BBVA Research

Country Risk Report

A Quarterly Guide to Country Risks – March 2016

Cross-Country Emerging Markets Unit

Financial markets, global risk and capital flows

- Financial tensions in Emerging Markets (EMs) soared back to August levels driven by falling commodity prices and stock market turmoil in China, but receded somewhat in February, when the focus changed to the DMs' banking sector.

- Different measures of global risk aversion evolved differently. VIX has not risen much, but BAA-spread has surged beyond the European sovereign crisis levels of 2012, setting a new maximum after the Lehman crisis.

- EMs capital outflows were specially intense during December and January with a rebalancing towards safe-haven bonds. DMs equity and high-yield suffered on February.

Sovereign markets and ratings agencies update

- EMs sovereign CDS spreads surged during December and January in line with financial tensions. DMs spreads had its turn on February. EU Periphery specially affected.

- Greece and Ireland upgraded by S&P and Fitch. Multiple downgrades for Brazil. Poland downgraded by Fitch due to internal political concerns.

- Previous market pressure materialized in actual rating changes for Ireland and Brazil. Russia, Turkey, Chile, China and Malaysia downgrade pressure intensifies.

Our own country risk assessment

- Resurgence of the turmoil experienced in the summer, driven by the same concerns about China, commodity exporters and excessive EMs leverage, but with new additional fears about the impact of ultra-low interest rates and growth outlook in US and other DMs.

- We identify new threats to financial stability in some DMs affected by low commodity prices such as Canada, Australia and Norway. On the positive side, we estimate that the probability of new strong currency shocks is receding in most regions.

Country Risk Report

International financial markets, global risk aversion and capital flows

Financial tensions soared back to August-15 levels, but receded somewhat in February

BBVA Research Financial Stress Map

Source: BBVA Research
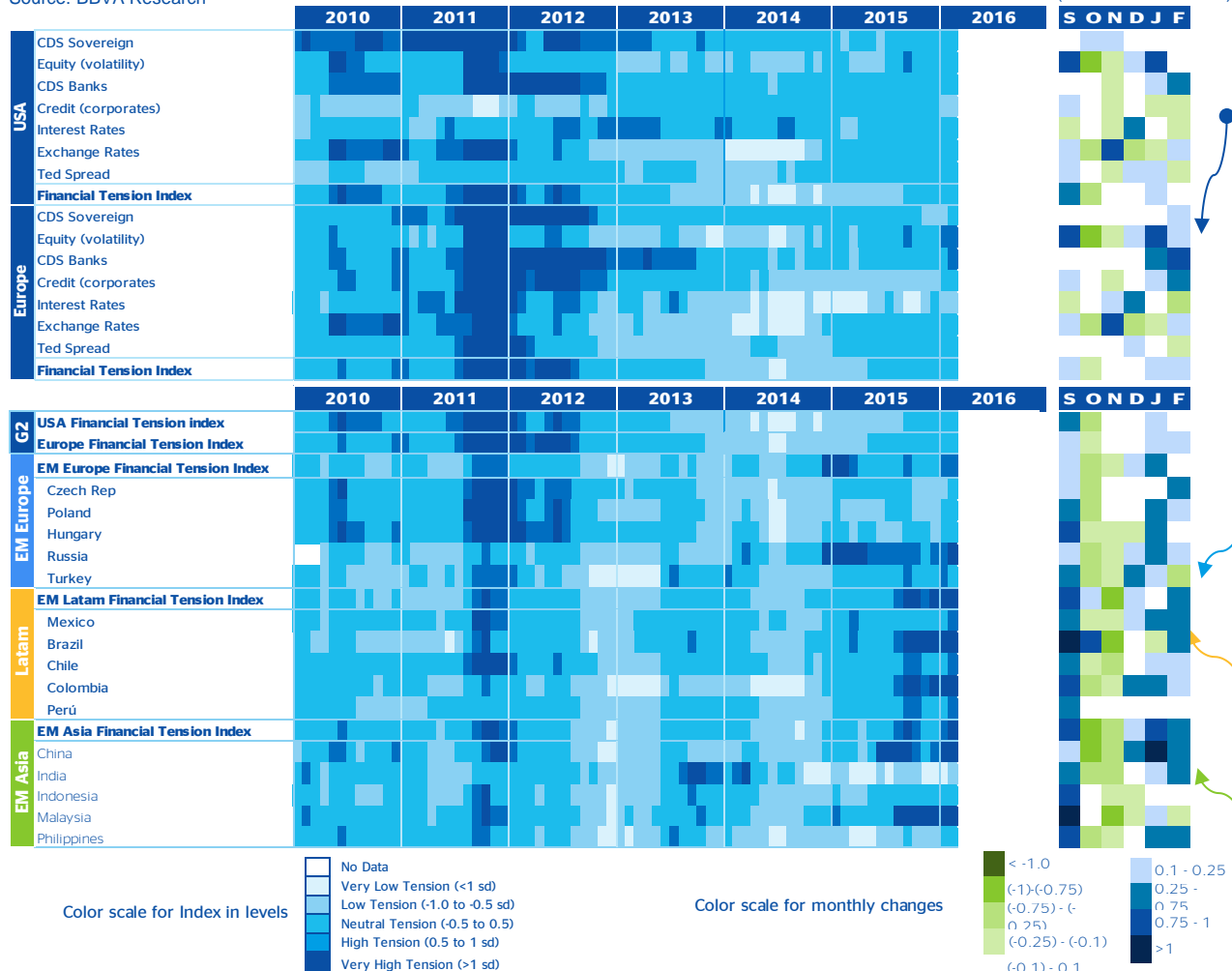
Financial Tensions in US and Europe surged driven mainly by the increased volatility in equity markets.

Since January, Banks' CDS spreads have also surged, due to concerns about the profitability impact of negative interest rates.

FTI in EMs returned to the same levels reached in August.

EM Europe is the EM region less affected. FT in Turkey actually decreased in February.

FT in Latam increased the most in the largest economies. Colombia, Brazil and Mexico the worst performers.

China is back to high levels of FT and continue to be one of the main sources of uncertainty.
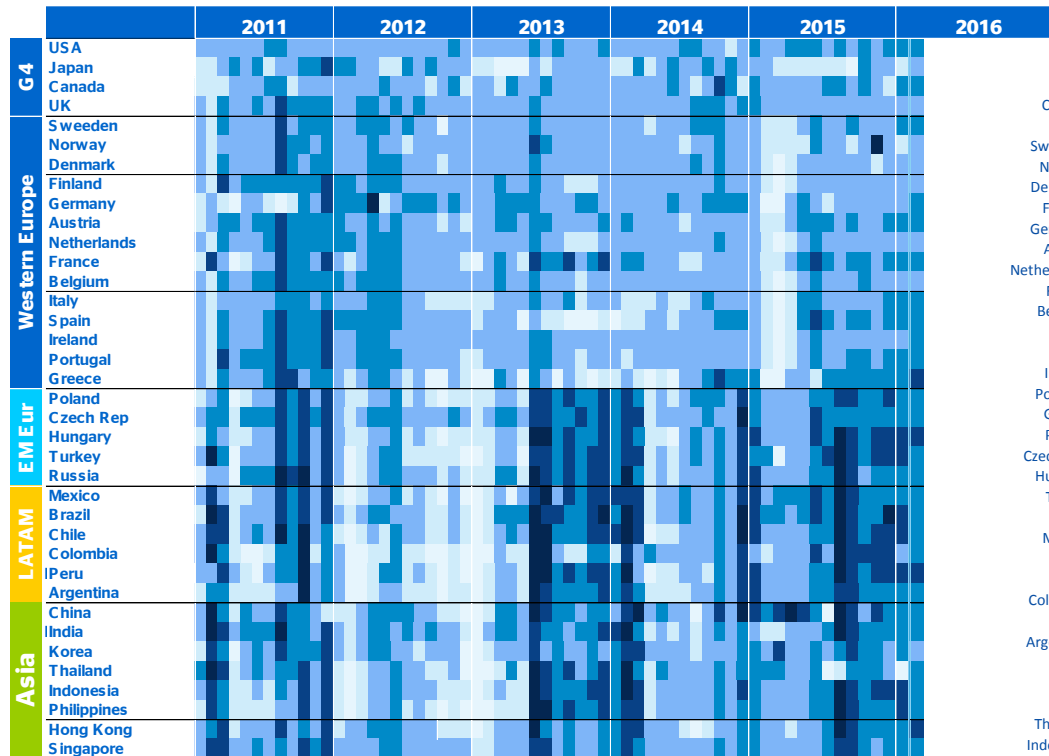
4

Country Risk Report
International financial markets, global risk aversion and capital flows

Intense EMs capital outflows during December and January, tamed by oil prices recovery on late February.

