# Macroeconomic Vulnerability and Risk Assessment

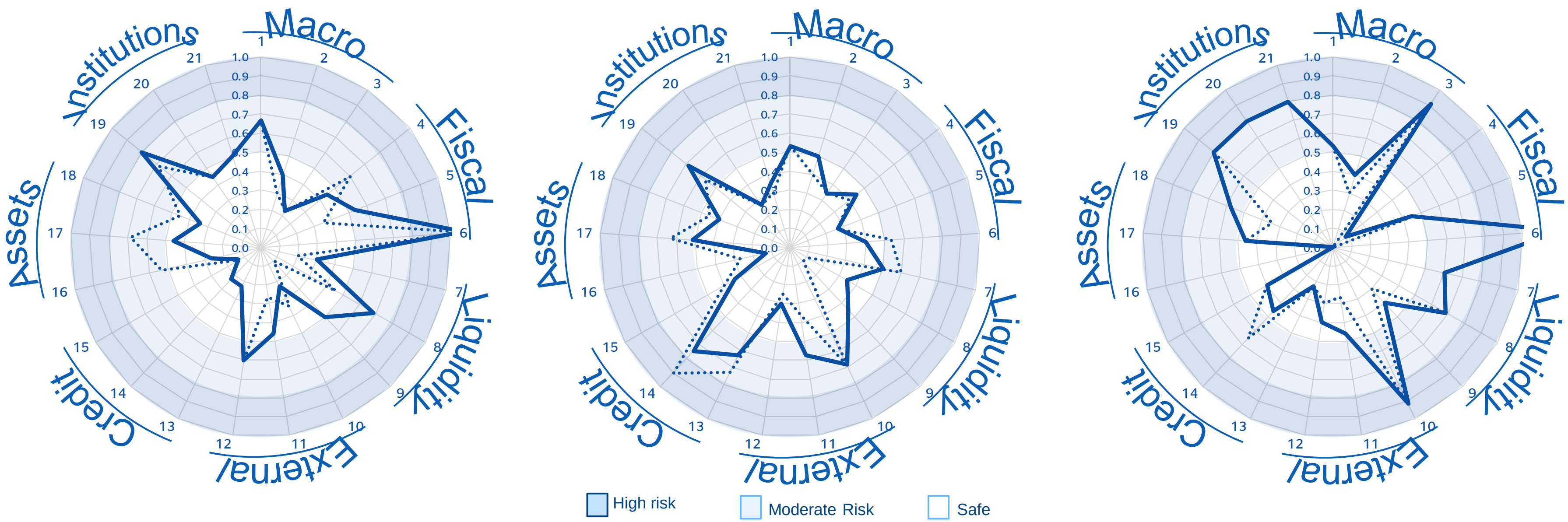
## Developed markets: vulnerability radar 2018

(Relative position for the developed countries. Risk equal to threshold=0,8, Min risk=0. Previous year data is shown as a dotted line)

**G7:** Rising vulnerability from higher levels of public debt and higher financial needs. Lower vulnerability from housing prices and leverage growth

**Core Europe** Increased vulnerability due to financial needs. Corporate leverage remains as the main vulnerability

**Periphery EU:** Unemployment, public & external debt levels and institutional risks remain as highest vulnerabilities. Private leverage continues improving




**Macro:** (1) GDP (% YoY) (2) Prices (% YoY) (3) Unemployment (% LF)
**Fiscal:** (4) Structural balance (%) (5) Interest rate – GDP %YoY (6) Public debt (% GDP)
**Liquidity:** (7) Debt by non-residents (%total) (8) Financial needs (%GDP) (9) Financial pressure (% GDP)
**External:** (10) External debt (%GDP) (11) RER appreciation (%YoY) (12) CAC balance (%GDP)

**Credit:** (13) Household (%GDP) (14) Corporate (%GDP) (15) Credit-to-deposit (%)
**Assets:** (16) Private credit to GDP (%YoY) (17) Housing Prices (%YoY) (18) Equity (%)
**Institutional:** (19) Political stability (20) Corruption (21) Rule of law

# Macroeconomic Vulnerability and Risk Assessment

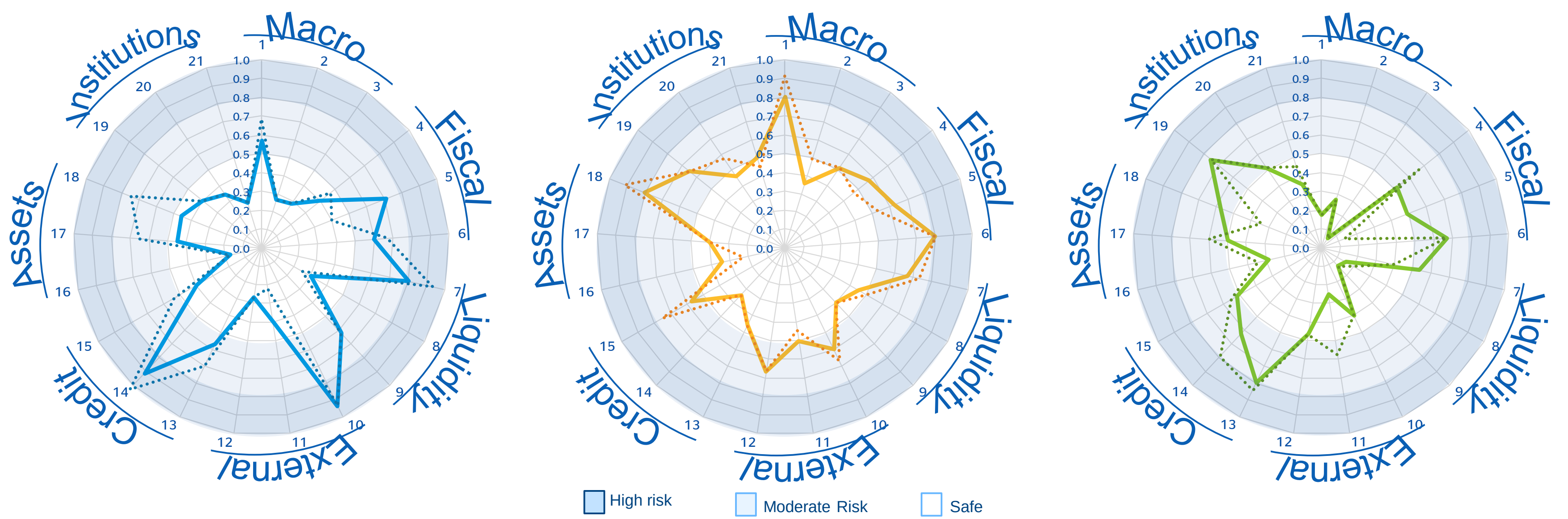
## Emerging markets: vulnerability radar 2018

(Relative position for the emerging countries. Risk equal to threshold=0,8, Min risk=0. Previous year data is shown as a dotted line)

**EM Europe:** High vulnerabilities in corporate leverage, external debt and debt held by non-residents. Higher fiscal vulnerability due to interest rate-growth differential.

