

Securitisation Data Report

European Structured Finance

Q1: 2019



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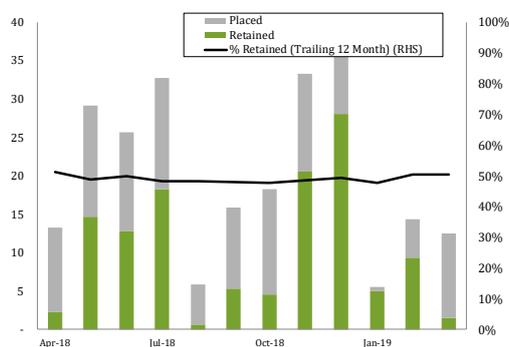
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Market Highlights and Commentary

Market Environment

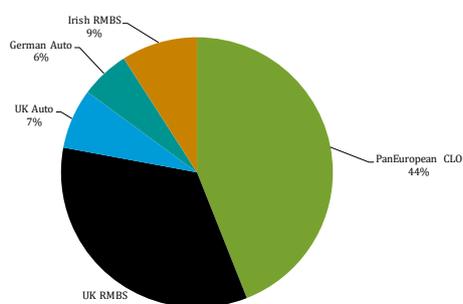
European Securitisation Issuance (EUR mn)



Sources: AFME/SIFMA Members, AFME, Bloomberg, Dealogic, Refinitiv, SIFMA

“In Q1 2019, EUR 32.4 billion of securitised product was issued in Europe, a decline of 63.4% and 44.7% from Q4 2018 and Q1 2018.”

European Securitisation Placed Issuance



Sources: Bloomberg, AFME & SIFMA Member Firms, Dealogic, AFME, SIFMA

Economic conditions

According to Eurostat, GDP rose 0.4% quarter-over-quarter (QoQ) in the Euro zone (EU19) and 0.5% in the EU28 during the first quarter of 2019. The unemployment rate stood at 7.7% (EU19) and 6.4% (EU28) as of the end of March 2019, the lowest rate recorded ever for the EU28.

Term Issuance and Outstanding Volumes

In Q1 2019, EUR 32.4 billion of securitised product was issued in Europe, a decline of 63.4% from Q4 2018 and a decline of 44.7% from Q1 2018. Of the EUR 32.4 billion issued, EUR 16.5 billion was placed, representing 50.9% of issuance, compared to the 39.9% of issuance in Q4 2018 and the 55.1% of issuance in Q1 2018. Among placed issuance, PanEuropean CLO, UK RMBS, and UK auto ABS led issuance totals, with EUR 7.3 billion, EUR 5.6 billion, and EUR 1.2 billion of issuance, respectively.

Outstanding volumes rose slightly to EUR 1.2 trillion outstanding at the end of Q1 2019, a decline of 3.8% QoQ and an increase of 0.2% YoY.

Credit Quality

In Europe, upgrades outpaced downgrades in Q1 2019, with upgrades concentrated in RMBS, both conforming and non-conforming.

ABCP Trends

European asset backed commercial paper (ABCP) issuance was EUR 158.5 billion in Q1 2019, a sharp increase of 62.4% QoQ and a 132.3% increase YoY. Multiseller conduits continue to dominate as the largest category of issuer in the ABCP market, particularly from France and Ireland. European ABCP outstandings increased from the previous quarter, ending the first quarter at EUR 20.4 billion, up by 34.0% from Q4 2018.

Major upcoming regulatory, legislative and policy initiatives

STS framework - Level 2 legislation

The finalisation of the Level 2 legislation under the STS Securitisation Framework is still ongoing.

Despite the slow start to the year, March saw the first STS transactions come to the market, from Volkswagen in Euros and then from Nationwide Building Society in sterling. The Nationwide deal was also the first securitisation linked to SONIA (see further below).

ESMA's RTS on Disclosure Requirements (including the reporting templates), which were revised following the rejection of the initial proposals by the European Commission in late 2018, are expected to be adopted by the Commission within H1 2019. AFME is currently engaged with ESMA via the Q&A process on the

aspects of final RTS which require further clarification and guidance.

Whilst the adoption of the RTS on Disclosures as well as the RTS and ITS on STS Notification, on data repositories and the RTS on Clearing and Collateral Posting Exemption are expected to be adopted in June 2019, the RTS on Risk Retention will not be finalised before Q3 2019.

“ESMA’s RTS on disclosure requirements (including the reporting template), which were revised following the rejection of the initial proposals by the EC in late 2018, are expected to be adopted by the Commission within H1 2019.”

“Once adopted by the Commission all the technical standards will then be subject to a scrutiny period by the European Parliament and the Council. The scrutiny period will take place after the summer break. Therefore, the finalisation of the RTS is not likely to be before Q3 2019”.

On the 8th of April, the EBA has published the final draft RTS on the conditions to allow institutions to calculate capital requirements of securitised exposures (Kirb) in accordance with the purchased receivables approach. The EBA’s final advice has now been submitted to the Commission for adoption, which is expected later this year.

On 28th May, the Commission adopted the RTS on homogeneity of the underlying exposures in securitisations, with the final text being highly similar to the standard as developed by the EBA.

Once adopted by the Commission all the technical standards will then be subject to a scrutiny period by the European Parliament and the Council which will take place after the summer break. Therefore, the finalisation of the RTS is not likely to be before Q3 2019.

The RTS specifying information to be provided to a competent authority in an application for authorisation of a third-party assessing STS compliance have been published in the Official Journal of EU (OJ) on 29th May.

On 17th May the ECB published draft guidelines which, among other things, incorporate the transparency requirements of the Securitisation Regulation into the Eurosystem collateral framework, to achieve greater efficiency and standardisation in the securitisation market.

Extra-territorial effect of due diligence, etc., rules

In February, political agreement was reached to mitigate the extra-territorial effect of the obligations of due diligence, disclosure and risk retention under the new securitisation framework which otherwise would apply to non-EU securitisation activities of EU-regulated firms; the relevant text has been approved by the Council and is expected to be published in the OJ in mid-June.

IBOR transition

We continue our engagement in the various IBOR Working Groups in the sterling market and the Eurozone.

In sterling, there has been a decisive shift away from Libor towards SONIA, evidenced by a rapid pace of adoption in cash markets: Libor-linked sterling FRN issuance beyond 2021 has all but ceased and April saw the issuance of the first distributed SONIA-linked RMBS securitisation: Silverstone, for Nationwide Building Society, which was also the first sterling STS transaction (see above).

Major upcoming regulatory, legislative and policy initiatives

The use case for a term rate for securitisations is diminishing rapidly as the market consistently adopts the basis of backwards-looking overnight SONIA compounded in arrears with a five-day lag.

In the Eurozone, for short-term rates, work is proceeding apace on the replacement of EONIA by €STR (formerly known as ESTER). €STR will be published from October 2019 and (unlike EONIA) is expected to be BMR-compliant.

For term rates, and unlike sterling Libor, EURIBOR will continue in the medium-term - albeit with a reformed hybrid methodology based on both submissions and transactions, expected to be completed during the second half of 2019. Work will also continue on the establishment of credible alternative benchmarks to EURIBOR which can be used as fallbacks.

1 Issuance

€ BILLIONS

1.1 Issuance European Historical Issuance

| | Q1 | Q2 | Q3 | Q4 | TOTAL |
|------|-------|------|-------|-------|-------|
| 2010 | 75.5 | 32.6 | 110.7 | 159.2 | 378.0 |
| 2011 | 115.2 | 67.3 | 57.1 | 137.2 | 376.8 |
| 2012 | 64.3 | 67.7 | 62.0 | 63.9 | 257.8 |
| 2013 | 32.8 | 53.2 | 38.4 | 56.4 | 180.8 |
| 2014 | 20.0 | 99.5 | 37.8 | 59.8 | 217.1 |
| 2015 | 35.7 | 50.3 | 57.8 | 72.8 | 216.6 |
| 2016 | 57.0 | 75.8 | 46.6 | 60.1 | 239.6 |
| 2017 | 40.2 | 73.0 | 49.1 | 74.1 | 236.5 |
| 2018 | 58.5 | 68.1 | 54.5 | 88.6 | 269.7 |
| 2019 | 32.4 | | | | 32.4 |

1.2 US and Australia Historical Issuance

| | US | AU |
|------|---------|------|
| 2010 | 1,245.9 | 15.5 |
| 2011 | 1,068.9 | 20.4 |
| 2012 | 1,609.0 | 14.8 |
| 2013 | 1,565.1 | 22.4 |
| 2014 | 1,190.9 | 22.1 |
| 2015 | 1,744.5 | 19.9 |
| 2016 | 1,860.4 | 16.4 |
| 2017 | 1,899.3 | 29.2 |
| 2018 | 1,670.3 | 19.5 |
| 2019 | 307.7 | 4.0 |

Sources: Bloomberg, Citigroup, Dealogic, Bank of America-Merrill Lynch, Deutsche Bank, JP Morgan, Macquarie, Refinitiv, Unicredit, AFME, SIFMA

1.3 European Issuance by Collateral

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|---------|---------|---------|---------|---------|-------|
| ABS | 5.0 | | | | 5.0 |
| CDO/CLO | 7.3 | | | | 7.3 |
| CMBS | 0.1 | | | | 0.1 |
| RMBS | 20.1 | | | | 20.1 |
| SME | | | | | 0.0 |
| WBS/PFI | | | | | 0.0 |
| Total | 32.4 | | | | 32.4 |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|---------|---------|---------|---------|-------|
| 13.0 | 18.5 | 9.1 | 28.1 | 68.7 |
| 12.6 | 15.2 | 14.2 | 9.5 | 51.6 |
| 0.4 | 2.4 | 1.1 | 2.1 | 5.8 |
| 29.3 | 29.5 | 28.2 | 26.3 | 113.3 |
| 3.1 | 2.5 | 1.9 | 22.0 | 29.5 |
| | | | 0.6 | 0.6 |
| 58.5 | 68.1 | 54.5 | 88.6 | 269.7 |

1.4 European Issuance by Retention

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|--------------------|---------|---------|---------|---------|-------|
| Placed | 16.5 | | | | 16.5 |
| Retained | 15.9 | | | | 15.9 |
| Total ² | 32.4 | | | | 32.4 |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|---------|---------|---------|---------|-------|
| 32.2 | 38.3 | 30.4 | 35.2 | 136.2 |
| 26.2 | 29.8 | 24.1 | 53.4 | 133.5 |
| 58.5 | 68.1 | 54.5 | 88.6 | 269.7 |

1.5 Australia Issuance by Collateral

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-------|---------|---------|---------|---------|-------|
| ABS | 0.9 | | | | 0.9 |
| RMBS | 3.1 | | | | 3.1 |
| CMBS | | | | | 0.0 |
| Total | 4.0 | | | | 4.0 |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|---------|---------|---------|---------|-------|
| 0.3 | 0.6 | 0.3 | 1.0 | 2.2 |
| 3.1 | 5.0 | 4.4 | 4.3 | 16.8 |
| | | 0.3 | 0.2 | 0.5 |
| 3.4 | 5.6 | 4.9 | 5.5 | 19.5 |

1.6 US Issuance by Collateral

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-----------------|---------|---------|---------|---------|-------|
| ABS | 49.8 | | | | 49.8 |
| CDO | 15.5 | | | | 15.5 |
| Agency MBS | 200.3 | | | | 200.3 |
| Non-Agency CMBS | 13.1 | | | | 13.1 |
| Non-Agency RMBS | 29.0 | | | | 29.0 |
| Total | 307.7 | | | | 307.7 |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|---------|---------|---------|---------|---------|
| 54.0 | 51.3 | 44.7 | 41.7 | 191.7 |
| 26.7 | 47.2 | 35.7 | 21.1 | 130.6 |
| 253.2 | 283.4 | 308.2 | 272.7 | 1,117.6 |
| 18.8 | 19.0 | 19.2 | 18.2 | 75.3 |
| 20.5 | 40.4 | 54.6 | 39.7 | 155.1 |
| 373.2 | 441.3 | 462.4 | 393.4 | 1,670.3 |

Sources: Bank of America Merrill-Lynch, Bloomberg, Citigroup, Dealogic, Deutsche Bank, JP Morgan, Macquarie, Refinitiv, Unicredit, AFME, SIFMA