BBVA High Frequency Portfolio Flows Map
(% monthly change in net liabilities measured as net flows to total assets under management) Source: BBVA Research

BBVA Research Portfolio Flows Map*
The Flows Map show the monthly evolution of net inflows with Darker blue colors representing sharp net outflows and lighter colors standing for net Inflows

Outflows   Inflows

<-2%   0%   +2%>
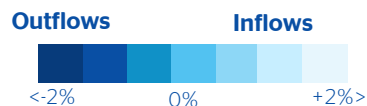
Flows Q1 (EST) vs. Q4 Graph and comment
(% quarterly change in flows, shades are previous values)
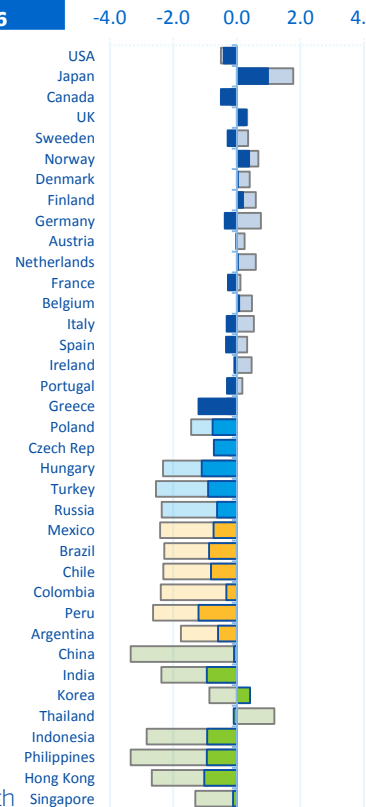
- Intense EM outflows in a context of increased risk aversion during December and January, driven by the negative trend in commodity prices and compounded by China's stock market turmoil and doubts about its outlook.

- Initial rebalancing towards safe-haven bonds (Japan and US).

- In February, the focus turned to equity and high-yield from DMs due to concerns about banking sector profitability in a ultra-low interest rate environment.

- Net outflows receded somewhat by late February, mainly in EM due to the combination of a strong rebound of commodity prices and lesser concerns on the US

5

Country Risk Report
Sovereign markets and rating agencies
EMs CDS spreads surged during December and January... DMs during February

Sovereign CDS spreads
Source: Datastream and BBVA Research

Changes
(last six months MoM)
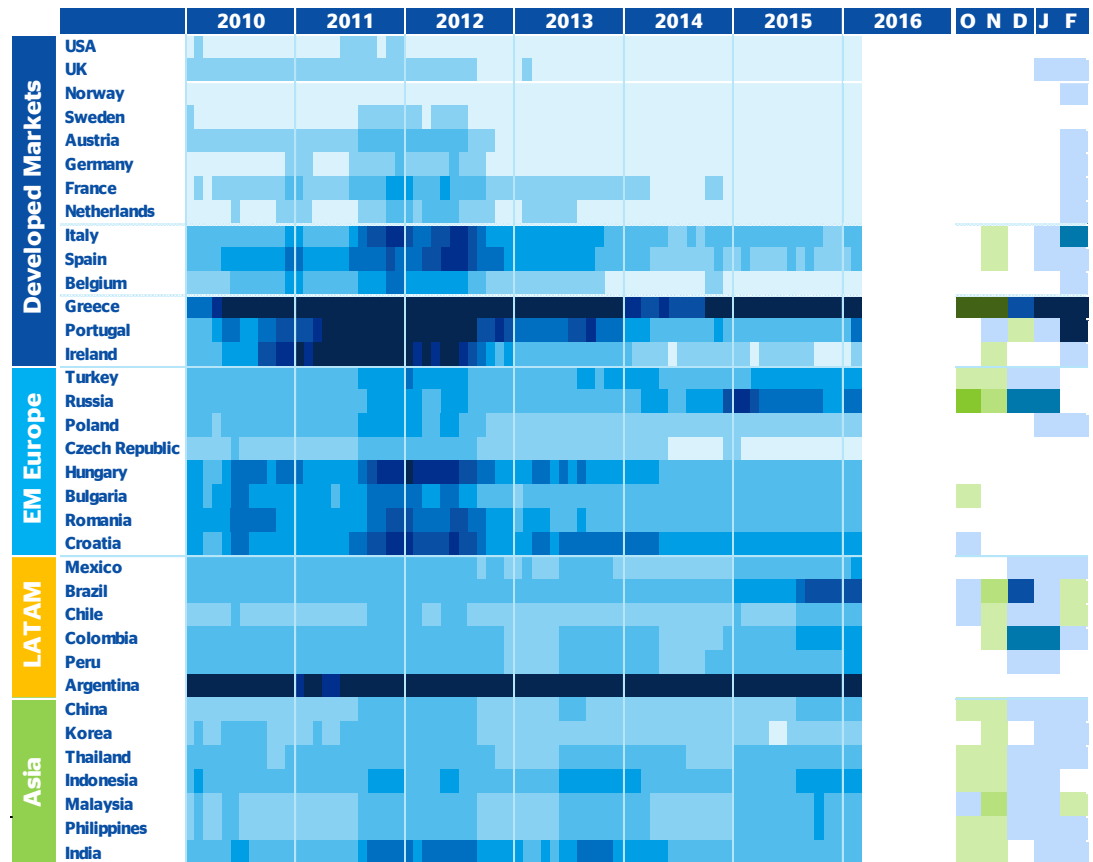
First significant increase in the spread of richest economies in February since mid-2013.

- **Greek and Portuguese CDS widened largely. Portugal at mid-2013 levels**. Italy and Spain are also suffering important increases.

- **Emerging Europe currently the most stable EM area**. Russian and Turkish CDS deteriorated during December and January, but remained stable afterwards.

In line with the evolution of the rest of EMs, **CDS in Latam soared in December and January**, but improved somewhat in February. Brazil and Colombia the worst performers.

- **General widening in Asia's spreads**. China the worst performer in the region.

Country Risk Report
Sovereign markets and agency ratings

Greece and Ireland upgraded by S&P and Fitch. Multiple downgrades for Brazil. Poland downgraded by Fitch

Sovereign Rating Index 2009-16
Source: BBVA Research by using S&P, Moody's and Fitch data

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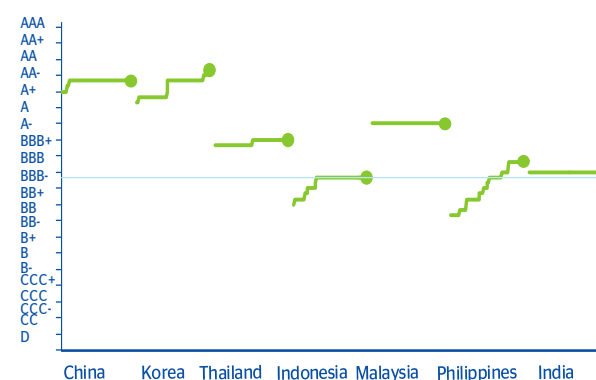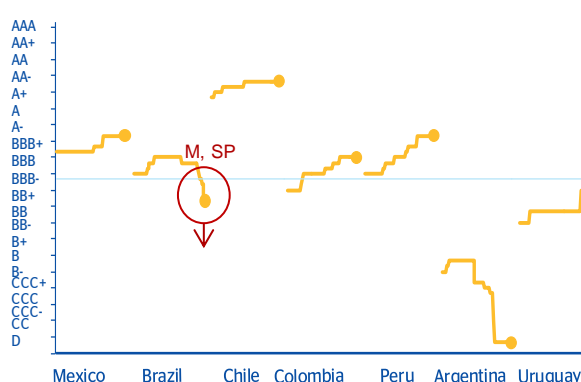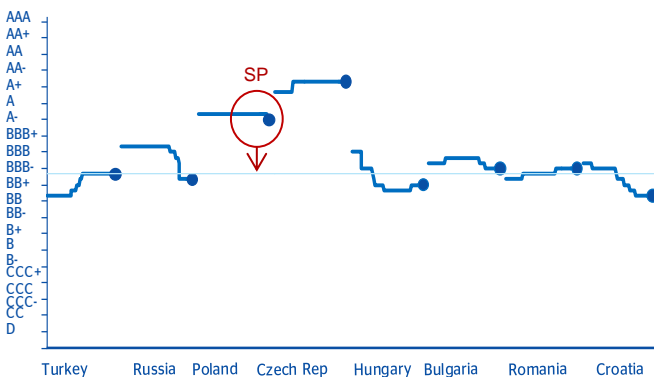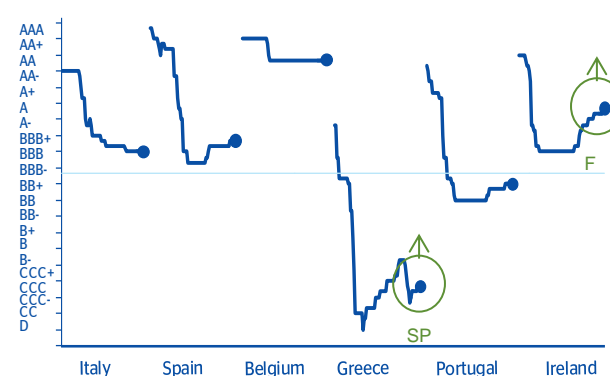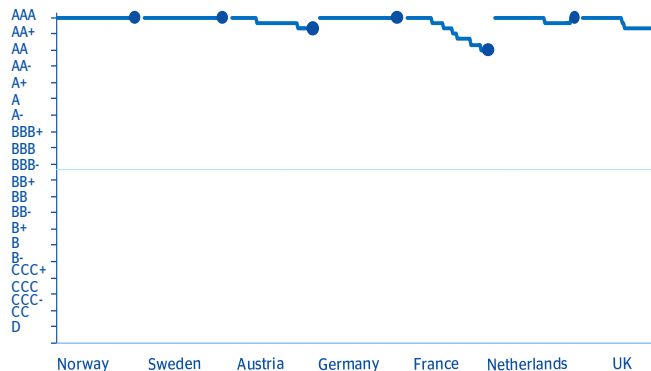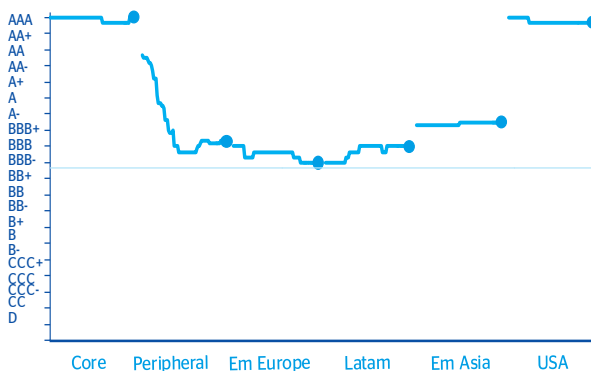
Sovereign Rating Index: An index that translates the three important rating agencies ratings letters codes (Moody's, Standard & Poors and Fitch) to numerical positions from 20 (AAA) to default (0). The index shows the average of the three rescaled numerical ratings.

