

Prudential data report

EU GSIBs prudential capital and liquidity

Q2: 2016



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Highlights

“European banks endured two real-life stress tests in less than six months, in the context of ultra-low interest rates and increased net-interest margin pressure. Yet, banks continued to improve their solvency positions via a combination of balance sheet restructuring and a build-up of capital buffers.”

European systemically important banks (or EU GSIBs¹) have continued to improve their solvency positions notwithstanding the challenging market environment of the first half of the year.

In 1Q16, the unfounded concerns on the capacity of some banks to service AT1 coupon payments hit bank valuations and contingent-convertible (CoCo) prices. The market volatility episode was short-lived, with CoCo prices and option-adjusted spreads swiftly recovering during the second part of 1Q16.

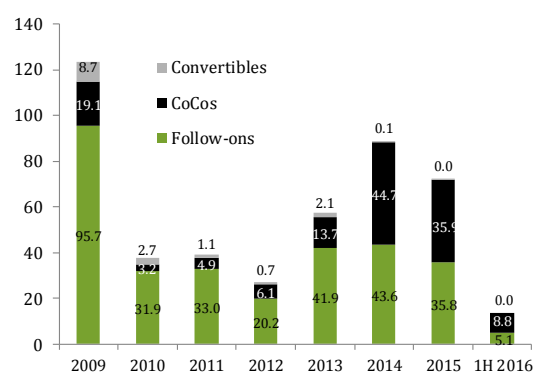
In 2Q16, European equity prices fell in the aftermath of the UK referendum result, with European bank share prices falling by c21% in the two days after the referendum result was confirmed.

European banks endured two real-life stress tests in less than six months, in the context of ultra-low interest rates and increased net-interest margin pressure. Yet, banks continued to improve their solvency positions via a combination of balance sheet restructuring and a build-up of capital buffers.

The improvement in European bank solvency is illustrated by the main findings of this report:

- EU GSIBs have increased their end-point Common Equity Tier 1 Capital ratio (CET1 ratio) to 12.0% in 2Q16, from 10.0% in 2013.
- End-point Tier 1 ratios increased to 13.1% in 2Q16, from 10.7% in 2013.
- End-point Leverage ratios have improved over the last three years, to 4.6% in 2Q16 from 3.7% in 2013.
- Available information indicates the weighted average² Liquidity Coverage Ratio (LCR) stood at 128.8% in 2Q16, above the minimum required by 1 January 2018 (100%).

Fresh capital raised by EU banks (EUR bn)



Source: Dealogic

Capital and liquidity ratios and fresh capital raised by EU banks (as at 1H 2016)³

	2013	2014	2015	1H 2016
EU GSIBs				
CET1 ratio (end-point)	10.0%	11.0%	11.8%	12.0%
T1 ratio (end-point)	10.8%	11.8%	12.9%	13.1%
Leverage ratio (end-point)	3.7%	4.3%	4.7%	4.6%
LCR	-	127.5%	128.2%	128.8%
EU banks				
Fresh capital raised (€bn)	57.7	88.4	71.7	13.9
of which CoCos (€bn)	13.7	44.7	35.9	8.8

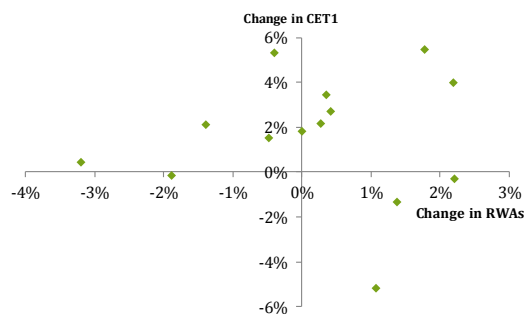
Source: EU GSIBs balance sheets, EBA and Dealogic

¹ The Banks aggregated in this report are the 14 EU GSIBs as designated by the FSB in 2014, which was in force in 2Q16. In November 2015, the FSB updated the list of systemically important banks, changing the number of EU GSIBs from 14 to 13. The assignment of the GSIBs to the respective buckets will apply from 1 January 2017.

² Weighted by end-point RWAs with information of 7 of the 14 EU GSIBs that reported LCRs in 2Q16 earnings reports and Pillar 3 disclosure documents.

³ 2014 LCR is sourced from the EBA's September 2015 Basel III monitoring exercise.

Change in CET1 and RWAs by EU GSIB (YtD, %, end-point)⁴



Source: EU GSIBs balance sheets

“The publication of the EBA’s stress tests results had no material impact on CoCo prices”

European CoCo prices (31 Dec-15=100)



Source: Barclays

⁴ The quarterly changes are in the original reporting currencies (USD, EUR or GBP) to isolate for FX effects.

Improvement in CET1

The weighted average end-point CET1 ratio improved by 15bps over the last six months. The aggregate increase is attributed to a decrease of 1.6% in RWAs and a decrease of 0.5% in CET1 capital during the same period.

By banks, of the 14 EU GSIBs aggregated in this report, six banks increased⁵ their RWAs and CET1 capital from the values reported in 4Q15; one reduced both RWAs and CET1 capital; four increased CET1 capital but reduced their RWAs; and three decreased CET1 capital and increased RWAs (see figure on left panel).

Capital raising

During 1H16, EU banks raised €13.9bn in fresh capital in the form of CoCos, follow-on originations and other convertible securities. This brings the tally of total capital raised since the 2009 crisis to €459bn (see figure in left panel). This estimate does not take into account increases in capital from internal generation or balance sheet restructuring.

Contingent Convertibles (CoCo)

European banks⁶ originated a total of €10.3bn in CoCos during 1H16 (€8.8bn by EU banks), below the volume issued on 1H15 (€34.8bn). Of these new issues, average coupons increased from 6.5% in 2015FY to 7.4% in 1H16.

CoCo prices recovered after the market volatility episode of 1Q16, albeit with temporary losses observed in the immediate aftermath of the UK referendum (see graph on left panel). The publication of the EBA’s stress tests results had no material impact on CoCo prices, possibly suggesting that changes in bank valuations after the publication of the stress tests, albeit temporary, could have been attributed to reasons other than concerns on bank capital.

Major upcoming regulatory, legislative and policy initiatives

There are several regulatory initiatives that are currently being considered at both the international level and at the European level. These potentially impact the basis of calculations for the metrics covered in this report. Some of the key initiatives are:

- Review of the Leverage Ratio
- Fundamental Review of the Trading Book
- Credit Valuation Adjustment
- IRB models, revised Standardised Approaches & capital floors
- Interest Rate Risk in the Banking Book

AFME is actively contributing to each initiative.

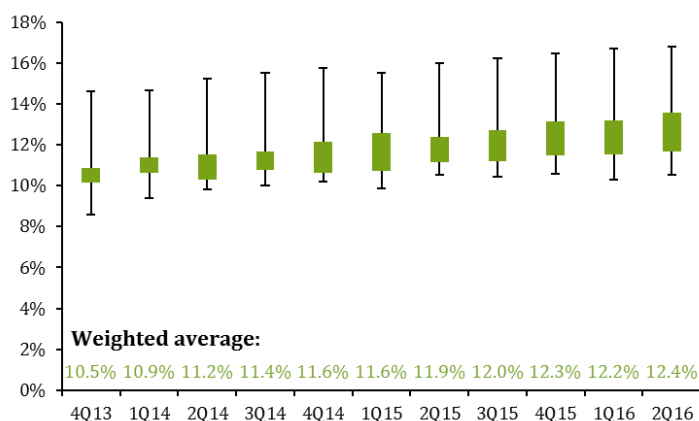
⁵ On the basis of the values reported in the original currencies of the financial statements.

⁶ Including EU, EFTA, Turkish and other Eastern European Banks.

1 Capital and liquidity ratios⁷

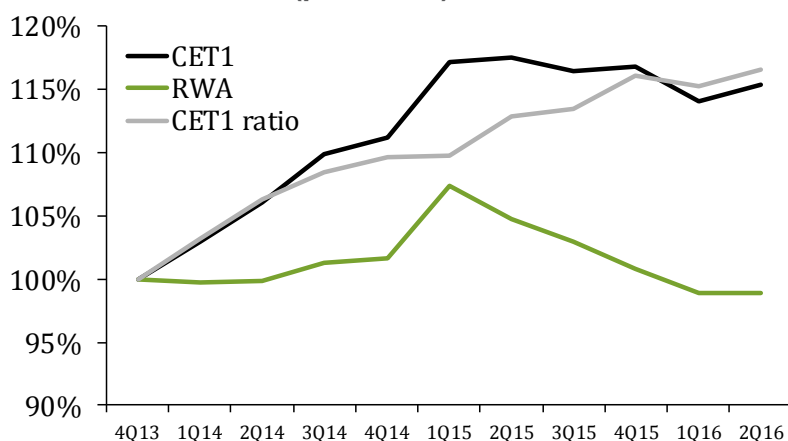
1.1 CET1 ratio: phased-in

Maximum, minimum and 25th-75th percentiles in boxes



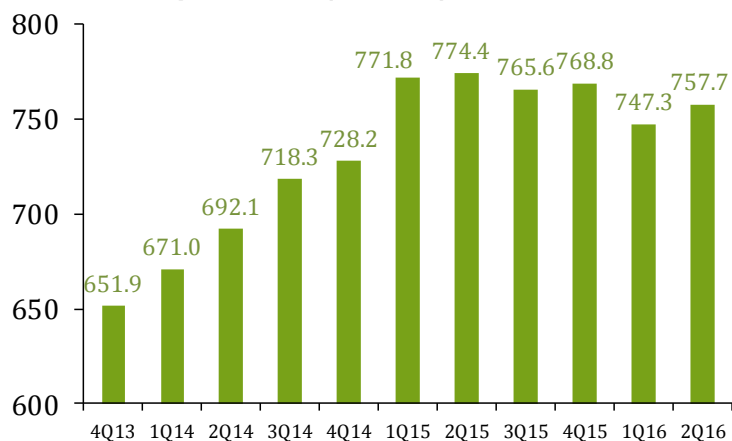
Source: EU GSIBs balance sheets

1.2 Cumulative percentage change of CET1, RWAs and CET1 ratio (phased-in)⁸



Source: EU GSIBs balance sheets

1.3 CET1: phased-in (EUR bn)



Source: EU GSIBs balance sheets

⁷ The Banks aggregated in this report are the 14 EU GSIBs as designated by the FSB in 2014 which was in force in 2Q16.