€ BILLIONS

1.7 Issuance by Country of Collateral

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-----------------|---------|---------|---------|---------|-------|
| Belgium | 7.0 | | | | 7.0 |
| Denmark | | | | | 0.0 |
| France | 5.0 | | | | 5.0 |
| Germany | 1.0 | | | | 1.0 |
| Greece | | | | | 0.0 |
| Ireland | 0.6 | | | | 0.6 |
| Italy | 2.5 | | | | 2.5 |
| Netherlands | | | | | 0.0 |
| Portugal | | | | | 0.0 |
| Spain | | | | | 0.0 |
| UK | 8.5 | | | | 8.5 |
| Other EU | 0.1 | | | | 0.1 |
| Other Europe | 0.2 | | | | 0.2 |
| PanEurope | 7.5 | | | | 7.5 |
| Multinational | | | | | 0.0 |
| European Total | 32.4 | | | | 32.4 |
| Australia Total | 4.0 | | | | 4.0 |
| US Total | 307.7 | | | | 307.7 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|---------|
| | 0.2 | | | 9.3 | 9.5 |
| | | | | | - |
| | 6.9 | 4.3 | 6.6 | 1.7 | 19.5 |
| | 3.4 | 2.2 | 2.0 | 5.1 | 12.7 |
| | | | 0.1 | | 0.1 |
| | 0.4 | 4.4 | 3.8 | 6.0 | 14.5 |
| | 3.1 | 12.9 | 13.2 | 18.2 | 47.4 |
| | 15.9 | 8.0 | 1.5 | 5.3 | 30.8 |
| | 2.3 | 0.7 | | 0.1 | 3.0 |
| | 1.0 | 4.2 | 0.8 | 7.2 | 12.9 |
| | 9.1 | 15.3 | 11.9 | 22.4 | 58.7 |
| | | 0.5 | 0.1 | 1.2 | 1.8 |
| | 0.8 | 0.3 | 0.1 | 2.2 | 3.4 |
| | 15.5 | 15.2 | 14.4 | 9.8 | 54.9 |
| | | | | | - |
| | 58.5 | 68.1 | 54.5 | 88.4 | 269.4 |
| | 3.4 | 5.6 | 4.9 | 5.5 | 19.5 |
| | 373.2 | 441.3 | 462.4 | 393.4 | 1,670.3 |

1.8 Issuance by Collateral Type and Country of Collateral: 4Q 2018

| | ABS | CDO/CLO | CMBS | RMBS | SME | WBS/PFI | TOTAL |
|----------------|-----|---------|------|------|-----|---------|-------|
| Belgium | | | | 7.0 | | | 7.0 |
| Denmark | | | | | | | - |
| France | | | | 5.0 | | | 5.0 |
| Germany | 1.0 | | | | | | 1.0 |
| Greece | | | | | | | - |
| Ireland | | | | 0.6 | | | 0.6 |
| Italy | 1.9 | | | 0.6 | | | 2.5 |
| Netherlands | | | | | | | - |
| Portugal | | | | | | | - |
| Spain | | | | | | | - |
| UK | 1.8 | | | 6.6 | | | 8.5 |
| Other EU | | | 0.1 | | | | 0.1 |
| Other Europe | 0.2 | | | | | | 0.2 |
| PanEurope | | 7.3 | | 0.3 | | | 7.5 |
| Multinational | | | | | | | - |
| European Total | 5.0 | 7.3 | 0.1 | 20.1 | - | - | 32.4 |

| | ABS | CDO | AGENCY MBS | NON-AGENCY CMBS | NON-AGENCY RMBS | TOTAL |
|-----------------|------|------|------------|-----------------|-----------------|-------|
| Australia Total | 0.9 | | | | 3.1 | 4.0 |
| US Total | 49.8 | 15.5 | 200.3 | 13.1 | 29.0 | 307.7 |

Sources: Bloomberg, Dealogic, Deutsche Bank, JP Morgan, Macquarie, Refinitiv, AFME, SIFMA

€ BILLIONS

1.9 European Issuance by Rating

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|------------------------|-------------|---------|---------|---------|-------------|
| AAA | 24.3 | | | | 24.3 |
| AA | 1.4 | | | | 1.4 |
| A | 0.8 | | | | 0.8 |
| BBB & Below | 1.4 | | | | 1.4 |
| Not Rated | 4.6 | | | | 4.6 |
| European Total2 | 32.4 | | | | 32.4 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|-------|
| | 39.2 | 33.6 | 28.6 | 42.4 | 143.8 |
| | 6.9 | 8.1 | 14.1 | 9.4 | 38.5 |
| | 4.6 | 6.7 | 1.5 | 12.9 | 25.7 |
| | 2.8 | 5.3 | 3.7 | 6.2 | 18.0 |
| | 5.1 | 14.3 | 6.6 | 17.6 | 43.7 |
| | 58.5 | 68.1 | 54.5 | 88.6 | 269.7 |

1.10 Australia Issuance by Rating

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-----------------|------------|---------|---------|---------|------------|
| AAA | 3.5 | | | | 3.5 |
| AA | 0.2 | | | | 0.2 |
| A | 0.0 | | | | 0.0 |
| BBB & Below | 0.0 | | | | 0.0 |
| Not Rated | 0.3 | | | | 0.3 |
| US Total | 4.0 | | | | 4.0 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|-------|
| | 3.0 | 5.3 | 4.4 | 4.7 | 17.3 |
| | 0.3 | 0.2 | 0.3 | 0.4 | 1.1 |
| | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 |
| | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 |
| | 0.0 | 0.0 | 0.1 | 0.2 | 0.3 |
| | 3.4 | 5.6 | 4.9 | 7.6 | 19.5 |

1.11 US Issuance by Rating

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|-----------------|--------------|---------|---------|---------|--------------|
| AAA | 60.4 | | | | 60.4 |
| AA | 6.6 | | | | 6.6 |
| A | 5.9 | | | | 5.9 |
| BBB & Below | 10.7 | | | | 10.7 |
| Not Rated | 23.9 | | | | 23.9 |
| Agency MBS | 200.3 | | | | 200.3 |
| US Total | 307.7 | | | | 307.7 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|---------|
| | 63.9 | 79.7 | 66.3 | 53.7 | 263.7 |
| | 7.8 | 9.5 | 9.2 | 5.9 | 32.5 |
| | 7.9 | 10.6 | 6.8 | 7.1 | 32.4 |
| | 14.2 | 15.6 | 11.0 | 10.5 | 51.2 |
| | 26.1 | 42.5 | 60.9 | 43.4 | 172.9 |
| | 253.2 | 283.4 | 308.2 | 272.7 | 1,117.6 |
| | 373.2 | 441.3 | 462.4 | 393.4 | 1,670.3 |

Sources: Bank of America-Merrill Lynch, Bloomberg, Citigroup, Dealogic, Deutsche Bank, JP Morgan, Macquarie, Refinitiv, Unicredit, AFME, SIFMA

1.12 Securitisation Issuance by Deal Size: 1Q 2019

| INCLUDING RETAINED DEALS | | | | | | |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | EUROPE | | Australia | | US | |
| | # of Issues | € Billions | # of Issues | € Billions | # of Issues | € Billions |
| Less than 0.01 Billion | 0% | 0% | 0% | 0% | 0% | 0% |
| 0.01-0.1 Billion | 8% | 1% | 0% | 0% | 4% | 1% |
| 0.1-1.0 Billion | 87% | 79% | 71% | 45% | 62% | 61% |
| More than 1.0 Billion | 5% | 20% | 29% | 55% | 2% | 5% |
| Agency MBS | N/A | N/A | N/A | N/A | 32% | 33% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% |

Sources: Dealogic, Macquarie

2 Outstanding

€ BILLIONS

2.1 European Outstandings by Collateral

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|--------------|----------------|---------|---------|---------|
| ABS | 220.5 | | | |
| CDO/CLO | 130.1 | | | |
| CMBS | 50.5 | | | |
| RMBS | 649.6 | | | |
| SME | 77.8 | | | |
| WBS/PFI | 62.9 | | | |
| Total | 1,191.3 | | | |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|--------------|----------------|----------------|----------------|----------------|
| | 215.2 | 221.3 | 218.3 | 248.3 |
| | 107.1 | 117.8 | 125.9 | 129.6 |
| | 50.2 | 49.8 | 50.3 | 50.8 |
| | 675.9 | 673.9 | 668.7 | 667.2 |
| | 78.2 | 75.7 | 69.9 | 82.5 |
| | 63.8 | 63.4 | 63.2 | 63.2 |
| Total | 1,189.0 | 1,199.3 | 1,193.5 | 1,238.9 |

2.2 Australia Outstandings by Collateral

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|--------------|-------------|---------|---------|---------|
| ABS | 6.5 | | | |
| CMBS | 1.0 | | | |
| RMBS | 52.5 | | | |
| Total | 60.0 | | | |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|--------------|-------------|-------------|-------------|-------------|
| | 6.6 | 6.4 | 6.1 | 6.0 |
| | 0.6 | 0.6 | 0.5 | 1.0 |
| | 51.5 | 51.8 | 50.1 | 51.4 |
| Total | 58.7 | 58.8 | 56.7 | 58.4 |

2.3 US Outstandings by Collateral

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|-----------------|----------------|---------|---------|---------|
| ABS | 1,391.9 | | | |
| Agency MBS | 6,529.3 | | | |
| Non-Agency RMBS | 744.3 | | | |
| Non-Agency CMBS | 487.2 | | | |
| Total | 9,152.7 | | | |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|--------------|----------------|----------------|----------------|----------------|
| | 1,199.2 | 1,330.4 | 1,363.6 | 1,462.7 |
| | 5,674.9 | 6,049.5 | 6,173.7 | 6,339.8 |
| | 631.4 | 673.0 | 702.4 | 711.0 |
| | 419.1 | 450.1 | 459.3 | 464.9 |
| Total | 7,924.5 | 8,502.9 | 8,699.0 | 8,978.4 |

Sources: Bloomberg (US & Europe), Fannie Mae (US), Federal Reserve (US), Freddie Mac (US), Ginnie Mae (US), Loan Performance (US), Dealogic (US), Macquarie (Australia), Refinitiv (US), AFME & SIFMA Estimates (US & Europe)

€ BILLIONS

2.4 Outstandings by Country of Collateral: 2017-2018

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | 2017:Q1 | 2017:Q2 | 2017:Q3 | 2017:Q4 |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Austria | 1.6 | 1.5 | 1.5 | 2.0 | 1.8 | 1.7 | 1.7 | 1.6 |
| Belgium | 60.7 | 57.8 | 56.7 | 60.9 | 60.8 | 66.4 | 65.8 | 64.5 |
| Finland | 1.4 | 1.3 | 1.2 | 1.8 | 1.3 | 1.2 | 1.1 | 1.6 |
| France | 101.0 | 102.4 | 105.7 | 106.1 | 85.0 | 95.8 | 102.5 | 100.9 |
| Germany | 55.5 | 54.7 | 46.9 | 63.6 | 75.9 | 73.5 | 73.6 | 76.0 |
| Greece | 18.9 | 18.7 | 18.6 | 18.5 | 19.3 | 19.2 | 17.5 | 18.6 |
| Ireland | 27.5 | 25.6 | 28.5 | 28.6 | 30.3 | 27.4 | 26.3 | 28.6 |
| Italy | 135.9 | 136.9 | 143.0 | 151.2 | 145.8 | 137.9 | 134.0 | 142.6 |
| Netherlands | 182.8 | 186.9 | 175.2 | 170.0 | 201.1 | 194.4 | 179.0 | 173.1 |
| Portugal | 27.2 | 27.6 | 25.8 | 27.4 | 27.7 | 26.6 | 25.9 | 25.8 |
| Russia | 1.8 | 1.6 | 1.5 | 3.1 | 1.4 | 1.4 | 1.1 | 1.9 |
| Spain | 162.9 | 159.8 | 154.4 | 153.1 | 168.6 | 165.2 | 161.1 | 166.8 |
| Turkey | 1.5 | 1.4 | 1.4 | 1.4 | 1.1 | 1.1 | 1.1 | 1.3 |
| UK | 303.4 | 306.9 | 308.5 | 321.4 | 307.0 | 315.9 | 304.2 | 305.1 |
| Other | 5.7 | 5.5 | 6.1 | 5.9 | 5.2 | 4.7 | 5.1 | 5.3 |
| PanEurope | 87.9 | 99.9 | 108.3 | 114.6 | 70.3 | 74.9 | 77.5 | 85.2 |
| Multinational | 14.8 | 13.3 | 12.9 | 12.3 | 27.0 | 24.2 | 20.7 | 18.3 |
| European Total | 1,190.4 | 1,202.0 | 1,196.3 | 1,241.7 | 1,229.7 | 1,231.6 | 1,198.2 | 1,217.2 |
| Australia Total | 58.7 | 58.8 | 56.7 | 58.4 | 61.3 | 59.7 | 61.1 | 62.6 |
| US Total | 7,924.5 | 8,502.9 | 8,699.0 | 8,978.4 | 8,810.3 | 8,274.8 | 8,076.3 | 8,077.2 |