Country Risk Report
Sovereign markets and agency ratings

Market pressure materialized in actual changes in Ireland and Brazil. Russia, Turkey, Chile, China and Malaysia downgrade pressure intensifies

Agencies' rating downgrade pressure gap (February 2016)
(difference between CDS-implied rating and actual sovereign rating, in notches)
Source: BBVA Research

Upgrade pressure for Ireland decreases after actual upgrade

Slight decrease for Russia from previous year. Pressure increases for Turkey

Pressure for Brazil decreases after actual downgrade. Chile and Colombia now on the spotlight

China and Malaysia facing mounting downgrade pressure.

Legend (vertical scale from +6 to -6):
- Strong upgrade pressure
- Upgrade pressure
- Neutral
- Downgrade pressure
- Strong downgrade pressure

Countries (x-axis): USA, UK, Norway, Sweden, Austria, Germany, France, Netherlands, Italy, Spain, Belgium, Greece, Portugal, Ireland, Turkey, Russia, Poland, Czech Rep, Hungary, Bulgaria, Romania, Croatia, Mexico, Brazil, Chile, Colombia, Peru, Argentina, China, Korea, Thailand, Indonesia, Malaysia, Philippines, India

Legend: ■ This Quarter ● 1 Quarter ago ● 1 Year ago

8

Country Risk Report
Macroeconomic vulnerability and risk assessment

LatAm average CDS has widened in line to the worsening of its equilibrium spread. EM Asia risk overpriced.

CDS and equilibrium risk premium February 2016
(equilibrium: average of four alternative models + 0.5 standard deviation)
*EU Periphery excludes Greece
Source: BBVA Research and Datastream

Safe havens at neutral levels — Core Europe

Near equilibrium levels — EU Periphery

Below equilibrium levels — EM Europe

Actual and Equilibrium spreads have widened — Latam

Above equilibrium levels — EM Asia

CDS .... BBVA Equilibrium (range)
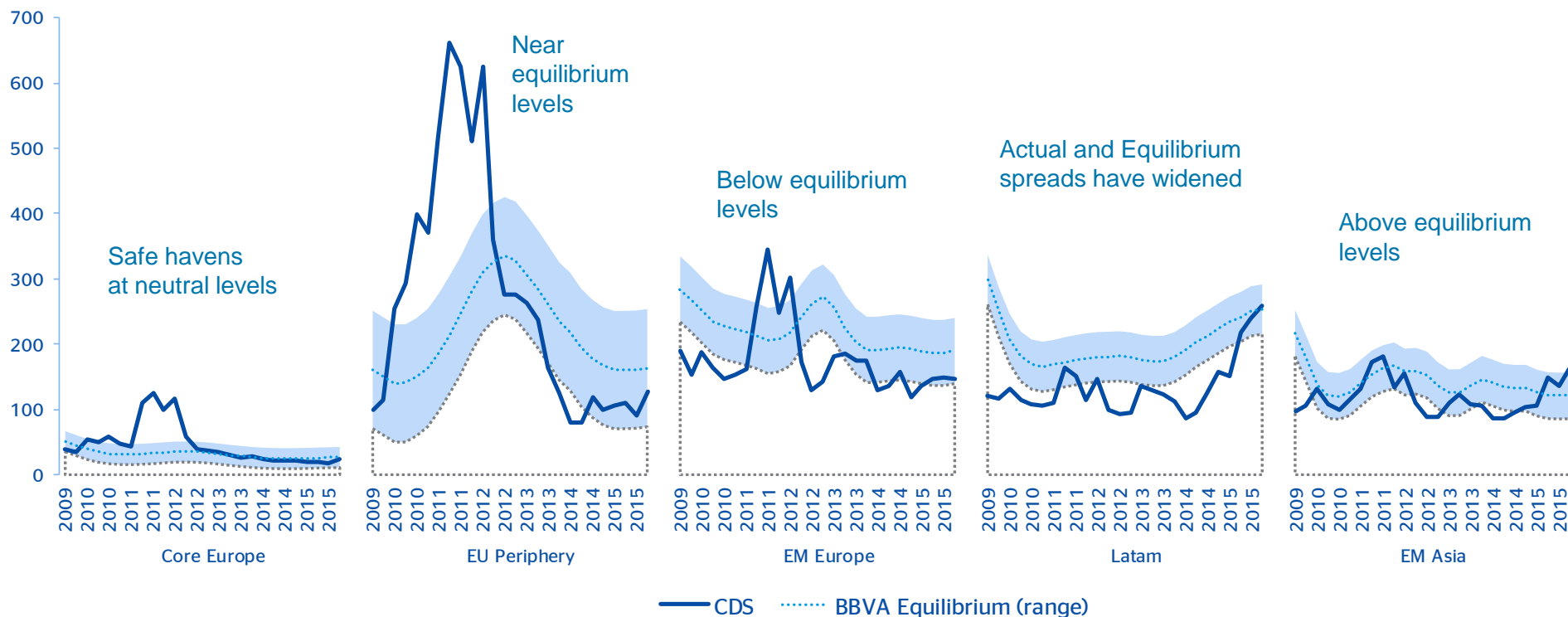
Country Risk Report
Macroeconomic vulnerability and risk assessment

LatAm average rating* has dropped below investment grade threshold. EU Periphery Europe and EM Europe ratings now below fundamentals

Agencies' Sovereign rating vs. BBVA Research
(Agencies' Rating and BBVA scores +/-1 std dev)
Source: Standard & Poors, Moody's, Fitch and BBVA Research

*LatAm average now includes Paraguay and Uruguay

—— Rating Agencies   ······ BBVA-Research
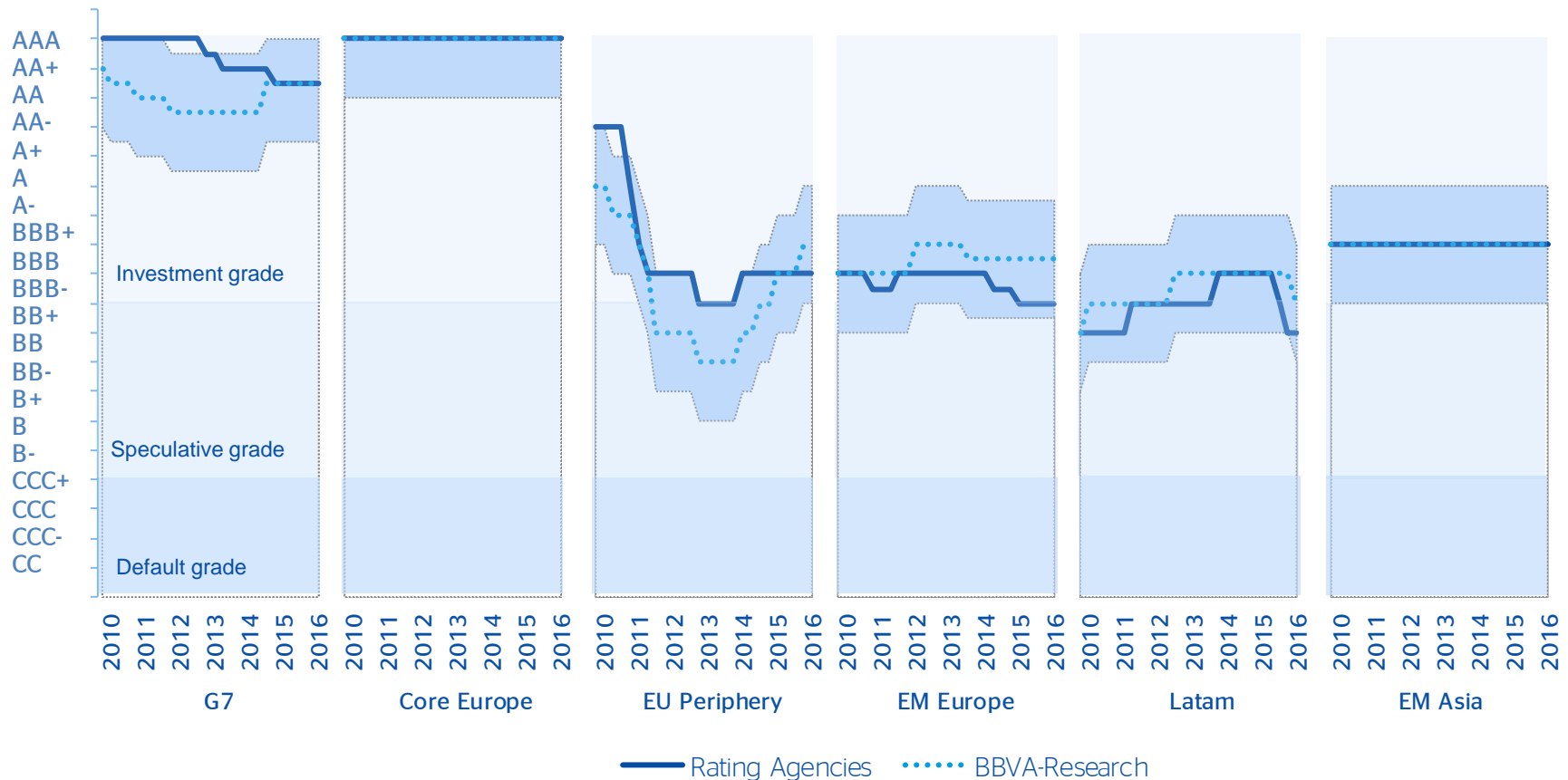
Country Risk Report
Macroeconomic vulnerability and risk assessment

