



European CLO Index: 4Q18 Market Update

Issuance at Post-Crisis Record; Fundamentals Support Stable 2019 Outlook

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FitchRatings

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At a Glance

Executive Summary

- **Issuance at Post-Crisis Record:** 2018 issuance reached EUR27.3 billion from 66 transactions.
- **Wider Senior Spreads:** Senior spreads on new issue notes increased for the third consecutive quarter.
- **'AAA' C/E Remains in Narrow Band:** 'AAA' CE range between 44.6% and 38% in 2018, almost unchanged for more than three years.
- **Refinancing Slowdown:** Refinancing has become less attractive with the recent increase in senior spread.
- **Reset Expected to Continue:** Fitch expects transactions to continue to reset as they reach the end of their reinvestment period.
- **WAS Continues to Stabilise:** Average WAS remained stable at about 3.8% for the fourth consecutive quarter.
- **WARR Continues to Stabilise:** Average WARR remained stable at just above 65% for the fifth consecutive quarter.

Note: Simple average across deal sample
 Note: Market data for 4Q18 and 3Q18 are for the full quarter
 Note: Market data for 2017 are for the full year
 Source: Fitch Ratings, public domain

| Primary market | 4Q18 | | 3Q18 | 2017 |
|---------------------------|------|---|------|------|
| Average 'AAA' C/E (%) | 38.8 | ↓ | 39.5 | 40.7 |
| Average 'AAA' margin (bp) | 98.5 | ↑ | 91.6 | 84.8 |
| Issuance volume (EURbn) | 6.5 | ↓ | 7.5 | 20 |

| Refinancing & reset | 4Q18 | | 3Q18 | 2017 |
|------------------------------|------|---|------|------|
| Average 'AAA' margin (bp) | 96.2 | ↑ | 86.1 | 85.3 |
| Average 'AAA' reduction (bp) | 15.6 | ↓ | 39.2 | 46.6 |
| Number of transaction | 5 | ↓ | 12 | 70 |

| Collateral quality test | 4Q18 | | 3Q18 | 4Q17 |
|-------------------------------|------|---|------|------|
| Average WAS (trustee) (%) | 3.8 | ← | 3.8 | 3.9 |
| Average WARR (trustee) (%) | 65.3 | ← | 65.3 | 65.2 |
| Average WARF (trustee) (%) | 32.4 | ↓ | 32.5 | 32.8 |
| Average WAL (trustee) (years) | 5.3 | ↓ | 5.4 | 5.5 |

C/E: credit enhancement
 WAS: weighted average spread
 WARR: weighted average recovery rate
 WARF: weighted average rating factor
 WAL: weighted average life



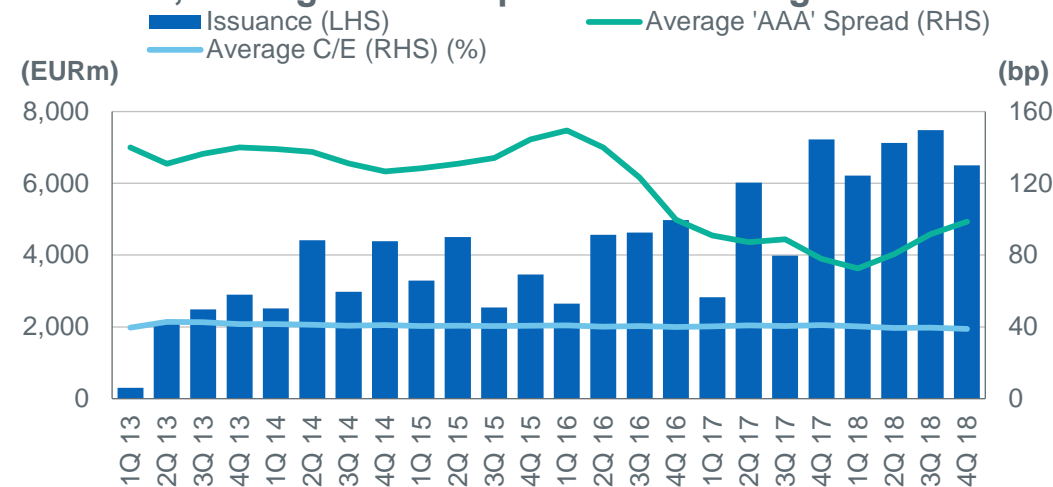
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European Primary Market Update

European Issuance at Post-Crisis Record

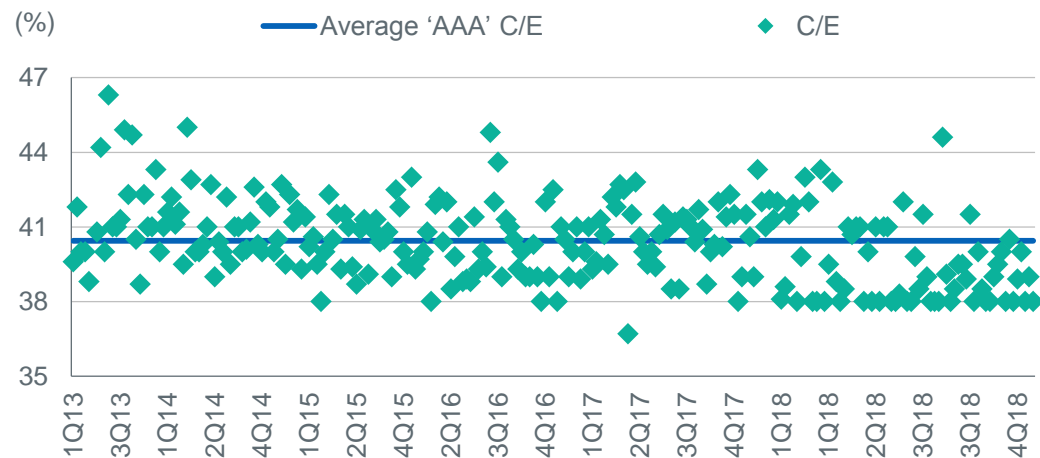
- European CLO issuance reached a post-crisis peak of EUR27.3 billion of notes in 2018 (66 transactions) versus EUR20 billion for 2017 (49 transactions).
- 'AAA' spreads widened for the third consecutive quarter to average 98.5bp over Euribor during the fourth quarter, well above the annual average of 86.1bp for 2018.

Issuance, Average 'AAA' Spread and Average C/E



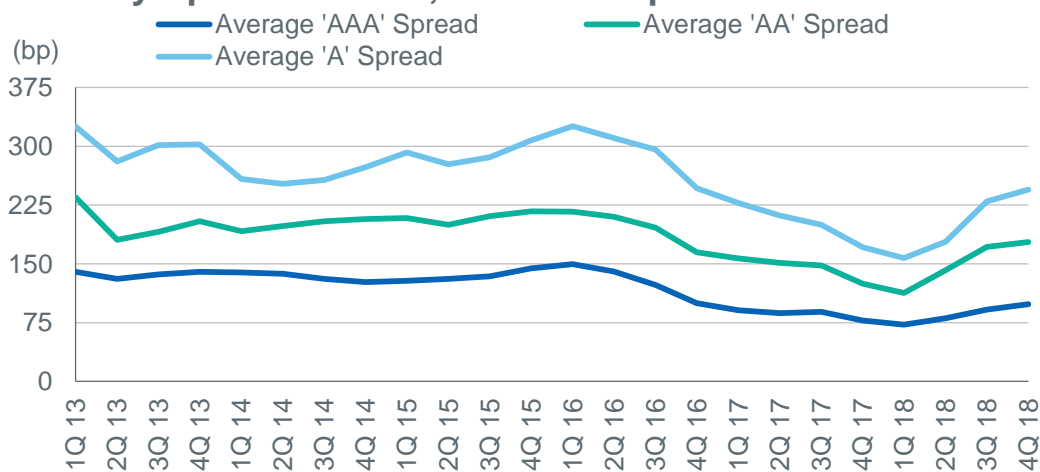
Source: Fitch Ratings, public domain

'AAA' C/E



Source: Fitch Ratings, public domain

Primary Spread – 'AAA', 'AA' & 'A' Spread



Source: Fitch Ratings, public domain

4Q18 European CLO Issuance

4Q18 European CLO Transactions

(as at 31 December 2018)

| Deal Name | Deal Size Amount (EUR Mil.) | Collateral Manager | Structurer | Pricing Date | 'AAA' CE | 'AAA' Spread (bp) | Non-Call (yrs) | Reinvestment (yrs) | Max. WAL |
|---------------------------------------|-----------------------------|---|-----------------|--------------|----------|-------------------|----------------|--------------------|----------|
| Bain Capital Euro CLO 2018-2 | 385.8 | Bain Capital Credit U.S. CLO Manager, LLC | Goldman Sachs | Oct/2019 | 38.0 | 100.0 | 2.0 | 4.3 | 8.5 |
| Oak Hill European Credit Partners VII | 411.7 | Oak Hill Advisors (Europe), LLP | JP Morgan | Oct/2019 | 40.0 | 95.5 | 2.0 | 4.5 | 8.5 |
| Harvest CLO XX | 410.4 | Investcorp Credit Management EU Limited | JP Morgan | Oct/2019 | 38.5 | 96.0 | 2.0 | 4.5 | 8.5 |
| Contego CLO VI | 414.3 | Five Arrows Managers LLP | Bank of America | Oct/2019 | 38.0 | 98.0 | 2.0 | 4.5 | 8.5 |
| Rockford Tower Europe CLO 2018-1 | 407.0 | Rockford Tower Capital Management, L.L.C | Citigroup | Oct/2019 | 38.0 | 103.0 | 2.0 | 4.3 | 8.5 |
| Jubilee CLO 2018-XXI | 411.1 | Alcentra Ltd | Morgan Stanley | Oct/2019 | 39.0 | 96.0 | 2.0 | 4.5 | 8.5 |
| CVC Cordatus Loan Fund XII | 409.6 | CVC Credit Partners European CLO Management LLP | BNP Paribas | Nov/2019 | 39.5 | 96.0 | 2.0 | 4.5 | 8.5 |
| BlackRock European CLO VII | 411.3 | BlackRock Investment Management (UK) Ltd | Barclays | Nov/2019 | 40.0 | 96.0 | 2.0 | 4.5 | 8.5 |
| OZLME V CLO | 412.0 | Och-Ziff Europe Loan Management Limited | Credit Suisse | Nov/2019 | 38.0 | 100.0 | 2.0 | 4.5 | 8.5 |
| Dryden 66 EUR CLO 2018 | 411.0 | PGIM Limited | Credit Suisse | Nov/2019 | 40.5 | 96.0 | 2.0 | 4.5 | 8.5 |
| Providus CLO II | 361.3 | Permira Debt Managers Group Holdings Limited | Morgan Stanley | Nov/2019 | 38.0 | 101.0 | 2.0 | 4.0 | 8.5 |
| Invesco Euro CLO I | 409.8 | Invesco European RR LP | Barclays | Nov/2019 | 38.9 | 102.0 | 2.0 | 4.0 | 8.5 |
| Golden Tree Euro CLO II | 404.9 | GoldenTree Loan Management, LP | Morgan Stanley | Nov/2019 | 40.0 | 96.0 | 2.0 | 4.5 | 8.5 |
| Armada Euro CLO III | 414.4 | Brigade Capital Europe Management LLP | Citigroup | Nov/2019 | 38.0 | 101.0 | 2.0 | 4.0 | 8.5 |
| Barings Euro CLO 2018-3 B.V. | 408.0 | Barings (U.K.) Limited | Credit Suisse | Nov/2019 | 39.0 | 98.0 | 2.0 | 4.5 | 8.5 |
| Penta CLO V | 413.9 | Partners Group (UK) Management Ltd. | JP Morgan | Nov/2019 | 38.0 | 102.0 | 2.0 | 4.0 | 8.5 |
| Q4 2018 Average | 406.0 | | | | 38.8 | 98.5 | 2.0 | 4.3 | 8.5 |
| Q4 2018 Median | 410.7 | | | | 38.7 | 98.0 | 2.0 | 4.5 | 8.5 |
| Q4 2018 Minimum | 361.3 | | | | 38.0 | 95.5 | 2.0 | 4.0 | 8.5 |
| Q4 2018 Maximum | 414.4 | | | | 40.5 | 103.0 | 2.0 | 4.5 | 8.5 |
| Total | 6,496.4 | | | | | | | | |