**LatAm:** Low economic growth and high public debt levels stand out as highest vulnerabilities. Overall fiscal vulnerabilities are deteriorating

**EM Asia:** Corporate & Households leverage improving. Worsening fiscal vulnerabilities.




**Macro:** (1) GDP (% YoY) (2) Prices (% YoY) (3) Unemployment (% LF)
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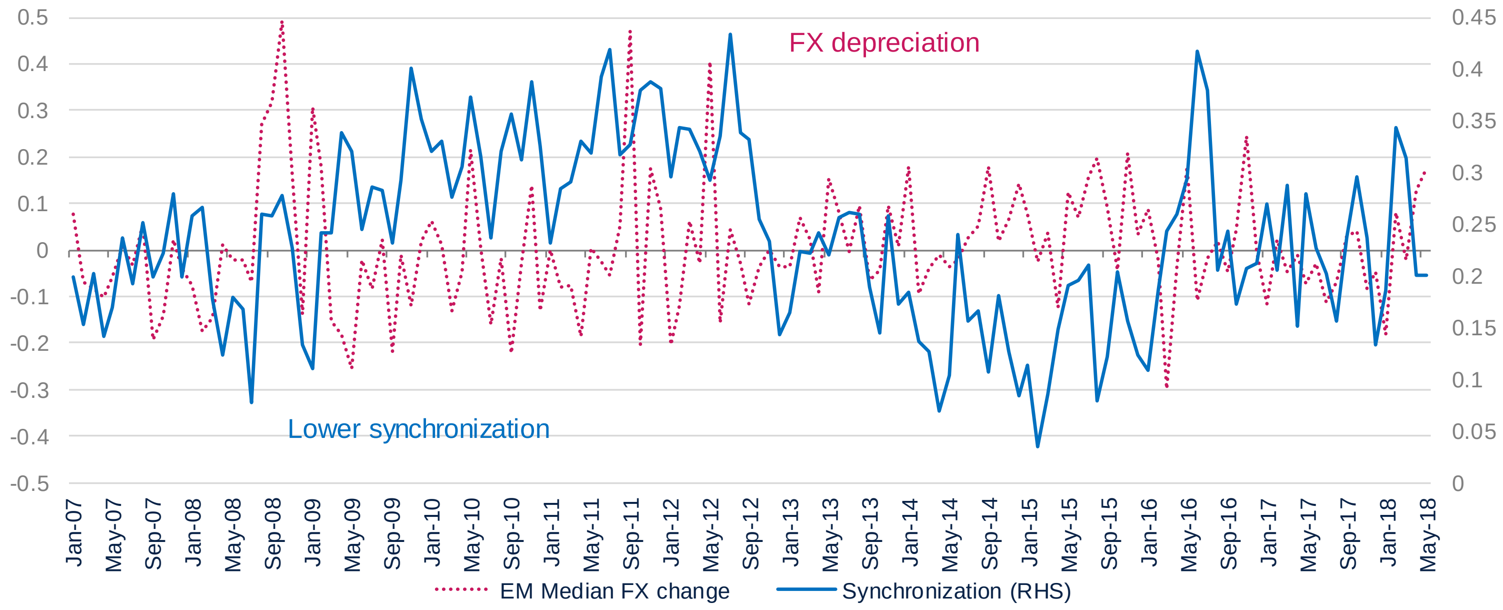
# 04

# Special Topic: EM FX Synchronization Indicator

# Special Topic: Synchronization Indicator

## Synchronization of EMs FX changes:

Median changes in FX EM rates (increase means depreciation) versus Synchronization index of FX EMs changes



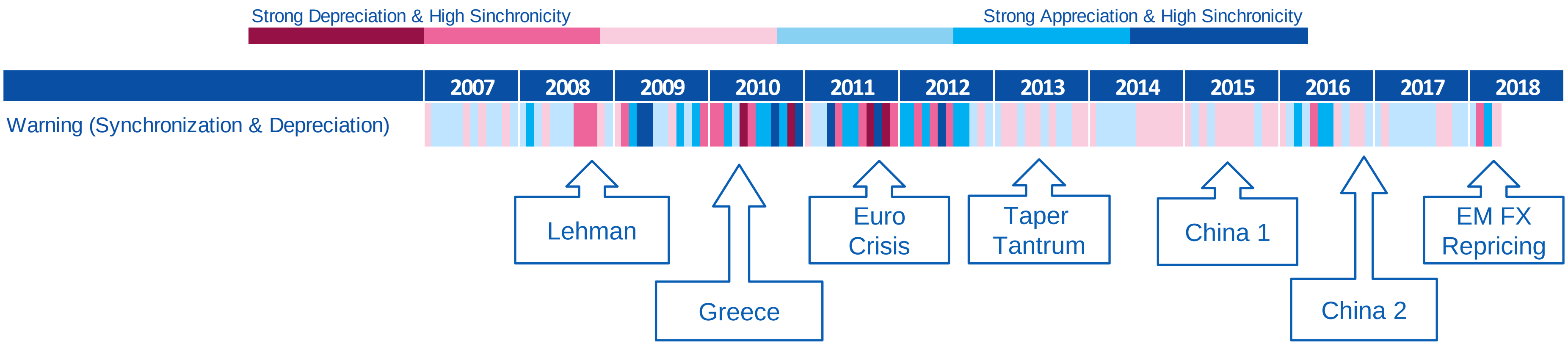

Source: BBVA Research

**We have constructed an indicator of the synchronization of changes in EM exchange rates. This indicator measures by how much all the exchange rates (against USD ) in a group of 23 emerging economies are moving together during a period of 15 days (rolling window). *See methodological appendix for further details***

# Special Topic: Synchronization Indicator

## Synchronization of EMs FX changes:

Warning indicator based on Median EM FX changes and Synchronization Indicator




Based on the Synchronization index and the median change in EM markets, we construct a warning indicator that takes the maximum value when (on average) EM FX rates are depreciating strongly and there is a high degree of synchronization (intense red). On the other hand, the minimum value of the warning index occurs when on average FX rates are appreciating strongly and in a synchronized fashion (intense blue). The intermediate colors include several possible combinations of lower levels of depreciation/appreciation and/or lower degrees of synchronization.

Source: BBVA Research

**Our newly developed indicator of EM FX synchronization indicates that the recent episode in EM FX rates that has burst in the last month has had a relatively low level of synchronization among EM currencies**

# 05

# Assessment of financial and external disequilibria

Private credit growth by country
Housing prices growth by country
Early warning system of banking crises by regions
Early warning system of currency crises by regions