Fiscal vulnerability increases throughout Advanced Countries

Developed countries: vulnerability radar 2016

Relative position for the emerging developed countries. Max risk=1, Min risk=0. Previous year data is shown as a dotted line.
Source: BBVA Research

G7
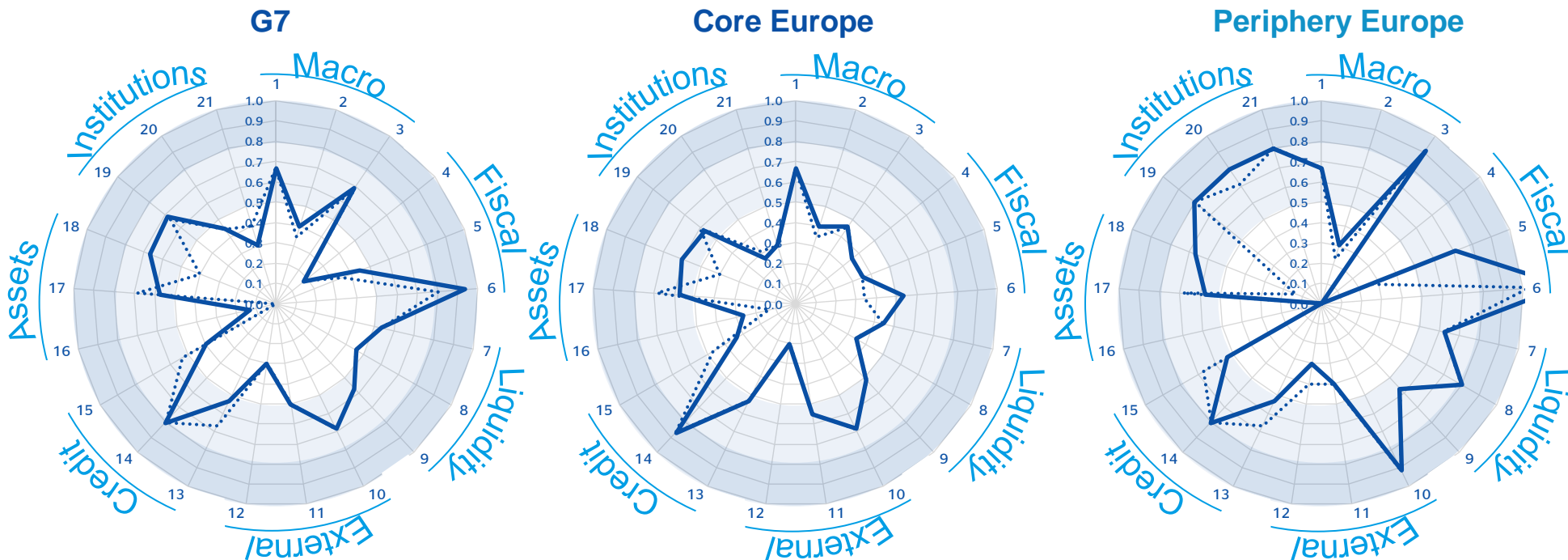
Worsening public debt levels

Core Europe

Corporate debt clearly the main vulnerability

Periphery Europe

Increasing public debt levels increases fiscal vulnerability.

High risk
Risk to monitor
Safe

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 (%) 11
Institutional: (19) Political stability (20) Corruption (21) Rule of law

Country Risk Report
Macroeconomic vulnerability and risk assessment

External debt the main vulnerability in EM Europe, low GDP growth in LatAm, and fiscal vulnerability in EM Asia

Emerging countries: vulnerability radar 2016

Relative position for the emerging developed countries. Max risk=1, Min risk=0. Previous year data is shown as a dotted line.
Source: BBVA Research

Emerging Europe
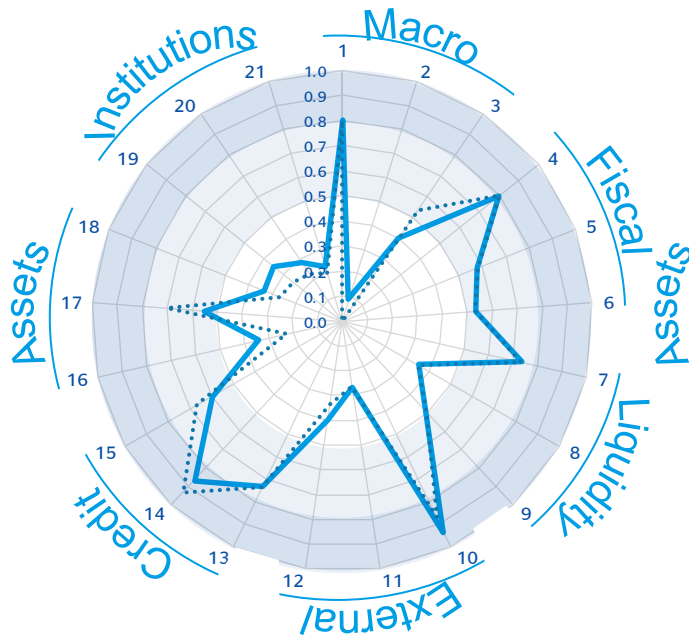
Once again, external debt is the most worrisome vulnerability together with corporate debt

LatAm
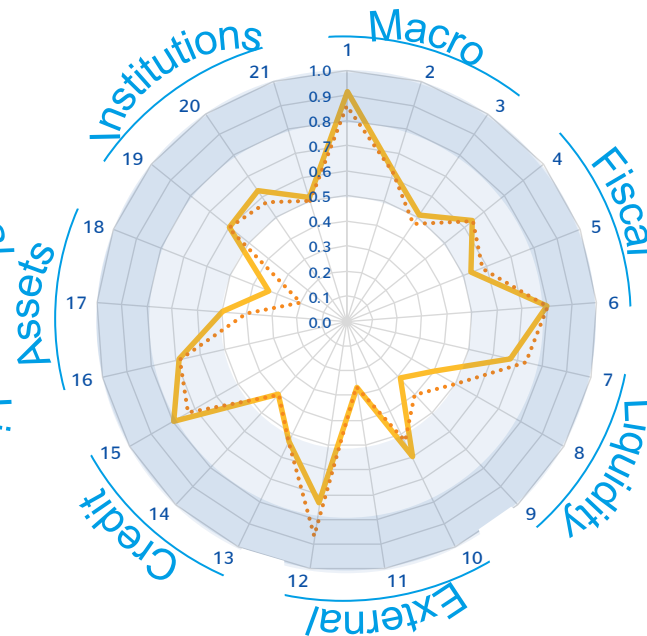
GDP growth and financial vulnerabilities worsening with respect to 2015. Other vulnerabilities relatively stable

Emerging Asia
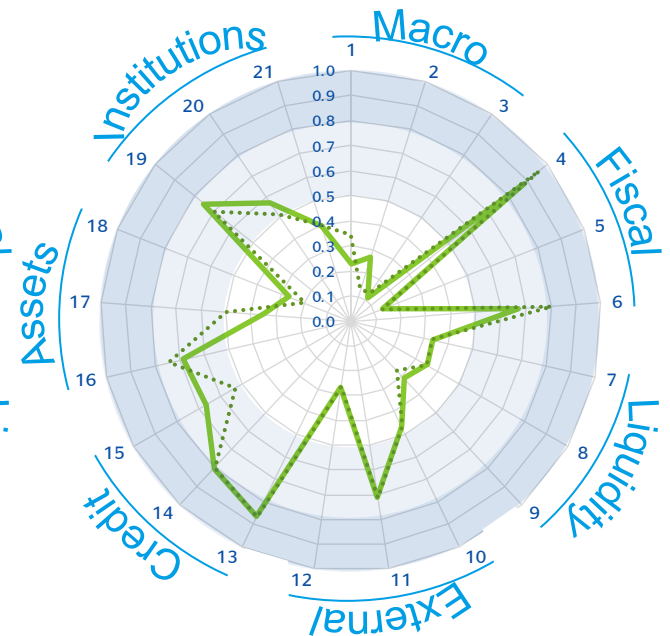
Public balances still the main vulnerability. Private leverage (households & corporates) also at risky levels

High risk
Risk to monitor
Safe

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 (%) 12
Institutional: (19) Political stability (20) Corruption (21) Rule of law

Country Risk Report
Macroeconomic vulnerability and risk assessment

Some Oil Exporters and China, the ones most likely to face a banking crisis in the next two years

Early warning system (EWS) of Banking Crises (1992Q1-2017Q4)
Probability of Systemic Banking Crisis (based on 8-quarters lagged data*):
*The probability of a crisis in Q4-2016 is based on Q4-2014 data.
Source: BBVA Research