Non-Call, Reinvestment and WAL are rounded to the nearest 0.25

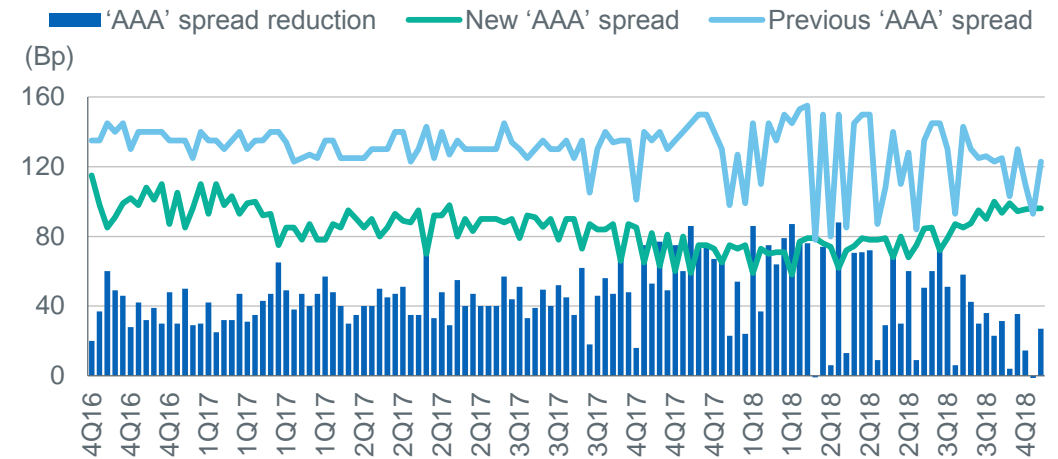
'AAA' CE and Spread are for the senior 'AAA' notes

Source: Fitch Ratings, public domain

Reset Continue, Refinancing Become Less Attractive

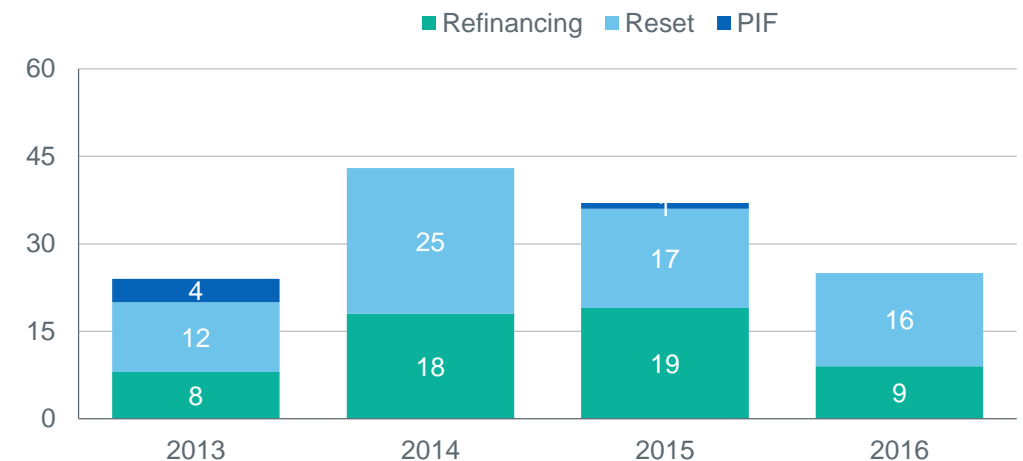
- Managers took advantage of the good financing conditions and extensively refinanced liabilities over the past 24 months.
- 40 transactions were refinanced, reset or reissued in 2018, compared with 70 transactions in 2017.
- The recent increase in senior spreads made refinancing less attractive, and only nine transactions refinanced in 2018, compared with 35 in 2017.
- Reset and reissuance activity continued to be strong in 2018, with 31 transactions compared with 35 in 2017.
- Fitch expects reset activity to continue as transactions reach the end of their reinvestment period, as the economics are similar to primary issuance.

'AAA' Spread & Refinancing



Source: Fitch Ratings, public domain

Refinancing & Reset by Vintage



Source: Fitch Ratings, public domain

Note: Number of refinancings and resets is higher than the total number of transactions as one transaction may refinance or reset more than once

Note: Re-issuances have been classified as reset

Note: The repricing of Bosphorus CLO II has been classified as refinancing

4Q18 European CLO Refinancing & Reset

4Q18 European CLO Refinancing

(as at 31 December 2018)

| Vintage | Deal Name | Collateral Manager | Previous 'AAAsf' Spread | Current 'AAAsf' Spread | Pricing Date | Activity |
|---------|---|--|-------------------------|------------------------|--------------|----------|
| 2016 | Halcyon Loan Advisors European Funding 2016 | Halcyon Loan Advisors | 103 | 99 | Q4 2018 | Reset |
| 2016 | Laurelin 2016-1 CLO | GoldenTree Loan Management, LP | 130 | 94.5 | Q4 2018 | Reset |
| 2014 | Phoenix Park CLO | Blackstone/GSO Debt Funds Europe Limited | 110 | 95.5 | Q4 2018 | Reset |
| 2014 | Carlyle GMSE CLO 2014-2 B.V. | CELf Advisors LLP | 93 | 96 | Q4 2018 | Reset |
| 2016 | Griffith Park CLO | Blackstone/GSO Debt Funds Europe Limited | 123 | 96 | Q4 2018 | Reset |

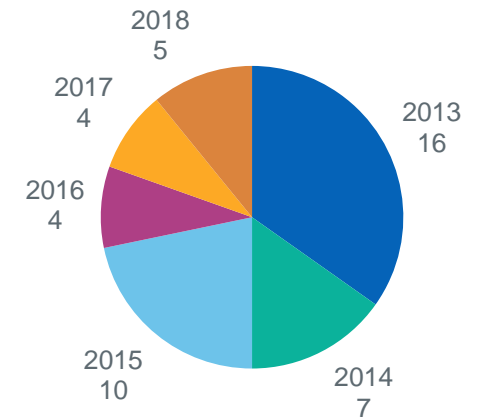
Note: Re-issuances are classified as "Reset"

Source: Fitch Ratings, public domain

Established Managers Dominate European Market

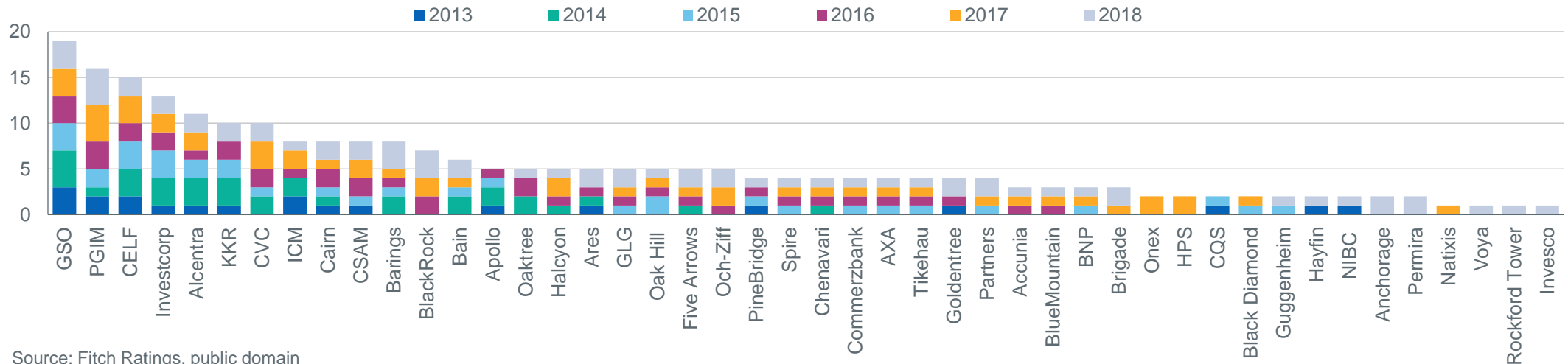
- European CLOs remain concentrated in large managers.
- The top four managers have issued about a quarter of all European post-crisis transactions, while the top 10 have issued around half.
- Fitch has identified 46 managers active in the European post-crisis market.
- Five new managers entered the European market in 2018: Permira Debt Managers, Voya Alternative Asset Management, Anchorage Capital Group, Rockford Tower Capital Management and Invesco European RR.
- Fitch expects additional managers active in the US market to continue to enter European markets.
- Additional information on CLO managers is available on the Fitch CLO Asset Manager Handbook.

Number of New Managers



Source: Fitch Ratings, public domain

Number of European Post-Crisis CLO by Vintage of Origination



Source: Fitch Ratings, public domain



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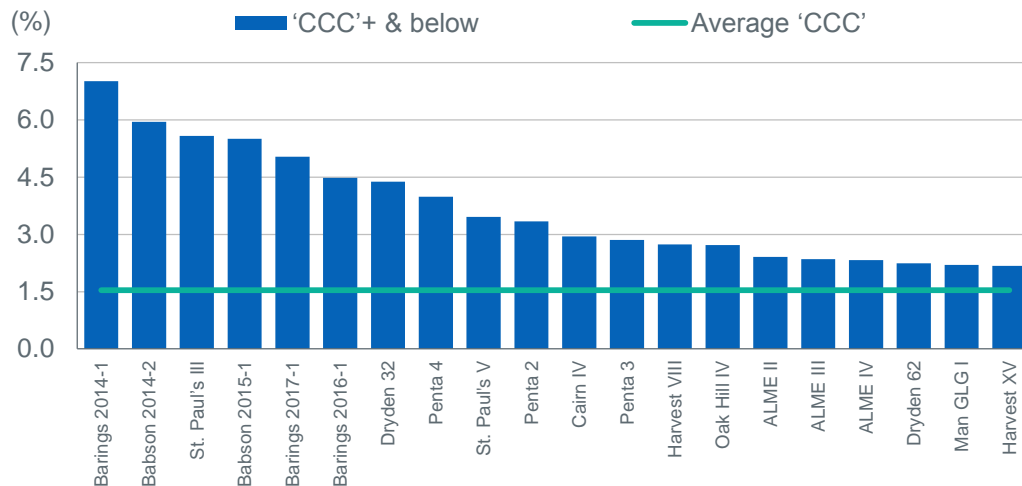
Fitch-Rated European CLO Performance