# Assessment of financial and external disequilibria

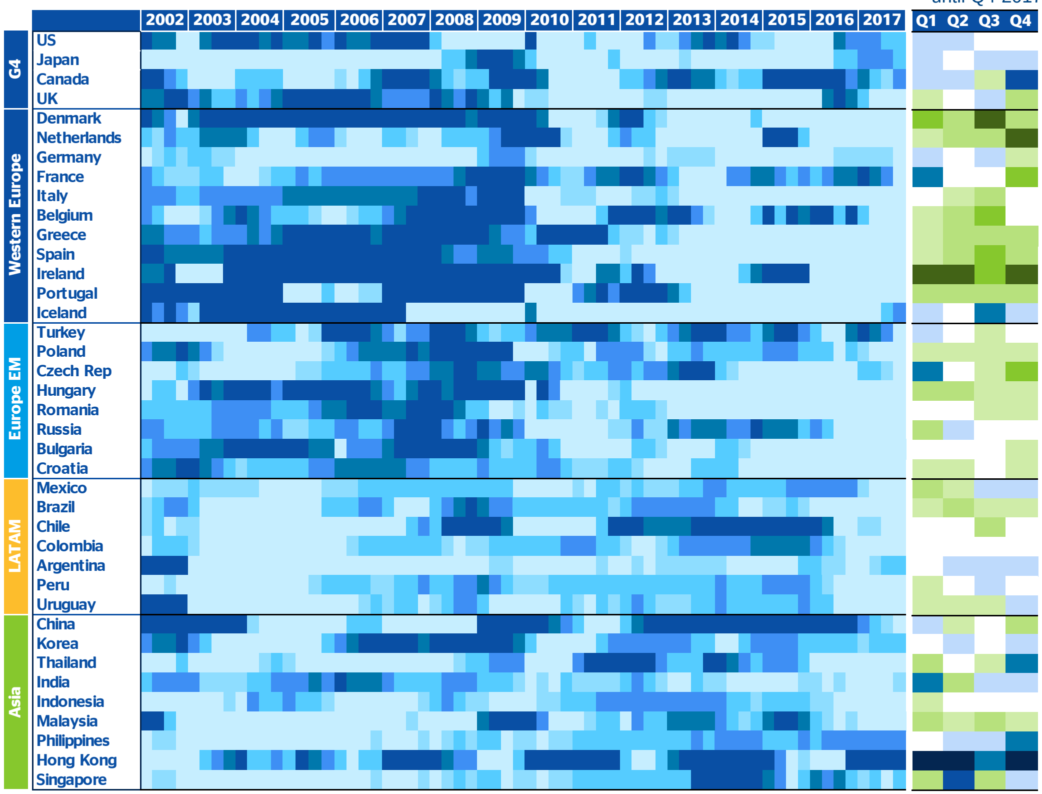
SUMMARY INDEX

Deleveraging across the board with few exceptions: Canada, HK and other countries in EM Asia. Deleveraging is stronger in Western and EM Europe. China has been deleveraging for almost three consecutive quarters.

## Private credit color map (2002-2018 Q4)

(yearly change of private credit-to-GDP ratio (YoY))

QoQ growth
Last four quarters up until Q4-2017




Booming: Credit/GDP growth is higher than 7%
Excess Credit Growth: Credit/GDP growth between 5%-7%
High Growth: Credit/GDP growth between 3%-5%
Mild Growth: Credit/GDP growth between 1%-3%
Stagnant: Credit/GDP is declining betwen 0%-1%
De-leveraging: Credit/GDP growth declining
… Non Available

Q/Q growth > 5%
Q/Q growth between 3 and 5%
Q/Q growth between 1.5% and 3%
Q/Q growth between 0.5% and 1.5%
Q/Q growth between -0.5% and 0.5%

Q/Q growth between -0.5% and - 1.5%
Q/Q growth between -1.5% and -3%
Q/Q growth between -3% and -5%
Q/Q growth < -5%

- Overall reduction of leverage growth in Western Europe and UK. In contrast, in US, Canada and Japan leverage's behavior is more mixed and erratic.
- Turkey's leveraging continues slowing down and converging to the deleveraging process prevalent across EM Europe.
- LatAm countries continue deleveraging or stagnant. We can observe some acceleration in Argentina that although small is significant for its own dynamics
- EM Asia is the region with the more mixed behavior. China is currently deleveraging. HK stands out as the only one with high growth rates, while Philippines is accelerating. Thailand, India and Malaysia remain stable.

Source: IFS, BIS & BBVA Research,

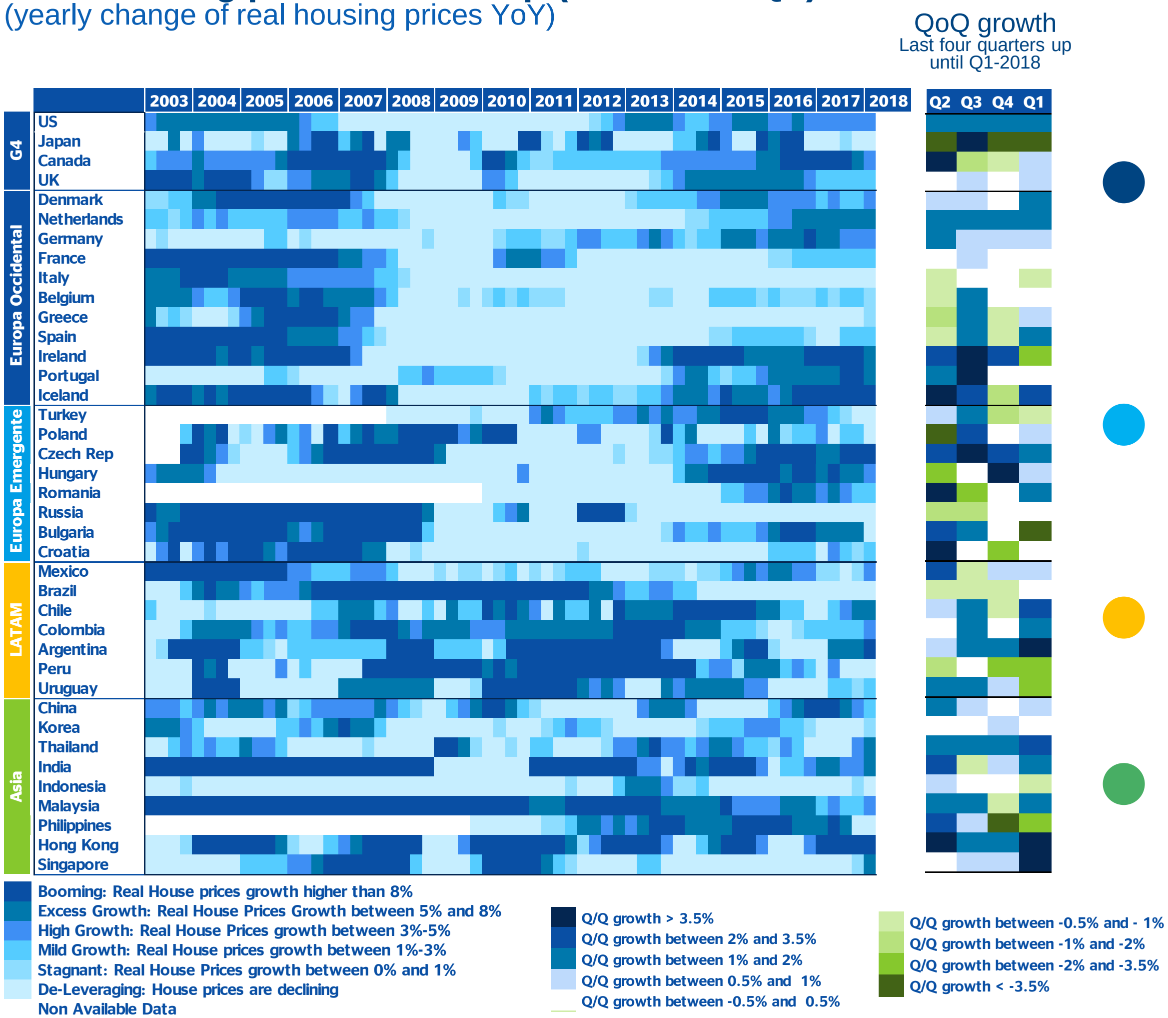
# Assessment of financial and external disequilibria

INDEX

A highly mixed and volatile housing prices growth pattern is observed across the board. Deceleration in Western Europe. USA, Netherlands, Czech Republic and HK stand out because of their high growth

## Real housing prices color map (2003-2018 Q1)

(yearly change of real housing prices YoY)




- Overall slow down of housing prices in most advanced economies. Growth in USA and Netherlands remains high and steady. Growth rate in the rest of Europe has slowed down in the last two quarters.
- Highly volatile growth in Emerging Europe. Real prices now declining in Turkey and booming in Czech Republic
- The situation in LatAm is also mixed. Prices are growing in Chile, Colombia and Argentina.
- Again, no clear pattern found across the region. Prices are accelerating in Thailand and booming in HK.