⁸ The lines represent the cumulative percentage change of aggregate RWAs, CET1 capital and the weighted average CET1 ratio.

CET 1 ratio: phased-in

Improvement in CET1 since CRDIV entered into force

EU GSIBs have maintained compliance with the CRDIV rules which came into force 1 January 2014.

The weighted average CET1 ratio has increased⁹, on a phased-in basis, from 10.5% in December 2013 to 12.4% in June 2016.

By components, the improvement in phased-in CET1 ratio since 2013 has been driven by a build-up of CET1 capital and a gradual decrease in Risk-Weighted Assets (RWA). See chart 1.2.

More specifically, since 2013 EU GSIBs have increased their phased-in CET1 capital by 16.7%, equivalent to €105.8bn raised from markets and internal generation (i.e. retained earnings).

During the same period, banks decreased their RWAs by 1.3% from €6.2tn to €6.1tn (or a decrease of c3.4% excluding the fluctuation of the EUR against the currencies in which banks report their financial statements). See charts 1.3 and 1.4.

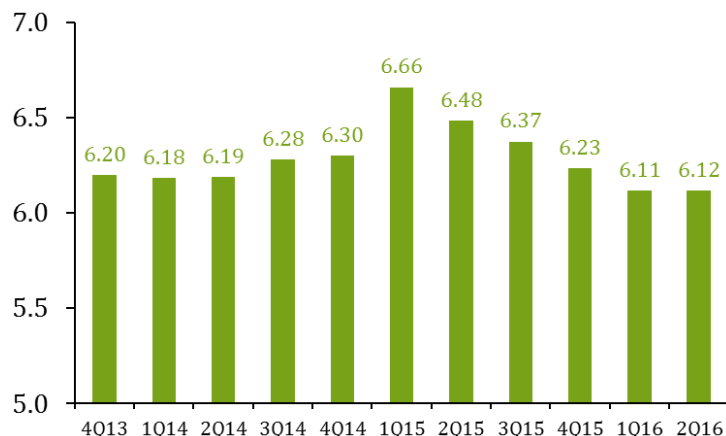
Improvement in CET1 ratio continued in 2Q16

During 2Q16, phased-in CET1 ratios marginally increased by 20bps, from 12.2% in 1Q16 to 12.4%, standing above the minimum required in 2016 by CRDIV (5.1% excluding GSIB and countercyclical buffers).

The quarterly increase in the average CET1 phased-in ratio is attributed to a nominal increase of 1.4% in CET1 capital in EUR terms, and a marginal increase in RWA of 0.04% during the same period. See chart 1.2.

⁹ CET1 ratios are the amount of CET1 capital that banks hold as proportion of risk-weighted assets (RWA). On a phased-in approach, certain transitional provisions are applied to the calculation of capital related to the treatment of deferred taxes, securitisation, and unrealised losses, amongst others.

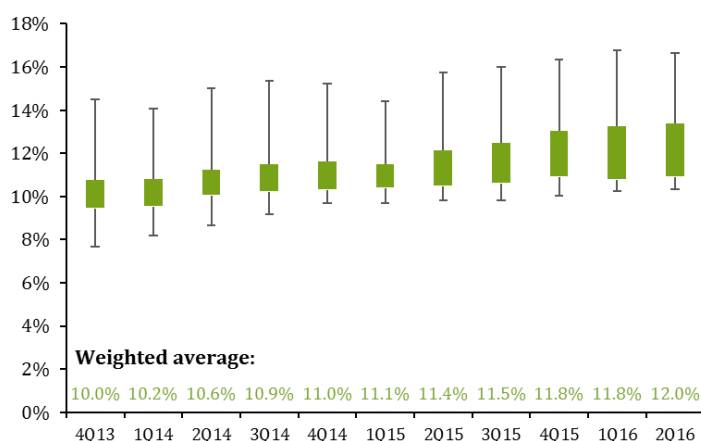
1.4 RWAs: phased-in (EUR tn)



Source: EU GSIBs balance sheets

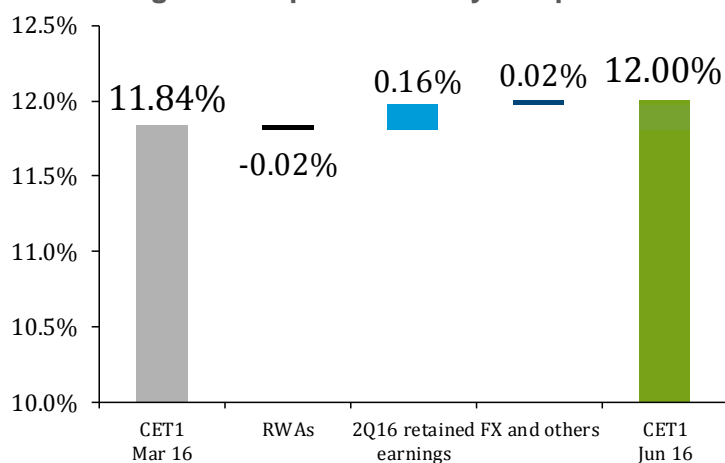
1.5 CET1 ratio: end-point.

Maximum, minimum and 25th-75th percentiles in boxes



Source: EU GSIBs balance sheets

1.6 Change in end-point CET1 by components



Source: EU GSIBs balance sheets

CET1 end-point basis

On an end-point basis¹⁰, the average CET1 ratio has increased from 10.0% in December 2013 to 12.0% in June 2016.

These ratios are in excess of the minimum required CET1 ratio of 4.5% in 2015 and between 8%-12% required from 2019 onwards, depending on factors such as the size of the bank, the phased-in process of the capital conservation buffer, and the countercyclical buffer applied in the bank's domicile¹¹.

Since 2013, the maximum and minimum individual EUGSIB CET1 ratios have increased by c280bps, suggesting a marked solvency improvement across all banks.

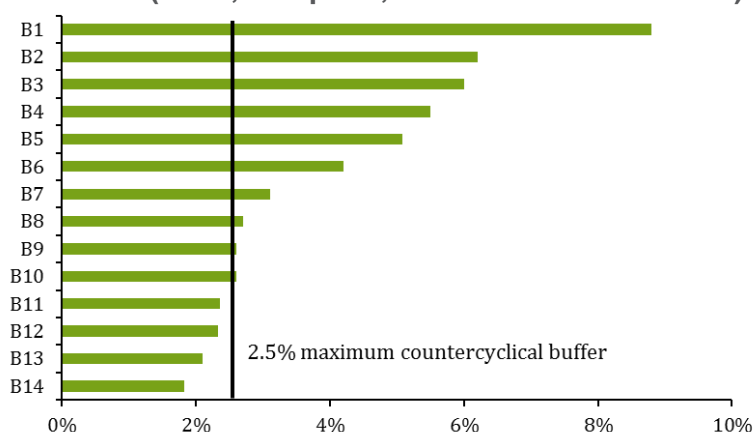
During 2Q16, the average CET1 ratio increased by 16bps. This increase was driven by contributions of 16bps from retained earnings and 2bps from other factors (including FX fluctuation), partially offset by a negative contribution of 2 bps from increases in RWAs.

The contribution of retained earnings to capital build-up is above that observed last quarter (+10 bps) and 4Q15 (-11 bps) when a number of GSIBs reported quarterly losses. Nevertheless, this is below the contribution observed during 2Q15 (+24 bps) and 3Q15 (+20 bps), which illustrates the challenge for banks to continue building their capital cushions via internal generation in markets with ultra-low interest rates and subdued bank earnings.

¹⁰ Under the end-point approach, the proportion of CET1 capital to risk weighted assets is calculated as if the rules due to apply at the end of the transition period were in force.

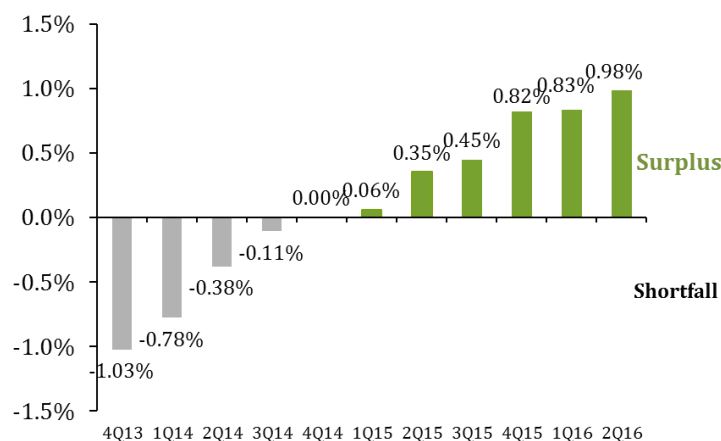
¹¹ The minimum required ratio in 2019 depends on the bucket in which the GSIB is allocated to, which ranges from 1-2.5% (0% for non-GSIBs), and the Countercyclical Buffer implemented by the NCAs which ranges from 0-2.5%. See Annex for further details.