Defaulted and 'CCC' Assets Remain Limited

- There were two new defaulted assets in 4Q18.
- Six issuers were classified as defaulted by at least one manager at end-4Q18.
- Number of CLOs with exposure to defaults decreased to 20.7% (24 transactions) from 22.1% (21 transactions) as of end-3Q18. On average these CLOs have an exposure to default at 0.8%.
- 71.6% of CLOs held at least one 'CCC' rated asset as of end-4Q18. The average 'CCC' exposure for these transactions is 1.7% as of end-4Q18, well below the typical 7.5% limit.

| Measure | 4Q18 | 3Q18 | 4Q17 |
|---|---|------|------|
| Number of defaulted Obligor | 6 ↑ | 4 | 4 |
| Transactions exposed to defaults (%) | 20.7 ↓ | 22.1 | 25.9 |
| Average exposure to default (%) | 0.8 ↓ | 0.9 | 1.1 |
| Transactions exposed to 'CCC' asset (%) | 71.6 ← | 71.6 | 81.5 |
| Average exposure to 'CCC' assets (%) | 1.7 ↓ | 2.2 | 2.0 |

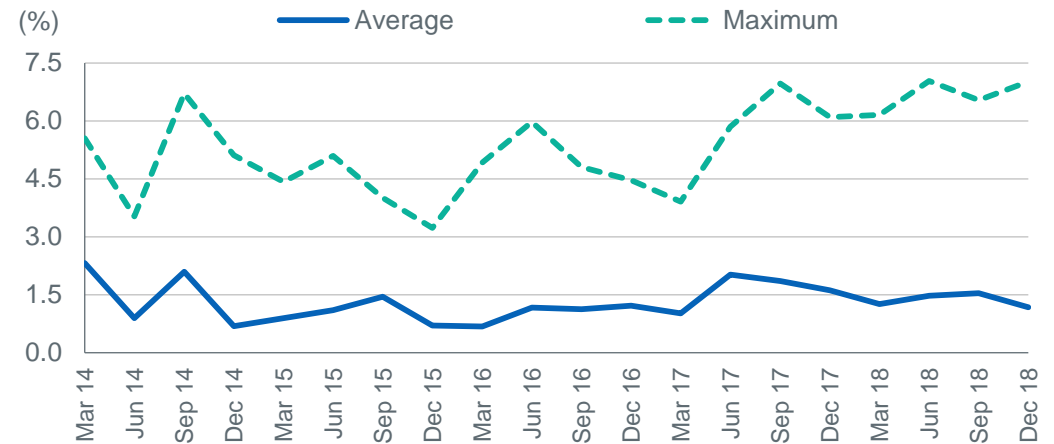
'CCC+' and Below Exposure Top 20 CLOs



Source: Fitch Ratings, Investor reports

Note: Assets without a Fitch rating or credit opinion and without a public rating from another agency are considered 'CCC'

'CCC+' and Below Exposure



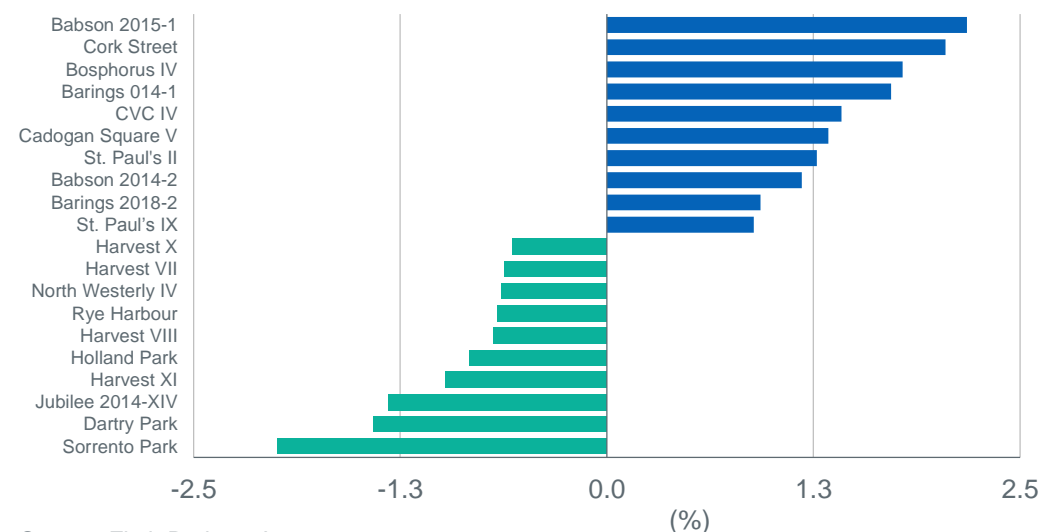
Source: Fitch Ratings, Investor reports

Net Portfolio Gains and OC Tests Cushion Largely Stable

- 75% of CLOs rated by Fitch have a net portfolio gain. 27 transactions have a net portfolio loss, up from 25 three months ago.
- Losses have remained low thanks to par built.
- Average excess par remains stable at 0.2% at end-4Q18.
- The chart on the right shows the CLOs rated by Fitch with the highest net portfolio gains and the highest net portfolio losses.
- In most cases, transactions with a net portfolio loss have been negatively affected by credit impaired or defaulted assets.
- Net portfolio losses may also be due to reinvestment at premium.
- The decrease in net portfolio gains may also be due to:
 - trading gains being transferred to the interest account;
 - the reset activity: some transactions may extract par building during a reset;
 - distribution to the interest account following closing/reset of a transaction.
- All transactions in Fitch's rated universe continue to pass their OC tests with a healthy cushion.

| Measure | 4Q18 | 3Q18 | 4Q17 |
|----------------------------------|---|------|------|
| Average gain/loss (%) | 0.2 ← | 0.2 | 0.3 |
| Number of transactions with loss | 27 ↑ | 25 | 14 |
| Transactions with loss (%) | 23.3 ↓ | 26.3 | 17.3 |
| Average 'AA' OC test cushion (%) | 9.6 ↑ | 9.5 | 10 |
| Average 'BB' OC test cushion (%) | 4.9 ← | 4.9 | 5.0 |

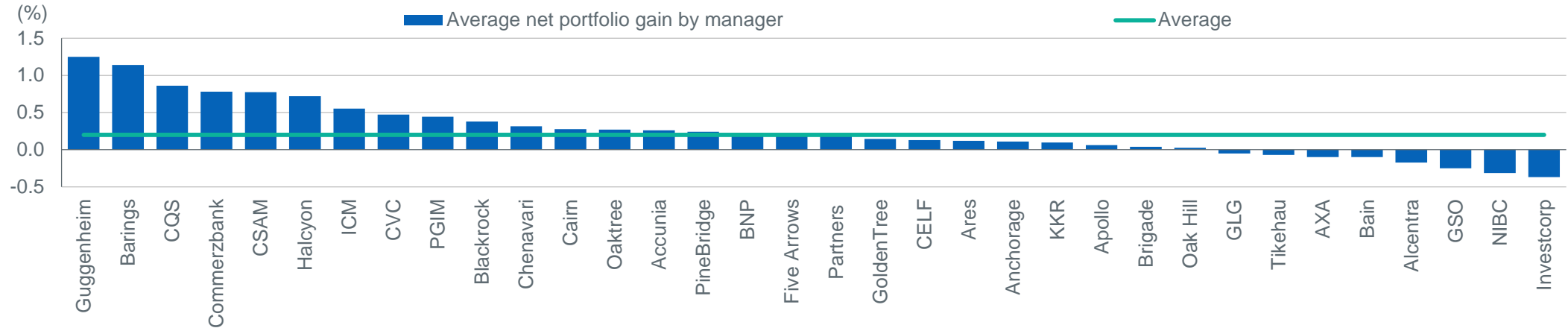
Net Portfolio Gain & Loss



Note: In the absence of 'CCC' haircuts, the net portfolio gains reflect the difference between the current portfolio par and the target par

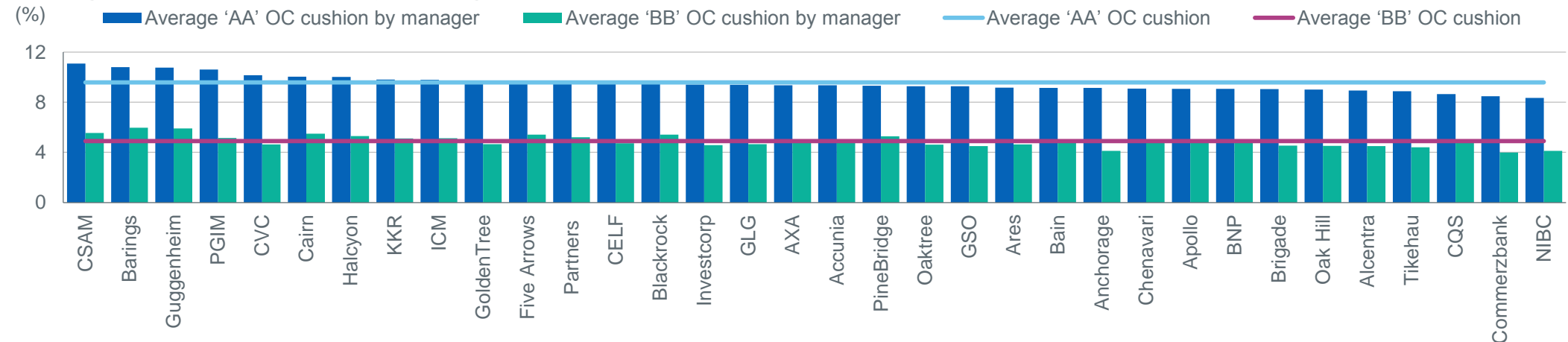
Net Portfolio Gains and OC Tests Cushion Comparison

Average Net Portfolio Gain by Manager



Source: Fitch Ratings, Investor reports

Average OC Test Cushion by Manager



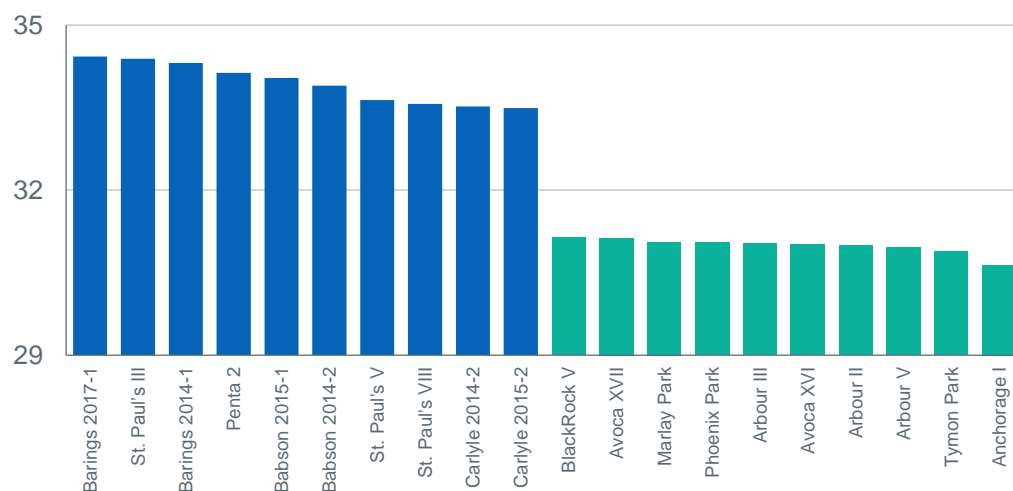
Source: Fitch Ratings, Investor reports

Fitch WARF Remains Relatively Stable

- The average Fitch WARF has remained relatively stable at around 32.5 over the past two years.
- Only one transaction was breaching the WARF covenant at end-4Q18.
- Rating distribution is concentrated in the 'B'/'B-' range and the at-risk portfolio ('B-/Negative and below) represents 3.5% of the portfolio.