2019

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|-----------------|---------|---------|---------|---------|
| Austria | 1.9 | | | |
| Belgium | 63.6 | | | |
| Finland | 1.5 | | | |
| France | 104.6 | | | |
| Germany | 45.7 | | | |
| Greece | 18.4 | | | |
| Ireland | 26.6 | | | |
| Italy | 141.9 | | | |
| Netherlands | 163.4 | | | |
| Portugal | 24.2 | | | |
| Russia | 2.8 | | | |
| Spain | 146.1 | | | |
| Turkey | 1.4 | | | |
| UK | 316.2 | | | |
| Other | 5.5 | | | |
| PanEurope | 117.0 | | | |
| Multinational | 10.4 | | | |
| European Total | 1,191.3 | | | |
| Australia Total | 60.0 | | | |
| US Total | 9,152.7 | | | |

Sources: Bloomberg (US & Europe), Fannie Mae (US), Federal Reserve (US), Freddie Mac (US), Ginnie Mae (US), Loan Performance (US), Dealogic (US), Macquarie (Australia), Refinitiv (US), AFME & SIFMA Estimates (US & Europe)

2.5 European Outstandings by Moody's Investors Service Ratings

(as a percentage of total Moody's rated securitisations)

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Aaa/AAA | 50.82% | | | | 49.38% | 50.33% | 50.16% | 50.26% |
| Aa/AA | 31.76% | | | | 29.81% | 30.74% | 30.94% | 32.06% |
| A/A | 9.95% | | | | 12.66% | 11.15% | 11.11% | 9.99% |
| Baa/BBB | 3.07% | | | | 3.41% | 3.13% | 2.99% | 2.91% |
| Ba/BB | 2.01% | | | | 1.95% | 2.19% | 2.28% | 2.34% |
| B/B | 1.28% | | | | 1.28% | 1.20% | 1.24% | 1.28% |
| Caa/CCC | 0.61% | | | | 0.93% | 0.69% | 0.69% | 0.67% |
| Ca/CC | 0.25% | | | | 0.33% | 0.33% | 0.33% | 0.25% |
| C/C | 0.24% | | | | 0.25% | 0.25% | 0.25% | 0.24% |
| Total | 100.00% |

2.6 Australia Outstandings by S&P Global Ratings

(as a percentage of total S&P rated securitisations)

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|--------------|----------------|---------|---------|---------|----------------|----------------|----------------|----------------|
| Aaa/AAA | 86.71% | | | | 87.32% | 87.23% | 86.72% | 86.89% |
| Aa/AA | 5.49% | | | | 5.33% | 5.44% | 5.76% | 5.59% |
| A/A | 2.47% | | | | 2.50% | 2.54% | 2.59% | 2.51% |
| Baa/BBB | 1.06% | | | | 0.95% | 1.00% | 1.06% | 1.07% |
| Ba/BB | 0.59% | | | | 0.47% | 0.51% | 0.56% | 0.58% |
| B/B | 0.23% | | | | 0.21% | 0.21% | 0.23% | 0.24% |
| Caa/CCC | 0.00% | | | | 0.00% | 0.00% | 0.00% | 0.00% |
| Ca/CC | 0.00% | | | | 0.00% | 0.00% | 0.00% | 0.00% |
| C/C | 0.02% | | | | 0.02% | 0.02% | 0.02% | 0.02% |
| D | 0.00% | | | | 0.00% | 0.00% | 0.00% | 0.00% |
| NR | 3.42% | | | | 3.21% | 3.05% | 3.05% | 3.09% |
| Total | 100.00% | | | | 100.00% | 100.00% | 100.00% | 100.00% |

2.7 US Outstandings by Moody's Investors Service Ratings

(as a percentage of total Moody's rated securitisations)

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Aaa/AAA | 39.43% | | | | 31.95% | 32.35% | 33.07% | 38.46% |
| Aa/AA | 5.31% | | | | 4.85% | 4.78% | 4.75% | 5.24% |
| A/A | 5.42% | | | | 5.57% | 5.68% | 5.66% | 5.51% |
| Baa/BBB | 6.61% | | | | 8.02% | 8.07% | 7.87% | 6.73% |
| Ba/BB | 4.19% | | | | 5.63% | 5.45% | 5.26% | 4.29% |
| B/B | 4.37% | | | | 5.26% | 5.24% | 5.16% | 4.45% |
| Caa/CCC | 17.10% | | | | 20.39% | 20.43% | 20.20% | 17.45% |
| Ca/CC | 11.11% | | | | 11.91% | 11.79% | 11.79% | 11.21% |
| C/C | 6.45% | | | | 6.42% | 6.20% | 6.25% | 6.66% |
| Total | 100.00% |

Sources: Macquarie, Moody's Investors Service, S&P Global Ratings

€ BILLIONS

2.8 Australian Outstandings by Vintage

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|--------------|-------------|---------|---------|---------|
| 2019 | 3.1 | | | |
| 2018 | 14.0 | | | |
| 2017 | 17.9 | | | |
| 2016 | 6.3 | | | |
| 2015 | 5.8 | | | |
| 2014 | 4.9 | | | |
| 2013 | 3.1 | | | |
| 2012 | 1.4 | | | |
| 2011 | 1.7 | | | |
| 2010 | 0.7 | | | |
| 2009 | 0.3 | | | |
| 2008 | 0.0 | | | |
| 2007 | 0.2 | | | |
| 2006 | 0.3 | | | |
| 2005 | 0.1 | | | |
| 2004 | 0.0 | | | |
| 2003 | 0.0 | | | |
| Prior | 0.1 | | | |
| Total | 56.8 | | | |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|-------------|-------------|-------------|-------------|
| N/A | N/A | N/A | N/A |
| 2.9 | 6.0 | 8.9 | 14.3 |
| 22.5 | 21.5 | 20.0 | 18.2 |
| 8.5 | 8.0 | 7.3 | 6.6 |
| 7.7 | 7.2 | 6.7 | 6.1 |
| 6.7 | 6.1 | 5.7 | 5.0 |
| 4.1 | 3.9 | 3.5 | 3.2 |
| 1.7 | 1.6 | 1.5 | 1.4 |
| 2.2 | 2.1 | 1.9 | 1.7 |
| 1.1 | 1.0 | 0.9 | 0.7 |
| 0.4 | 0.4 | 0.4 | 0.3 |
| 0.0 | 0.0 | 0.0 | 0.0 |
| 0.2 | 0.2 | 0.2 | 0.2 |
| 0.4 | 0.3 | 0.3 | 0.3 |
| 0.1 | 0.1 | 0.1 | 0.1 |
| 0.1 | 0.1 | 0.1 | 0.1 |
| 0.0 | 0.0 | 0.0 | 0.0 |
| 0.1 | 0.1 | 0.1 | 0.1 |
| 58.7 | 58.7 | 57.7 | 58.3 |

2.9 European Outstandings by Vintage

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|--------------|----------------|---------|---------|---------|
| 2019 | 16.6 | | | |
| 2018 | 247.0 | | | |
| 2017 | 184.9 | | | |
| 2016 | 150.2 | | | |
| 2015 | 84.6 | | | |
| 2014 | 72.2 | | | |
| 2013 | 36.9 | | | |
| 2012 | 20.7 | | | |
| 2011 | 26.6 | | | |
| 2010 | 80.2 | | | |
| Prior | 271.6 | | | |
| Total | 1,174.8 | | | |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|----------------|----------------|----------------|----------------|
| N/A | N/A | N/A | N/A |
| 56.3 | 120.9 | 171.8 | 276.2 |
| 215.3 | 209.3 | 201.1 | 192.4 |
| 186.2 | 177.7 | 166.2 | 155.7 |
| 110.3 | 102.9 | 95.0 | 88.3 |
| 94.7 | 90.7 | 82.7 | 80.5 |
| 57.9 | 55.6 | 49.9 | 41.7 |
| 32.3 | 30.1 | 28.9 | 20.1 |
| 31.4 | 30.5 | 29.1 | 27.6 |
| 89.9 | 84.1 | 83.0 | 80.6 |
| 316.1 | 300.3 | 288.7 | 278.6 |
| 1,189.0 | 1,199.3 | 1,193.5 | 1,238.9 |

Sources: Bloomberg, Macquarie, AFME, SIFMA

€ BILLIONS

2.10 European Outstandings by Country and Collateral: 4Q 2018

| | ABS | CDO/CLO | CMBS | RMBS | SME | WBS/PFI | TOTAL |
|-----------------------|--------------|--------------|-------------|--------------|-------------|-------------|---------------|
| Austria | 0.9 | | | 1.1 | | | 2.0 |
| Belgium | 0.4 | | 0.1 | 38.6 | 21.8 | | 60.9 |
| Finland | 1.3 | | | | | 0.5 | 1.8 |
| France | 22.5 | 0.07 | 0.2 | 83.3 | 0.0 | | 106.1 |
| Germany | 53.2 | 0.2 | 1.1 | 2.9 | 6.1 | 0.0 | 63.6 |
| Greece | 8.5 | 1.8 | 0.2 | 1.1 | 7.0 | | 18.5 |
| Ireland | 1.3 | | 0.2 | 27.0 | 0.19 | | 28.6 |
| Italy | 68.3 | 0.5 | 2.8 | 60.1 | 19.2 | 0.3 | 151.2 |
| Netherlands | 2.2 | 0.0 | 0.6 | 167.2 | | | 170.0 |
| Portugal | 6.0 | | 0.53 | 16.8 | 4.1 | | 27.4 |
| Russia | | | | 3.1 | | | 3.1 |
| Spain | 22.4 | 0.3 | 0.3 | 112.3 | 17.8 | | 153.1 |
| Turkey | 1.4 | | | | | | 1.4 |
| UK | 54.5 | 5.6 | 40.9 | 152.8 | 5.7 | 61.9 | 321.4 |
| Other | 4.2 | 0.3 | 0.08 | 0.8 | 0.46 | | 5.9 |
| PanEurope | 1.1 | 109.2 | 3.8 | 0.1 | 0.3 | 0.1 | 114.6 |
| Multinational | 0.1 | 11.7 | | | | 0.4 | 12.3 |
| European Total | 248.3 | 129.6 | 50.8 | 667.2 | 82.5 | 63.2 | 1241.7 |

1Q 2019

| | ABS | CDO/CLO | CMBS | RMBS | SME | WBS/PFI | TOTAL |
|-----------------------|--------------|--------------|-------------|--------------|-------------|-------------|---------------|
| Austria | 0.8 | | | 1.1 | | | 1.9 |
| Belgium | 0.4 | | 0.1 | 41.5 | 21.6 | | 63.6 |
| Finland | 1.0 | | | | | 0.5 | 1.5 |
| France | 22.1 | 0.07 | 0.2 | 82.3 | 0.0 | | 104.6 |
| Germany | 35.7 | 0.2 | 1.0 | 2.9 | 5.8 | 0.0 | 45.7 |
| Greece | 8.4 | 1.8 | 0.2 | 1.1 | 6.9 | | 18.4 |
| Ireland | 0.72 | | 0.2 | 25.6 | 0.19 | | 26.6 |
| Italy | 64.9 | 0.5 | 2.8 | 55.3 | 18.1 | 0.3 | 141.9 |
| Netherlands | 2.0 | 0.0 | 0.5 | 160.9 | | | 163.4 |
| Portugal | 3.3 | | 0.53 | 16.3 | 4.0 | | 24.2 |
| Russia | | | | 2.8 | | | 2.8 |
| Spain | 21.1 | 0.2 | 0.3 | 109.5 | 14.9 | | 146.1 |
| Turkey | 1.4 | | | | | | 1.4 |
| UK | 53.4 | 5.6 | 40.7 | 149.4 | 5.6 | 61.5 | 316.2 |
| Other | 4.0 | 0.3 | 0.14 | 0.7 | 0.46 | | 5.5 |
| PanEurope | 1.1 | 111.6 | 3.8 | 0.1 | 0.3 | 0.1 | 117.0 |
| Multinational | 0.1 | 9.9 | | | | 0.4 | 10.4 |
| European Total | 220.5 | 130.1 | 50.5 | 649.6 | 77.8 | 62.9 | 1191.3 |