1.7 Difference between current CET1 ratios and 2019 minimum requirement incl. GSIB buffer by bank (2Q16, end-point, absolute difference in %)



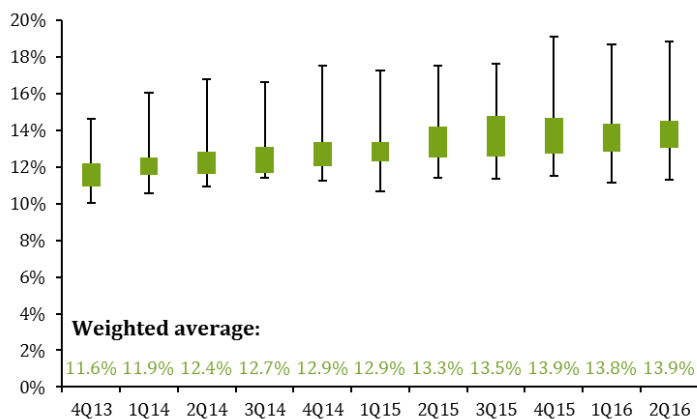
Source: EU GSIBs balance sheets

1.8 Weighted average of EU GSIBs' CET1 ratios relative to end-point target assuming a 2.5% counter-cyclical buffer (absolute difference in %)



Source: EU GSIBs balance sheets

1.9 Tier 1 ratio: phased-in
Maximum, minimum and 25th-75th percentiles in boxes



Source: EU GSIBs balance sheets

Surplus in minimum requirements¹²

Assuming that EU GSIBs maintain their current GSIB bucket allocation and assuming a 0% countercyclical buffer, data as of 2Q16 suggest that all banks have already complied with the 2019 ratios required due to their systemic importance (rows in Chart 1.7).

Taking a step further, assuming that the maximum 2.5% Countercyclical Buffer (vertical line in Chart 1.7) is applied to all EU GSIBs in 2019, 10 of the 14 banks are found to be above this requirement.

On an aggregate basis, the weighted-average¹³ of EU GSIB's CET1 ratios stood in 2Q16 above the maximum Pillar I requirements due to be in force in 2019. This measure (Chart 1.8) assumes that banks are allocated in their current individual GSIB bucket, and the maximum countercyclical buffer is set at 2.5% to all EU GSIBs. This figure also assumes the GSIB bucket allocation in 2Q16, which however was recently updated by the FSB, affecting in particular two EU GSIBs.

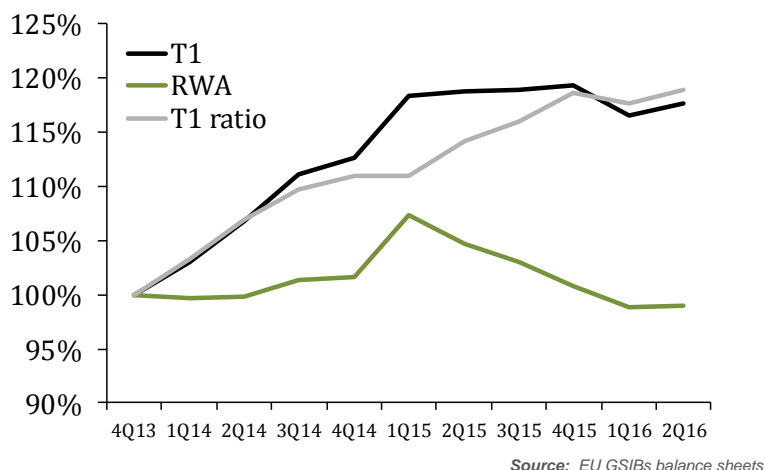
This figure represents a marked improvement on the aggregate shortfall observed in December 2013 of 1% relative to RWAs, and a balanced fulfilment of 2019 requirements in 4Q14.

Taking into account banks' Pillar I due to be met by 2019 and Pillar II requirements that have to be met with CET1 capital and assuming this existing GSIB buffer is maintained, estimations indicate a weighted average surplus on CET1 ratios of 0.7% if the countercyclical buffer is set at 0% in all jurisdictions (or a shortfall of 1.8% assuming a stressed scenario if the buffer is set at 2.5%).

¹² EU GSIBs shall comply with minimum CET1 ratios of between 8% and 12% from January 2019. The required ratio will depend on the G-SIB bucket the bank is assigned to (additional capital buffer between 1% and 2.5%) and the Countercyclical Buffer approved by national authorities which can reach a maximum of 2.5%.

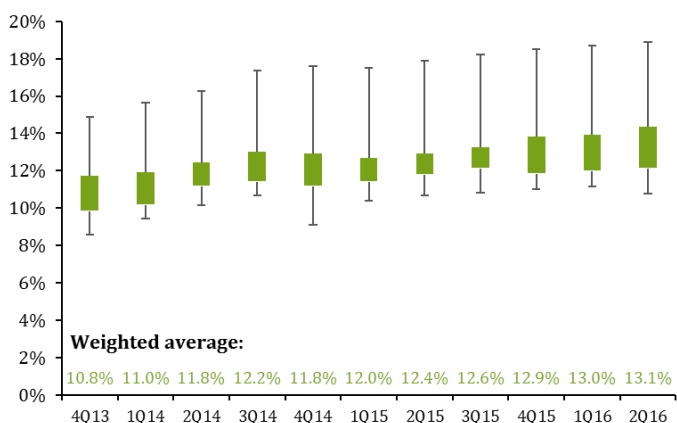
¹³ Weighted by RWAs value.

1.10 Cumulative percentage change of T1, RWAs and T1 ratio (phased-in)¹⁴



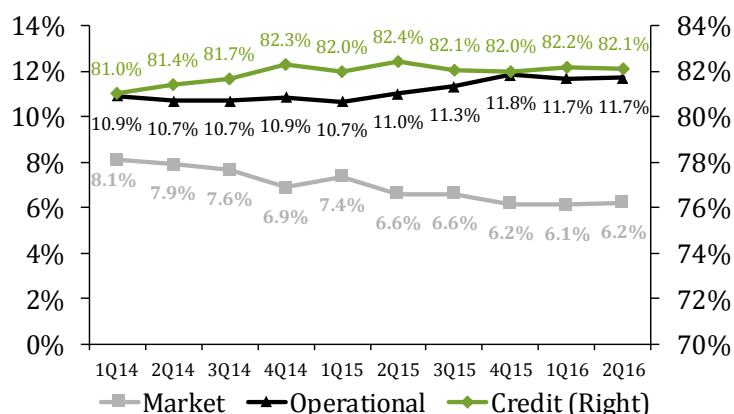
Source: EU GSIBs balance sheets

1.11 Tier 1 ratio: end-point



Source: EU GSIBs balance sheets

1.12 RWAs by risks



Source: EU GSIBs balance sheets

Tier 1 Capital

EU GSIBs have also complied with the requirements on Tier 1 (T1) capital ratios. T1 capital is a comprehensive measure of capital that encompasses CET1 capital and Additional Tier 1 (AT1) capital¹⁵.

On a phased-in basis, EU GSIBs have increased on average their T1 ratios to 13.9% in 2Q16 from 11.6% in 4Q13 and 13.8% in 1Q16.

These ratios are comparable with a minimum required ratio of 6% in 2015 and between 9.5% and 13.5% in 2019¹⁶, taking into account only Pillar I requirements.

By components (Chart 1.10), the improvement in T1 ratio is explained by a continued build-up of T1 capital, a reduction of RWAs (see below) and balance sheet restructuring.

Since 2013 EU GSIBs have increased their phased-in T1 capital by 14%. This represents an increase of €135bn in capital raised from markets and internal generation.

Risk-weighted assets

The breakdown of Risk-Weighted Assets (RWA) by risk components has remained relatively unchanged since 2014, although with a decreasing trend in the proportion of market risks relative to total RWAs.

Around 82.1% of RWAs are comprised of credit-related risks, 11.7% from operational risks (10.9% in 1Q14) and 6.2% from market risks (8.1% in 1Q14).

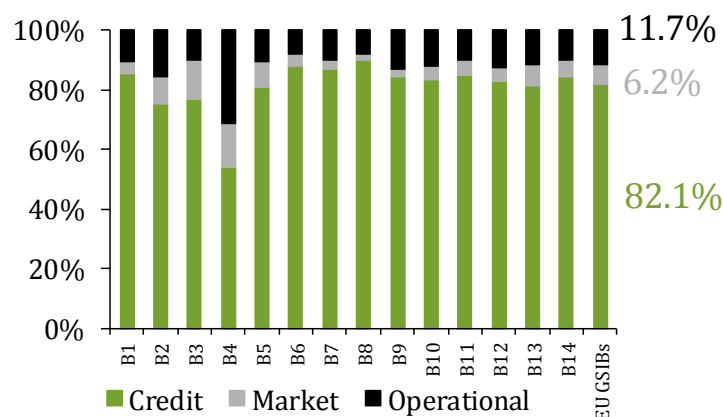
These proportions will continue to change through the implementation of the remainder of the Basel package with the final trading book proposals pushing up market risk assets to around 10% before other changes are taken into account.

¹⁴ The lines represent the cumulative percentage change of aggregate RWAs, T1 capital and the weighted average T1 ratio.

¹⁵ Contingent Convertible bonds, subject to conditions, are included in AT1 capital. This market is discussed in Section II of this report.

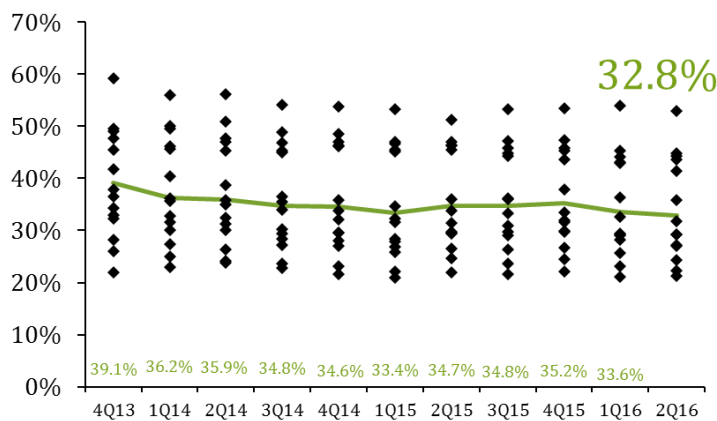
¹⁶ As with CET1 capital ratios, the minimum required ratio in 2019 depends on the bucket in which the GSIB is allocated to, which ranges from 1-2.5% (0% for non-GSIBs), and the countercyclical buffer implemented by the NCAs which ranges from 0-2.5%. Further details of the implementation timetable are in the Annex.