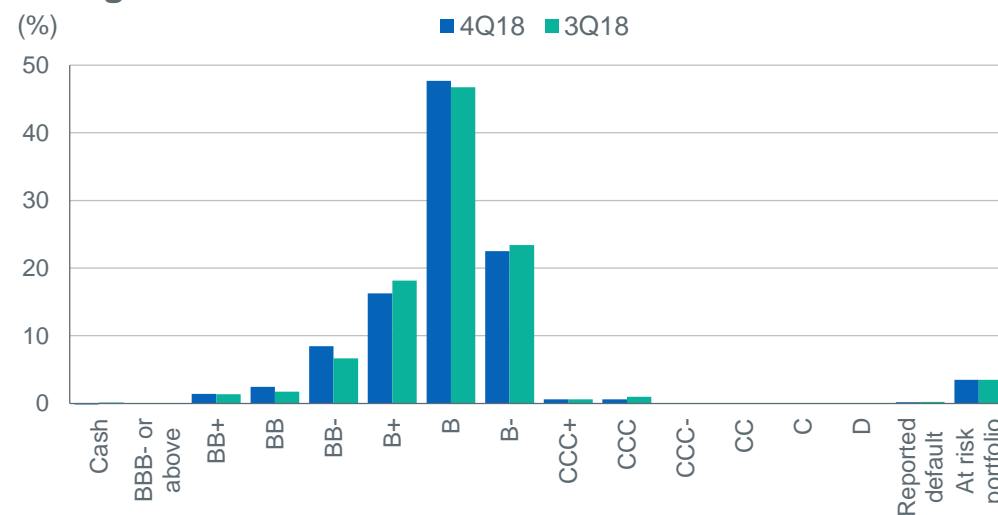
| Measure | 4Q18 | 3Q18 | 4Q17 |
|--------------------------------|---|------|------|
| Average WARF (trustee) | 32.4 ↓ | 32.5 | 32.8 |
| Average WARF cushion | 1.5 ↑ | 1.3 | 0.8 |
| WARF failing (% transaction) | 0.0 ↓ | 2.2 | 11.1 |
| At-risk portfolio exposure (%) | 3.5 ← | 3.5 | 2.5 |

Top 10 & Bottom 10 WARF



Source: Fitch Ratings, Investor reports

Rating Distribution



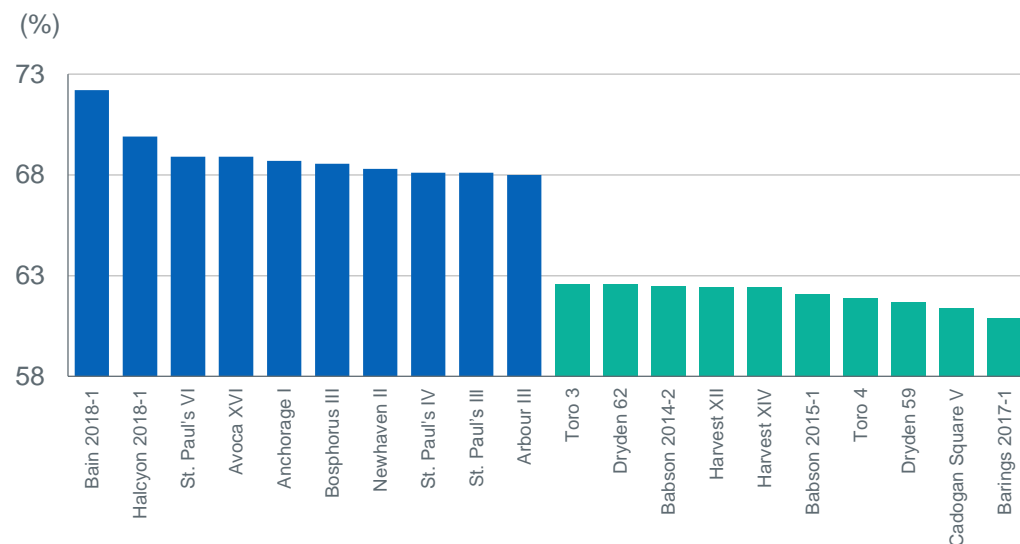
Source: Fitch Ratings, Investor reports

Recovery Expectations Continue to Stabilise

- The WARR has remained stable just above 65% for the fifth consecutive quarter.
- All transactions were passing their WARR covenant at end-4Q18.
- Non-senior-secured has remained stable at just over 2%.

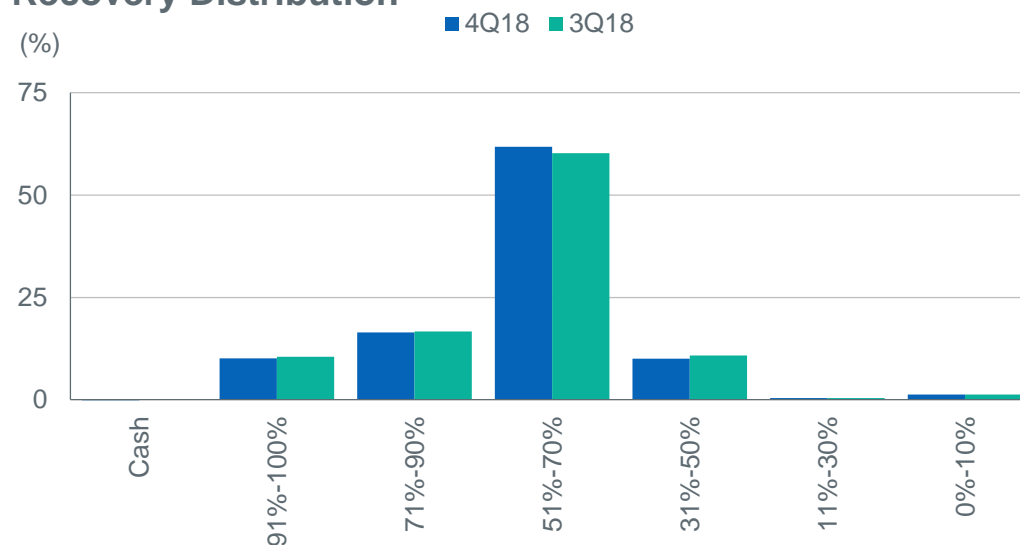
| Measure | 4Q18 | 3Q18 | 4Q17 |
|--------------------------------|--|------|------|
| Average WARR (trustee) (%) | 65.3 ← | 65.3 | 65.2 |
| Average WARR cushion (%) | 3.1 ↑ | 2.8 | 1.4 |
| WARR failing (% transaction) | 0.0 ↓ | 2.1 | 9.9 |
| Average non-senior secured (%) | 2.3 ↑ | 2.1 | 1.9 |