Source: BBVA Research, BIS, Haver and Oxford Economics.

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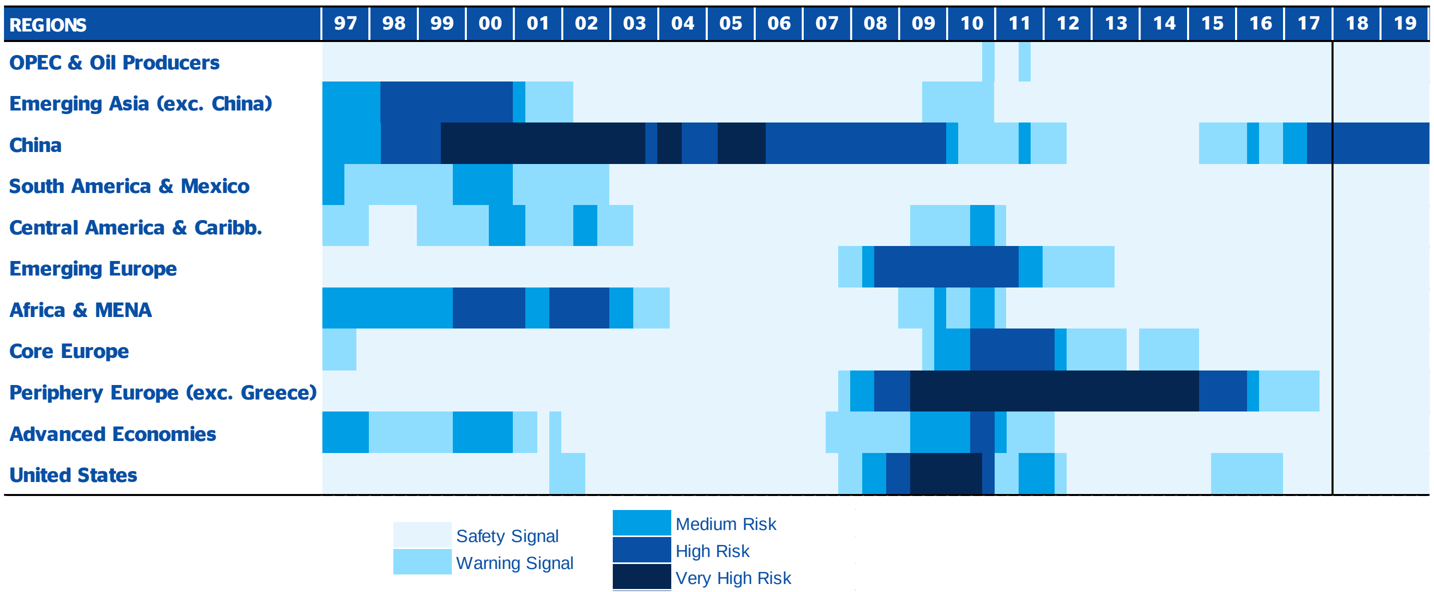
SUMMARY INDEX

# Assessment of financial and external disequilibria

## Early warning system (EWS) of Banking Crises (1997Q1-2019Q4)

(Probability of Systemic Banking Crisis (based on 8-quarters lagged data*):




- The nascent slowdown in debt in China must be sustained in time to reduce the risk of a banking crisis in the future
- **The warning signals from the EU periphery are finally disappearing**

- A banking crisis in a given country follows the definition by Laeven and Valencia (2012), which is shown in the Appendix
- The complete description of the methodology can be found at https://goo.gl/r0BLbI and at https://goo.gl/VA8xXv
- The probabilities shown are the simple average of the estimated individual countries probabilities for each region. The definition of each region is shown in the Appendix

*The probability of a crisis in Q4-2016 is based on Q4-2014 data. Source: BBVA Research

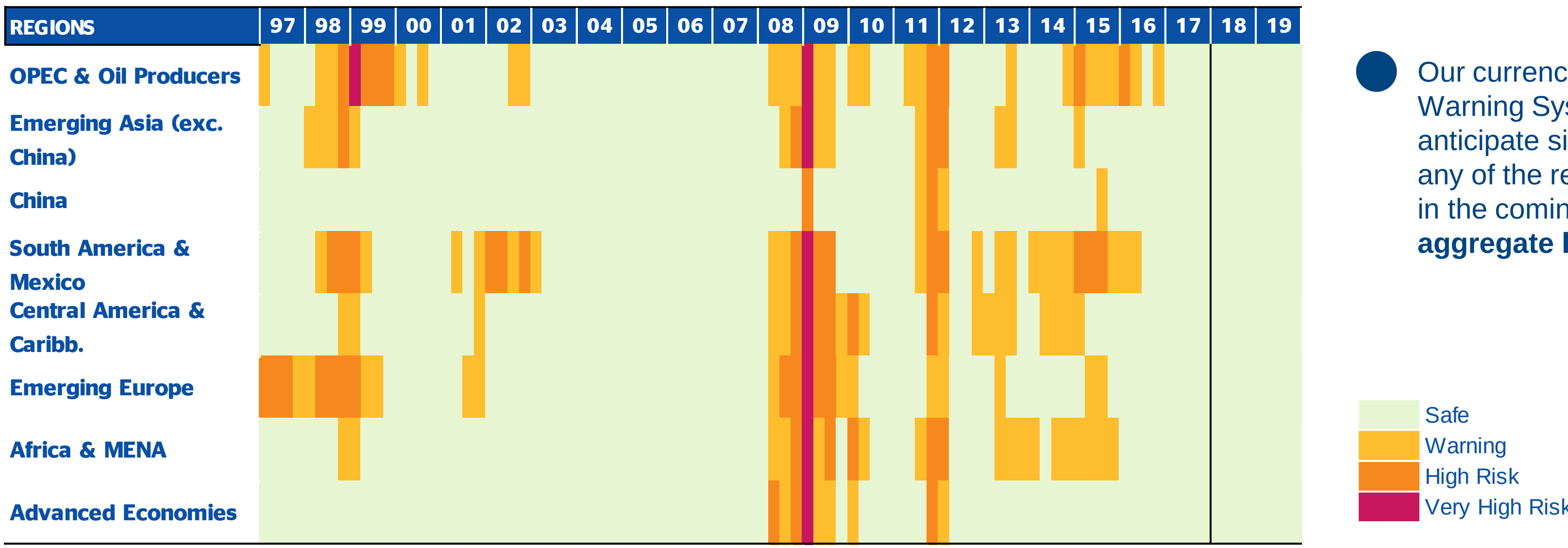
**China's over-indebtedness continues to generate a relevant vulnerability of its banking sector in the coming years which must continue being tackled with macro-prudential and other economic policies oriented to reach a soft absorption of previous excesses.**

# Assessment of financial and external disequilibria

INDEX

## Early warning system (EWS) of Currency Crisis Risk: probability of currency tensions

The probability of a crisis is based on 4-quarters lagged data, e.g. Probability in Q4-2016 is based on Q4-2015 data




- Our currency tensions Early Warning System, do not anticipate significant risks in any of the regions analyzed in the coming months **at an aggregate level.**

- Our Currency-Crises Early Warning System EWS allows us to estimate the probability of a currency crisis, which is defined as a “large” fall in the exchange rate and in foreign reserves in a given country, according to certain predefined measures.
- The probabilities shown in the table are the simple average of the individual countries probabilities for each region. The list of the leading indicators used in the estimation of the probability and the definition of each region are shown in the Appendix.