1.13 RWAs by risks and EU GSIB¹⁷



Source: EU GSIBs balance sheets

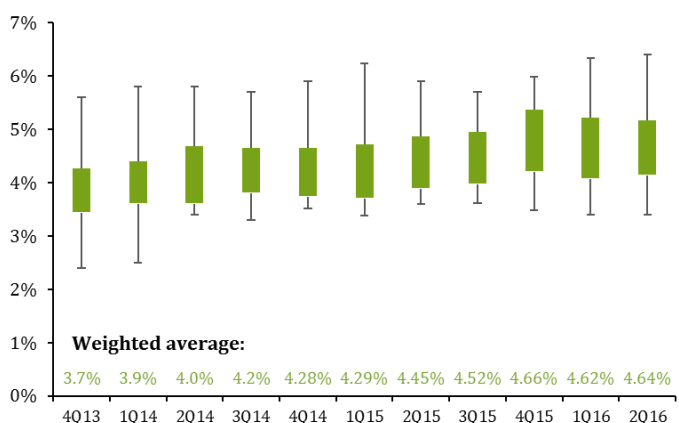
1.14 RWA densities (weighted average)¹⁸



Source: EU GSIBs balance sheets

1.15 Leverage ratio: end-point

Maximum, minimum and 25th-75th percentiles in boxes



Source: EU GSIBs balance sheets

By banks, 11 of the 14 EU GSIBs had an exposure to credit risks above 80% of RWAs (with a maximum of 90% and a minimum of 54%), while 2 of the 14 EU GSIBs reported an exposure above 10% of RWAs to market risks (range between 14% and 2.3%). In relation to operational risks, 10 of the 14 EU GSIBs reported an exposure at or above 10% of RWAs to operational risks (range between 31% and 8% between banks).

RWA densities

The ratio of RWAs relative to total assets decreased in 2Q16 to 32.8%, from 33.6% in 1Q16. Total assets in EUR increased 2% compared with a relatively small 0.04% increase in associated RWAs.

The 2Q16 average density is also below the figure observed in 4Q13, when it stood at 39.1%.

Notwithstanding the decreasing trend in RWA densities, the aggregate ratio is expected to increase with the implementation of new Basel initiatives such as the IRB models, revised Standardised Approaches & capital floors.

Metrics of dispersion such as standard deviation and max-min differences between banks' RWA densities indicate that the variation between EU GSIBs densities has decreased since 4Q13.

Leverage ratio

EU GSIBs have improved their leverage ratios since 2013. Leverage ratios are a measure of Tier 1 capital as a proportion of the bank's total exposure (on- and off-balance sheet assets.)

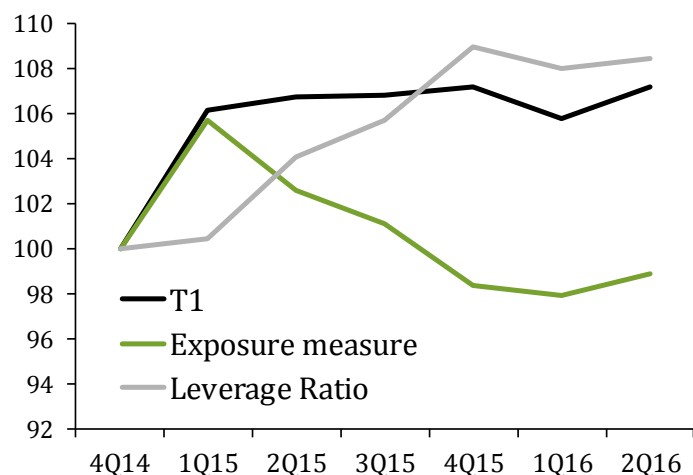
On an end-point basis, the weighted average leverage ratio has improved from 3.7% in December 2013 to 4.64% in June 2016. The ratio marginally increased compared to 1Q16, from 4.62% reported a quarter ago, due to an increase of 1.3% in T1 end-point capital and an increase of 0.9% in banks' total exposure measure (see chart 1.16).

These ratios are comparable with a global minimum standard of 3% according to the Basel III accord.

¹⁷ Breakdown as of 2Q16 for 13 of the 14 EU GSIBs. Others are presented as of latest available.

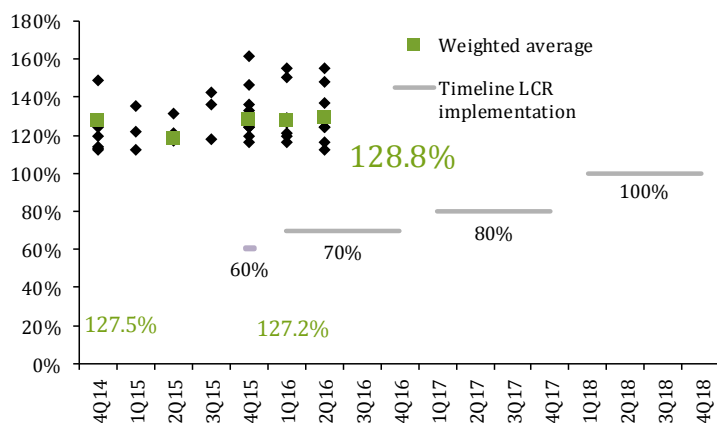
¹⁸ Phased-in RWAs as proportion of total assets.

1.16 Cumulative percentage change of T1 capital, exposure measure and leverage ratio



Source: EU GSIBs balance sheets

1.17 Liquidity Coverage Ratio (LCR)



Source: EU GSIBs balance sheets

Liquidity Coverage Ratio (LCR)

CRDIV requires banks to have a sufficient level of High Quality Liquid Assets (HQLA) to withstand a stressed funding scenario of 30 days¹⁹. More specifically, it requires that HQLA relative to total net cash outflows over a 30-day time period are greater than or equal to 100%.

Banks must meet at least 70% of the LCR requirement from from 1 January 2016, 80% from 1 January 2017, and 100% from 1 January 2018 (timescale in Graph 1.16).

Available information²⁰ indicates that the weighted average LCR is already above the 2018 minimum required ratio (100%). The weighted average LCR stood at 128.8% in 2Q16, marginally above the ratio observed in 1Q16 (127.2%)²¹.

¹⁹ See EBA Basel III monitoring exercise [here](#).

²⁰ Information was available for seven of the 14 EU GSIBs. Among the banks not included in this calculation, two reported that their LCRs stood above 110% while three banks reported that their ratios stood above 100%.

²¹ According to the latest EBA Basel III monitoring exercise, as of June 2015, Group 1 banks reported an LCR ratio of 121.1% of which GSIBs had a ratio of 118.1%. However, only 9 EU GSIBs were covered in the EBA report. In the 2014 Basel III monitoring exercise, the average LCR for GSIBs was reported by the EBA at 127% (see [here](#)).

Box: EBA's Stress Tests results

The European Banking Authority (EBA) published the 2016 EU-wide stress test results—the fifth round of stress tests led by the EBA since 2009.

The stress test exercise provides comparable information to market participants about the solvency of banks under hypothetical stressed scenarios.

The 2016 stress exercise evaluated 51 banks from 15 EU and EEA countries covering around 70% of banking assets in each jurisdiction and across the EU. This included 13 of the 14 EU GSIBs as designated by the FSB in 2014 (in force in 2015 and in 2Q16).

Stress tests assumptions

The exercise was carried out on the basis of year-end 2015 figures and the scenarios were applied over a period of three years from end 2015 to 2018.

The adverse scenario assumed EU real GDP growth for 2016-18 to be -1.2%, -1.3% and 0.7%, respectively. This is equivalent to a deviation of 7.1% from its baseline level in 2018.

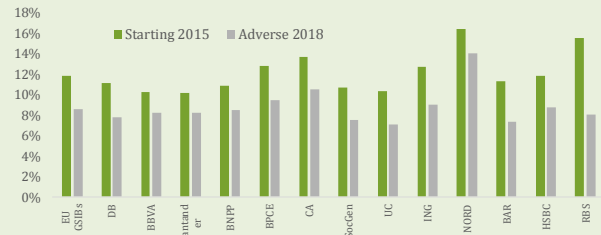
The stress test primarily focused on the impact of risk drivers on the solvency of banks, with stressed scenarios applied to a common set of risks:

- i) credit risk (including securitisations);
- ii) market risk, CCR and CVA; and
- iii) operational risk (including conduct risk).

Results for EU GSIBs

From a starting point of 11.8% fully loaded CET1 ratio as of December 2015, the adverse scenario applied to the participating EU GSIBs resulted in an estimated 8.6% ratio. This represents a stressed impact of 322bps on the CET1 ratio compared with the 2015 starting point or 441bps compared with the 2018 baseline scenario (13.0%).

Stress tests results on CET1 ratio (fully loaded)²² EU GSIBs



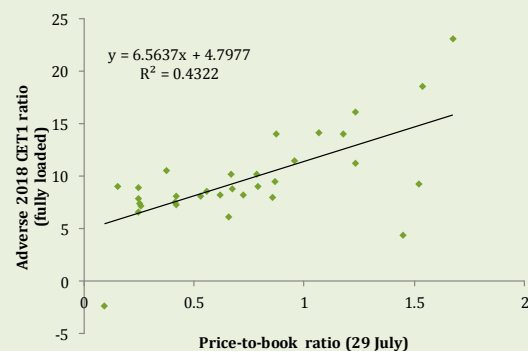
Source: EBA

Market response

Prior to the publication of the stress tests results, markets had already incorporated into bank valuations the differences in capital buffers across banks.