Top 10 & Bottom 10 WARR



Source: Fitch Ratings, Investor reports

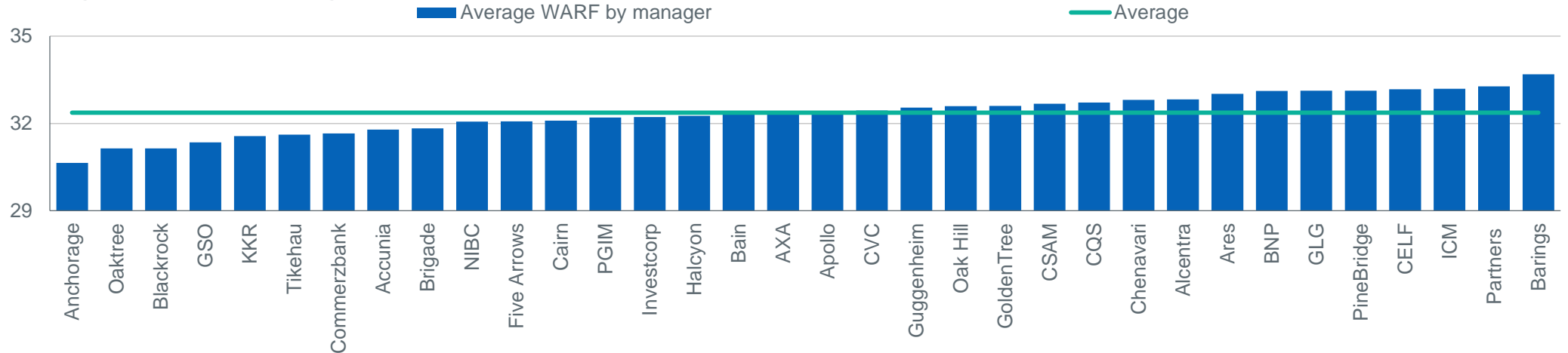
Recovery Distribution



Source: Fitch Ratings, Investor reports

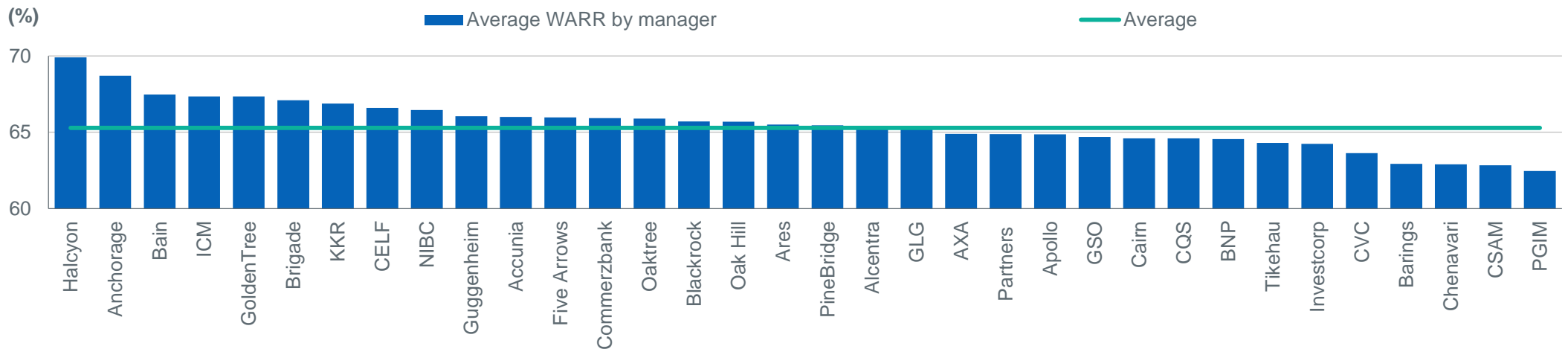
WARF and WARR Comparison

Average WARF by Manager



Source: Fitch Ratings, Investor reports

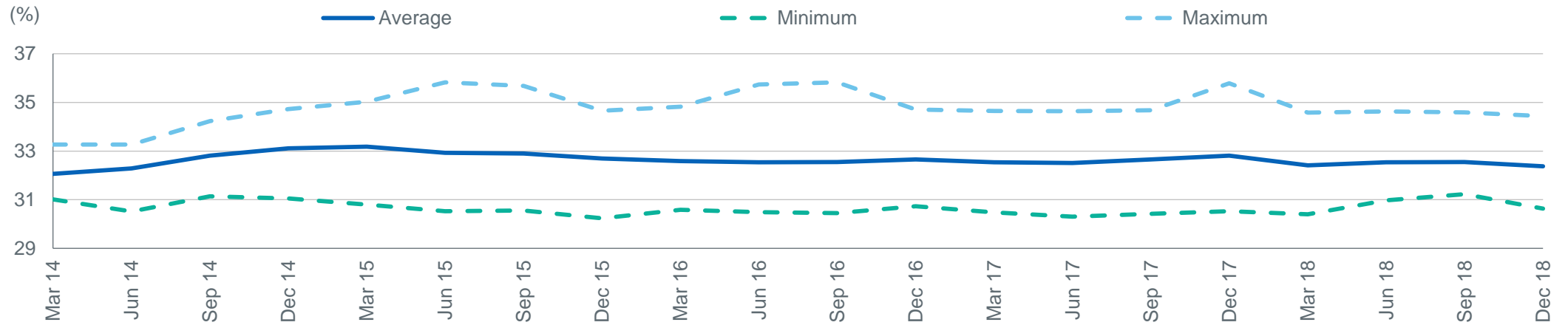
Average WARR by Manager



Source: Fitch Ratings, Investor reports

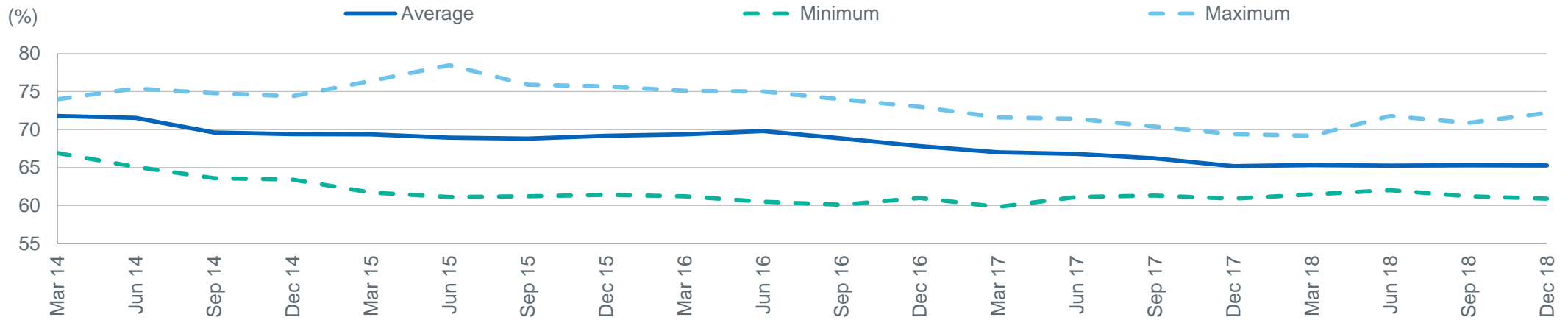
WARF and WARR Trend

Average WARF



Source: Fitch Ratings, Investor reports

Average WARR



Source: Fitch Ratings, Investor reports

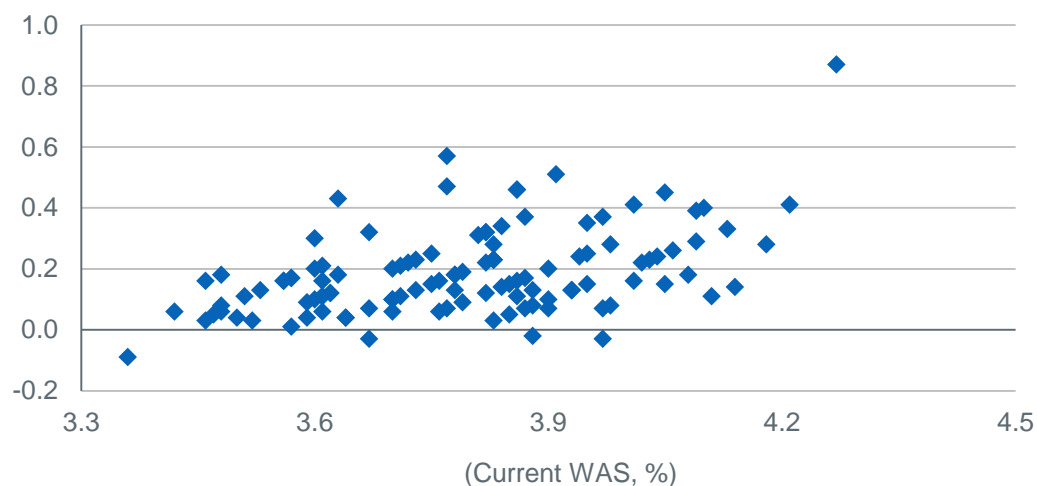
WAS Continues to Stabilise

- Average WAS remains stable at around 3.8% for the fourth consecutive quarter.
- Only four transactions were breaching the WAS covenant at end-4Q18.
- Fixed-rate exposures remain limited at around 6% on average, but a large dispersion exists among managers.

| Measure | 4Q18 | 3Q18 | 4Q17 |
|---------------------------------|------|------|------|
| WAS (trustee) (%) | 3.8 | 3.8 | 3.9 |
| Average WAS cushion (%) | 0.19 | 0.18 | 0.11 |
| WAS failing (% transaction) | 3.4 | 3.2 | 9.9 |
| Average fixed rate exposure (%) | 5.9 | 5.0 | 4.7 |

Weighted Average Spread Cushion

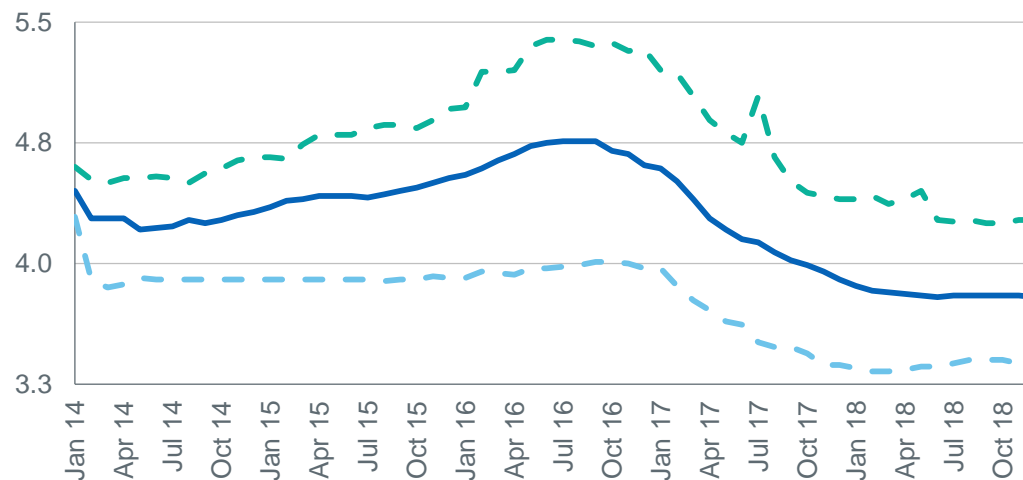
(WAS cushion,%)



Source: Fitch Ratings, Investor reports

Weighted Average Spread

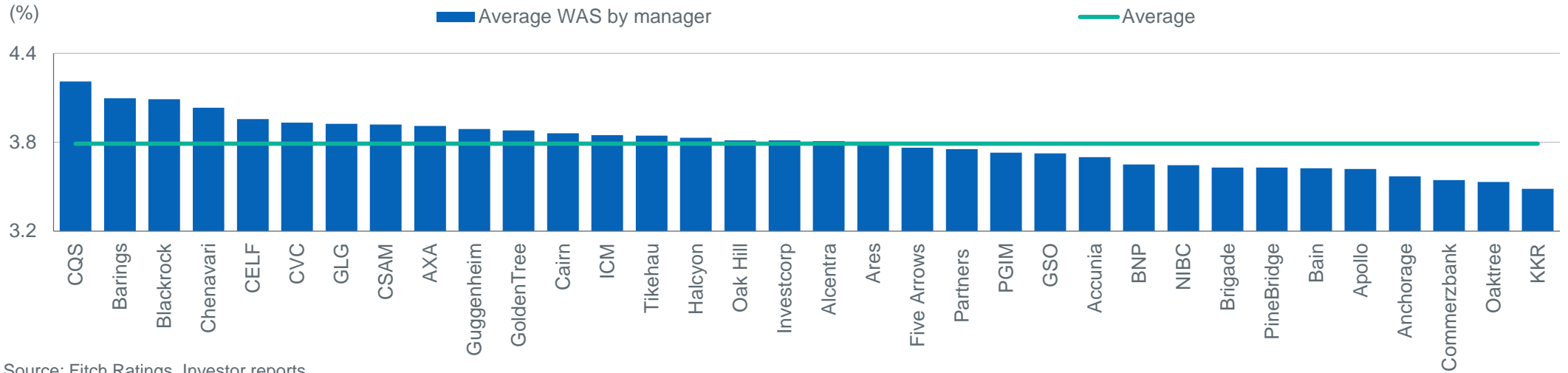
(%)