Sources: Bloomberg, AFME, SIFMA

3 Credit Quality – Rating Changes

Upgrades/Downgrades by Country

3.1 DBRS

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|----------------|---------|---------|---------|---------|--------|
| France | 1/0 | | | | 1/0 |
| Germany | 6/0 | | | | 6/0 |
| Italy | 11/2 | | | | 11/2 |
| Netherlands | 1/0 | | | | 1/0 |
| Spain | 6/0 | | | | 6/0 |
| UK | 2/2 | | | | 2/2 |
| Multinational | 3/0 | | | | 3/0 |
| European Total | 30/4 | | | | 30/4 |
| US | 433/16 | | | | 433/16 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|---------|
| | 1/0 | 3/0 | 6/2 | 16/2 | 26/4 |
| | 15/0 | 1/0 | 8/0 | 3/0 | 27/0 |
| | 12/0 | 19/9 | 21/1 | 13/0 | 65/10 |
| | 4/0 | 6/0 | 0/0 | 0/0 | 10/0 |
| | 4/0 | 49/0 | 1/0 | 31/0 | 85/0 |
| | 1/1 | 1/21 | 1/0 | 16/1 | 19/23 |
| | 12/0 | 7/0 | 6/0 | 6/1 | 31/1 |
| | 49/1 | 86/30 | 43/3 | 85/4 | 263/38 |
| | 480/23 | 442/16 | 364/8 | 277/2 | 1563/49 |

3.2 Fitch Ratings

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|----------------|---------|---------|---------|---------|-------|
| France | | | | | |
| Germany | | | | | |
| Italy | | | | | |
| Netherlands | | | | | |
| Spain | | | | | |
| UK | | | | | |
| Multinational | | | | | |
| European Total | | | | | |
| US | | | | | |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|----------|---------|---------|-----------|
| | 3/3 | 4/7 | 4/0 | | 11/10 |
| | 3/4 | 2/3 | 0/0 | | 5/7 |
| | 26/0 | 18/4 | 1/0 | | 45/4 |
| | 46/6 | 4/0 | 4/0 | | 54/6 |
| | 137/8 | 83/5 | 18/0 | | 238/13 |
| | 39/3 | 21/15 | 70/3 | | 130/21 |
| | 0/0 | 0/0 | 4/0 | | 4/0 |
| | 279/28 | 164/34 | 107/134 | | 550/196 |
| | 847/260 | 1184/732 | 473/61 | | 2504/1053 |

3.3 Moody's Investors Service

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|----------------|---------|---------|---------|---------|---------|
| France | 5/0 | | | | 5/0 |
| Germany | 1/0 | | | | 1/0 |
| Italy | 1/71 | | | | 1/71 |
| Netherlands | 0/0 | | | | 0/0 |
| Spain | 18/5 | | | | 18/5 |
| UK | 17/2 | | | | 17/2 |
| Multinational | 49/3 | | | | 49/3 |
| European Total | 91/79 | | | | 91/79 |
| US | 773/164 | | | | 773/164 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|----------|
| | 0/0 | 0/0 | 1/0 | 0/0 | 1/0 |
| | 0/0 | 4/1 | 4/0 | 0/0 | 8/1 |
| | 4/0 | 0/0 | 1/0 | 1/70 | 6/70 |
| | 2/3 | 0/0 | 5/0 | 0/0 | 7/3 |
| | 0/0 | 151/0 | 7/2 | 17/0 | 175/2 |
| | 24/1 | 7/3 | 0/12 | 9/1 | 40/17 |
| | 13/1 | 10/0 | 12/1 | 5/0 | 23/0 |
| | 72/8 | 172/4 | 30/15 | 6/71 | 280/98 |
| | 568/86 | 518/68 | 360/130 | 453/110 | 1899/394 |

3.4 S&P Global Ratings

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|----------------|---------|---------|---------|---------|---------|
| France | 2/0 | | | | 2/0 |
| Germany | 0/0 | | | | 0/0 |
| Italy | 0/0 | | | | 0/0 |
| Netherlands | 4/0 | | | | 4/0 |
| Spain | 0/0 | | | | 0/0 |
| UK | 0/0 | | | | 0/0 |
| Multinational | 1/4 | | | | 1/4 |
| European Total | 7/4 | | | | 7/4 |
| US | 208/237 | | | | 208/237 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|----------|---------|---------|-----------|
| | 0/0 | 1/0 | 0/0 | 13/0 | 14/0 |
| | 0/0 | 5/0 | 2/0 | 1/1 | 8/1 |
| | 9/1 | 0/0 | 2/0 | 0/0 | 11/1 |
| | 3/5 | 1/0 | 2/1 | 0/0 | 6/6 |
| | 22/3 | 134/0 | 51/5 | 2/0 | 209/8 |
| | 39/4 | 33/8 | 32/0 | 17/1 | 121/13 |
| | 7/2 | 8/11 | 21/11 | 2/9 | 38/33 |
| | 80/15 | 182/19 | 110/17 | 35/11 | 407/62 |
| | 857/241 | 793/1141 | 496/326 | 377/178 | 2523/1886 |

Sources: DBRS, Fitch Ratings, Moody's Investors Service, S&P Global Ratings

Upgrades/Downgrades by Collateral

3.5 DBRS - Europe

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|------------------|-------------|---------|---------|---------|-------------|
| Auto | 6/2 | | | | 6/2 |
| CDO | 8/0 | | | | 8/0 |
| CMBS | 3/0 | | | | 3/0 |
| Credit Card | 5/0 | | | | 5/0 |
| RMBS (prime) | 6/2 | | | | 6/2 |
| RMBS (non-prime) | 0/0 | | | | 0/0 |
| Other ABS | 2/0 | | | | 2/0 |
| Total | 30/4 | | | | 30/4 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|------------------|-------------|--------------|-------------|-------------|---------------|
| Auto | 8/0 | 4/26 | 13/0 | 3/0 | 28/26 |
| CDO | 5/0 | 5/4 | 7/0 | 13/0 | 30/4 |
| CMBS | 16/1 | 1/0 | 1/0 | 0/1 | 18/2 |
| Credit Card | 1/0 | 15/0 | 6/2 | 14/0 | 36/2 |
| RMBS (prime) | 15/0 | 23/0 | 13/1 | 31/0 | 82/1 |
| RMBS (non-prime) | 1/0 | 2/0 | 3/0 | 21/0 | 27/0 |
| Other ABS | 2/0 | 36/0 | 0/0 | 3/3 | 41/3 |
| Total | 48/1 | 86/30 | 43/3 | 85/4 | 262/38 |

3.6 Fitch Ratings - Europe¹

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-----------------------|---------|---------|---------|---------|-------|
| Auto | | | | | |
| Credit Card | | | | | |
| Other ABS | | | | | |
| CDO | | | | | |
| CMBS | | | | | |
| RMBS (prime) | | | | | |
| RMBS (non-conforming) | | | | | |
| Other RMBS | | | | | |
| Total | | | | | |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|-----------------------|---------------|---------------|----------------|---------|----------------|
| Auto | 2/0 | 12/1 | 5/2 | | 19/3 |
| Credit Card | 0/0 | 3/0 | 0/0 | | 3/0 |
| Other ABS | 33/0 | 7/0 | 11/128 | | 51/128 |
| CDO | 14/1 | 16/2 | 49/3 | | 79/6 |
| CMBS | 0/6 | 7/3 | 0/1 | | 7/10 |
| RMBS (prime) | 178/17 | 106/8 | 17/0 | | 301/25 |
| RMBS (non-conforming) | 42/4 | 11/0 | 15/0 | | 68/4 |
| Other RMBS | 10/0 | 2/0 | 10/0 | | 22/0 |
| Total | 279/28 | 164/34 | 107/134 | | 550/196 |

3.7 Moody's Investors Service - Europe

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-----------------------|--------------|---------|---------|---------|--------------|
| Auto | 1/4 | | | | 1/4 |
| CDO | 7/0 | | | | 7/0 |
| CMBS | 1/1 | | | | 1/1 |
| Credit Card | 0/0 | | | | 0/0 |
| RMBS (prime) | 67/64 | | | | 67/64 |
| RMBS (non-conforming) | 15/10 | | | | 15/10 |
| Total | 91/79 | | | | 91/79 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|-----------------------|-------------|--------------|--------------|--------------|---------------|
| Auto | 0/1 | 7/0 | 11/1 | 0/4 | 18/6 |
| CDO | 10/0 | 5/0 | 3/0 | 5/0 | 23/0 |
| CMBS | 0/1 | 1/2 | 0/12 | 1/0 | 2/15 |
| Credit Card | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 |
| RMBS (prime) | 43/4 | 143/0 | 11/2 | 38/58 | 235/64 |
| RMBS (non-conforming) | 19/2 | 16/2 | 5/0 | 6/9 | 46/13 |
| Total | 72/8 | 172/4 | 30/15 | 50/71 | 324/98 |

3.8 S&P Global Ratings - Europe

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|----------------------------------|------------|---------|---------|---------|------------|
| Auto | 0/0 | | | | 0/0 |
| CDO | 3/4 | | | | 3/4 |
| CMBS | 0/0 | | | | 0/0 |
| Credit Card | 0/0 | | | | 0/0 |
| RMBS (prime) | 0/0 | | | | 0/0 |
| RMBS (subprime / non-conforming) | 4/0 | | | | 4/0 |
| Total | 7/4 | | | | 7/4 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|----------------------------------|--------------|---------------|---------------|--------------|---------------|
| Auto | 2/0 | 12/0 | 2/0 | 2/0 | 18/0 |
| CDO | 7/3 | 8/7 | 25/4 | 16/9 | 56/23 |
| CMBS | 0/4 | 9/12 | 0/7 | 2/2 | 11/25 |
| Credit Card | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 |
| RMBS (prime) | 33/3 | 128/0 | 53/6 | 2/0 | 216/9 |
| RMBS (subprime / non-conforming) | 38/5 | 25/0 | 30/0 | 13/0 | 106/5 |
| Total | 80/15 | 182/19 | 110/17 | 35/11 | 407/62 |

Sources: DBRS, Fitch Ratings, Moody's Investors Service, S&P Global Ratings

¹ The European totals may not match the constituent parts as a small number of European RMBS transactions are not categorised as either Prime or Non-conforming.

Upgrades/Downgrades by Collateral

3.9 DBRS - US

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|--------------|---------------|---------|---------|---------|---------------|
| Auto | 78/0 | | | | 78/0 |
| CDO | 13/3 | | | | 13/3 |
| CMBS | 100/10 | | | | 100/10 |
| Credit Card | 2/0 | | | | 2/0 |
| RMBS | 222/3 | | | | 222/3 |
| Other ABS | 18/0 | | | | 18/0 |
| Total | 433/16 | | | | 433/16 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--------------|---------------|---------------|--------------|--------------|----------------|
| Auto | 112/1 | 30/0 | 48/0 | 38/0 | 228/1 |
| CDO | 12/0 | 15/0 | 3/0 | 42/1 | 72/1 |
| CMBS | 18/3 | 15/13 | 16/7 | 34/0 | 83/23 |
| Credit Card | 26/0 | 1/0 | 3/0 | 13/0 | 43/0 |
| RMBS | 302/19 | 299/3 | 272/0 | 134/0 | 1007/22 |
| Other ABS | 10/0 | 82/0 | 22/1 | 16/1 | 130/2 |
| Total | 480/23 | 442/16 | 364/8 | 277/2 | 1563/49 |

3.10 Fitch Ratings - US

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-----------------|---------|---------|---------|---------|-------|
| Auto | | | | | |
| Credit Card | | | | | |
| Other ABS | | | | | |
| CDO | | | | | |
| CMBS | | | | | |
| RMBS (prime) | | | | | |
| RMBS (subprime) | | | | | |
| Other RMBS | | | | | |
| Total | | | | | |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|-----------------|----------------|-----------------|---------------|---------|------------------|
| Auto | 24/0 | 33/0 | 34/0 | | 91/0 |
| CDO | 0/0 | 0/0 | 0/0 | | 0/0 |
| CMBS | 14/34 | 6/0 | 19/0 | | 39/34 |
| CDO | 24/10 | 57/29 | 29/4 | | 110/43 |
| CMBS | 44/55 | 102/46 | 31/42 | | 177/143 |
| RMBS (prime) | 91/0 | 98/380 | 56/4 | | 245/384 |
| RMBS (subprime) | 15/9 | 544/140 | 0/0 | | 559/149 |
| Other RMBS | 635/152 | 344/137 | 304/11 | | 1283/300 |
| Total | 847/260 | 1184/732 | 473/61 | | 2504/1053 |