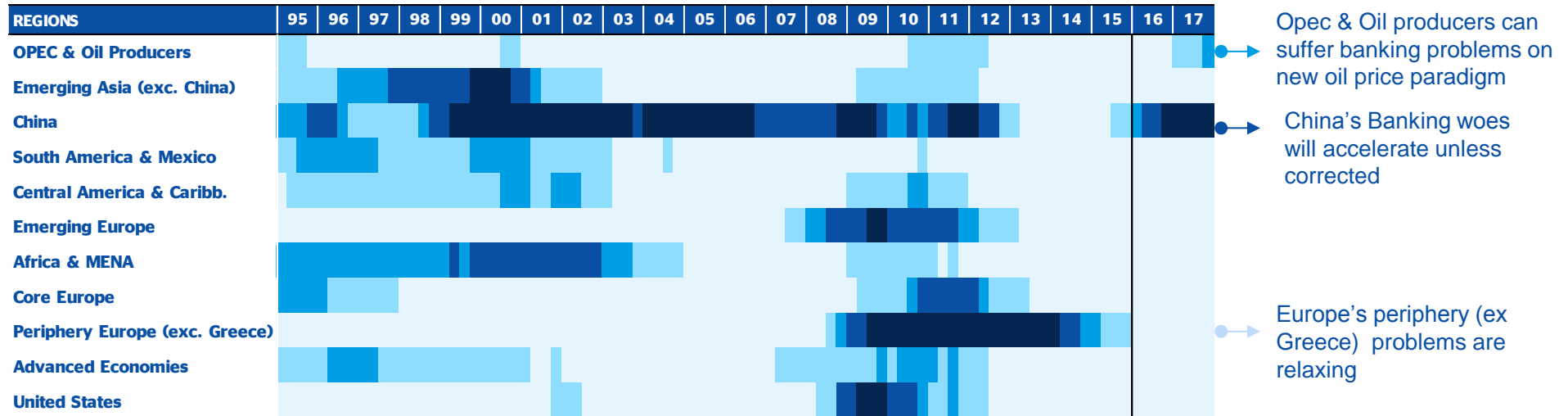| REGIONS	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
OPEC & Oil Producers																							
Emerging Asia (exc. China)																							
China																							
South America & Mexico																							
Central America & Caribb.																							
Emerging Europe																							
Africa & MENA																							
Core Europe																							
Periphery Europe (exc. Greece)																							
Advanced Economies																							
United States																							

Opec & Oil producers can suffer banking problems on new oil price paradigm

China's Banking woes will accelerate unless corrected

Europe's periphery (ex Greece) problems are relaxing

- In this Quarterly Report we introduce our Early Warning System (EWS) of Banking Crises at a regional level. 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/r0BLbl 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.

Legend:
- Safety Signal
- Warning Signal
- Medium Risk
- High Risk
- Very High Risk
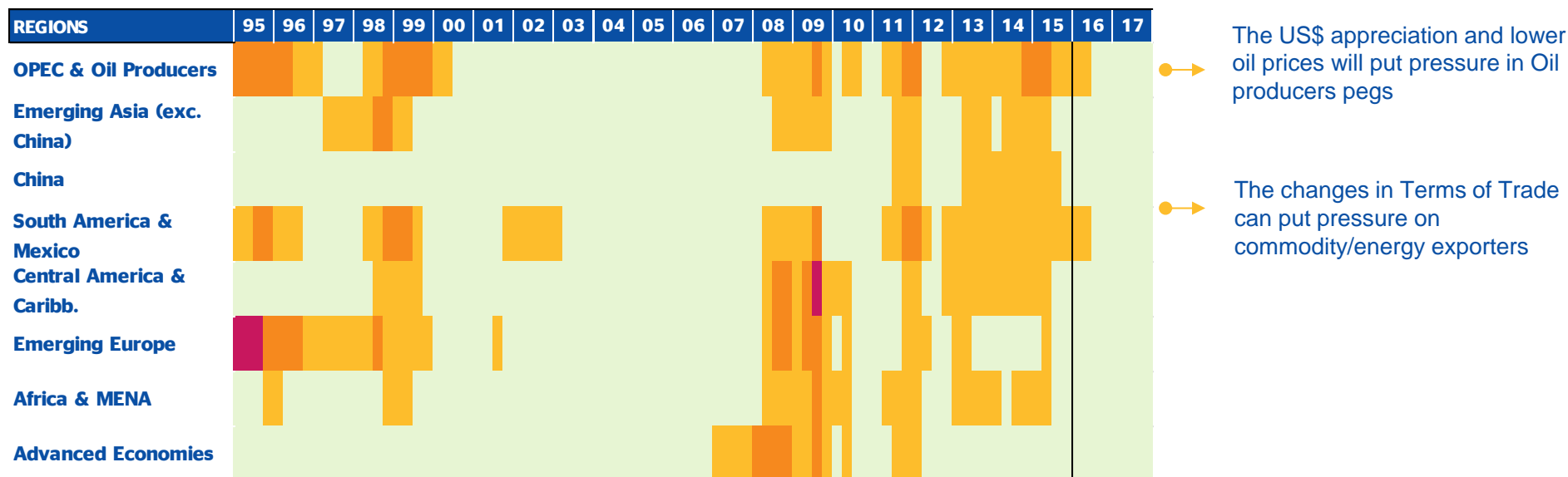
Country Risk Report
Macroeconomic vulnerability and risk assessment

Oil Exporters and some Latam countries still the most vulnerable to currency shocks. The probability of currency crises decreases after the sharp correction

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.
Source: BBVA Research

REGIONS	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
OPEC & Oil Producers																							
Emerging Asia (exc. China)																							
China																							
South America & Mexico																							
Central America & Caribb.																							
Emerging Europe																							
Africa & MENA																							
Advanced Economies																							

The US$ appreciation and lower oil prices will put pressure in Oil producers pegs

The changes in Terms of Trade can put pressure on commodity/energy exporters

- Safe
- Warning
- High Risk
- Very High Risk

- We have developed a similar Currency-Crises Early Warning System EWS that allow 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.
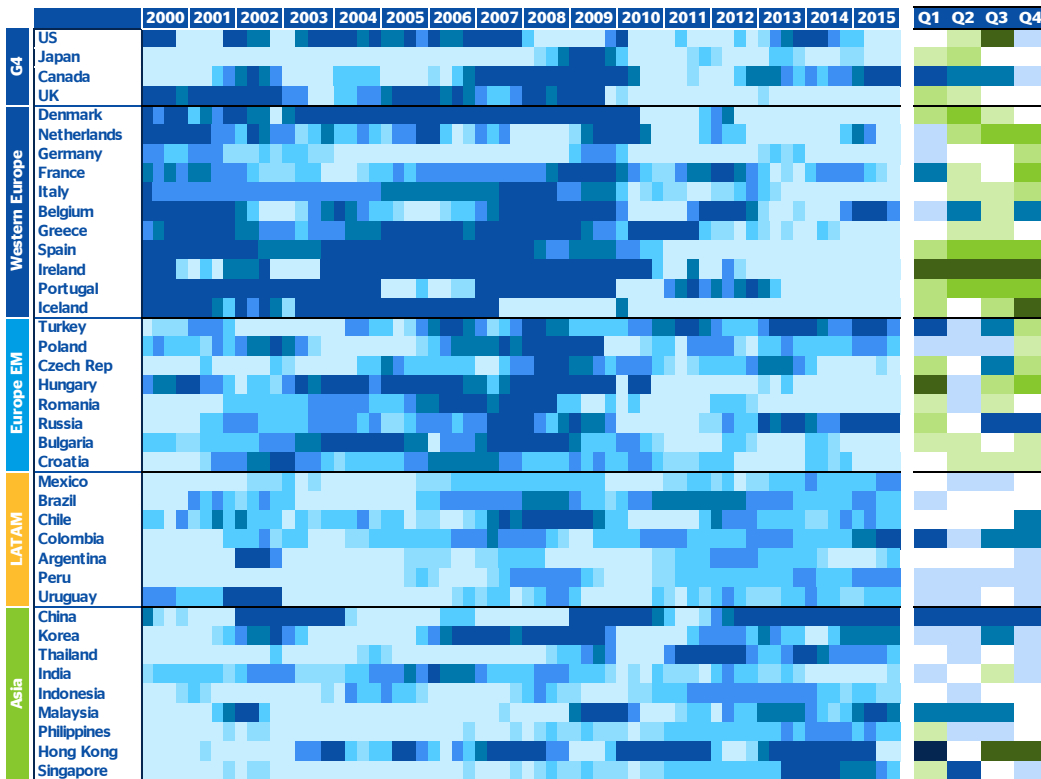
Country Risk Report
Macroeconomic vulnerability and risk assessment

Turkey's credit clearly moderating. Concerns about excess leverage in Colombia and Canada. Leverage growth in China seems unbounded

Private credit color map (2000-2015 Q4)
(yearly change of private credit-to-GDP ratio (YoY))
Source: BBVA Research, IFS and BIS

QoQ growth
Last four quarters up
until Q4-2015

Leverage growth moderated in Canada during the quarter, but still worrisome. Deleveraging in US, Japan and UK.

The deleveraging cycle in Western Europe does not seem to have bottomed out. **Belgium seems the only outlier.**

Clear signs of moderation in Turkey's leverage. On the other hand, Russia's leverage starts looking worrisome.

Colombia showing signs of excess leveraging. Other countries in Latam still growing but tempering.

China's leveraging process does not moderate despite consensus about its excess. Other countries in EM Asia decelerating of deleveraging.