Source: Fitch Ratings, Investor reports

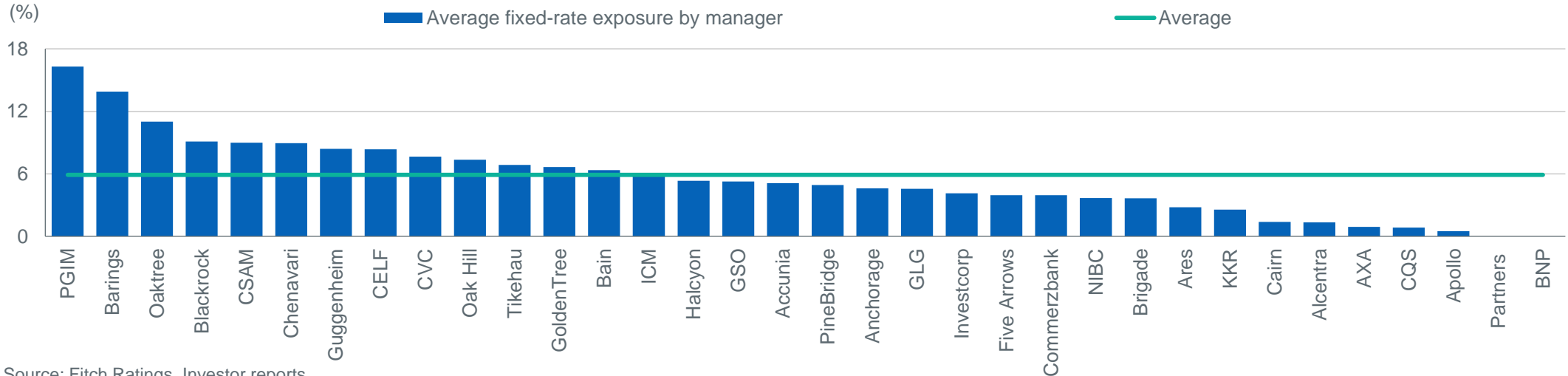
WAS and Fixed-Rate Exposure Comparison

Average WAS by Manager



Source: Fitch Ratings, Investor reports




Average Fixed Rate Exposure by Manager



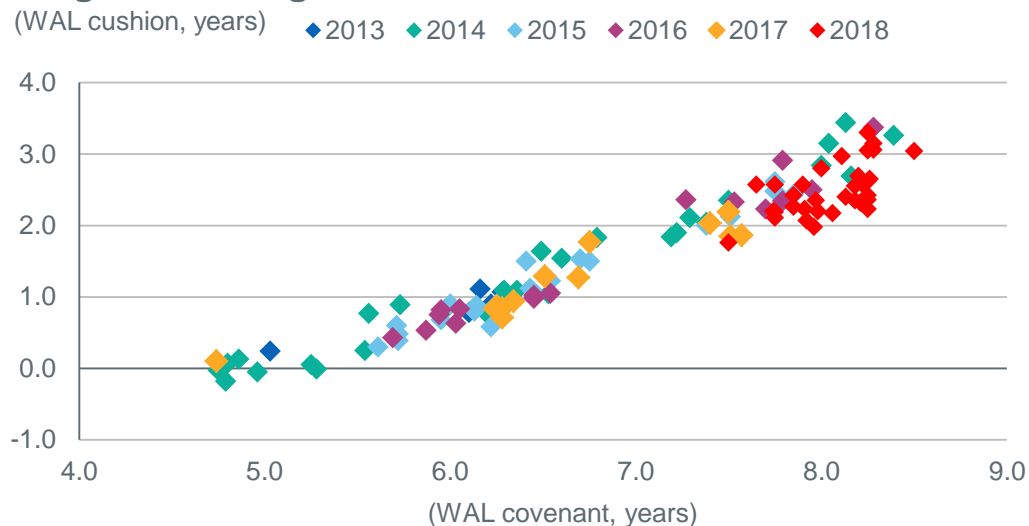
Source: Fitch Ratings, Investor reports

WAL Cushion Continues to Increase

- The WAL remains largely flat, just below 5.5 years.
- The WAL cushion continues to increase due to a combination of new deals and resets.
- Six transactions have exited their reinvestment period at end-4Q18 and five other transactions will exit their reinvestment period in January 2019.
- Other transactions originated in 2013 and 2014 have reset and extended their reinvestment period.

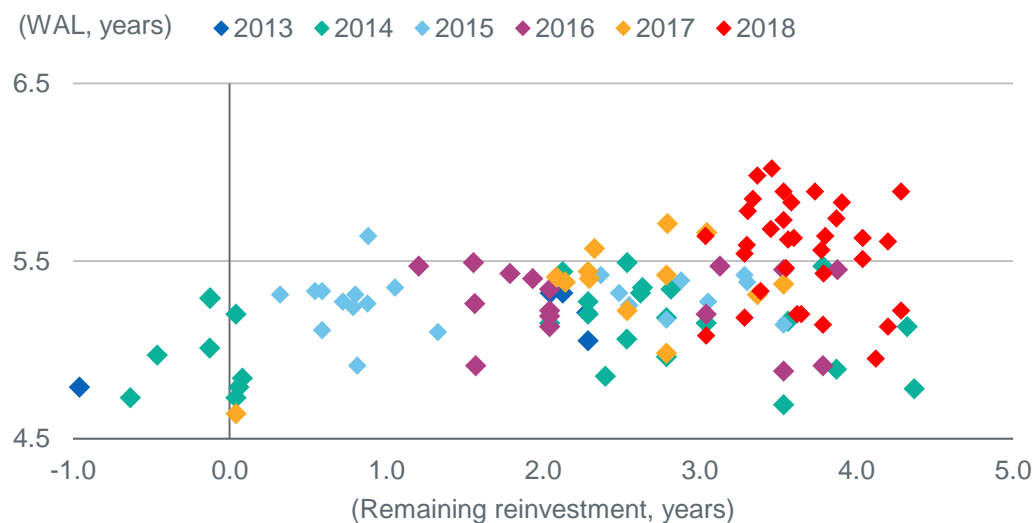
| Measure | 4Q18 | 3Q18 | 4Q17 |
|-------------------------------|---|------|------|
| Average WAL (trustee) (years) | 5.3  | 5.4 | 5.5 |
| WAL failing (% transactions) | 3.4  | 5.3 | 9.9 |
| Average WAL cushion (years) | 1.7  | 1.5 | 1.1 |

Weighted Average Life Cushion



Source: Fitch Ratings, Investor reports

Weighted Average Life/Reinvestment Distribution

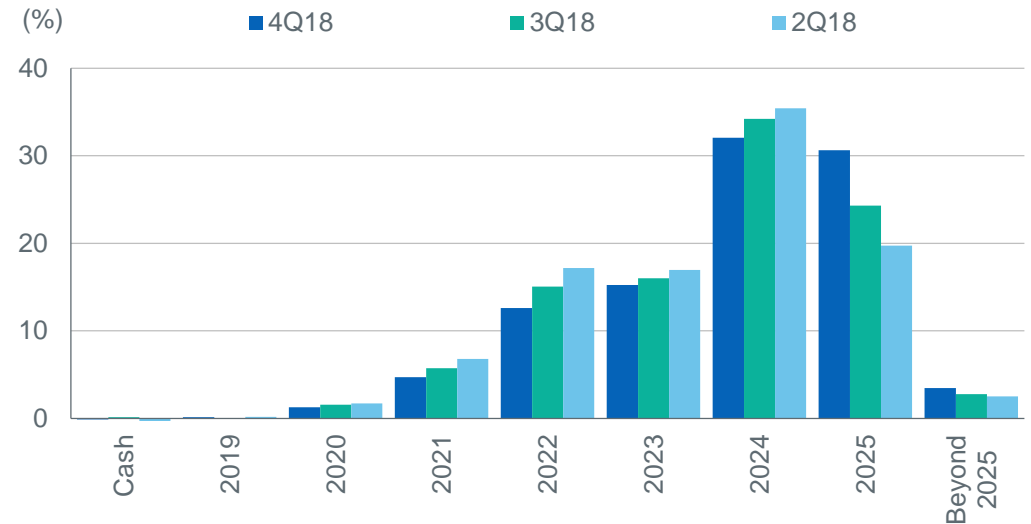


Source: Fitch Ratings, Investor reports

Maturity Wall Shift Towards 2024-2025

- The maturity wall continues to shift towards 2024 and 2025.
- Most borrowers have refinanced and locked in very low spreads while moving out loan maturities by several years.
- A slightly longer WAL appears to have become a new market standard:
 - Recent transactions continue to be structured or reset with an 8.5-year WAL.
 - Many managers have extended their WAL covenants to increase their reinvestment capacities.
- Some transactions also provide the manager with some additional flexibility regarding the WAL test covenant.
 - In some cases, the WAL test remains flat after the end of the reinvestment period.
 - In other cases, the CLO documentation allows the manager to exclude some assets from the WAL calculation if the transaction is above the target par.
 - In other cases, the WAL threshold may be extended by six months on the last day of the non-call period, if the transaction performs relatively well.

Weighted Average Loan Maturity Profile



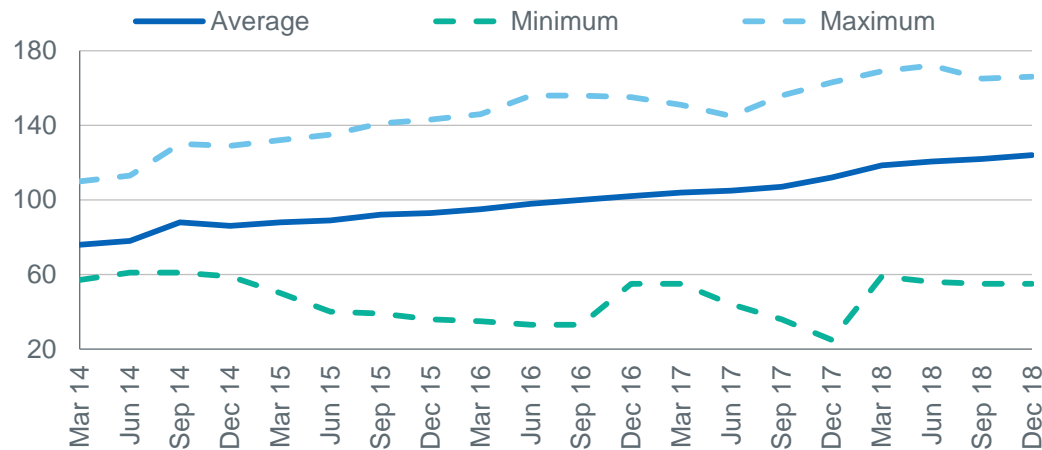
Source: Fitch Ratings, Investor reports

Obligor Diversification Continues to Increase

- Obligor diversification continues to increase as more transactions feature a portfolio profile test or collateral quality test, limiting the exposure to the top 10 obligors in the portfolio.
- A third of transactions rated by Fitch have top 10 obligors at or below 16%.
- All transactions rated by Fitch have more than 70 obligors, except Bosphorus CLO III.
- The chart on the right shows the CLOs rated by Fitch with the highest and lowest top 10 obligor concentrations.

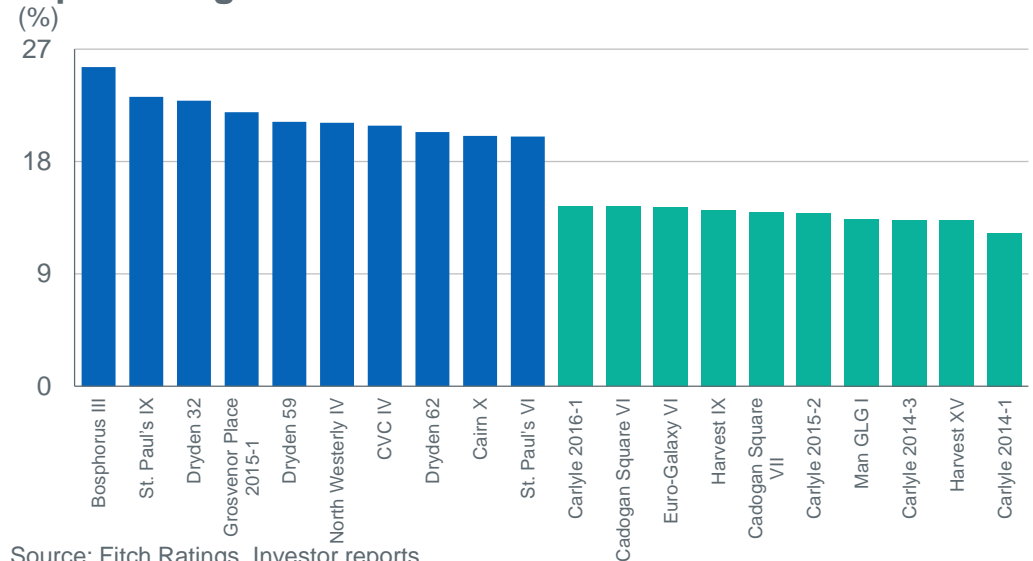
| Measure (average) | 4Q18 | 3Q18 | 4Q17 |
|--------------------|---|------|------|
| Number of obligors | 124 ↑ | 122 | 112 |
| Top 1 (%) | 2.1 ↓ | 2.2 | 2.3 |
| Top 5 (%) | 9.5 ↓ | 9.6 | 10.2 |
| Top 10 (%) | 17.4 ↓ | 17.7 | 18.8 |