3.11 Moody's Investors Service - US

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|--------------|----------------|---------|---------|---------|----------------|
| Auto | 68/0 | | | | 68/0 |
| CDO | 51/42 | | | | 51/42 |
| CMBS | 62/33 | | | | 62/33 |
| Credit Card | 0/0 | | | | 0/0 |
| RMBS | 592/89 | | | | 592/89 |
| Total | 773/164 | | | | 773/164 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--------------|---------------|---------------|----------------|----------------|-----------------|
| Auto | 41/0 | 22/0 | 54/0 | 56/0 | 173/0 |
| CDO | 18/6 | 14/8 | 16/6 | 19/36 | 67/56 |
| CMBS | 42/17 | 28/12 | 31/9 | 21/20 | 122/58 |
| Credit Card | 0/0 | 0/0 | 0/0 | 0/0 | 0/0 |
| RMBS | 467/63 | 454/48 | 259/115 | 453/54 | 1633/280 |
| Total | 568/86 | 518/68 | 360/130 | 549/110 | 1995/394 |

3.12 S&P Global Ratings - US

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|---------------------------------|----------------|---------|---------|---------|----------------|
| Auto | 108/1 | | | | 108/1 |
| CDO | 41/14 | | | | 41/14 |
| CMBS | 29/48 | | | | 29/48 |
| Credit Card | 0/0 | | | | 0/0 |
| RMBS (prime) | 16/91 | | | | 16/91 |
| RMBS (subprime / nonconforming) | 14/83 | | | | 14/83 |
| Total | 208/237 | | | | 208/237 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|---------------------------------|----------------|-----------------|----------------|----------------|------------------|
| Auto | 67/0 | 115/0 | 47/1 | 115/1 | 344/2 |
| CDO | 16/6 | 24/5 | 17/9 | 29/13 | 86/33 |
| CMBS | 24/33 | 50/36 | 29/13 | 51/17 | 154/99 |
| Credit Card | 0/0 | 17/0 | 0/0 | 0/0 | 17/0 |
| RMBS (prime) | 284/120 | 143/117 | 207/191 | 90/82 | 724/510 |
| RMBS (subprime / nonconforming) | 466/82 | 444/983 | 196/112 | 92/65 | 1198/1242 |
| Total | 857/241 | 793/1141 | 496/326 | 377/178 | 2523/1886 |

Sources: DBRS, Fitch Ratings, Moody's Investors Service, S&P Global Ratings

4 CMBS Spreads

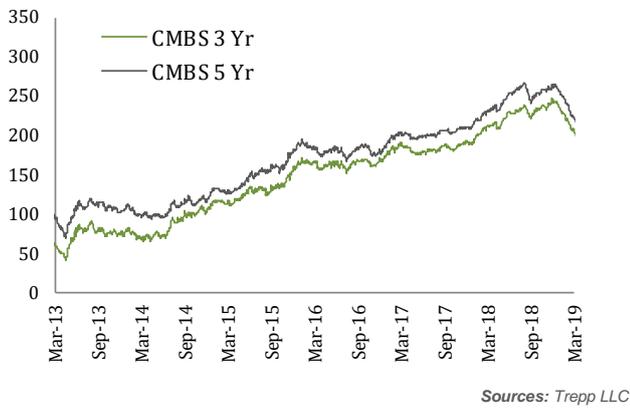
4.1 European 3-5 Yr AAA, AA, A CMBS Spreads (bps)



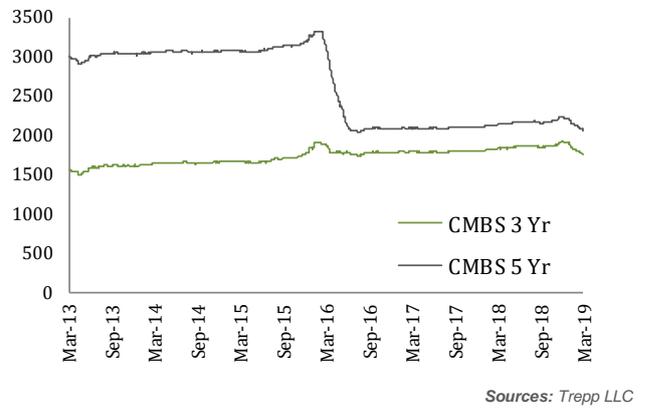
4.2 European 3-5 Yr BBB CMBS Spreads (bps)



4.3 US 3 & 5 Yr AAA CMBS Spreads (bps)

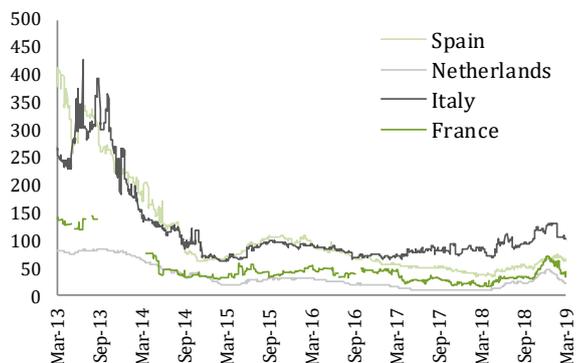


4.4 US 3 & 5 Yr BBB CMBS Spreads (bps)



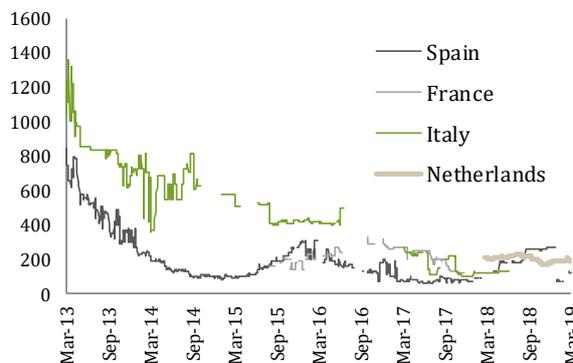
5 RMBS Spreads

5.1 European 3-5 Yr AAA RMBS Spreads (bps)



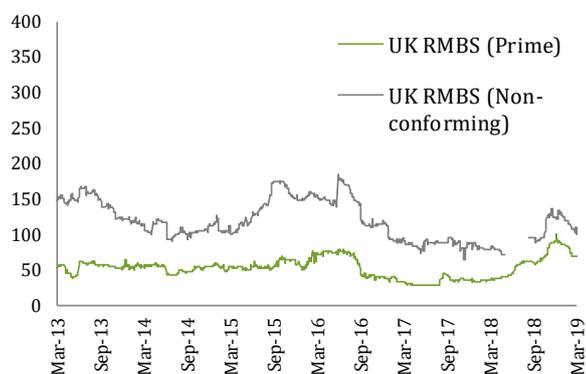
Sources: IHS Markit

5.2 European 3-5 Yr BBB RMBS Spreads (bps)



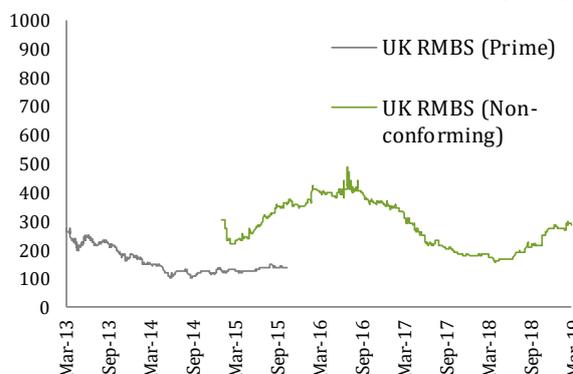
Sources: IHS Markit

5.3 UK 3-5 Yr AAA RMBS Spreads (bps)



Sources: IHS Markit

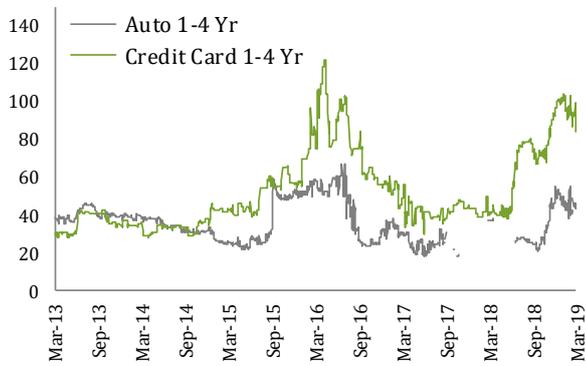
5.4 UK 3-5 Yr BBB RMBS Spreads (bps)



Sources: IHS Markit

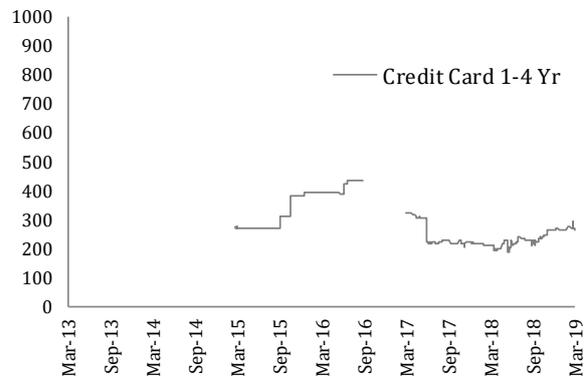
6 ABS Spreads

6.1 European 1-4 Yr AAA ABS Spreads (bps)



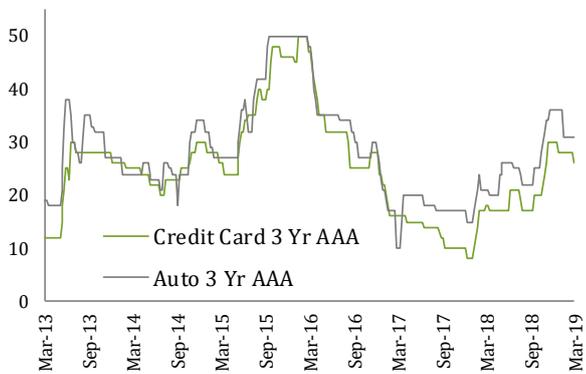
Sources: IHS Markit

6.2 European 1-4 Yr BBB Spreads (bps)



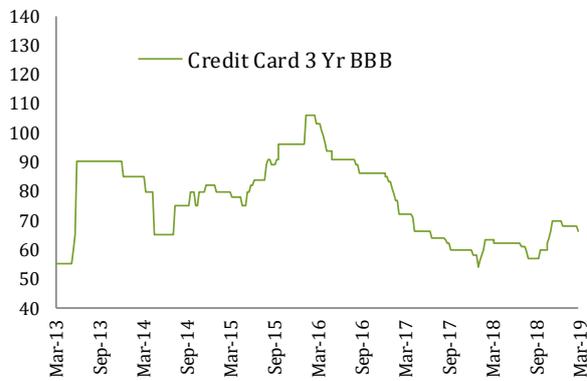
Sources: IHS Markit

6.3 US 3 Yr AAA ABS Spreads (bps)



Sources: JP Morgan

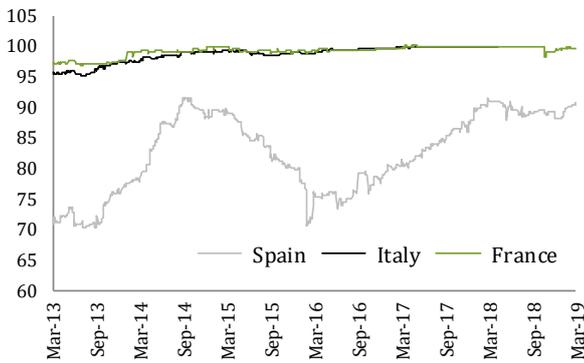
6.4 US 3 Yr BBB ABS Spreads (bps)



Sources: JP Morgan

7 RMBS Prices

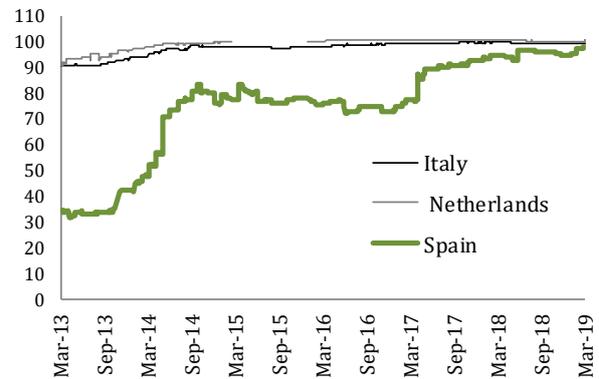
7.1 European 3-5 Yr AAA RMBS Prices



Sources: IHS Markit

1. Spanish AAA RMBS provided: IM Pastor 3, Fondo de Titulizacion Hipotecaria, Class A, Series 3. ISIN# ES0347862007. EUR-denominated.
2. Italian AAA RMBS provided: Vela Home S.r.l. 3, Class A, Series 3. ISIN# IT0003933998. EUR-denominated.
3. French AAA RMBS provided: FCC Loggias Compartment 2003, Class A, Series 1. ISIN# FR0010029231. EUR-denominated.