Legend (left):
- 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 between 0%-1%
- De-leveraging: Credit/GDP growth declining
- ··· Non Available

Legend (right):
- 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%

Country Risk Report
Macroeconomic vulnerability and risk assessment

Mixed and volatile outlook across EMs and DMs. Sharp drop in HK prices QoQ. Turkish prices still booming but decelerating

Real housing prices color map (2000-2015 Q4)
(yearly change of real housing prices YoY)
Source: BBVA Research, BIS and Oxford Economics

QoQ Growth
Last four quarters up until Q4-2015

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		Q1	Q2	Q3	Q4

G4: US, Japan, Canada, UK

Europa Occidental: Denmark, Netherlands, Germany, France, Italy, Belgium, Greece, Spain, Ireland, Portugal, Iceland

Europa Emergente: Turkey, Poland, Czech Rep, Hungary, Romania, Russia, Bulgaria, Croatia

LATAM: Mexico, Brazil, Chile, Colombia, Argentina, Peru, Uruguay

Asia: China, Korea, Thailand, India, Indonesia, Malaysia, Philippines, Hong Kong, Singapore

Moderation of housing prices growth in US. **Excess growth continues in UK.** High volatility in prices growth in Japan.

Signs of overheating in Ireland, although slowing down. Tempering of recovery in Spain and Portugal

Mixed quarter data across EM Europe. Moderation of growth in Turkey, acceleration in Czech Rep. Russia now the only one with contracting prices.

General deceleration in prices growth throughout LatAm. Prices in Mexico, Chile and Peru still growing fast.

Mixed situation in EM Asia. Chinese prices continue stagnant. Strong decline in HK prices QoQ.

Booming: Real House prices growth higher than 8%
Excess Growth: Real House Prices Growth between 5% and 8%
High Growth: Real House Prices Growth between 3%-5%
Mild Growth: Real House prices growth between 1%-3%
Stagnant: Real House Prices growth between 0% and 1%
De-Leveraging: House prices are declining
Non Available Data

Q/Q growth > 3.5%
Q/Q growth between 2% and 3.5%
Q/Q growth between 1% and 2%
Q/Q growth between 0.5% and 1%
Q/Q growth between -0.5% and 0.5%
Q/Q growth between -0.5% and - 1%
Q/Q growth between -1% and -2%
Q/Q growth between -2% and -3.5%
Q/Q growth < -3.5%

16
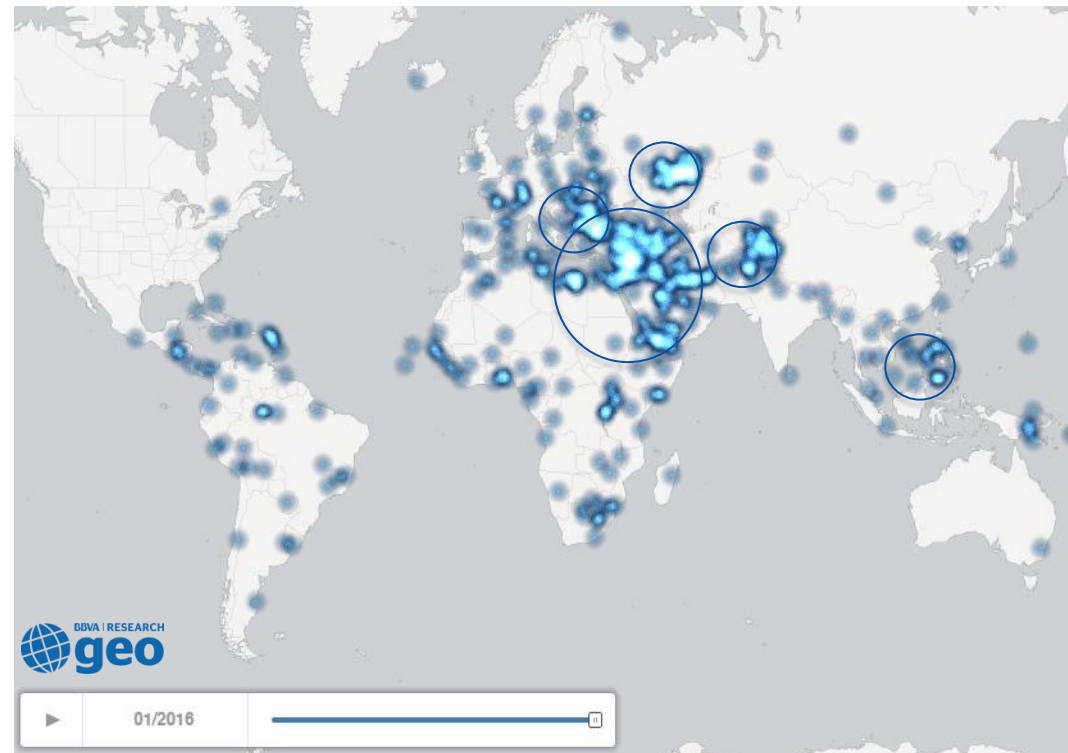
The Geopolitical situation is becoming more challenging

World Conflict Intensity Index 2015-16
(Number of events related to the conflict/ Total events in each country)
Source: www.gdelt.org & BBVA Research

- The Ukrainian-Russian Crisis remains in stand-by but still alive and potentially kicking

- The Afghanistan permanent conflict will challenge US involvement in the region

- The Middle East conflict is really "complex" and will take time to contain

- The spillovers from the Middle East crisis are spiraling to Europe (Refugees and Terrorism)

- The Southeastern Asian crisis is the true Black Swan of Geopolitics

Country Risk Report
Macroeconomic vulnerability and risk assessment

Public and private debt chart gallery

Gross Public Debt 2016
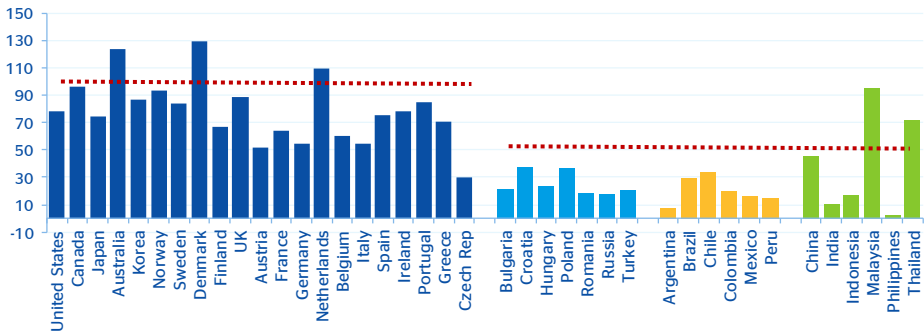(% GDP)
Source: BBVA Research and IMF
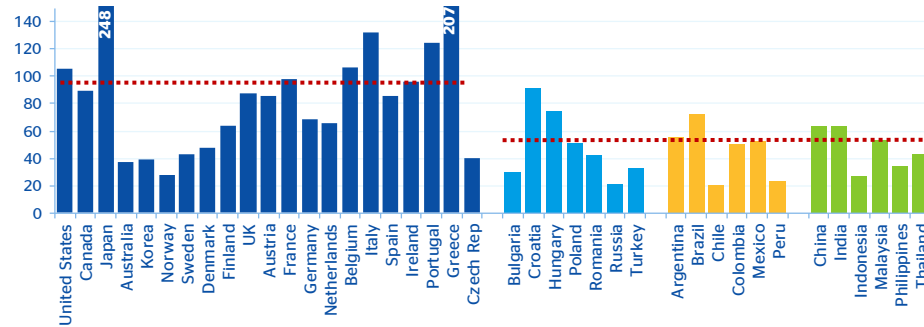
External Debt 2016
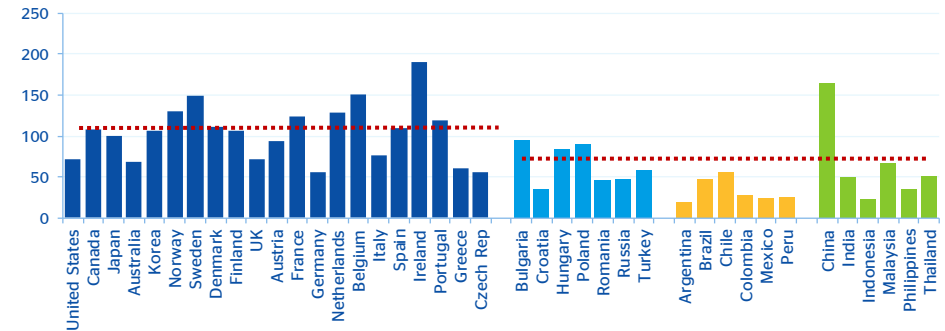(% GDP)
Source: BBVA Research and IMF
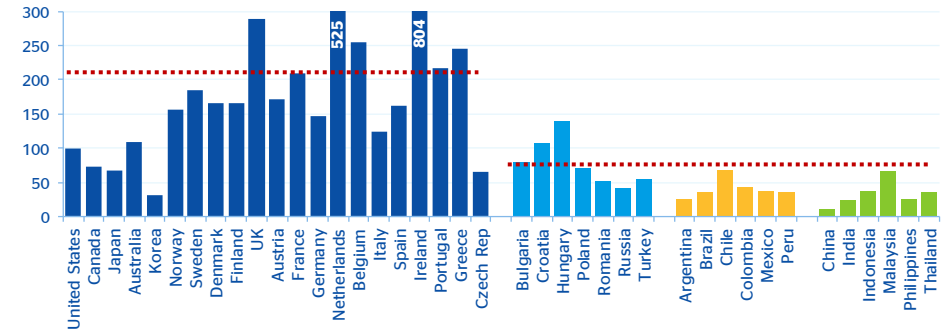
Household Debt 2016
(% GDP)
Source: BBVA Research and BIS