Average Number of Obligators



Source: Fitch Ratings, Investor reports

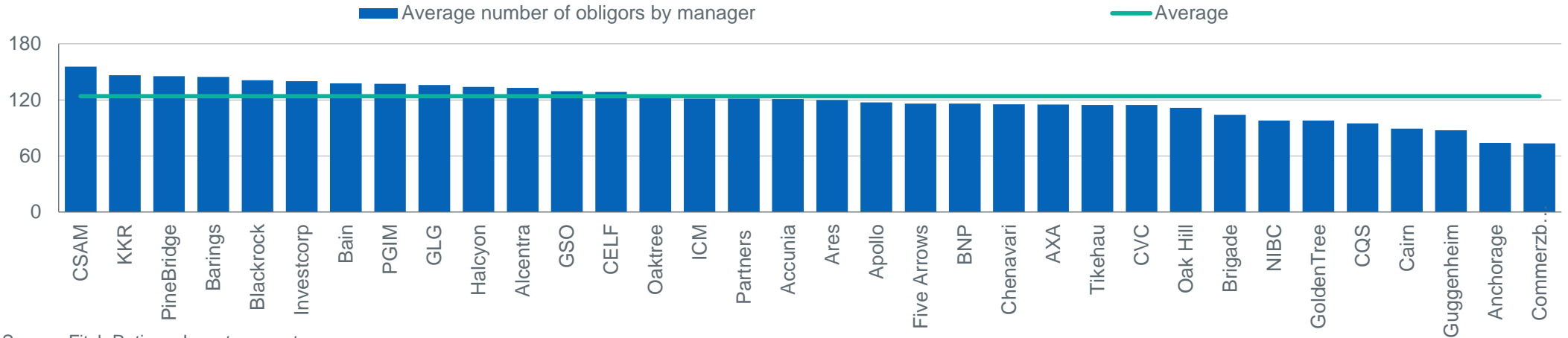
Top 10 Obligor Concentration



Source: Fitch Ratings, Investor reports

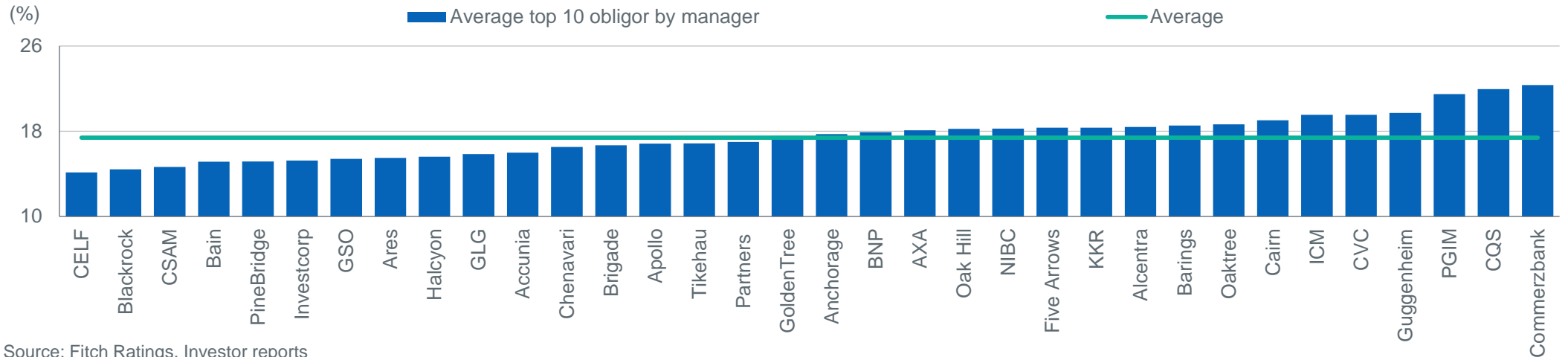
Obligor Diversification by Manager

Average Obligor Count by Manager



Source: Fitch Ratings, Investor reports

Average Top 10 Obligor by Manager



Source: Fitch Ratings, Investor reports

European CLOs: Most Referenced Issuers

| Most referenced issuer no. | Issuer | % of CLOs referencing this issuer | Average CLO exposure to this issuer (%) | Fitch rating | Outlook |
|----------------------------|------------------------------------|-----------------------------------|---|--------------|---------|
| 1 | Verisure Holding AB | 95.69 | 1.49 | | |
| 2 | Nidda BondCo GmbH | 94.83 | 1.21 | B | Stable |
| 3 | VodafoneZiggo Group B.V. | 92.24 | 1.44 | B+ | Stable |
| 4 | Evergood 4 APS | 91.38 | 1.06 | B+ | Stable |
| 5 | Eircom Holdings (Ireland) Limited | 89.66 | 1.18 | B+ | Stable |
| 6 | Lux Midco S.a r.l. | 88.79 | 1.01 | B | Stable |
| 7 | Starfruit Topco Cooperatief U.A. | 86.21 | 0.77 | B+ | Stable |
| 8 | Sigma Holdco BV | 85.34 | 1.23 | B+ | Stable |
| 9 | ION Trading Technologies Limited | 82.76 | 1.13 | | |
| 10 | SFR Group S.A. | 81.90 | 1.50 | * | |
| 11 | Unilabs Midholding AB | 79.31 | 0.87 | * | |
| 12 | Nord Anglia Education, Inc | 79.31 | 0.95 | | |
| 13 | LSF10 XL Investments S.a.r.l | 78.45 | 1.11 | * | |
| 14 | Ineos Group Holdings S.A. | 77.59 | 1.13 | BB+ | Stable |
| 15 | Oberthur Technologies Group S.A.S. | 76.72 | 1.05 | B | Stable |
| 16 | EG Group Limited | 76.72 | 1.35 | B | Stable |
| 17 | Blitz F18-674 GmbH | 76.72 | 1.05 | B | Stable |
| 18 | Paysafe Group PLC | 75.00 | 1.20 | * | |
| 19 | HomeVi S.A.S. | 75.00 | 0.86 | * | |
| 20 | Tele Columbus AG | 73.28 | 0.95 | B | Stable |