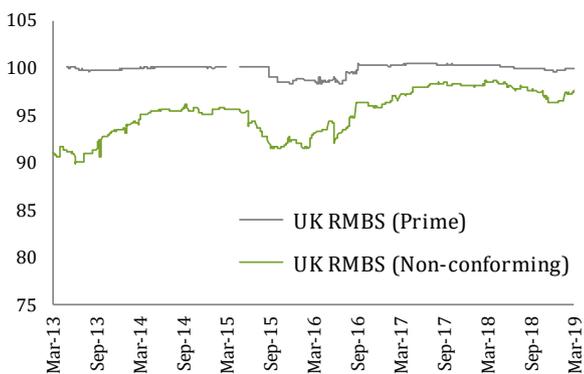
7.2 European 3-5 Yr BBB RMBS Prices



Sources: IHS Markit

1. Dutch BBB RMBS provided: Holland Mortgage-Backed Securities (HERMES) X B.V., Class C, Series 10. ISIN# XS0228806831. EUR-denominated. From 2016 onwards: Storm 2016-I B.V., Class A2, Series 2016-I, ISIN# XS1336738221.
2. Italian BBB RMBS provided: Vela Home S.r.l. 4, Class A2, Series 4, ISIN# IT0004102007. EUR-denominated.
3. Spanish BBB RMBS provided: Tarragona 2007-1 C (TARRA 2007-1 C) ISIN # ES0347566004. EUR denominated

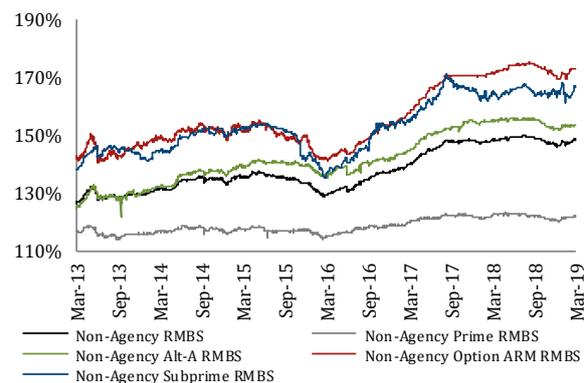
7.3 UK 3-5 Yr AAA RMBS Prices



Sources: IHS Markit

1. UK AAA prime RMBS provided: Gosforth Funding 2015-1 plc, A2, 2015-1. ISIN#: XS1234353032. GBP-denominated.
2. UK AAA non-conforming RMBS provided: Great Hall Mortgages No1 plc, 2007-02, Aa, GBP-denominated. ISIN#: XS0308354504

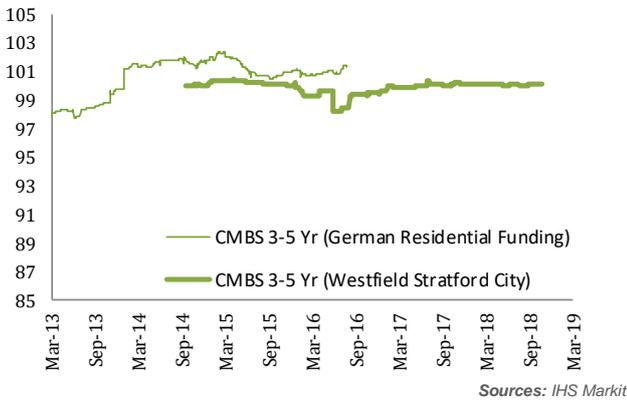
7.4 Markit RMBS iBoxx



Sources: IHS Markit

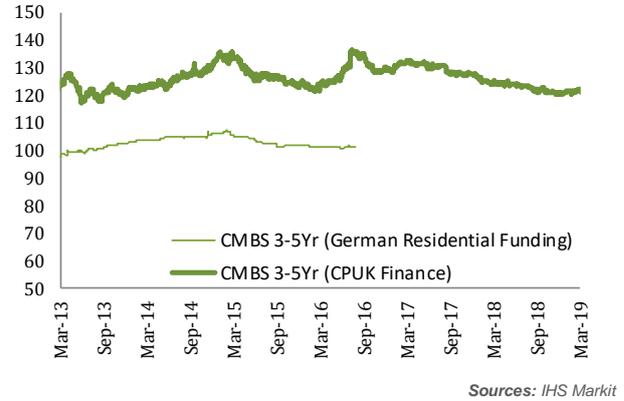
8 CMBS and ABS Prices

8.1 Pan-European 3-5 Yr AAA CMBS Prices



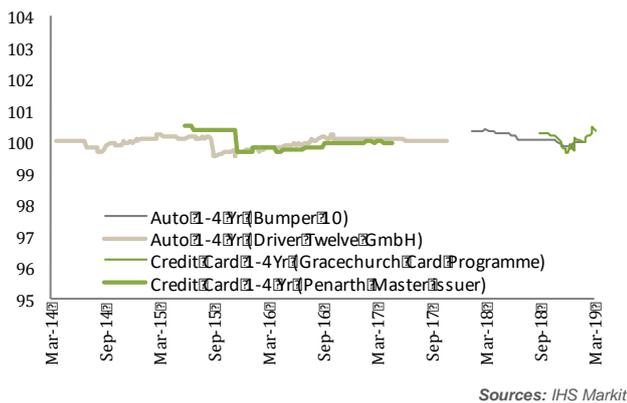
1. Pan-European AAA CMBS provided: German Residential Funding, Class A, Series 2013-1. ISIN# XS0944452563 (paid off in 2H 16, kept in the chart for reference), EUR-denominated, and Westfield Stratford City Finance PLC, WSCF14 1 Note, GBP-denominated, ISIN# XS1093970751.

8.2 Pan-European 3-5 Yr BBB CMBS Prices



1. Pan-European BBB CMBS provided: German Residential Funding, Class D, Series 2013-1. ISIN# XS0944454858 (paid off in 2H 16, kept in the chart for reference), EUR-denominated, and CPIK Finance Limited, Class A2, GBP-denominated, ISIN# XS0749350798.

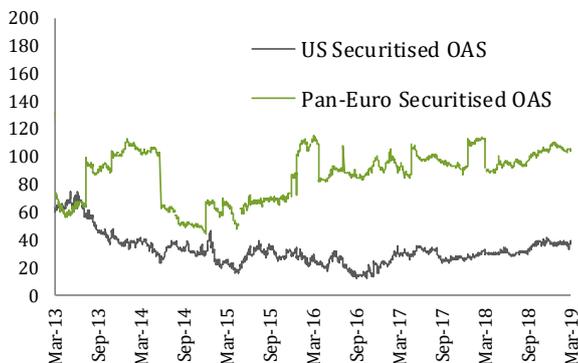
8.3 Pan-European 1-4 AAA ABS Prices



1. Pan-European AAA Auto ABS provided: Bumper 10 Class A, EUR denominated ISIN: FR0013313145 and Driver Twelve GmbH, DRV12 12 A, Class A, Series 12. EUR denominated, ISIN# XS1055190950.
2. Pan-European AAA Credit Card ABS provided: Purple Master Credit Cards Note Series 2018-1, ISIN: FR0013358603 and Penarth Master Issuer PLC Series 2015-2, Class A1, ISIN# XS1237348823.

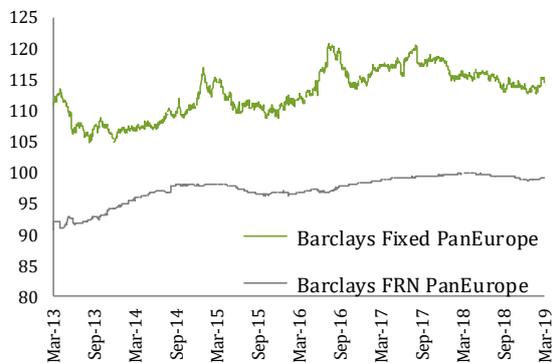
9 Indices Data

9.1 Securitized Index Option-Adjusted Spreads (bps)



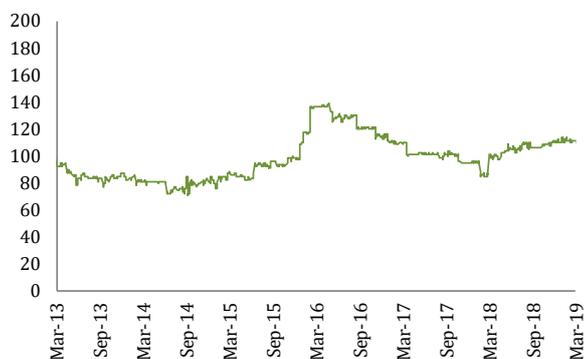
Sources: Barclays Capital

9.2 Barclays PanEurope Fixed and Floating Prices



Sources: Barclays Capital

9.3 Australia AAA (tranche margin for WAL >1.9 & 2.1 yrs) (bps)



Sources: Macquarie

9.4 Australia AA (tranche margin for WAL >4.75 & 5.3 yrs) (bps)



Sources: Macquarie

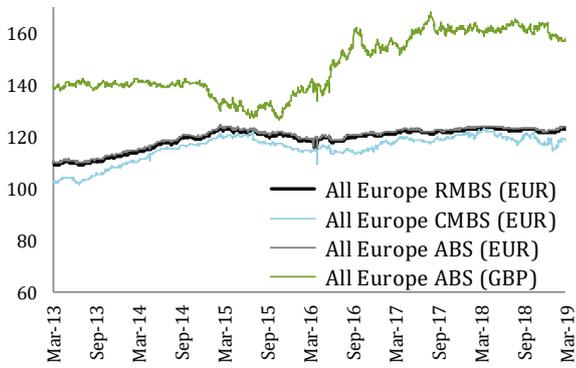
9.5 CMBX 6 AAA Prices



Sources: IHS Markit

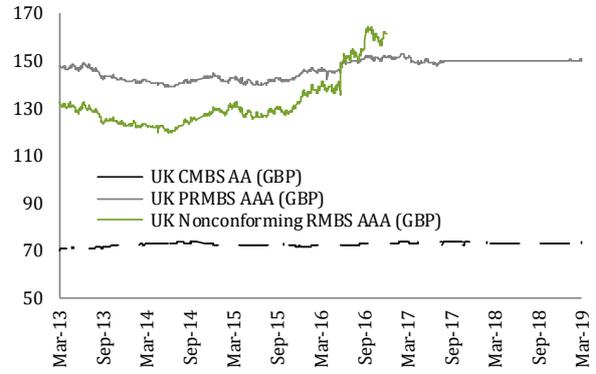
10 Total Return Benchmark Data

10.1 European Total Return



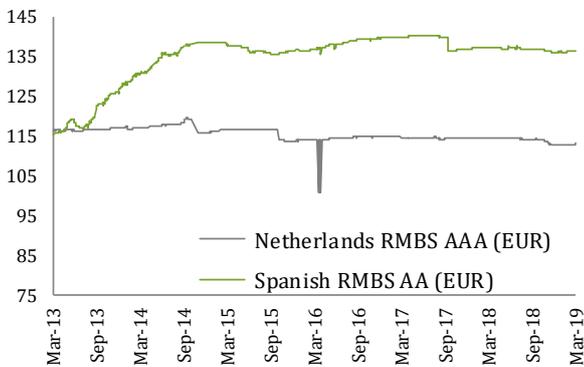
Sources: IHS Markit

10.2 UK Total Return



Sources: IHS Markit. Benchmark price not available for 2017 onwards for UK nonconforming RMBS AAA

10.3 Europe ex UK RMBS AAA



Sources: IHS Markit

11 Asset-Backed Commercial Paper

€ BILLIONS

11.1 European ABCP Historical Issuance

| | Q1 | Q2 | Q3 | Q4 | TOTAL |
|------|-------|-------|-------|-------|-------|
| 2010 | 32.1 | 35.7 | 38.8 | 38.8 | 145.4 |
| 2011 | 35.4 | 38.6 | 56.7 | 100.0 | 230.7 |
| 2012 | 117.0 | 106.1 | 80.3 | 53.8 | 357.2 |
| 2013 | 45.4 | 50.2 | 54.0 | 38.1 | 187.7 |
| 2014 | 53.9 | 62.6 | 68.7 | 81.8 | 267.2 |
| 2015 | 82.3 | 102.9 | 100.1 | 114.3 | 399.5 |
| 2016 | 95.8 | 120.1 | 135.8 | 94.1 | 445.9 |
| 2017 | 82.3 | 68.4 | 67.2 | 75.0 | 293.1 |
| 2018 | 68.2 | 109.4 | 129.1 | 97.6 | 404.3 |
| 2019 | 158.5 | | | | 158.5 |