This is illustrated by the chart below, showing a positive correlation between the adverse 2018 CET1 ratio as estimated by the stress tests and the price-to-book ratio before the results were published. The graph includes all publicly traded banks that participated in the stress tests (both EUGSIBs and other European banks).

Adverse 2018 CET1 ratio and price-to-book ratio by banks



Source: EBA and Datastream

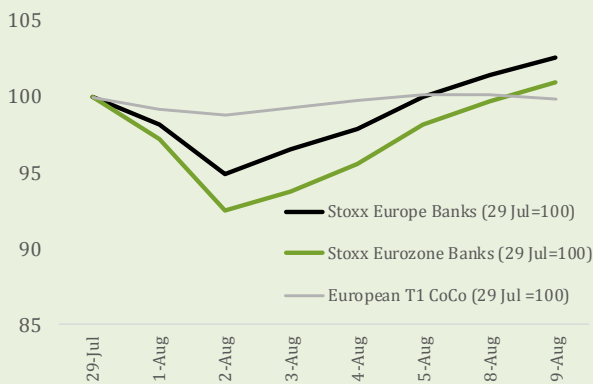
The stress tests were published on Friday 29 July, after the main equity markets closed. Once equity markets reopened on Monday 1 August, bank share prices fell by 2% and by 5% the day after. The impact was generalised across all European banks, although some of the banks with lower adverse 2018 CET1 simulated ratios were most affected.

²² Includes 13 of the 14 EU GSIBs as designated by the FSB in 2014 (in force in 2015 and 2Q16). For Unicredit, the bank and not the Group participated in the stress test. Likewise, ING Group (and not ING bank) participated in the exercise.

Notwithstanding the temporary market reaction, bank share prices recovered swiftly just days after, with the Stoxx Europe Banks index on 9 August standing at 3% above the level on 29 July.

The impact on contingent convertible (CoCo) bond prices was significantly less severe, with a marginal decrease of 1% from 29 July to 2 August. As with bank share prices, CoCo prices rapidly recovered with virtually the same prices on 9 August as observed before the publication of the stress tests. See chart below.

**European Bank shares and CoCo prices
(29 Jul= 100)**



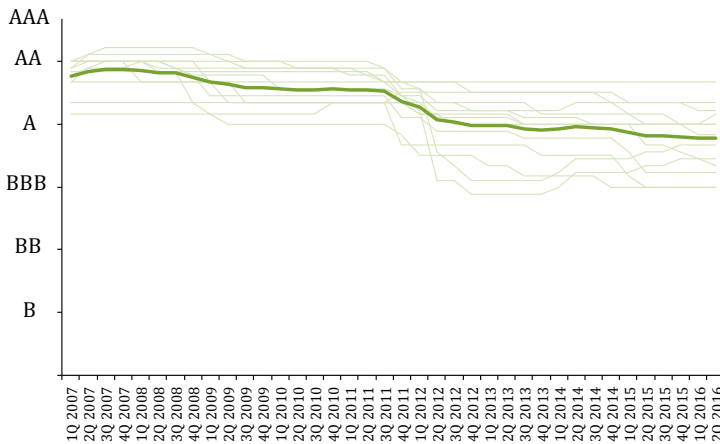
Source: Reuters Eikon, Barclays and Datastream

Since December 2015, the reference date for the stress test figures, EU GSIBs have improved on a weighted average basis their fully loaded CET1 ratios from 11.8% to 12.0% as of June 2016.

This indicates that banks are in an even stronger position than last year to absorb severe shocks as the simulated by the stress tests. Banks have continued to restructure their balance sheets and build-up their capital cushions, notwithstanding the market turbulence during the year and the challenges on earnings generation brought by ultra-low interest rates.

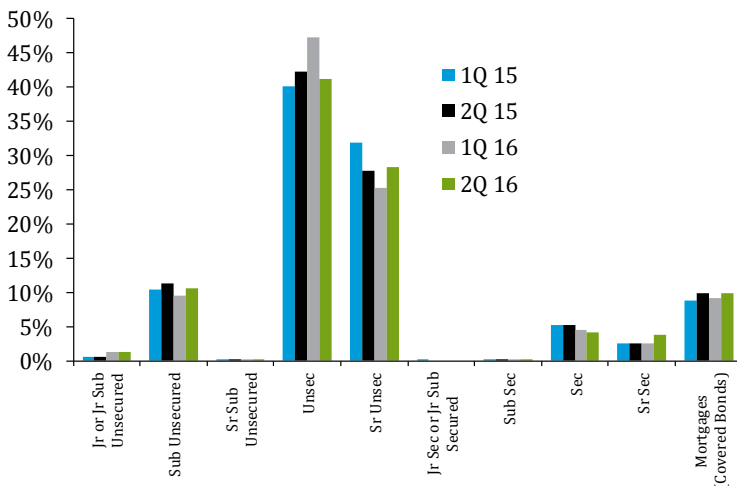
2 Debt securities and contingent convertibles

2.1 EU GSIBs simple average long-term credit rating



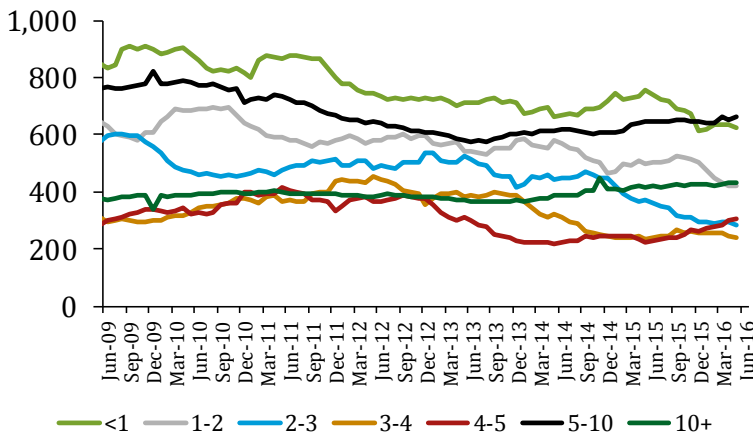
Source: Thomson Reuters Eikon with information of Moody's, Fitch and S&P

2.2 EU GSIBs debt outstanding by seniority



Source: Thomson Reuters Eikon

2.3 Maturity profile of EU 28 Banks' outstanding debt securities (EUR bn, maturity in years)



Source: ECB

Credit ratings

In 2Q 2016, downgrades of EU GSIBs' credit ratings matched the number of upgrades.

Two EU GSIBs had their credit ratings changed by at least one credit rating agency (CRA), with one upgrade and one downgrade. The remaining 12 banks had no changes to their ratings.

The challenge posed by ultra-low interest rates was highlighted by the CRAs that reviewed the credit quality assessment of these two banks.

The rationale for the credit upgrade of one of the banks was "solid and stable financial metrics" and the "expectation that the stable and gradually improving earnings will be maintained". However, the CRA highlighted the macro difficulty of ultra-low interest rates on the bank's profitability as "low interest rates weigh on performance".

The rationale of the downgrade of one of the banks was, among other factors, the "substantial operating headwinds, including continuing low interest rates and macroeconomic uncertainty".

In 2Q16, the median EU GSIB long-term credit rating stood at A (or A2 in the Moody's scale).

Debt securities

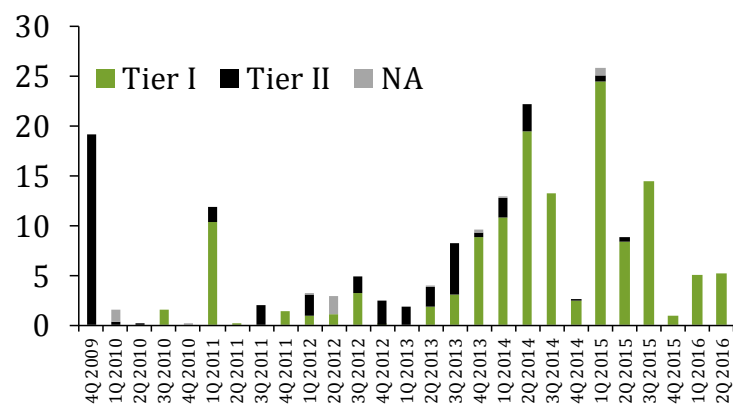
The debt funding mix by seniority remained almost unchanged during the last quarter. However, since 1Q15, banks have increased their proportion of unsecured bonds in their funding mix, while lowering their proportion of senior unsecured claims. This may be driven by the preparation for the implementation of MREL and TLAC, although ahead of more clarity about the details of the rules.

Maturity profile

The average maturity of outstanding debt securities has increased continuously over the last three years, from 4.5 years in 2Q12 to 5.1 years in 2Q16²³.

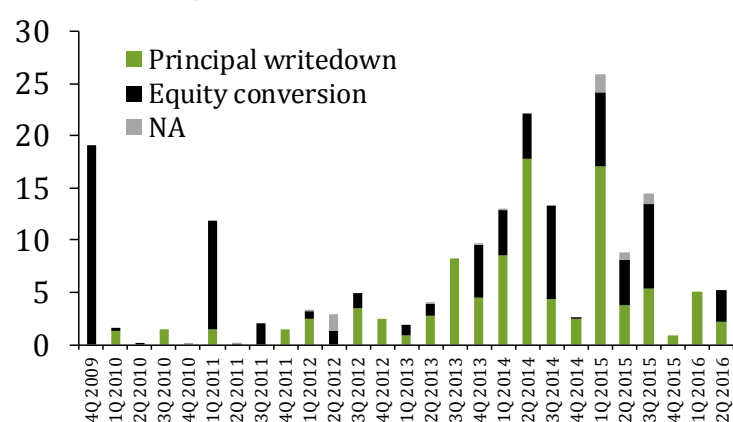
²³ This calculation assumes that bonds with maturities above 10 years (including perpetual) have a weighted average maturity of 15 years.