Corporate Sector Debt 2016
(% GDP, excluding bond issuances)
Source: BBVA Research and BIS

········ **Risk thresholds**

Vulnerability indicators: developed economies

Vulnerability indicators* 2016: developed countries

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

	Fiscal sustainability			External sustainability			Liquidity management			Macroeconomic performance			Credit and housing			Private debt			Institutional		
	Structural primary balance (1)	Interest rate GDP growth differential 2014-19	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	-1.1	-1.3	106	-3.0	99	14.9	20	15	34	2.8	1.4	4.9	-4.8	4.5	-2.2	78	71	62	-0.6	-1.3	-1.6
Canada	-0.8	-0.1	89	-2.3	72	-13.2	12	12	22	1.7	2.0	6.8	9.0	11.7	-11.1	97	108	132	-1.2	-1.8	-1.9
Japan	-5.0	-0.8	248	3.0	67	-11.6	53	18	8	1.0	0.6	3.5	-0.6	0.2	9.1	75	100	49	-1.0	-1.7	-1.6
Australia	-0.8	0.1	37	-4.1	109	-9.9	6	8	66	2.9	2.5	6.2	16.0	9.5	-0.8	124	69	138	-1.1	-1.9	-1.9
Korea	-0.9	-1.2	39	6.7	30	6.1	3	10	13	3.2	2.5	3.5	6.2	3.3	2.4	87	107	98	-0.2	-0.5	-1.0
Norway	-9.6	-0.5	28	5.4	157	-11.7	0	0	34	1.3	2.3	4.3	16.1	2.0	2.9	94	130	127	-1.1	-2.2	-2.0
Sweden	-1.2	-2.1	43	6.7	185	-7.9	7	13	46	3.0	1.5	7.6	3.4	12.3	-1.2	84	149	193	-1.1	-2.1	-2.0
Denmark	-1.8	-0.9	48	7.2	165	-2.5	9	26	43	2.0	1.8	6.0	-9.3	5.1	36.2	130	112	315	-0.9	-2.3	-2.1
Finland	-0.7	-0.7	64	-0.8	165	-2.9	8	8	79	0.9	1.3	9.5	10.1	4.5	10.8	67	106	132	-1.3	-2.2	-2.1
UK	-2.0	-0.8	88	-4.3	288	9.4	12	7	28	2.2	1.7	5.5	-3.8	7.3	-4.9	89	71	57	-0.4	-1.7	-1.9
Austria	0.5	0.7	86	1.7	172	-1.1	8	6	76	1.6	1.8	5.6	-1.2	5.6	11.0	52	93	99	-1.3	-1.4	-2.0
France	-0.7	-0.8	98	-0.4	210	-3.9	17	14	61	1.5	1.0	9.9	0.4	-0.1	8.5	64	123	108	-0.4	-1.3	-1.5
Germany	1.7	-1.0	68	8.0	146	-3.7	6	8	61	1.6	1.2	4.7	-0.1	4.5	9.6	54	55	90	-0.9	-1.8	-1.9
Netherlands	0.9	-0.8	66	9.2	525	-2.8	11	12	52	1.9	1.4	7.0	-0.6	1.4	4.1	110	129	96	-1.0	-2.0	-2.0
Belgium	0.3	-0.1	106	2.1	255	-3.1	20	16	59	1.5	0.9	8.3	8.5	0.9	14.6	61	150	51	-0.7	-1.6	-1.5
Italy	3.3	0.8	132	2.3	124	-3.6	21	14	36	1.3	0.8	11.9	-3.0	-2.6	12.7	54	76	106	-0.5	0.1	-0.3
Spain	0.9	2.8	85	2.8	162	-4.3	22	16	43	3.2	-0.1	19.8	-14.3	5.2	-7.2	76	109	113	-0.3	-0.5	-0.9
Ireland	1.3	-1.0	96	3.0	804	-7.0	10	6	62	3.8	0.8	8.5	-31.0	6.7	30.0	78	190	57	-1.1	-1.6	-1.8
Portugal	3.1	0.8	125	1.6	218	-2.4	20	12	72	1.5	3.4	11.3	-11.7	3.5	18.6	85	119	141	-0.8	-0.9	-1.1
Greece	2.7	-1.8	207	1.5	246	-5.9	0	6	82	-1.3	0.6	27.1	-4.1	-6.4	-23.6	70	61	154	0.0	0.2	-0.3

*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* 2016: emerging countries

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

	Fiscal sustainability			External sustainability			Liquidity management			Macroeconomic performance			Credit and housing			Private debt			Institutional		
	Structural primary balance (1)	Interest rate GDP growth differential 2014-19 (1)	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	-0.7	0.4	30	0.2	79	-4.0	4	2.4	44	1.9	0.9	9.7	-8.7	4.3	-11.7	21	96	83	-0.1	0.3	0.1
Czech Rep	-0.8	-1.0	40	1.2	65	-4.3	8	14	32	2.6	1.9	4.9	0.7	9.4	1.0	30	56	85	-1.0	-0.3	-1.1
Croatia	-0.9	1.7	92	1.5	107	-3.1	21	3.7	37	1.0	1.3	16.1	-2.3	-2.4	-3.2	37	35	99	-0.6	-0.1	-0.3
Hungary	1.1	0.0	74	4.3	139	-6.8	23	2.7	61	2.5	2.4	7.0	-7.2	2.7	43.8	23	84	89	-0.7	-0.1	-0.5
Poland	-0.9	-0.7	51	-1.0	70	-4.8	11	2.5	57	3.5	1.6	7.2	3.0	-0.4	-9.6	36	91	111	-0.9	-0.6	-0.8
Romania	-0.2	-1.4	42	-1.5	51	-2.9	8	3.4	49	3.9	1.1	6.8	-2.3	4.8	-1.1	19	46	89	-0.1	0.1	-0.1
Russia	-3.8	-1.0	21	5.4	40	-17.7	5	4.3	15	-0.6	8.5	6.5	9.0	-15.5	26.1	18	47	109	0.8	0.9	0.7
Turkey	1.5	-2.2	32	-4.5	55	0.6	6	1.0	34	3.2	7.0	11.9	9.2	10.2	-16.3	20	59	125	1.1	0.1	0.0
Argentina	-2.8	-10.5	55	-1.6	26	0.3	11	1.8	59	0.7	30.0	7.5	0.1	-14.9	36.1	7	19	70	-0.1	0.6	0.9
Brazil	0.7	4.0	72	-2.7	36	-20.6	13	7.3	17	-3.0	6.8	8.7	2.9	-11.8	-13.3	29	48	117	0.0	0.4	0.0
Chile	-0.1	-1.4	20	-1.3	68	-8.3	3	3.4	16	1.8	3.7	6.8	1.9	5.4	-4.4	33	55	150	-0.5	-1.5	-1.4
Colombia	-0.2	0.0	50	-6.8	42	-27.8	6	3.4	25	2.0	5.4	8.9	7.3	2.4	-26.5	19	28	113	1.1	0.4	0.3
Mexico	-1.0	-0.4	52	-2.0	36	-10.1	10	1.9	33	2.9	3.3	4.2	3.6	7.4	-1.2	16	24	78	0.8	0.7	0.5
Peru	-1.0	-2.3	23	-3.2	36	-3.7	4	8.7	36	3.6	3.2	6.2	4.2	6.1	-32.1	15	26	96	0.5	0.6	0.6
China	-1.1	-6.4	64	2.8	10	10.1	4	5.7	..	6.3	1.8	4.1	14.2	-0.6	15.0	45	165	113	0.5	0.3	0.3
India	-2.7	-3.8	64	-1.2	24	9.3	11	4.5	7	7.6	5.2	5.5	-0.5	-1.9	-5.0	10	50	80	1.0	0.5	0.1
Indonesia	-1.0	-5.0	27	-2.1	37	2.1	4	2.5	56	5.1	4.7	5.6	1.0	-0.5	-12.1	17	23	100	0.4	0.6	0.3
Malaysia	-1.6	-3.0	54	2.1	65	-10.8	9	1.9	28	4.5	3.8	3.0	9.1	1.6	-3.9	96	--	106	-0.3	-0.5	-0.6
Philippines	2.0	-2.7	34	4.5	26	4.7	7	5.6	31	6.3	2.7	6.0	2.7	5.2	-3.9	3	35	63	0.7	0.4	0.3
Thailand	-0.1	-3.0	43	5.4	35	-0.1	10	3.1	12	3.2	2.3	0.8	3.3	5.5	-14.0	72	51	100	0.9	0.4	0.2

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

BBVA | RESEARCH

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 Map: 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. 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.