Source: BBVA Research

**During May several EM countries have experienced a significant depreciation of their foreign exchange rate. This episode however has not been generalized across all EM countries (as our new synchronization index indicates). Our EWS has signaled the high vulnerability of several individual countries, but not of any region as a whole**

# Vulnerability Indicators table by country

BBVA Research

SUMMARY INDEX

# Vulnerability Indicators Table

## Vulnerability indicators* 2018: developed markets

| | Fiscal sustainability | | | External sustainability | | | Liquidity management | | | Macroeconomic performance | | | Credit and housing | | | Private debt | | | Institutional | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Structural primary balance (1) | Interest rate GDP growth differential 2016-21 | Gross public debt (1) | Current account balance (1) | External debt (1) | RER appreciation (2) | Gross financial needs (1) | Short-term public debt (3) | Debt held by non-residents (3) | GDP growth (4) | Consumer prices (4) | Unemployment rate (5) | Private credit to GDP growth (4) | Real housing prices growth (4) | Equity markets growth (4) | Household debt (1) | NF corporate debt (1) | Financial liquidity (6) | WB political stability (7) | WB control corruption (7) | WB rule of law (7) |
| **United States** | -3.3 | -0.6 | 108 | -3.0 | 98 | -1.6 | 24 | 17 | 31 | 2.9 | 2.6 | 3.9 | 1.3 | 4.6 | 16.6 | 79 | 74 | 65 | -0.4 | -1.3 | -1.7 |
| **Canada** | -0.7 | -0.1 | 87 | -3.2 | 118 | -3.7 | 9 | 10 | 25 | 2.1 | 2.2 | 6.2 | 4.2 | -10.0 | -1.2 | 101 | 124 | 133 | -1.2 | -2.0 | -1.8 |
| **Japan** | -3.1 | -0.9 | 236 | 3.8 | 74 | 0.9 | 41 | 16 | 10 | 1.2 | 0.8 | 2.9 | 2.5 | 6.9 | 13.5 | 57 | 101 | 48 | -1.0 | -1.5 | -1.4 |
| **Australia** | -0.5 | -1.3 | 42 | -1.9 | 115 | -2.9 | 3 | 4 | 42 | 3.0 | 2.3 | 5.3 | -5.3 | 3.7 | -0.6 | 122 | 76 | 133 | -1.0 | -1.8 | -1.8 |
| **Korea** | 1.2 | -1.4 | 39 | 5.5 | 26 | -0.1 | 1 | 7 | 13 | 3.0 | 2.1 | 3.6 | 1.4 | -0.2 | 13.2 | 95 | 101 | 100 | -0.2 | -0.4 | -1.1 |
| **Norway** | -10.6 | -1.6 | 37 | 6.1 | 157 | 1.7 | -9 | 8 | 51 | 2.1 | 1.8 | 3.9 | -2.6 | -0.6 | 19.1 | 101 | 141 | 142 | -1.2 | -2.2 | -2.0 |
| **Sweden** | 0.6 | -2.9 | 38 | 3.1 | 185 | -4.3 | 3 | 11 | 36 | 2.6 | 1.5 | 6.3 | 12.6 | 5.8 | -3.3 | 85 | 146 | 185 | -1.0 | -2.2 | -2.0 |
| **Denmark** | -1.1 | -0.6 | 36 | 7.6 | 170 | 1.7 | 5 | 11 | 35 | 2.0 | 1.6 | 5.7 | -18.1 | 2.4 | 6.7 | 117 | 103 | 287 | -0.8 | -2.2 | -1.9 |
| **Finland** | -1.0 | -1.9 | 61 | 1.4 | 170 | 1.0 | 8 | 10 | 73 | 2.6 | 1.7 | 8.0 | -0.5 | -1.9 | 4.6 | 68 | 114 | 133 | -1.0 | -2.3 | -2.0 |
| **UK** | -0.2 | -0.4 | 86 | -3.7 | 329 | -6.8 | 9 | 8 | 35 | 1.6 | 2.7 | 4.4 | -1.2 | 1.9 | -3.6 | 86 | 83 | 54 | -0.4 | -1.9 | -1.6 |
| **Austria** | 0.5 | -1.4 | 75 | 2.5 | 174 | 2.2 | 6 | 8 | 81 | 2.6 | 2.2 | 5.2 | -1.9 | 2.5 | 21.2 | 51 | 93 | 93 | -0.8 | -1.5 | -1.8 |
| **France** | -0.1 | -0.9 | 96 | -1.3 | 220 | 1.7 | 13 | 11 | 61 | 2.1 | 1.4 | 8.8 | -0.6 | 2.2 | 0.9 | 57 | 133 | 104 | 0.1 | -1.4 | -1.4 |
| **Germany** | 1.4 | -2.2 | 60 | 8.2 | 147 | 2.1 | 4 | 8 | 56 | 2.5 | 1.6 | 3.6 | 0.0 | 3.9 | -1.8 | 53 | 53 | 87 | -0.8 | -1.8 | -1.6 |
| **Netherlands** | 0.6 | -1.9 | 54 | 9.6 | 554 | 2.0 | 7 | 14 | 52 | 3.2 | 2.1 | 4.9 | -14.0 | 6.9 | 2.5 | 104 | 118 | 98 | -0.9 | -2.0 | -1.9 |
| **Belgium** | 0.6 | -1.1 | 101 | 0.3 | 272 | 3.2 | 18 | 17 | 61 | 1.9 | 1.5 | 7.0 | -8.1 | 1.7 | -1.2 | 60 | 161 | 55 | -0.5 | -1.6 | -1.4 |
| **Italy** | 2.2 | 0.6 | 130 | 2.6 | 127 | 0.6 | 22 | 16 | 36 | 1.5 | 1.6 | 10.9 | -2.0 | -2.0 | 9.4 | 41 | 73 | 95 | -0.4 | 0.0 | -0.3 |
| **Spain** | -0.2 | -0.9 | 85 | 1.6 | 174 | -0.2 | 18 | 16 | 50 | 2.8 | 1.6 | 15.5 | -7.9 | 1.7 | -8.2 | 61 | 97 | 101 | -0.5 | -0.5 | -1.0 |
| **Ireland** | 0.9 | -2.2 | 67 | 9.8 | 705 | 1.8 | 7 | 10 | 60 | 4.5 | 1.8 | 5.5 | -48.6 | 11.6 | -1.0 | 48 | 222 | 47 | -0.9 | -1.6 | -1.5 |
| **Portugal** | 2.3 | -0.3 | 121 | 0.2 | 222 | 1.3 | 14 | 10 | 63 | 2.4 | 1.8 | 7.3 | -8.8 | 9.0 | 10.4 | 70 | 109 | 115 | -1.0 | -1.0 | -1.1 |
| **Greece** | 3.8 | -1.8 | 191 | -0.8 | 235 | -0.5 | 15 | 8 | 82 | 2.0 | 0.9 | 19.8 | -7.0 | -1.1 | 17.2 | 58 | 65 | 135 | 0.1 | 0.1 | -0.2 |