2.4 CoCos by capital tiering (EUR bn)



Source: Dealogic and Thomson Reuters Eikon

2.5 CoCos by loss absorbing mechanism (quarterly, EUR bn)



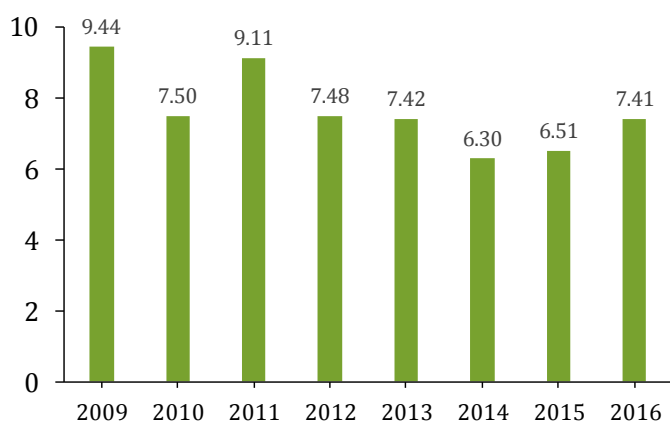
Source: Dealogic and Thomson Reuters Eikon

2.6 CoCos by loss absorbing mechanism (annual, EUR bn)

	2010	2011	2012	2013	2014	2015	2016 1H
Writedown	2.8	2.8	8.4	16.3	33.2	27.2	7.3
Conversion to Equity	0.4	12.5	3.4	7.2	17.8	19.5	3.0
Not Available	0.0	0.1	1.5	0.0	0.0	3.4	0.0
Writedown (%)	87%	18%	63%	69%	65%	54%	71%
Conversion to Equity (%)	13%	81%	26%	31%	35%	39%	29%
Total European	3.2	15.3	13.3	23.5	50.9	50.1	10.3

Source: Dealogic

2.7 Weighted average coupons of fixed-rate CoCos



Source: AFME with Dealogic data

Contingent capital

Contingent Convertible (CoCo) bonds are hybrid capital securities that absorb losses when the capital of the issuing bank falls below a certain pre-determined threshold²⁴.

European banks²⁵ issued a total of €5.2 bn in CoCo bonds during 2Q16, accumulating a total of €10.3bn during the first half of the year.

More recently in the first months of the 3Q16, banks have continued their effort in raising capital in the form of CoCos by originating a total €5.1bn in the first half of August. These originations have not been included in the charts of this quarter's report but the details of these instruments can be found on table 2.14.

CoCos by capital tiering and absorbing mechanism

During the first half of the year, €7.3bn (71%) of CoCo instruments originated were structured on the basis of principal write down, while €3.0bn (29%) were structured on the basis of equity conversion.

The breakdown of 1H16 issuance by loss absorbing mechanism reflects the mix observed in past years, when, for example, 54% of the 2015 volume was structured on the basis of principal write down and 65% of the volume in 2014.

The majority of the 1H16 issuances were structured with fixed rate coupons. The remaining variable rate coupons were structured contingent on the performance of Nordic interbank interest rates (STIBOR and NIBOR).

The average coupons of new fixed-rate issues²⁶ has increased from to 7.4% in 1H16 from 6.5% in 2015FY and 6.3% in 2014 FY on a weighted average basis (see chart 2.7 and more granular information of these deals in table 2.13).

²⁴ BIS (2013) "CoCos: a primer". BIS Quarterly Review, September 2013.

²⁵ Including EU, EFTA, Turkish and other Eastern European Banks.

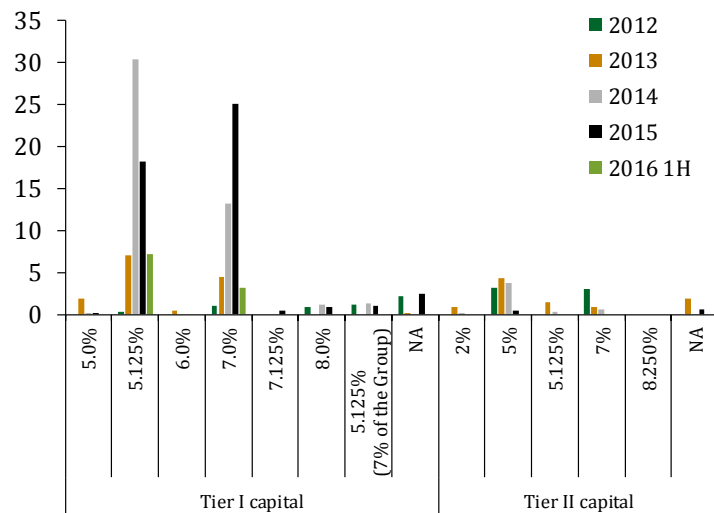
²⁶ Weighted average by EUR deal value, taking into account only fixed rate coupon notes.

2.8 CoCos by credit rating at date of issuance (EUR bn)²⁷

	2009	2010	2011	2012	2013	2014	2015	2016 1H
AAA		1.3						
AA-			10.6				0.5	
A			1.4				0.5	
A-		0.1	1.4		0.1	0.8	0.0	
BBB+		1.0	1.5			4.1	0.5	
BBB		0.5			4.9	9.9	8.8	1.9
BBB-				6.1	4.3	0.9	6.4	2.6
BB+				1.4	2.2	10.2	15.2	1.7
BB	12.7	0.3			6.4	20.5	8.1	2.6
BB-	5.6				3.6	3.5	1.8	1.5
B+						0.3	5.7	
B	0.9						0.7	
B-							0.5	
NA/Not rated		0.0	0.5	5.8	2.0	0.8	1.3	
Total	19.1	3.2	15.3	13.3	23.5	50.9	50.1	10.3
Investment Grade	0.0	2.9	14.8	6.1	9.3	15.7	16.7	4.5
High Yield	19.1	0.3	0.0	1.4	12.2	34.5	32.2	5.8

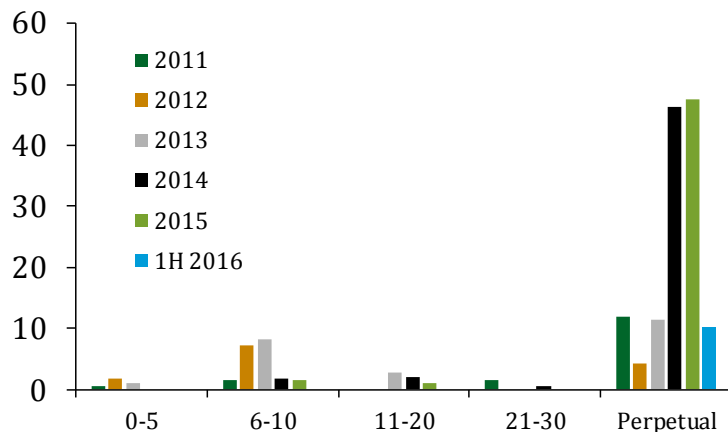
Source: Dealogic

2.9 CoCos by trigger (EUR bn)



Source: Dealogic and Thomson Reuters Eikon. * 5.125% of the bank or 7.0% of the Group

2.10 CoCos by maturity at date of issuance (EUR bn)



Source: Dealogic

CoCos by credit rating

CoCo securities issued in 1H16 were assessed at issuance date with credit ratings of between BBB and BB-.

€4.5 bn of the equivalent value of issued instruments were rated at an investment grade rating of BBB- or above (44% of the total issuance value), while €5.8 bn were rated BB+ or below (66% of the issuance value). The breakdown is comparable with the credit ratings observed in 2015, when 33% (€16.7 bn) of issued CoCos were rated between AA- and BBB- and 64% (€32.2 bn) at BB+ and below, with 3% (€1.3 bn) unrated or having an unavailable rating.

Average trigger

CoCo instruments contingent on Tier 1 performance are typically structured with triggers of 5.125% and 7%.

During 1H16, 10 instruments representing 70% of the semi-annual issuance value (or €7.15bn) were structured with a 5.125% trigger contingent on Tier 1 performance. Two instruments representing €3.13bn in volume were structured with a trigger of 7%, also contingent on Tier 1 performance.

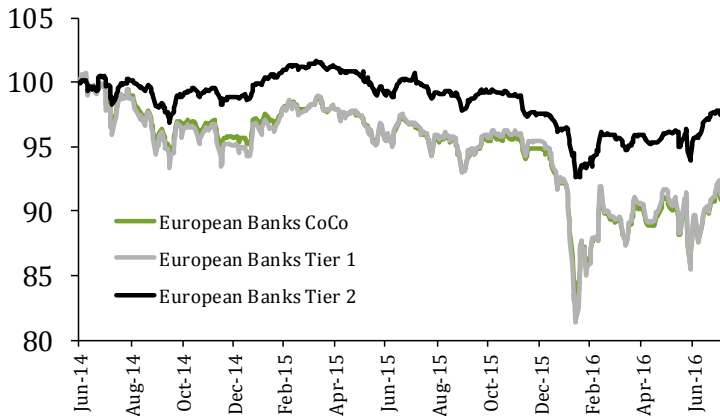
Average maturity

All CoCo instruments issued in 1H16 were structured in the form of perpetual bonds.

This is broadly consistent with the typical maturity of new issues structured in recent years. For example, in 2015 95% of issued CoCos were structured in the form of perpetual bond instruments and 91% in 2014.

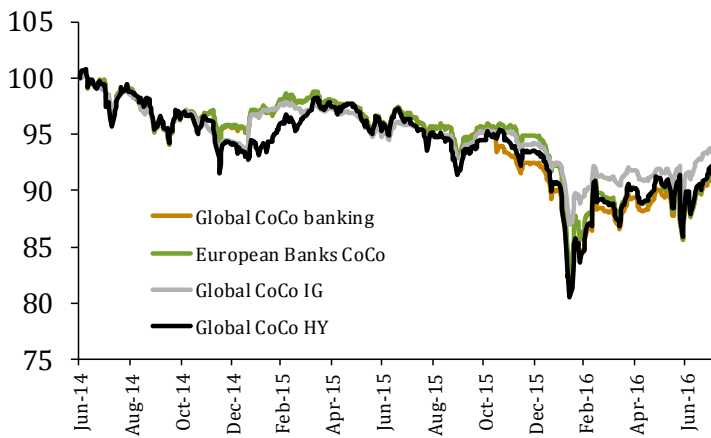
²⁷ Total figures may appear not to add up due to rounding.