11.2 European ABCP Issuance by Nationality of Issuer

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|------------|---------|---------|---------|---------|-------|
| France | 108.4 | | | | 108.4 |
| Germany | 2.1 | | | | 2.1 |
| Ireland | 44.6 | | | | 44.6 |
| Luxembourg | 3.3 | | | | 3.3 |
| UK | | | | | 0.0 |
| Total | 158.5 | | | | 158.5 |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|---------|---------|---------|---------|-------|
| 56.2 | 70.6 | 84.5 | 67.8 | 279.1 |
| 4.7 | 4.5 | 3.0 | 1.5 | 13.7 |
| 3.3 | 30.4 | 37.7 | 25.5 | 97.0 |
| 4.0 | 3.9 | 3.9 | 2.7 | 14.5 |
| | | | | 0.0 |
| 68.2 | 109.4 | 129.1 | 97.6 | 404.3 |

11.3 European ABCP Issuance by Programme Type

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|-----------------------|---------|---------|---------|---------|-------|
| Hybrid | 0.9 | | | | 0.9 |
| Multi-Seller Conduits | 157.1 | | | | 157.1 |
| Unspecified | 0.5 | | | | 0.5 |
| Total | 158.5 | | | | 158.5 |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|---------|---------|---------|---------|-------|
| 0.8 | 0.8 | 0.6 | 0.5 | 2.6 |
| 66.5 | 108.1 | 127.9 | 97.1 | 399.6 |
| 1.0 | 0.5 | 0.6 | 0.1 | 2.2 |
| 68.2 | 109.4 | 129.1 | 97.6 | 404.3 |

11.4 ABCP Outstandings by Nationality of Issuer²

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|----------------|---------|---------|---------|---------|
| France | 11.7 | | | |
| Germany | 0.9 | | | |
| Ireland | 6.7 | | | |
| Luxembourg | 1.2 | | | |
| UK | | | | |
| European Total | 20.4 | | | |
| US Total | | | | |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|---------|---------|---------|---------|
| 9.6 | 9.1 | 8.8 | 8.0 |
| 1.6 | 1.3 | 1.1 | 0.7 |
| 3.4 | 6.1 | 5.9 | 5.1 |
| 1.7 | 1.4 | 1.3 | 1.3 |
| | | | |
| 16.4 | 17.9 | 17.0 | 15.3 |
| 215.2 | 216.7 | 213.1 | 213.1 |

Sources: Dealogic, Moody's Investors Service

² Data not yet available for the US for Q4'18.

11.5 European ABCP Outstandings by Programme Type

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|--------------|-------------|---------|---------|---------|
| Hybrid | 0.8 | | | |
| Multi-Seller | 19.5 | | | |
| Unspecified | 0.1 | | | |
| Total | 20.4 | | | |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|-------------|-------------|-------------|-------------|
| 0.8 | 0.7 | 0.5 | 0.5 |
| 14.9 | 16.7 | 16.1 | 14.4 |
| 0.7 | 0.5 | 0.5 | 0.4 |
| 16.4 | 17.9 | 17.0 | 15.3 |

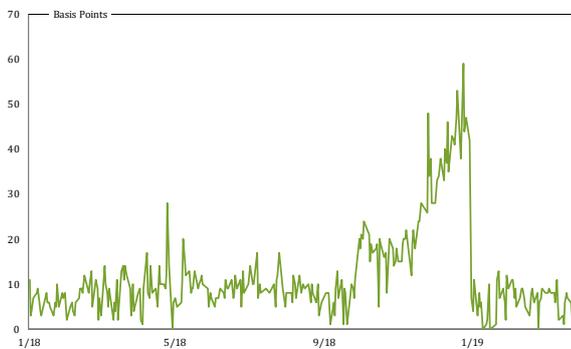
11.6 US ABCP Outstandings by Programme Type³

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 |
|---------------|---------|---------|---------|---------|
| Loan-Backed | | | | |
| SIVs | | | | |
| Single-Seller | | | | |
| Multi-Seller | | | | |
| Other | | | | |
| Total | | | | |

| 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 |
|--------------|--------------|--------------|--------------|
| | | | |
| 7.8 | 7.9 | 7.6 | 7.3 |
| 165.9 | 167.0 | 165.7 | 176.4 |
| 41.5 | 41.7 | 39.8 | 41.9 |
| 215.2 | 216.7 | 213.1 | 213.1 |

Sources: Dealogic, Moody's Investors Service

11.7 US ABCP to AA Non-financial CP Spread



Sources: US Federal Reserve

³ Data not yet available for the US for Q1'19.

12 Global Comparative Data

€ BILLIONS

12.1 Global High Grade Corporate Bond Issuance

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|---------------|---------|---------|---------|---------|-------|
| US | 209.0 | | | | 209.0 |
| Europe | 192.8 | | | | 192.8 |
| Asia | 258.3 | | | | 258.3 |
| Total | 660.1 | | | | 660.1 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|--------|
| | 192.6 | 171.8 | 144.0 | 118.2 | 626.6 |
| | 200.7 | 175.0 | 157.1 | 97.0 | 629.8 |
| | 213.0 | 234.0 | 271.2 | 281.9 | 1000.0 |
| | 606.3 | 580.7 | 572.3 | 497.0 | 2256.4 |

12.2 Global Government Bond Issuance

| | 2019:Q1 | 2019:Q2 | 2019:Q3 | 2019:Q4 | TOTAL |
|---------------|---------|---------|---------|---------|-------|
| US | 61.1 | | | | 61.1 |
| Europe | 221.1 | | | | 221.1 |
| Asia | 40.2 | | | | 40.2 |
| Total | 322.5 | | | | 322.5 |

| | 2018:Q1 | 2018:Q2 | 2018:Q3 | 2018:Q4 | TOTAL |
|--|---------|---------|---------|---------|-------|
| | 53.1 | 48.3 | 41.9 | 49.3 | 192.6 |
| | 185.2 | 107.2 | 74.8 | 81.1 | 448.3 |
| | 43.5 | 41.6 | 47.4 | 45.8 | 178.3 |
| | 281.8 | 197.0 | 164.1 | 176.3 | 819.2 |

Summary of the Methodologies Adopted for this Report

1. Issuance

1.1. – 1.2. European, Australian, and US Historical Issuance

The tables covering historical issuance in Europe and the US are denominated in EUR billions. Historical issuance volumes are calculated by adding all transactions in different asset classes including, among others, asset-backed securities (ABS), collateralised debt obligations/collateralised loan obligations (CDOs/CLOs), commercial mortgage-backed securities (CMBS), and residential mortgage-back securities (RMBS). Please note that numbers may not add due to independent rounding and that historical or prior period numbers are revised to reflect changes in classification, refined selection methodology, or information submitted to our data sources after the prior period cut-off dates.

Australian data are contributed by Macquarie.

1.3. -1.6. Issuance by Collateral

The European issuance volumes are determined based on the review of several data sources: Bloomberg, JP Morgan, Refinitiv, and UniCredit starting from Q1 2009; and Deutsche Bank starting from Q1 2010; Citigroup from Q2 2010; and Dealogic from Q1 2011. In prior quarters our sources were Bloomberg, JP Morgan, Merrill Lynch, RBS, and Refinitiv. RMBS, CMBS and ABS are defined as European by having underlying assets located in a European country. European securities included in the calculation are the ones for which there is a specific match in terms of size, name, country of collateral and collateral type from at least two sources. Securities that fail to meet these criteria are excluded. With respect to CDOs/CLOs, securities are designated as European if they are issued in any European currency, regardless of their country of collateral. A substantial percentage of CDOs/CLOs are backed by multi-jurisdictional collateral. Historical CDO/CLO issuance totals have been revised due to periodic updates of the sector.

European ABS issuance includes auto, credit card, leases, loans, receivables and other.

European whole business securitisation (“WBS”) are securitisations where cashflows derive from the whole operating revenues generated by an entire business or segmented part of a larger business. Certain WBS deals may be bucketed in the ABS or CMBS class based on deal specifics. As of 2013 Q4, certain public finance initiatives (“PFI”) have been

moved from ABS to WBS and the category renamed “PFI/WBS”.

Placed and retained European issuance collateral are sourced from AFME and/or SIFMA dealer member research, Dealogic, Bloomberg, and Refinitiv. Placed issuance includes all tranches placed in the public market, private placements, and replacements. Partial issuance of a tranche is considered to be placed if half or more by euro amount of the tranche is reported placed. Placed and retained issuance will not retroactively consider securities originally issued retained and then placed in the marketplace, and are estimates.

The US non-agency RMBS, CMBS, ABS and CDO/CLO issuance data sources are Bloomberg, Dealogic and Refinitiv. Agency mortgage-backed securities (MBS) are defined as securities issued by Fannie Mae, Freddie Mac, and Ginnie Mae and are acquired from company statements. US issuance data are generally based on the sum of securities with US collateral; agency issuance numbers do not include securitisations of existing agency securities. US CDO/CLO data are defined as USD-denominated CDOs/CLOs regardless of the country of collateral.

Australian securitisation volumes are contributed by Macquarie.

The US and Australia issuance data are converted to Euros based on the exchange rate at each quarter-end indicated below.

| Quarter | USD to EUR | AUD to EUR |
|---------|------------|------------|
| Q2 2016 | 0.9004 | 0.6708 |
| Q3 2016 | 0.8901 | 0.6813 |
| Q4 2016 | 0.9506 | 0.6843 |
| Q1 2017 | 0.9385 | 0.7160 |
| Q2 2017 | 0.8752 | 0.6727 |
| Q3 2017 | 0.8464 | 0.6631 |
| Q4 2017 | 0.8330 | 0.6506 |
| Q1 2018 | 0.8114 | 0.6235 |
| Q2 2018 | 0.8558 | 0.6337 |
| Q3 2018 | 0.8617 | 0.6224 |
| Q4 2018 | 0.8722 | 0.6147 |
| Q1 2019 | 0.8194 | 0.6326 |

These same conversion rates, sourced from Bloomberg, are used on all US issuance and outstanding volume data.

US ABS issuance includes auto, credit card, home equity, student loan, equipment leases, manufactured housing, and other. Historical ABS issuance totals have been revised due to periodic updates of the sector.

US CDO issuance numbers only include US-denominated issuance regardless of the country of

collateral and may include European transactions which are denominated in US dollars. Historical CDO issuance totals have been revised due to periodic updates of the sector.

1.7. Issuance by Country of Collateral

The tables covering issuance in the US and Europe are presented in EUR billions. For Europe the information is segmented by country of collateral.

The European issuance is segmented by country to the extent that a determination can be made. Securities with the underlying collateral originating from more than one jurisdiction are categorised as Multinational. Almost all CDOs/CLOs are classified under this Multinational group due to the complexity involved in identifying origin of collateral for each specific tranche. The European issuance volumes are determined based on the review of multiple data sources: Deutsche Bank and Bank of America-Merrill Lynch as of Q1 2010, Bloomberg, JP Morgan, Refinitiv and UniCredit starting from Q1 2009; and RBS starting from Q3 2009. In prior quarters the sources were Bloomberg, JP Morgan, Refinitiv and Merrill Lynch.

US CDO/CLO data are defined as USD-denominated issues regardless of country of collateral.

Other includes countries with outstanding securities that are too small to be displayed, such as Georgia, Iceland, Ukraine, Switzerland, Sweden, and Hungary.

PanEurope has been pulled out of the Multinational parent category and will be retroactively displayed for Euro-pean outstandings.

Multinational includes all deals in which assets originate from a variety of jurisdictions. This includes the majority of CDOs/CLOs denominated in a European currency.

Australian data are contributed by Macquarie.

1.8. Issuance by Collateral Type and Country of Collateral

Issuance information is further specified by country of collateral for European issuance only and by asset class. CDO/CLO classification is the same as above.

1.9. – 1.11. Issuance by Rating

Issuance is presented by credit rating classification (AAA; AA; A; BBB and below; and Not Rated) on a quarterly basis. The credit rating assigned is the lowest of the ratings provided by Fitch Ratings, Moody's Investors Service and/or S&P Global Ratings. These ratings are intended to represent their corresponding equivalent at each agency; e.g.,

an AAA rating is equal to an Aaa Moody's rating, AA equal to Aa1, etc. Securities are classified 'Not Rated' if none of the credit rating agencies have provided an opinion on the underlying credit quality of a particular tranche, or if the ratings are unknown. US agency MBS issues are generally not rated and therefore grouped separately under Agency MBS.

Australian securitisation data are contributed by Macquarie.