Source: BBVA Research, Haver, BIS, IMF and World Bank

*Vulnerability indicators: (1) % GDP (2) Deviation from four-year average (3) % of total debt (4) % year on year (5) % of Total labour force (6) Financial system credit to deposit (7) Index by World Bank governance indicators

# Vulnerability Indicators Table

## Vulnerability indicators* 2018: emerging markets

| | Fiscal sustainability | | | External sustainability | | | Liquidity management | | | Macroeconomic performance | | | Credit and housing | | | Private debt | | | Institutional | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Structural primary balance **(1)** | Interest rate GDP growth differential 2016-21 | Gross public debt **(1)** | Current account balance **(1)** | External debt **(1)** | RER appreciation **(2)** | Gross financial needs **(1)** | Reserves to short-term external debt **(3)** | Debt held by non-residents **(3)** | GDP growth **(4)** | Consumer prices **(4)** | Unemployment rate **(5)** | Private credit to GDP growth **(4)** | Real housing prices growth **(4)** | Equity markets growth **(4)** | Household debt **(1)** | NF corporate debt **(1)** | Financial liquidity **(6)** | WB political stability **(7)** | WB control corruption **(7)** | WB rule of law **(7)** |
| **Bulgaria** | -0.5 | 0.4 | 24 | 3.0 | 71 | 2.1 | 4 | 1.8 | 44 | 3.8 | 2.1 | 6.0 | -0.1 | 5.3 | 2.4 | 21 | 79 | 77 | 0.0 | 0.2 | 0.0 |
| **Czech Rep** | 1.0 | -1.9 | 33 | 0.3 | 93 | 8.7 | 6 | 23 | 55 | 3.5 | 2.2 | 3.0 | -2.3 | 9.9 | 14.5 | 31 | 56 | 81 | -1.0 | -0.5 | -1.1 |
| **Croatia** | 1.9 | -0.3 | 75 | 3.0 | 83 | 1.8 | 12 | 3.2 | 34 | 2.8 | 1.2 | 12.0 | -2.9 | 0.7 | -9.3 | 33 | 27 | 89 | -0.7 | -0.2 | -0.4 |
| **Hungary** | -0.6 | -1.8 | 67 | 2.5 | 103 | 2.5 | 18 | 1.2 | 42 | 3.8 | 3.2 | 3.8 | -6.7 | 7.8 | 17.8 | 19 | 85 | 81 | -0.7 | -0.1 | -0.5 |
| **Poland** | -1.0 | -1.6 | 51 | -0.9 | 69 | 1.5 | 8 | 1.6 | 53 | 4.1 | 2.9 | 4.1 | -4.6 | 1.2 | 0.8 | 35 | 90 | 105 | -0.5 | -0.7 | -0.7 |
| **Romania** | -3.4 | -2.7 | 38 | -3.7 | 50 | -0.9 | 9 | 1.9 | 50 | 5.1 | 3.5 | 4.6 | -2.0 | 2.6 | 8.0 | 16 | 36 | 80 | -0.3 | 0.0 | -0.3 |
| **Russia** | 0.4 | -0.3 | 19 | 4.5 | 32 | 2.4 | 1 | 4.9 | 20 | 1.7 | 3.5 | 5.5 | -1.4 | -5.8 | 14.5 | 17 | 50 | 106 | 0.9 | 0.9 | 0.8 |
| **Turkey** | -1.9 | -1.9 | 28 | -5.4 | 53 | 0.6 | 7 | 0.9 | 38 | 4.0 | 10.5 | 10.8 | -0.4 | -1.1 | 29.2 | 17 | 68 | 128 | 2.0 | 0.2 | 0.2 |
| **Argentina** | -2.8 | -8.0 | 54 | -5.1 | 36 | -3.2 | 11 | 1.0 | 40 | 2.0 | 19.2 | 8.0 | 3.0 | 5.8 | 53.5 | 7 | 15 | 76 | -0.2 | 0.3 | 0.3 |
| **Brazil** | -1.4 | 2.2 | 87 | -1.6 | 33 | 4.5 | 14 | 4.7 | 9 | 2.3 | 3.9 | 11.6 | -4.2 | -2.8 | 31.4 | 23 | 41 | 93 | 0.4 | 0.4 | 0.1 |
| **Chile** | -1.9 | -2.3 | 24 | -1.8 | 63 | 7.3 | 2 | 1.5 | 26 | 3.4 | 2.6 | 6.2 | -2.9 | 6.7 | 15.9 | 35 | 51 | 159 | -0.5 | -1.1 | -1.1 |
| **Colombia** | 0.5 | 0.3 | 49 | -2.6 | 39 | -9.9 | 5 | 3.2 | 31 | 2.7 | 3.4 | 9.2 | -0.3 | 2.0 | 11.5 | 21 | 25 | 113 | 1.0 | 0.3 | 0.3 |
| **Mexico** | 1.1 | 0.4 | 54 | -1.9 | 38 | -5.4 | 7 | 3.3 | 32 | 2.3 | 3.6 | 3.5 | -0.3 | 0.8 | -5.2 | 16 | 26 | 84 | 0.8 | 0.8 | 0.5 |
| **Peru** | -1.8 | -2.2 | 27 | -1.3 | 36 | 4.3 | 4 | 7.2 | 40 | 3.2 | 2.0 | 6.6 | -0.1 | -3.2 | 30.5 | 15 | 35 | 104 | 0.2 | 0.4 | 0.5 |
| **China** | -3.1 | -5.7 | 71 | 1.0 | 11 | 1.7 | 4 | 3.9 | .. | 6.6 | 2.8 | 4.0 | -1.4 | 3.6 | 4.2 | 61 | 151 | 89 | 0.5 | 0.3 | 0.2 |
| **India** | -1.6 | -4.1 | 69 | -1.5 | 19 | -0.4 | 11 | 4.0 | 6 | 7.4 | 5.2 | 3.5 | 0.5 | 3.0 | 11.3 | 11 | 44 | 78 | 1.0 | 0.3 | 0.1 |
| **Indonesia** | -0.8 | -2.8 | 30 | -1.9 | 35 | -3.1 | 5 | 2.5 | 59 | 5.3 | 3.5 | 5.2 | -1.0 | 0.0 | 11.2 | 17 | 22 | 98 | 0.4 | 0.4 | 0.4 |
| **Malaysia** | 0.4 | -2.4 | 54 | 3.7 | 68 | -1.4 | 10 | 1.2 | 27 | 5.3 | 3.0 | 3.2 | -6.0 | 2.2 | 7.1 | 89 | -- | 111 | -0.1 | -0.1 | -0.5 |
| **Philippines** | 0.9 | -4.6 | 37 | -0.5 | 22 | -9.4 | 5 | 4.9 | 26 | 6.7 | 4.1 | 5.5 | 3.6 | -0.8 | 9.1 | 4 | 40 | 69 | 1.3 | 0.5 | 0.4 |
| **Thailand** | -0.7 | -2.5 | 42 | 9.3 | 35 | 2.8 | 7 | 3.2 | 14 | 3.9 | 0.8 | 0.7 | -1.3 | 3.1 | 12.8 | 68 | 48 | 98 | 0.9 | 0.4 | 0.0 |