2.11 CoCo prices by capital tiering (Jun-14=100)



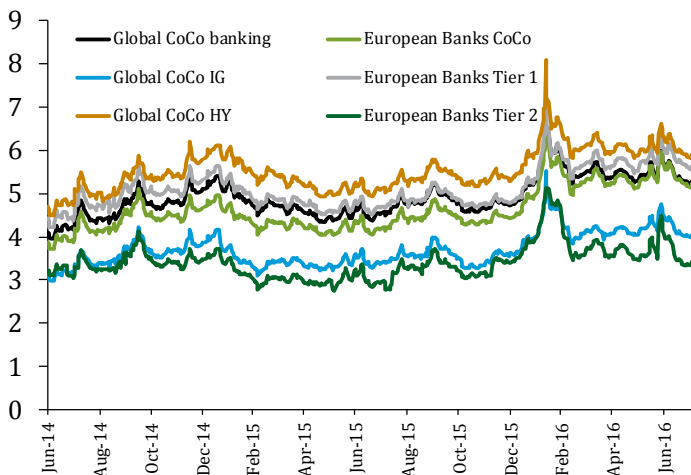
Source: Barclays

2.12 CoCo prices by risk and location (Jun-14=100)



Source: Barclays

2.13 CoCo option-adjusted spreads (OAS) (%)



Source: Barclays

Valuations

CoCo prices continued to recover after the market turbulence episode of 1Q16.

The foremost uncertainty event during the second quarter was related to the outcome of the UK referendum. As with other European asset prices, CoCo prices fell in the immediate aftermath of the referendum result, with European CoCo instruments falling by 5.8% two trading days after the referendum.

By capital tiering, T1 instruments fell by 6.5%, while T2 instruments fell by 2.5% during the same period.

T2 investors take losses on their instruments only after T1 investors, which explains why the valuations of T1 instruments are hardest hit during times of stress (like during the aftermath of the UK referendum result or the market volatility episode of 1Q16).

The impact of the UK referendum on CoCo prices was short-lived. European CoCos have fully recovered, with price gains of 5.2% between the announcement of the referendum result and August 11th (or +1.1% compared with the day before).

As discussed in the Box “EBA’s stress tests results”, the outcome of the EU-wide stress tests had no material impact on European CoCo prices or spreads.

Option-adjusted spreads (OAS)

During the immediate aftermath of the UK referendum result, CoCo spreads rose in tandem with the losses registered in the valuations of CoCo instruments.

Nevertheless, OAS have recovered since then. For example, on 5 August, T2 instruments reported the lowest spreads of the year at 3.4% against benchmark risk-free rates (see chart 2.13). T1 instruments were only 72 bps above the OAS of the start of the year, compared with maximum differences of 185bps reached during 1Q16.

2.14 Recently issued CoCos by European Banks (2016 as of mid-August)

Pricing Date	Issuer	Tier Capital	Deal Total Value (Euro)	Trigger	Conversion mechanism	Issue Rate	Effective Rating (Launch)	Maturity	Coupon
12-Jan-16	Intesa Sanpaolo SpA	Tier I	1,250,000,000	5.125%	Writedown	Fixed	BB-	Perpetual	7
12-Jan-16	Credit Agricole SA	Tier I	1,146,473,448	5.125%	Writedown	Fixed	BB	Perpetual	8.125
14-Mar-16	UBS Group AG	Tier I	1,345,412,145	7.000%	Writedown	Fixed	BB+	Perpetual	6.875
23-Mar-16	BNP Paribas	Tier I	1,331,676,136	5.125%	Writedown	Fixed	BBB-	Perpetual	7.625
07-Apr-16	Banco Bilbao Vizcaya Argentaria SA - BBVA	Tier I	1,000,000,000	5.125%	Equity conversion	Fixed	BB	Perpetual	8.875
19-Apr-16	Rabobank Nederland	Tier I	1,250,000,000	5.125%	Writedown	Fixed	BBB-	Perpetual	6.625
28-Apr-16	Bankinter SA	Tier I	200,000,000	5.125%	Equity conversion	Fixed	BB-	Perpetual	8.625
13-May-16	SBAB Bank AB	Tier I	161,266,913	5.125%	Writedown	Fixed	BB+	Perpetual	5.052
13-May-16	SBAB Bank AB	Tier I	161,266,913	5.125%	Writedown	Variable	BB+	Perpetual	3-mth STIBOR +475bp
25-May-16	Erste Group Bank AG	Tier I	500,000,000	5.125%	Writedown	Fixed	BB	Perpetual	8.875
24-May-16	HSBC Holdings plc	Tier I	1,783,007,934	7.000%	Equity conversion	Fixed	BBB	Perpetual	6.875
17-Jun-16	DNB Bank ASA	Tier I	149,118,603	5.125%	Writedown	Variable	BBB	Perpetual	3-mth NIBOR +525bp
03-Aug-16	UBS Group AG	Tier I	893,295,815	7.000%	Writedown	Fixed	BB+	Perpetual	7.125
10-Aug-16	Royal Bank of Scotland Group plc	Tier I	2,389,324,678	7.000%	Equity conversion	Fixed	B+	Perpetual	8.625
11-Aug-16	Standard Chartered plc	Tier I	1,792,516,245	7.000%	Writedown	Fixed	BB+	Perpetual	7.5

Source: Dealogic and Thomson Reuters Eikon

Summary of the methodologies adopted in this report

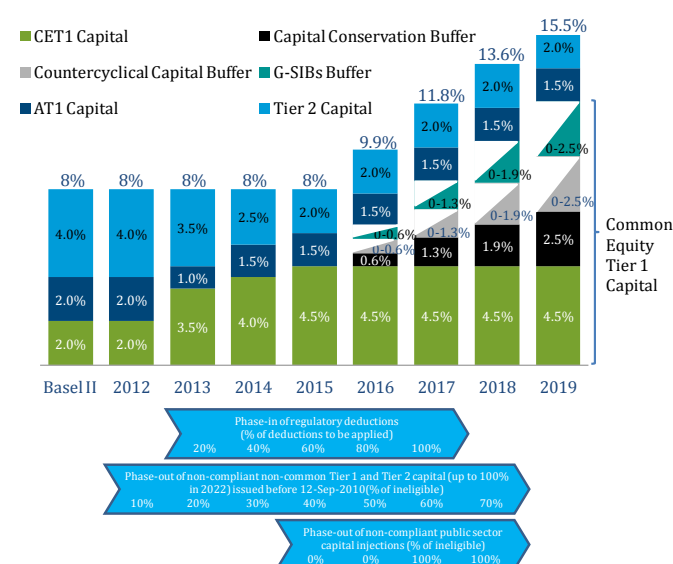
1. Balance Sheets – Overview

In 2013 the European Union adopted the CRDIV legislation, implementing the Basel III accord in the EU. The CRDIV includes a number of transitional measures, which facilitate financial markets and the real economy in adjusting smoothly to the new regulatory landscape. The charts in the first part of the report illustrate the capital and leverage ratios under the phased-in (transitional) and the end-point (fully loaded) approaches, as reported by the EU GSIBs.

During the transition period (2014-2019), certain deductions are applied to the calculation of CET1 capital, Tier 1 capital and Tier 2 capital. For CET1 capital, the regulatory deductions vary by year from 20% in 2014 to 100% from 2018 onwards, with increases of 20% per year. These deductions are related to the treatment of deferred taxes, securitisation, and unrealised losses, among others.

In addition to the abovementioned deductions, the CRDIV also establishes a timetable for the compliance with minimum capital requirements and buffers. The ratio of minimum regulatory capital to risk-weighted assets (RWA) is illustrated in the chart below.

Minimum Capital Requirements & Buffers Implementation Timetable (% of RWAs)



Source: AFME

The GSIB buffer ranges from 1% to 2.5% for GSIBs. The GSIB buffer varies by bank depending on the bucket where the firm is allocated to as per the FSB's/BIS methodology, which takes into account features such as size; interconnectedness;

complexity; financial infrastructure; and cross-jurisdictional activity of the institution. The required countercyclical buffer ranges from 0%-2.5% depending on the assessment of each NCA.

1.1. – 1.5, 1.9 and 1.11. Capital Ratios

The Capital Ratios charts illustrate the implementation of the CRDIV requirements by the 14 EU GSIBs as designated by the FSB in 2014. Such banks are: HSBC; Barclays; BNP Paribas; Deutsche Bank; Royal Bank of Scotland; BBVA; Groupe BPCE; Group Crédit Agricole; ING Bank; Nordea; Santander; Société Générale; Standard Chartered; and UniCredit Group.

The number of reporting banks for each chart varies depending on the availability of information. The table below illustrates the number of banks that are included in each of the charts in Section 1. All figures were compiled on a best efforts basis.

	1.1	1.2, 1.3	1.5,	1.7,	1.9	1.11	1.12,	1.13	1.14	1.15	1.16*
4Q13	14	14	14	7	9					10	
1Q14	14	14	12	11	8	7	14	10			
2Q14	14	14	13	12	9	11	14	11			
3Q14	14	14	12	10	8	9	14	11			
4Q14	14	14	14	13	14	14	14	14			6 (7)
1Q15	14	14	13	11	14	11	14	14			3
2Q15	14	14	14	13	14	12	14	14			3 (9)
3Q15	14	14	14	12	14	10	14	14			3
4Q15	14	14	14	12	14	14	14	14			8
1Q16	14	14	14	11	14	11	14	14			6
2Q16	14	14	14	13	14	13	14	14			7

*The weighted averages for 4Q14 and 2Q15 are sourced from EBA's monitoring exercise reports which is based in the number of banks in parenthesis.