1.12. Issuance by Deal Size

European and US securitisation issuance volume is segmented by transaction size based on data provided by Dealogic. The European data covers all asset classes and EUR-denominated CDOs/CLOs. US non-Agency data includes ABS, non-agency CMBS and RMBS, and USD-denominated CDOs/CLOs. US agency MBS, which includes agency CMBS and RMBS, is shown separately.

All data, except for CDOs/CLOs, are included according to the country of collateral. The number of issues refers to the number of deals, not the number of tranches within each deal.

Australian securitisation issuance volumes are contributed by Macquarie.

2. Balances Outstanding

2.1. – 2.3. Outstandings by Collateral

The outstanding volumes are reported by asset class. Subtotals may not add to totals due to independent rounding and historical or prior period numbers are continuously revised to reflect changes in classification, refined selection methodology, or information submitted to our data sources after the prior period cut-off dates. For Europe, balances outstanding are calculated by the principal balance outstanding on structured product transactions including public, private, rated, unrated, listed and unlisted securities provided by Bloomberg. Balances outstanding are determined by multiplying eligible securities by their pool factor for the quarter and sorted accordingly. Tranches that are non-EUR-denominated are converted to EUR by Bloomberg based on the exchange rate at the time of the pricing date (as specified by the lead manager/arranger), or, if missing, the issue date as specified in each security's original offering documentation. Securities included in the calculations, except for CDOs/CLOs, have collateral originated from at least one European country to the extent that a determination can be made. However, for ABS and MBS securities with collateral originated in multiple countries, or where the origin of the underlying

collateral is undefined, the following selection criteria apply: securities are considered eligible as European only if they are denominated in a European currency, as defined below, and the country of issuer (considered to be the country in which the issuing SPV is incorporated) is within Europe. In certain limited cases, the Channel Islands and the Cayman Islands are considered eligible as European jurisdictions for ABS and MBS products if underlying collateral is derived from a variety of jurisdictions and the original currency of issue is EUR only.

For our selection criteria, European currencies include the euro (EUR) and all predecessor currencies, as well as the Turkish lira (TRY), the Danish kroner (DKK), the Swedish krona (SEK), the Swiss franc (CHF), the Polish zloty (PLN), the British pound (GBP), and the Russian ruble (RUB).

Furthermore, our selection criteria consider Europe to include all European Economic Area (EEA) countries and certain non-EEA countries located on the geographic European continent. We have included Turkey, Kazakhstan, Iceland, Georgia and the Russian Federation in these criteria.

European ABS outstanding collateral types include auto loans, credit cards, loans (consumer and student), and other.

For the CDO/CLO sector, only issuance denominated in a European currency (as specified above) is included, regardless of the country of collateral.

Beginning in Q2 2010, the CDO/CLO asset class has been further broken down into the CDO/CLO and SME asset classes. SME securities follow the same criteria application as non-CDOs/CLOs. Revisions during this quarter were retroactively applied and balances outstanding from prior quarters have all been restated accordingly.

The US outstanding calculations are based on information derived from Bloomberg for ABS, non-agency RMBS, and non-agency CMBS; agency balance statements for agency MBS. The following asset classes are segmented: agency MBS, non-agency RMBS, non-agency CMBS, and ABS. The agency MBS figures include both agency RMBS and agency CMBS (i.e., multifamily). US ABS outstanding collateral types include auto loans, credit cards, loans (equipment and student loans), CDOs, and other. CDOs outstanding are included in ABS outstanding and represents dollar-denominated tranches. As of 2013 Q4 home equity and certain other mortgage-related debt has been moved into Non-Agency RMBS.

Australian outstanding figures are contributed by Macquarie. Reverse mortgages are included in RMBS figures, while small balance CMBS are included in CMBS figures.

2.4. Outstandings by Country of Collateral

The European outstanding volumes are segmented by country of collateral based on the above methodology. For our selection criteria, Europe is considered to include all European Economic Area (EEA) countries and certain non-EEA countries located on the geographic European continent (Georgia, Iceland, Turkey, Kazakhstan and the Russian Federation). In certain limited cases, the Channel Islands and the Cayman islands are considered eligible for ABS and MBS products if underlying collateral is derived from a variety of jurisdictions and the original currency of issue is European. CDOs/CLOs issued in a European currency with either collateral from multiple jurisdictions or for which the underlying location of collateral is undefined are categorized under 'Multinational' for the purpose of determining outstanding balances by country. Collateral from multiple European countries is now categorised under 'PanEurope' unless collateral is predominantly (over 90%) from one country.

The US outstandings include both agency and non-agency securities.

2.5. – 2.7. Outstandings by Moody's Rating

The percentage rating distribution for Europe and the US is based on Moody's Investors Service data for balances outstanding, and from Standard and Poor's for Australian data. The data provides current ratings as of the end of the quarter. The data presented are based on original issuance volumes for European, US, and Australian securities, and therefore do not reflect amortised balances. Information on current ratings by outstanding volumes is not currently available. Moody's and Standard and Poor's data have been converted to percentages based on the original issuance size to make it easily comparable with the outstanding volumes provided in this report. Defaulted and unrated issues are excluded from these data.

2.8. - 2.9. Outstandings by Vintage

Outstanding volumes by vintage are determined by year of original pricing date. Restructurings are counted from original pricing date rather than remarketed date.

2.10. Outstandings by Country and Collateral

European outstanding volumes are segmented by country and collateral based on above methodology.

3. Credit Quality – Rating Changes

3.1. – 3.4. Upgrades/Downgrades by Country

These tables present the aggregate number of upgrades and downgrades for securitisation (including CDOs/CLOs) by country of collateral for European deals and in total for US deals. The information is based on data provided by DBRS, Fitch Ratings, Moody's Investors Service and S&P Global Ratings. The upgrade number is shown first followed by the downgrade number. The upgrades and downgrades of each of credit rating agency is shown in separate tables and presented as the number of rating changes. Because the credit rating agencies track different securities and apply different credit rating methodologies, these numbers are not directly comparable.

According to Moody's Investors Service, a security is classified as European or American based on if it is monitored out of Moody's office in Europe or the US. More specifically, European securities are classified within a particular country if all of its assets are located within that country.

Fitch's US category may contain non-US issues (e.g., Canada) from the North American continent.

The Multinational category includes CDOs/CLOs and all other cross-jurisdictional securitisations for both Moody's Investors Service and S&P Global Ratings. The Fitch Ratings Multinational classification includes cross-jurisdictional CMBS as well as the aggregated sum of rating actions in other countries including Austria, Belgium, Greece, Ireland, Portugal and the Russian Federation. Fitch Ratings assigns CDO issues to the country in which the majority of the underlying assets are located.

DBRS' "ABS Other" category may include student loans, equipment lease and other securities.

3.5. – 3.12. Upgrades/Downgrades by Collateral

These tables present aggregate upgrades and downgrades for securitisation and CDO/CLO issues by securitised product type for Europe and the US. The upgrade number is shown first followed by the downgrade number. The upgrades and downgrades of each agency are shown in separate tables and presented by number rating changes. For Fitch Ratings, the category Other RMBS includes other categories of RMBS transactions such as ALT-A, reverse mortgage, government RMBS, etc. The category 'Other ABS' may include student loans and the whole business securitisations/public finance initiatives (WBS/PFI). For Moody's Investors Service and S&P Global Ratings, the total number of European upgrades/downgrades reported by

collateral type are not always comparable with the upgrades/downgrades presented by country because there may be securities that experience rating migrations that are backed by collateral originated from a country outside of those specified and will not be captured under the "Multinational" category.

4 - 6 Spreads

4.1. - 4.4. CMBS Spreads

These graphs present credit spread data for European and US AAA and BBB 3-5 Yr CMBS. European 3-5 year AAA & BBB CMBS data are provided by Markit. Composite spread levels are calculated from dealer contributions which have been subjected to multiple cleaning algorithms. Spread levels are equivalent to the discount margin. The discount margin is defined as the effective spread to maturity of a floating rate security after discounting the yield value of a price other than par over the life of the security. The spread calculation is based on data provided by dealer trading desks.

US CMBS 3 and 5 year spreads are provided by Trepp LLC. US CMBS spreads are quoted as fixed rate bonds based on the yield of US treasury bonds with the same average life.

5.1. - 5.4. RMBS Spreads

European RMBS credit spreads are provided for 3-5 year AAA and BBB securities based on data provided by Markit. European credit spreads cover Spain, Netherlands, Italy, Germany and France. UK RMBS spreads are provided for both prime and non-conforming transactions. Markit spread calculations are based on data provided by dealer trading desks.

As of April 2012, Italian AAA has been replaced with Italian AA due to downgrades. Spanish RMBS 3-5 year AAA and BBB spreads have been replaced with AA 3-5 years and BBB 5-8 years respectively due to lack of bonds.

As of November 2012, UK non-conforming AAA has been replaced with non-conforming AA due to downgrades, while BBB UK Prime RMBS are no longer available.

6.1. - 6.4. ABS Spreads

European ABS credit spreads are provided for 1-4 year AAA and BBB securities based on data provided by Markit based on the same calculations described above.

US spreads reflect levels for AAA autos, AAA credit cards, and BBB credit cards; spreads are fixed against swaps and are provided by JP Morgan. US 3 Yr Auto ABS BBB spreads are not available.

7 - 8 Prices

7.1. – 7.4. RMBS Prices

These graphs represent price data for specific European and UK RMBS selected as benchmarks in the respective jurisdictions. The price calculations are provided by Markit and are based on data provided by dealer trading desks.

8.1. – 8.3. CMBS and ABS Prices

The graphs represent price data for specific pan-European CMBS and ABS selected as benchmarks. The price calculations provided by Markit and are based on data provided by dealer trading desks.

9.1. - 9.5. Indices Data

The first graph presents daily option-adjusted spreads provided by Barclays Capital for Europe from a cross-section of securitised products. The second graph, provided by Barclays Capital, presents daily fixed and floating prices of pan-European deals.

The third and fourth graphs present daily tranche margins, quoted in bps, provided by Macquarie for the Australian AAA and AA securitised market.

The fifth graph present daily prices provided by Markit for the US synthetic CMBS indices.

10 Total Return Benchmark Data

10.1. – 10.3. Total Return Data

These graphs represent historical return composites generated by tracking the aggregate asset value on an underlying portfolio of single name bonds. Data are provided by Markit and are preliminary.

11. Asset-Backed Commercial Paper (ABCP)

11.1. – 11.2. ABCP Historical Issuance; ABCP Issuance by Nationality of Issuer

European issuance is provided by Dealogic, which identifies the issuer's nationality as the country in which the SPV is domiciled. These data do not represent the seller-servicers of the underlying assets or the bank conduits for the ABCP deals. The US data are provided by Moody's Investors Service. The volumes are converted from dollar to euro based on the end-of-quarter exchange rate.

11.3. European ABCP Issuance by Programme Type

ABCP data by programme type is provided by Dealogic. The programme type classifications included are: SIVs, single-seller conduit, multi-seller conduit and 'unspecified'.

Dealogic provides the issuer's nationality as the country in which the SPV is domiciled. This data

does not represent the seller-servicers of the underlying assets or the bank conduits for ABCP deals.

11.4. ABCP Outstandings by Nationality of Issuer

The European outstanding is provided by country through the Dealogic database, and the US data are provided by Moody's Investors Service. Dealogic identifies the issuer's nationality as the country in which the SPV is domiciled. The dollar volumes were converted to euro based on the end-of-quarter exchange rate.

US ABCP figures are based on programmes rated by Moody's NY office ABCP Program Index, regardless of market; some euro-denominated ABCP may be included in volume totals.

11.5. – 11.6. ABCP Outstandings by Programme Type

Outstanding quarterly data are provided for Europe and the US by, respectively, Dealogic and Moody's Investor Service. The volumes are converted from dollars to euro based on the end-of-quarter exchange rate. The programme type classifications included are: loan-backed, SIVs, single-seller conduit, multi-seller conduit and 'unspecified'.

Unspecified programme types within the US data contain both arbitrage and hybrid programme types.

11.7. ABCP Spreads

The US ABCP spread information is based on data collected and developed by the Federal Reserve. The spread is defined as the difference between AA ABCP and AA nonfinancial CP.

12. Global Comparative Data

12.1. - 12.2. Global Corporate Bond and Government Bond Issuance

These statistics are provided by Dealogic and present issuance volumes for corporate bonds and government bonds in Asia, the US and Europe. Government bond and corporate bond figures represent gross, not net issuance. In terms of geographical description, Europe represents the European, the Middle East and African (EMEA) countries while Asia includes the Pacific countries and Japan.

Global corporate bond issuance is for investment grade bonds, public placements only. Global government bond issuance includes all agency and non-agency issuances and does not include supranationals.

Annex

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