Source: BBVA Research, Haver, BIS, IMF and World Bank

*Vulnerability indicators: (1) % GDP (2) Deviation from four-year average (3) % of total debt (4) % year on year (5) % of Total labour force (6) Financial system credit to deposit (7) Index by World Bank governance indicators

# Methodological Appendix

# Appendix
## Methodology: indicators and maps

- Financial Stress Map: It stresses levels of stress according to the normalised time series movements. Higher positive standard units (1.5 or higher) stand for high levels of stress (dark blue) and lower standard deviations (-1.5 or below) stand for lower level of market stress (lighter colours)
- Sovereign Rating Index: An index that translates the letter codes of the three important rating agencies' rating (Moody's, Standard & Poors and Fitch) to numerical positions from 20 (AAA) to default (0). The index shows the average of the three rescaled numerical ratings
- Sovereign CD Swaps Maps: It shows a colour map with six different ranges of CD Swaps quotes (darker >500, 300 to 500, 200 to 300, 100 to 200, 50 to 100 and the lighter below 50 bp)
- Downgrade Pressure Gap: The gap shows the difference between the implicit ratings according to the Credit Default Swaps and the current ratings index (numerically scaled from default (0) to AAA (20)). We calculate implicit probabilities of default (PD) from the observed CDS and the estimated equilibrium spread. For the computation of these PDs we follow a standard methodology as described in Chan-Lau (2006), and we assume a constant Loss Given Default of 0.6 (Recovery Rate equal to 0.4) for all the countries in the sample. We use the resulting PDs in a cluster analysis to classify each country at every point in time in one of 20 different categories (ratings) to emulate the same 20 categories used by the rating agencies. From June 2018 on, the cluster analysis is performed recursively, starting with an initial sample going from Jan-2004 to Dec-2008 and adding one month at each step, generating monthly specific thresholds for determining the implicit ratings.
- The graph plots the difference between CDS-implied sovereign rating and the actual sovereign rating index, in notches. Higher positive differences account for potential Upgrade pressures and negative differences account for Downgrade potential. We consider the +/- 2 notches area as being Neutral
- Vulnerability Radars: A Vulnerability Radar shows a static and comparative vulnerability for different countries. For this we assigned several dimensions of vulnerabilities, each of them represented by three vulnerability indicators. The dimensions included are: Macroeconomics, Fiscal, Liquidity, External, Excess Credit and Assets, Private Balance Sheets and Institutional. Once the indicators are compiled, we reorder the countries in percentiles from 0 (lower ratio among the countries) to 1 (maximum vulnerabilities) relative to their group (Developed Economies or Emerging Markets). Furthermore, Inner positions (near 0) in the radar shows lower vulnerability, while outer positions (near 1) stand for higher vulnerability. Furthermore, we normalize each value with respect to given risk thresholds, whose values have been computed according to our own analysis or empirical literature.  If the value of a variable is equal to the threshold, it would take a value of 0.8 in the radar

# Appendix
## Methodology: indicators and maps

### Risk Thresholds Table

| Vulnerability Dimensions | Risk thresholds Developed Economies | Risk thresholds emerging economies | Risk direction | Research |
|---|---|---|---|---|
| **Macroeconomics** | | | | |
| GDP | 1.5 | 3.0 | Lower | BBVA Research |
| Inflation | 4.0 | 10.0 | Higher | BBVA Research |
| Unemployment | 10.0 | 10.0 | Higher | BBVA Research |
| **Fiscal vulnerability** | | | | |
| Cyclically adjusted deficit ("Strutural Deficit") | -4.2 | -0.5 | Lower | Baldacci et Al (2011). Assesing fiscal stress. IMF WP 11/100 |
| Expected interest rate GDP growth diferential 5 years ahead | 3.6 | 1.1 | Higher | Baldacci et Al (2011). Assesing fiscal stress. IMF WP 11/100 |
| Gross public bebt | 73.0 | 43.0 | Higher | Baldacci et Al (2011). Assesing fiscal stress. IMF WP 11/100 |
| **Liquidity problems** | | | | |
| Gross financial needs | 17.0 | 21.0 | Higher | Baldacci et Al (2011). Assesing fiscal stress. IMF WP 11/100 |
| Debt held by non residents | 84.0 | 40.0 | Higher | Baldacci et Al (2011). Assesing fiscal stress. IMF WP 11/101 |
| Short term debt pressure | | | | |
| Public short-term debt as % of total public debt (Developed) | 9.1 | | Higher | Baldacci et Al (2011). Assesing fiscal stress. IMF WP 11/100 |
| Reserves to short-term debt (Emerging) | | 0.6 | Lower | Baldacci et Al (2011). Assesing fiscal stress. IMF WP 11/100 |
| **External Vulnerability** | | | | |
| Current account balance (% GDP) | 4.0 | 6.0 | Lower | BBVA Research |
| External debt (% GDP) | 200.0 | 60.0 | Higher | BBVA Research |
| Real exchange rate (Deviation from 4 yr average) | 5.0 | 10.0 | Higher | EU Commission (2012) and BBVA Research |
| **Private Balance Sheets** | | | | |
| Household debt (% GDP) | 84.0 | 84.0 | Higher | Chechetti et al (2011). "The real effects of debt". BIS Working Paper 352 & EU Comission (2012) |
| Non-financial corporate debt (% GDP) | 90.0 | 90.0 | Higher | Chechetti et al (2011). "The real effects of debt". BIS Working Paper 352 & EU Comission (2013) |
| Financial liquidity (Credit/Deposits) | 130.0 | 130.0 | Higher | EU Commission (2012) and BBVA Research |
| **Excess Credit and Assets** | | | | |
| Private credit to GDP (annual change) | 8.0 | 8.0 | Higher | IMF global financial stability report |
| Real housing prices growth (% YoY) | 8.0 | 8.0 | Higher | IMF global financial stability report |
| Equity growth (% YoY) | 20.0 | 20.0 | Higher | IMF global financial stability report |
| **Institutions** | | | | |
| Political stability | 0.2 (9th percentile) | -1.0 (8th percentile) | Lower | World Bank governance Indicators |
| Control of corruption | 0.6 (9th percentile) | -0.7 (8th percentile) | Lower | World Bank governance Indicators |
| Rule of caw | 0.6 (8th percentile) | -0.6 (8 th percentile) | Lower | World Bank governance Indicators |

# Appendix

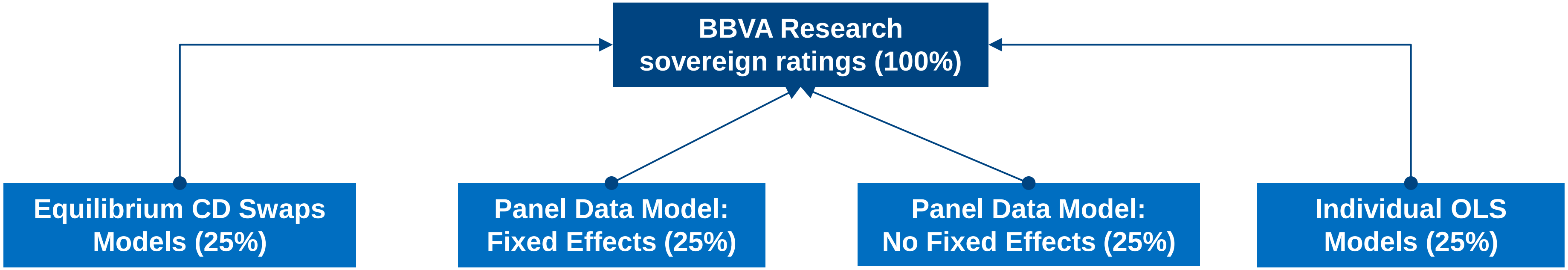
## Methodology: models and BBVA country risk