Country Risk Report
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

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 CD Swaps for 40 developed and emerging markets. The long-run equilibrium CD Swaps are the result of four alternative panel data models. The averages of these equilibrium values are finally converted to a 20 scale sovereign rating scale. The CDS equilibrium is calculated by a weighting average of the four CDS equilibrium model estimates (30% for the linear and quadratic models and 15% for each expectation model to correct for expectation uncertainty). The weighted average is rounded by 0.5 standard deviation confidence bands. The models are the following

      - Linear Model (35% weight): Panel Data Model with fixed effects including global risk aversion, GDP growth, inflation, public debt and institutional index for developed economies, and adding external debt and reserves to imports for emerging markets

      - Quadratic Model (35% weight): This is similar to the Linear Panel Data Model but including a quadratic term for public (developed and emerging) and external debt (emerging)

      - Expectations Model (15% weight): This is similar to the linear model, but public and external debt account for one year's expected values

      - Quadratic Expectations Model (15% weight): Similar to the expectations model, but including quadratic terms of public debt and external debt expectations

  - 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: 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 but fixed effects are not included, thus all countries are treated symmetrically without including the country-specific long-run fixed effects

  - 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
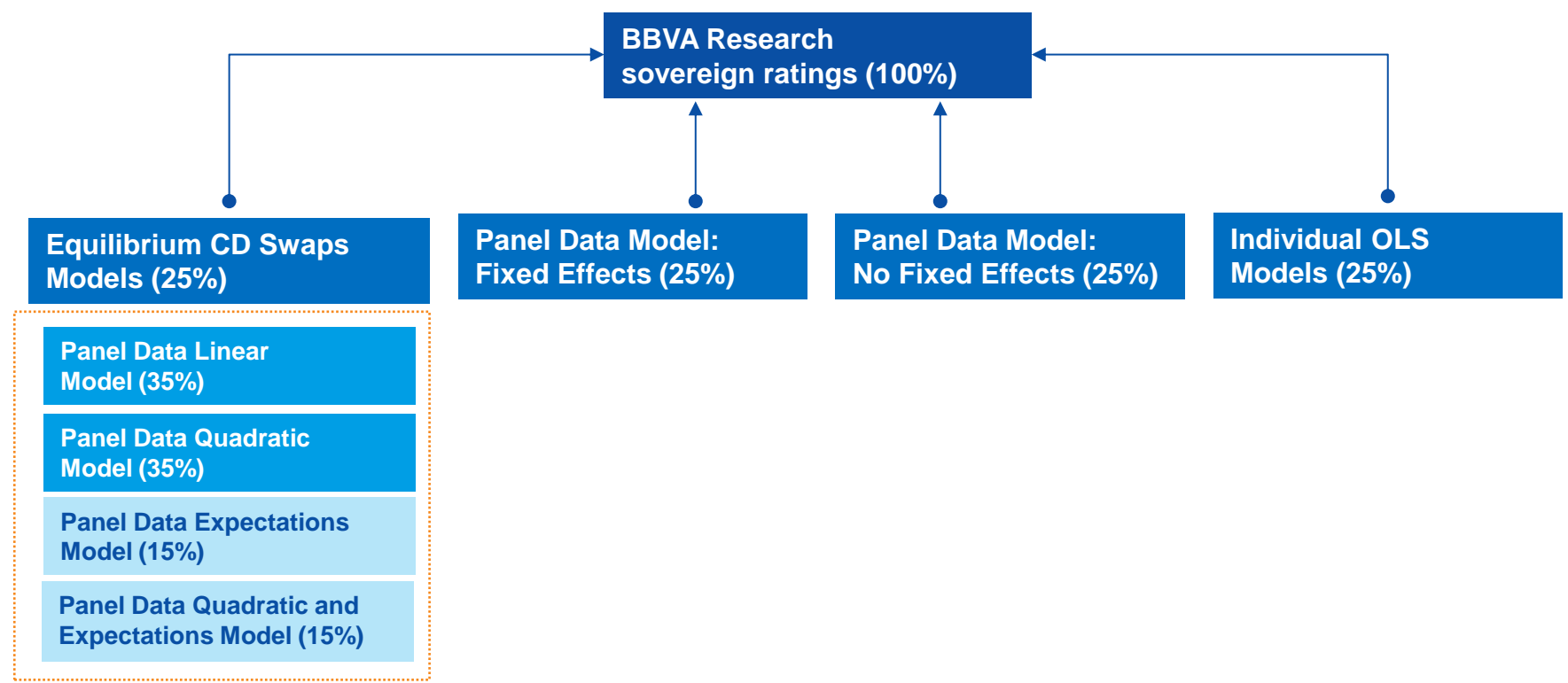
Methodology: models and BBVA country risk

BBVA Research sovereign ratings methodology diagram

Source: BBVA Research

BBVA Research sovereign ratings (100%)

Equilibrium CD Swaps Models (25%)

Panel Data Model: Fixed Effects (25%)

Panel Data Model: No Fixed Effects (25%)

Individual OLS Models (25%)

Panel Data Linear Model (35%)

Panel Data Quadratic Model (35%)

Panel Data Expectations Model (15%)

Panel Data Quadratic and Expectations Model (15%)

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 thrend)
- Total trade to GDP

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.

Methodology: tracking protests and conflicts

We have developed a tracking of protest and conflict indexes for every country in the world from 1 January 1979 to the present day with daily, monthly, quarterly and annual frequencies. To construct this, we use a rich 'big database' of international events (GDELT at www.gdelt.org) which monitors world events covered by the news media from nearly every corner of the world in print, broadcast and web formats, in over 100 languages, 24 hours a day and which stretches back to 1979 with daily updates.

- BBVA Protest Intensity Index: We collect every registered protest in the world for a particular time which are separately collated under the various headings of the CAMEO taxonomy: demonstrate or rally, demonstrate for leadership change, demonstrate for policy change, demonstrate for rights, demonstrate for change in institutions and regime, conduct hunger strike for leadership change, conduct hunger strike for policy change, conduct hunger strike for rights, conduct hunger strike for change in institutions and regime, conduct hunger strike not specified before, conduct strike or boycott for leadership change, conduct strike or boycott for policy change, conduct strike or boycott for rights, conduct strike or boycott for change in institutions and regime, conduct strike or boycott not specified before, obstruct passage or block, obstruct passage to demand leadership change, obstruct passage to demand policy change, obstruct passage to demand rights, obstruct passage to demand change in institutions and regime, protest violently or riot, engage in violent protest for leadership change, engage in violent protest for policy change, engage in violent protest for rights, engage in violent protest for change in institutions and regime, engage in political dissent not specified before.

- BBVA Conflict Intensity Index: In the same way, we collect every registered conflict in the world for a particular time considering a wide variety of conflicts under the CAMEO taxonomy headings: impose restrictions on political freedoms, ban political parties or politicians, impose curfew, impose state of emergency or martial law, conduct suicide, carry out suicide bombing, carry out car bombing, carry out roadside bombing, car or other non-military bombing not specified below, use as human shield, use conventional military force not previously specified, impose blockade, restrict movement, occupy territory, fight with artillery and tanks, employ aerial weapons, violate ceasefire, engage in mass expulsion, engage in mass killings, engage in ethnic cleansing, use unconventional mass violence not previously specified, use chemical, biological, or radiological weapons, detonate nuclear weapons, use weapons of mass destruction not previously specified.

Using this information, we construct an intensity index for both events. The number of protests and conflicts each day/month/quarter/year are divided by the total number of all events recorded by GDELT for that day/month/quarter/year to create a protest and conflict intensity score that tracks just how prevalent protest and conflict activity has been over the last quarter century, correcting for the exponential rise in media coverage over the last 30 years and the imperfect nature of computer processing of the news.

This report has been produced by Emerging Markets Unit, Cross-Country Analysis Team

Chief Economist,
Cross-Country Emerging Markets Analysis
Álvaro Ortiz Vidal-Abarca
+34 630 144 485
alvaro.ortiz@bbva.com

Gonzalo de Cadenas
+34 606 001 949
gonzalo.decadenas@bbva.com

Alfonso Ugarte Ruiz
+ 34 91 537 37 35
alfonso.ugarte@bbva.com

Tomasa Rodrigo
+3491 537 8840
Tomasa.rodrigo@bbva.com

BBVA Research

Group Chief Economist
Jorge Sicilia Serrano

Developed Economies Area
Rafael Doménech
r.domenech@bbva.com

Spain
Miguel Cardoso miguel.cardoso@bbva.com

Europe
Miguel Jiménez
mjimenezg@bbva.com

US
Nathaniel Karp
Nathaniel.Karp@bbva.com

Emerging Markets Area

Cross-Country Emerging Markets Analysis
Alvaro Ortiz
alvaro.ortiz@bbva.com

Asia
Le Xia
le.xia@bbva.com

Mexico
Carlos Serrano
carlos.serranoh@bbva.com

Turkey
Alvaro Ortiz
alvaro.ortiz@bbva.com

LATAM Coordination
Juan Manuel Ruiz
juan.ruiz@bbva.com

Argentina
Gloria Sorenser
gsorensen@bbva.com

Chile
Jorge Selaive
jselaive@bbva.com

Colombia
Juana Téllez
juana.tellez@bbva.com

Peru
Hugo Perea
hperea@bbva.com

Venezuela
Julio Pineda
juliocesar.pineda@bbva.com

Financial Systems and Regulation Area
Santiago Fernández de Lis
sfernandezdelis@bbva.com

Financial Systems
Ana Rubio
arubiog@bbva.com

Financial Inclusion
David Tuesta
david.tuesta@bbva.com

Regulation and Public Policy
María Abascal
maria.abascal@bbva.com

Digital Regulation
Álvaro Martín
alvarojorge.martin@bbva.com

Global Areas

Economic Scenarios
Julián Cubero
juan.cubero@bbva.com

Financial Scenarios
Sonsoles Castillo
s.castillo@bbva.com

Innovation & Processes
Oscar de las Peñas
oscar.delaspenas@bbva.com

Contact details:
BBVA Research
Paseo Castellana, 81 – 7th floor
28046 Madrid (Spain)
Tel. + 34 91 374 60 00 and + 34 91 537 70 00
Fax. +34 91 374 30 25
bbvaresearch@bbva.com
www.bbvaresearch.com

BBVA Research Asia
43/F Two International Finance Centre
8 Finance Street Central
Hong Kong
Tel: +852 2582 3111
E-mail: research.emergingmarkets@bbva.com.hk