The CET1 Capital ratio is the share of Core Tier 1 (CET1) capital as percentage of Risk Weighted Assets (RWAs); Tier 1 Ratio is the share of Tier 1 capital as percentage of RWAs. Each ratio is shown on a phased-in (transitional) and fully loaded (end-point) approach as per the CRDIV legislation and as reported by the EU GSIBs.

The capital ratios data are sourced from EU GSIBs balance sheets and publicly available information disclosed in periodic financial reports and prudential data reports published by the above mentioned banks (i.e. interim earnings reports, annual reports, results presentations, Pillar III disclosure reports or financial data disclosed as part of interim earnings results). When not available in the EU GSIBs' financial results and

publicly available information, 4Q14 CET1 and RWAs were sourced from the EBA’s 2013 stress tests for the transitional approach.

For charts 1.3 and 1.4, for purposes of aggregation in EUR currency, the balance sheets items reported in USD and GBP were converted to EUR terms using the end-of-quarter exchange rate as certified by the ECB. The specific exchange rates are the following:

	EUR/USD	EUR/GBP
4Q13	1.3791	0.8337
1Q14	1.3788	0.8282
2Q14	1.3658	0.8015
3Q14	1.2583	0.7773
4Q14	1.2141	0.7789
1Q15	1.0759	0.7273
2Q15	1.1189	0.7114
3Q15	1.1203	0.7385
4Q15	1.0887	0.73395
1Q16	1.1385	0.79155
2Q16	1.1102	0.8265

Source: ECB

1.6. Change in CET1 by components

Chart 1.6 illustrates the contribution of RWAs, profits and other factors to the quarterly change of CET1 ratio on an end point approach. The figures are aggregated by banks on a weighted average basis. The individual contributions are sourced from banks’ presentations of the quarterly financial results and quarterly financial statements, when available in the granularity presented. When the figure is not available at the same level of granularity, a linear decomposition is performed: the quarterly percentage change of the CET1 ratio is approximated as the quarterly percentage change in CET1 capital, minus the quarterly percentage change in RWAs.

Accordingly, the contribution of RWAs to the change is calculated as the percentage change of RWAs multiplied by the CET1 ratio in the past quarter. The contribution of profits is calculated as the quarterly profits, divided by the amount of RWAs in the past quarter. The remaining “FX and other” factor is calculated as residual.

1.7. – 1.8. Difference between CET1 ratios and 2019 ratios on an end-point basis

Chart 1.7 illustrates the difference between the individual EU GSIBs CET1 ratios on an end-point basis, and the regulatory ratio due to apply from 2019 assuming that banks are to comply with the GSIB buffer they are currently assigned (between

1% and 2.5%). The additional countercyclical buffer is represented with a horizontal line at 2.5%, to illustrate the maximum buffer that EU GSIBs would have to comply with, should all NCAs implement the maximum buffer at 2.5%. The countercyclical buffer is yet to be implemented by the European NCAs.

Chart 1.8 illustrates the difference between EU GSIBs weighted-average CET1 ratio on an end-point basis, and a stressed maximum regulatory ratio that banks would have to comply with assuming that NCAs implement the maximum countercyclical buffer at 2.5%. That is, a requirement of 4.5% (Minimum CET1 ratio) + 2.5% (Capital conservation buffer) + 1%-2.5% (according to the bucket where the GSIB is currently located) + 0%-2.5% (countercyclical buffer). To estimate the weighted-average CET1 ratio, individual RWAs were used.

One of the 14 EU GSIBs reports its financial results on a semi-annual basis. Chart 1.8 uses the latest CET1 ratio reported for this bank.

1.10. Cumulative change of T1, RWA and T1 ratio

This chart illustrates the cumulative percentage change of each of the components of the Tier 1 ratio on a phased-in basis. As with previous charts, T1 and RWAs are sourced from EU GSIBs’ financial reports and publicly available material (see reference to charts 1.1-1.4).

Data is aggregated for banks where information is available. In contrast to chart 1.8, the ratio and its subsequent cumulative percentage change, is calculated as total T1 capital as proportion of total RWAs (and not simple average of ratios).

1.12. – 1.13. Risk-Weighted Assets (RWAs)

The breakdown of RWAs by risk is sourced from financial reports published by the EU GSIBs as referenced in 1.1-1.4

Chart 1.12 illustrates the breakdown by risk component for each EU GSIB as of 1Q16 or the latest publicly available breakdown.

The credit risk category represents other risks different from market and operational risk as disclosed by the EU GSIBs.

The figures are in EUR terms which are converted from the currencies used by banks to report their financial results, using the ECB’s official FX rate for the corresponding end of period.

1.14. RWA densities

The densities are calculated as the ratio of RWAs to total assets by bank. The amounts of RWAs are phased-in values as reported by banks and are consistent with the figures reported in chart 1.4.

Total assets are sourced from Thomson Reuters EIKON and Banks' financial statements when not available in Reuters.

1.15. Leverage Ratios (fully loaded)

The leverage ratio represents the share of Tier 1 capital as a percentage of eligible assets under the fully loaded approach.

The leverage ratios are sourced from financial reports published by the EU GSIBs referenced in 1.1-1.5 (i.e. interim earnings reports, annual reports, results presentations, Pillar III disclosure reports, or other financial data disclosed as part of earnings results).

All figures were compiled on a best efforts basis.

1.16. Leverage ratio by components

This chart illustrates the cumulative percentage change of each of the components of the Leverage ratio. As with previous charts, T1 and the exposure measure are sourced from EU GSIBs' financial reports and publicly available material (see reference to charts 1.1-1.4).

1.17. Liquidity Coverage Ratio (LCR)

The LCR represents the share of High Quality Liquid Assets (HQLA) relative to total net cash outflows over a 30 day time period.

LCRs are sourced from financial reports published by the EU GSIBs (i.e. interim earnings reports, annual reports, results presentations, Pillar III disclosure reports, and other financial data disclosed by banks).

Some banks disclosed in their reports that their LCR ratios were above a certain level without disclosing the actual ratio (e.g. "above 100%" or "above 110%"). This information was not added in the graph.

All figures were compiled on a best efforts basis.

2. Debt securities and Contingent Convertibles

2.1. Average EU GSIBs credit rating

This chart presents the simple average of the EU GSIBs long-term foreign credit ratings. The rating of each bank is estimated as the simple average of the individual long-term foreign credit ratings assigned by Moody's, Fitch and S&P. To calculate

the average by bank, a value between 0 and 17 is assigned to each rating, where 0 represents DDD (or C in Moody's scale and D in S&P scale) and 17 is equivalent to AAA (or Aaa in Moody's scale). When a Credit Rating Agency (CRA) has not rated the long-term foreign performance of an EU GSIB, the average is calculated with the available credit ratings.

The information is sourced from Thomson Reuters EIKON.

2.2. Debt outstanding by seniority

The data is sourced from Thomson Reuters EIKON. The data corresponds to debt issued by the 14 EU GSIBs, which does not take account of holdings by subsidiaries/branches within the same group.

The "Mortgages" category includes mortgage covered bonds.

2.3. EU 28 bank's debt outstanding by maturity

The data is sourced from the ECB and Dealogic DCM. The figures correspond to the outstanding amounts of debt securities other than shares issued by European Union (EU28) banks at the end of reference period broken down by maturity in years.

All securities issued in all currencies are included and converted into EUR terms by the ECB.

2.4. CoCos by capital tiering

CoCo securities included are those issued by banks whose parent company is located in Europe. It does not include securities issued in Europe by banks whose parent company is non-European. Europe is defined as per Dealogic's classification, which includes European Union nations, Eastern European countries (e.g. Russia, Azerbaijan, and Kazakhstan), EFTA countries, old Soviet Union countries, and Turkey.

All securities issued in all currencies are included and converted into EUR terms by Dealogic.

The capital tiering is sourced from Dealogic DCM for each of the securities covered.

2.5- 2.6. CoCos issued by absorbing mechanism

CoCo securities included are those issued by banks whose parent company is located in Europe as defined by Dealogic, which encompasses European Union member states, Eastern European countries (e.g. Russia, Azerbaijan, and Kazakhstan), EFTA countries, old Soviet Union countries, and Turkey.

The absorbing mechanism is sourced from Thomson Reuters EIKON for each of the securities covered.

2.7 Coupons of fixed-rate CoCos

Weighted average coupons of fixed-rate CoCo originations weighted by size of issuance in EUR. Weighted average at date of issuance.

2.8 CoCos issued by credit rating

CoCo securities included are those issued by banks whose parent company is located in Europe as defined by Dealogic.

The credit rating is based on the classification by Dealogic of “Effective rating at launch”. This rating is calculated as an average of available ratings from S&P, Moody's and Fitch at the time of issuance. If an issue is rated by just one CRA, such rating is displayed.

The category “High Yield” aggregates issuance volumes of instruments rated at date of launch at BB+ or below. Investment Grade instruments relate to issues rated at BBB- or above at date of launch.

2.9. CoCos issued by maturity

CoCo securities included are those issued by banks whose parent company is located in Europe as defined by Dealogic. All securities issued in all currencies are included and converted into EUR terms by Dealogic.

Maturity is classified on the basis of the number of years from settlement date to legal maturity date. Perpetual bonds are classified under their own category.

2.10. CoCos issued by trigger

The chart aggregates the value of CoCo instruments issued by European banks (in EUR billions), classified by the underlying trigger and the capital tiering in which the instruments are contingent on (T1 or T2 capital performance).

The data are sourced from Dealogic.

2.11. - 2.13 CoCo prices and option-adjusted spreads (OAS)

The indices in 2.10 and 2.12 are compiled by Barclays according to the capital tiering, location (Global vs. European) and risk of the security (High Yield vs. Investment Grade). The indices in 2.10-2.11 are unhedged and in nominal USD terms.

Annex

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