- BBVA Research sovereign ratings methodology: We compute our sovereign ratings by averaging four alternative sovereign rating models developed at BBVA Research:
- Credit Default Swaps Equilibrium Panel Data Models: This model estimates actual and forecast equilibrium levels of CDS for 48 developed and emerging countries and 10 macroeconomic explanatory variables. The CDS equilibrium is calculated using the centered 5-year moving average of the explanatory variables weighted according to their estimated sensitivities. For estimating the equilibrium level, the BAA spread is left unchanged at its long-term median level (2003-2016). The values of these equilibrium CDS are finally converted to a 20 scale sovereign rating scale.
- Sovereign Rating Panel Data Ordered Probit with Fixed Effects Model: The model estimates a sovereign rating index (a 20 numerical scale index of the three sovereign rating agencies) through ordered probit panel data techniques. This model takes into account idiosyncratic fundamental stock and flows sustainability ratios allowing for fixed effects , thus including idiosyncratic country-specific effects
- Sovereign Rating Panel Data Ordered Probit without Fixed Effects Model: We used the estimates of the previous model but retaining only the contribution of the macroeconomic and institutional variables, without adding the country “fixed-effect” contribution. In this way we are able to account more clearly for the effect of only those macroeconomic variables that we can identify.
- Sovereign Rating Individual OLS Models: These models estimate the sovereign rating index (a 20 numerical scale index of the three sovereign rating agencies) individually. Furthermore, parameters for the different vulnerability indicators are estimated taken into account the history of the country, independent of others. The estimation comes from Oxford Economics Forecasting (OEF) for the majority of countries. For those countries that are not analysed by OEF, we estimate a similar OLS individual model.

# Appendix

## Methodology: models and BBVA country risk

BBVA Research sovereign ratings methodology diagram




Fuente: BBVA Research

# Appendix

## Methodology: Special Topic

- Synchronization Indicator: This indicator measures by how much all the exchange rates (against USD) in a group of 23 emerging economies are moving together during a period of 15 days (rolling window). A more extensive description of the methodology will be included in a forthcoming note. We first calculate the daily percentage change of the exchange rate of each one of the 23 countries using a daily sample of FX rates changes that goes from Janury-2004 to May-31th of 2018. Then, we estimate through a PCA a unique common factor using all the observations in the whole sample of 3576 days. Additionally, we also estimate the daily median of FX changes for the 23 countries (changes are standardized).
- The weights that each country has on the common factor are kept constant during the whole sample. However, we estimate in a daily fashion how much this common factor explains of the total variation in the 23 countries' FX rates (R2) within a rolling period including the latest 15 days. We assume that the highest the R2 the higher the Synchronization or comovement of the 23 FX rates. This moving-R2 corresponds to the dark blue line in the graph shown in slide 19. The dotted red line corresponds to the average within the latest 15 days of the daily median change among the 23 countries.
- Once we have estimated the Synchronization index and the median change in EM markets, we construct a warning indicator that takes the maximum value when (on average) EM FX rates are depreciating strongly and there is a high degree of Synchronization (intense red). On the other hand, the minimum value of the warning index occurs when on average FX rates are appreciating strongly and in a synchronized fashion (intense blue). The intermediate colors include several possible combinations of lower levels of depreciation/appreciation and/or lower degrees of Synchronization.

# Appendix
## Methodology: Early Warning Systems

**EWS Banking Crises:**

The complete description of the methodology can be found at https://goo.gl/r0BLbI and at https://goo.gl/VA8xXv. A banking crisis is defined as systemic if two conditions are met: 1) Significant signs of financial distress in the banking system (as indicated by significant bank runs, losses in the banking system, and/or bank liquidations), 2) Significant banking policy intervention measures in response to significant losses in the banking system. The probability of a crisis is estimated using a panel-logit model with annual data from 68 countries and from 1990 to 2012. The estimated model is then applied to quarterly data. The probability of a crisis is estimated as a function of the following leading indicators (with a 2-years lag):

- Credit-to-GDP Gap (Deviation from an estimated long-term level)
- Current account balance to GDP
- Short-term interest rate (deviation against US interest rate)
- Libor interest rate
- Credit-to-Deposits
- Regulatory Capital to Risk Weighted Assets ratio..

**EWS Currency Crises:**

We estimate the probability of a currency crisis (a large fall in exchange rate and foreign reserves event) is estimated using a panel-logit model with 78 countries from 1980Q1 to 2015Q4, as a function of the following variables (with an 4-quarters lag):

- Credit-to-GDP ratio Gap (based on HP filter)
- Inflation
- BAA Spread
- Cyclical Current Account (based on HP filter)
- Short-term interest rate (deviation against US interest rate)
- Libor interest rate (different lags)
- Real effective exchange rate
- Investment to GDP
- GDP real growth rate (HP-trend and cyclical deviation from trend)
- Total trade to GDP

# Appendix
## Methodology: Early Warning Systems

**EWS Banking Crises Definition of Regions:**

- OPEC and Other Oil Exporters: Algeria, Angola, Azerbaijan, Bahrain, Canada, Ecuador, Nigeria, Norway, Qatar, Russia and Venezuela
- Emerging Asia: Bangladesh, China, India, Indonesia, Malaysia, Pakistan, Philippines, Thailand and Vietnam.
- South America & Mexico: Argentina, Brazil, Chile, Colombia, Mexico, Paraguay, Peru and Uruguay
- Other LatAm & Caribbean: Bolivia, Costa Rica, Dominican Rep., El Salvador, Guatemala, Honduras, Nicaragua and Panama
- Africa & MENA: Botswana, Egypt, Israel, Morocco, Namibia and South Africa.
- Emerging Europe: Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Rep, Slovenia, Turkey, Ukraine
- Core Europe: Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, Sweden and United Kingdom.
- Periphery Europe: Greece, Ireland, Italy, Portugal and Spain
- Advanced Economies: Australia, Japan, Korea, Singapore, Iceland, New Zealand and Switzerland.

**EWS Currency Crises Definition of Regions:**

- OPEC and Other Oil Exporters: Algeria, Angola, Azerbaijan, Bahrain, Nigeria, Norway, Oman, Qatar, Russia, Trinidad and Tobago, United Arab Emirates and Venezuela
- Emerging Asia: Bangladesh, China, Hong Kong, India, Indonesia, Malaysia, Pakistan, Philippines, Thailand and Vietnam.
- South America & Mexico: Argentina, Brazil, Chile, Colombia, Mexico, Paraguay, Peru and Uruguay
- Other LatAm & Caribbean: Bolivia, Costa Rica, Dominican Rep., El Salvador, Guatemala, Honduras, Jamaica and Nicaragua
- Emerging Europe: Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Rep, Slovenia, Turkey, Ukraine
- Africa & MENA: Botswana, Egypt, Israel, Morocco, Namibia, South Africa and Tunisia
- Advanced Economies: Australia, Japan, Korea, Singapore, Canada, Iceland, New Zealand and Switzerland.

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