* Fitch credit opinion
Source: Fitch Ratings

European CLOs: Manager Issuer Overlap Matrix

| European CLOs Manager Issuer Overlap Matrix Based on Issuer Count | Issuer Count | Accunia | Alcentra | Anchorage | Apollo | Ares | AXA | Bain | Halcyon | Barings | Blackrock | GSO | BNP | Brigade | Cairn | CELF | Chenavari | Commerzbank | CQS | CSAM | CVC | Five Arrows | GLG | GoldenTree | Guggenheim | ICM | Investcorp | KKR | NIBC | Oak Hill | Oaktree | Partners | PGIM | PineBridge | Tikehau |
|---|--------------|---------|----------|-----------|--------|------|------|------|---------|---------|-----------|------|------|---------|-------|------|-----------|-------------|------|------|------|-------------|------|------------|------------|------|------------|------|------|----------|---------|----------|------|------------|---------|
| Accunia | 121 | 100% | 55% | 31% | 36% | 46% | 44% | 55% | 44% | 45% | 50% | 55% | 37% | 40% | 49% | 65% | 47% | 41% | 26% | 52% | 45% | 50% | 51% | 46% | 38% | 50% | 61% | 60% | 37% | 51% | 50% | 53% | 61% | 53% | 43% |
| Alcentra | 172 | 38% | 100% | 24% | 42% | 39% | 41% | 52% | 42% | 51% | 42% | 55% | 44% | 34% | 50% | 60% | 42% | 38% | 27% | 52% | 48% | 48% | 48% | 35% | 33% | 51% | 60% | 61% | 43% | 41% | 45% | 51% | 58% | 53% | 41% |
| Anchorage | 74 | 50% | 57% | 100% | 46% | 53% | 46% | 68% | 46% | 53% | 58% | 68% | 53% | 45% | 59% | 70% | 49% | 51% | 35% | 58% | 54% | 58% | 50% | 49% | 45% | 55% | 64% | 64% | 50% | 51% | 53% | 49% | 64% | 66% | 50% |
| Apollo | 123 | 36% | 59% | 28% | 100% | 44% | 46% | 54% | 46% | 63% | 53% | 64% | 53% | 37% | 53% | 64% | 48% | 41% | 30% | 59% | 51% | 56% | 48% | 38% | 46% | 61% | 67% | 68% | 49% | 52% | 57% | 50% | 66% | 62% | 50% |
| Ares | 120 | 47% | 56% | 33% | 45% | 100% | 52% | 61% | 51% | 51% | 53% | 62% | 50% | 39% | 53% | 75% | 53% | 51% | 33% | 56% | 54% | 54% | 56% | 43% | 38% | 59% | 67% | 64% | 48% | 49% | 48% | 55% | 65% | 67% | 57% |
| AXA | 115 | 46% | 62% | 30% | 49% | 54% | 100% | 60% | 49% | 57% | 52% | 59% | 57% | 45% | 61% | 70% | 52% | 51% | 33% | 62% | 53% | 52% | 53% | 46% | 46% | 66% | 71% | 72% | 49% | 58% | 51% | 58% | 64% | 63% | 45% |
| Bain | 166 | 40% | 54% | 30% | 40% | 44% | 42% | 100% | 47% | 53% | 45% | 60% | 46% | 37% | 52% | 68% | 46% | 40% | 31% | 58% | 48% | 48% | 46% | 37% | 33% | 54% | 61% | 58% | 42% | 46% | 47% | 50% | 55% | 58% | 42% |
| Halcyon | 134 | 40% | 54% | 25% | 42% | 46% | 42% | 58% | 100% | 58% | 52% | 57% | 44% | 41% | 48% | 69% | 53% | 40% | 33% | 60% | 57% | 46% | 52% | 39% | 30% | 54% | 61% | 61% | 42% | 45% | 49% | 40% | 57% | 60% | 46% |
| Barings | 189 | 29% | 47% | 21% | 41% | 32% | 35% | 47% | 41% | 100% | 35% | 53% | 39% | 31% | 48% | 60% | 40% | 34% | 26% | 51% | 44% | 38% | 42% | 34% | 31% | 52% | 55% | 54% | 38% | 40% | 46% | 38% | 50% | 48% | 39% |
| Blackrock | 141 | 43% | 52% | 31% | 46% | 45% | 43% | 53% | 50% | 39% | 51% | 40% | 100% | 41% | 34% | 46% | 63% | 39% | 38% | 27% | 55% | 48% | 45% | 40% | 37% | 32% | 50% | 59% | 58% | 38% | 43% | 44% | 43% | 50% | 38% |
| GSO | 198 | 34% | 47% | 25% | 40% | 37% | 34% | 50% | 39% | 51% | 40% | 100% | 41% | 34% | 46% | 63% | 39% | 38% | 27% | 55% | 48% | 45% | 40% | 37% | 32% | 50% | 59% | 58% | 38% | 43% | 44% | 43% | 50% | 38% | |
| BNP | 125 | 36% | 61% | 31% | 52% | 48% | 53% | 61% | 47% | 59% | 46% | 66% | 100% | 41% | 62% | 71% | 49% | 52% | 34% | 56% | 52% | 58% | 53% | 41% | 41% | 63% | 66% | 69% | 50% | 50% | 52% | 61% | 67% | 64% | 54% |
| Brigade | 104 | 46% | 57% | 32% | 44% | 45% | 50% | 60% | 53% | 57% | 55% | 65% | 49% | 100% | 55% | 68% | 45% | 50% | 33% | 58% | 58% | 48% | 50% | 47% | 38% | 65% | 59% | 64% | 45% | 55% | 57% | 52% | 62% | 69% | 46% |
| Cairn | 146 | 40% | 59% | 30% | 45% | 43% | 48% | 60% | 44% | 62% | 49% | 63% | 53% | 39% | 100% | 66% | 50% | 45% | 39% | 60% | 53% | 55% | 54% | 42% | 38% | 57% | 71% | 67% | 47% | 49% | 55% | 51% | 58% | 64% | 47% |
| CELF | 214 | 37% | 49% | 24% | 37% | 42% | 38% | 53% | 43% | 53% | 41% | 58% | 42% | 33% | 45% | 100% | 40% | 38% | 28% | 52% | 48% | 45% | 45% | 33% | 35% | 53% | 57% | 56% | 37% | 43% | 47% | 46% | 55% | 58% | 41% |
| Chenavari | 139 | 41% | 52% | 26% | 42% | 46% | 43% | 55% | 51% | 54% | 46% | 55% | 44% | 34% | 53% | 61% | 100% | 42% | 30% | 61% | 52% | 45% | 52% | 42% | 30% | 53% | 58% | 55% | 41% | 46% | 47% | 37% | 57% | 59% | 41% |
| Commerzbank | 106 | 47% | 61% | 36% | 48% | 58% | 56% | 62% | 51% | 61% | 56% | 71% | 61% | 49% | 61% | 77% | 56% | 100% | 33% | 73% | 63% | 58% | 56% | 48% | 40% | 63% | 66% | 69% | 51% | 61% | 58% | 60% | 64% | 75% | 60% |
| CQS | 95 | 33% | 48% | 27% | 39% | 42% | 40% | 55% | 46% | 52% | 45% | 57% | 45% | 36% | 60% | 63% | 43% | 37% | 100% | 58% | 49% | 43% | 47% | 41% | 28% | 48% | 64% | 58% | 40% | 40% | 40% | 46% | 53% | 55% | 38% |
| CSAM | 185 | 34% | 48% | 23% | 39% | 36% | 38% | 52% | 44% | 52% | 41% | 59% | 38% | 32% | 48% | 61% | 46% | 42% | 30% | 100% | 49% | 42% | 53% | 39% | 28% | 51% | 59% | 54% | 36% | 46% | 44% | 39% | 51% | 56% | 43% |
| CVC | 150 | 36% | 55% | 27% | 42% | 43% | 41% | 53% | 51% | 55% | 50% | 63% | 43% | 40% | 51% | 69% | 48% | 45% | 31% | 60% | 100% | 49% | 51% | 41% | 33% | 51% | 62% | 58% | 42% | 46% | 46% | 42% | 55% | 58% | 47% |
| Five Arrows | 138 | 44% | 59% | 31% | 50% | 47% | 43% | 57% | 44% | 52% | 46% | 65% | 53% | 36% | 59% | 70% | 45% | 44% | 30% | 57% | 54% | 100% | 49% | 40% | 43% | 58% | 70% | 72% | 49% | 51% | 52% | 59% | 62% | 69% | 49% |
| GLG | 157 | 39% | 52% | 24% | 38% | 43% | 39% | 49% | 45% | 50% | 42% | 51% | 42% | 33% | 50% | 61% | 46% | 38% | 29% | 62% | 48% | 43% | 100% | 38% | 31% | 51% | 55% | 52% | 38% | 44% | 39% | 47% | 56% | 52% | 51% |
| GoldenTree | 117 | 48% | 51% | 31% | 40% | 44% | 45% | 53% | 44% | 56% | 51% | 62% | 44% | 42% | 53% | 60% | 50% | 44% | 33% | 62% | 53% | 47% | 50% | 100% | 30% | 50% | 62% | 65% | 43% | 56% | 44% | 42% | 56% | 54% | 45% |
| Guggenheim | 107 | 43% | 52% | 31% | 52% | 42% | 50% | 50% | 37% | 55% | 52% | 60% | 48% | 37% | 51% | 70% | 39% | 39% | 25% | 48% | 47% | 55% | 45% | 33% | 100% | 58% | 58% | 59% | 38% | 45% | 56% | 51% | 64% | 62% | 45% |
| ICM | 175 | 35% | 50% | 23% | 43% | 41% | 43% | 51% | 42% | 56% | 43% | 57% | 45% | 39% | 47% | 65% | 42% | 38% | 26% | 54% | 43% | 46% | 46% | 34% | 35% | 100% | 60% | 59% | 35% | 45% | 44% | 49% | 59% | 57% | 38% |
| Investcorp | 199 | 37% | 52% | 24% | 42% | 40% | 41% | 51% | 41% | 52% | 45% | 59% | 42% | 31% | 52% | 61% | 40% | 35% | 31% | 55% | 47% | 48% | 44% | 37% | 31% | 53% | 100% | 59% | 39% | 42% | 43% | 49% | 53% | 52% | 41% |
| KKR | 180 | 41% | 58% | 26% | 47% | 43% | 46% | 54% | 46% | 57% | 47% | 63% | 48% | 37% | 54% | 67% | 43% | 41% | 31% | 55% | 48% | 56% | 46% | 42% | 35% | 57% | 65% | 100% | 43% | 50% | 52% | 54% | 58% | 60% | 48% |
| NIBC | 123 | 37% | 60% | 30% | 49% | 46% | 46% | 56% | 46% | 58% | 47% | 61% | 50% | 38% | 55% | 64% | 46% | 44% | 31% | 54% | 51% | 54% | 48% | 41% | 33% | 50% | 63% | 63% | 100% | 50% | 53% | 54% | 61% | 62% | 55% |
| Oak Hill | 137 | 45% | 52% | 28% | 47% | 43% | 49% | 56% | 44% | 55% | 47% | 62% | 46% | 42% | 52% | 66% | 47% | 47% | 28% | 62% | 50% | 52% | 50% | 47% | 35% | 58% | 61% | 66% | 45% | 100% | 50% | 58% | 65% | 45% | |
| Oaktree | 144 | 42% | 54% | 27% | 49% | 40% | 41% | 54% | 45% | 60% | 48% | 61% | 45% | 41% | 56% | 69% | 45% | 42% | 26% | 56% | 48% | 50% | 42% | 36% | 42% | 53% | 60% | 65% | 45% | 48% | 100% | 49% | 60% | 66% | 49% |
| Partners | 155 | 41% | 56% | 23% | 40% | 43% | 43% | 54% | 35% | 46% | 36% | 55% | 49% | 35% | 48% | 64% | 33% | 41% | 28% | 47% | 41% | 53% | 48% | 32% | 35% | 55% | 63% | 63% | 43% | 45% | 45% | 100% | 57% | 55% | 40% |
| PGIM | 197 | 38% | 51% | 24% | 41% | 40% | 38% | 46% | 39% | 48% | 45% | 50% | 43% | 32% | 43% | 59% | 40% | 35% | 25% | 48% | 42% | 43% | 45% | 34% | 35% | 53% | 54% | 53% | 38% | 41% | 44% | 45% | 100% | 52% | 41% |
| PineBridge | 166 | 39% | 55% | 30% | 46% | 48% | 44% | 58% | 49% | 55% | 49% | 66% | 48% | 43% | 56% | 75% | 49% | 48% | 31% | 62% | 54% | 57% | 49% | 38% | 40% | 60% | 62% | 65% | 46% | 54% | 57% | 51% | 62% | 100% | 46% |
| Tikehau | 131 | 40% | 53% | 28% | 47% | 52% | 40% | 53% | 47% | 56% | 51% | 58% | 51% | 37% | 52% | 67% | 44% | 49% | 27% | 61% | 53% | 52% | 61% | 40% | 37% | 51% | 63% | 66% | 52% | 47% | 53% | 47% | 61% | 59% | 100% |

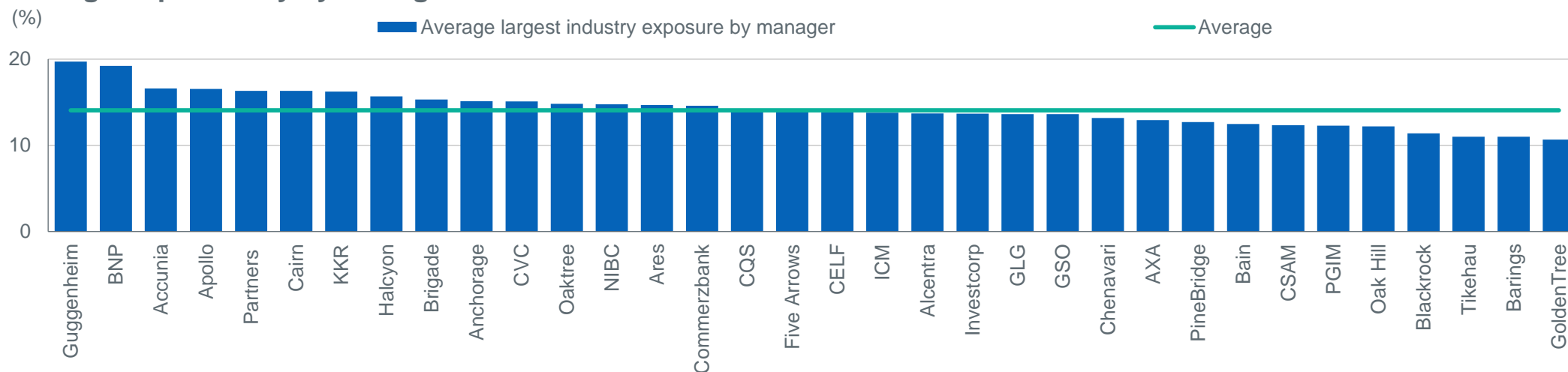
Source: Fitch Ratings

Industry Concentration Largely Stable, Portfolio Remains Diversified

- Portfolio remains well diversified across industries.
- Healthcare, business services and computers and electronics emerged as the largest three Fitch industries at end-4Q18.
- The largest industry represented on average 14% of the portfolio as end-4Q18.
- Managers do not use the full flexibility offered by the profile tests, which typically limit the largest and top three industries at 17.5% and 40%, respectively.

| Measure (average) | 4Q18 | 3Q18 | 4Q17 |
|-------------------------------|--|------|------|
| Largest industry exposure (%) | 14.1 ↑ | 14.0 | 13.2 |
| Healthcare (%) | 12.2 ↑ | 12.0 | 9.8 |
| Business services (%) | 10.7 ↑ | 9.6 | 5.9 |
| Computers & electronics (%) | 9.8 ↓ | 10.4 | 9.5 |

Average Top Industry by Manager

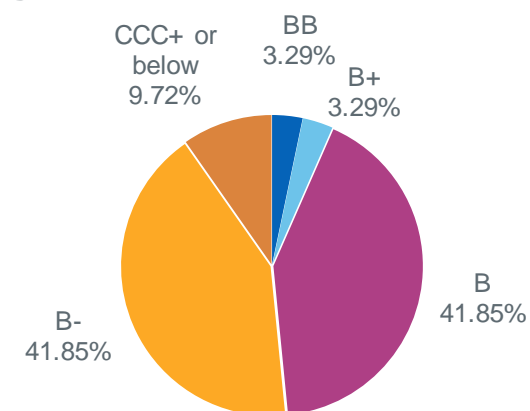


Source: Fitch Ratings, Investor reports

Retail Exposure Remains Limited

- Retail remains a challenged sector.
- Limited exposure in European CLOs but a large dispersion exists among transactions:
 - Average exposure: 5.3%
 - Minimum exposure: 0.7%
 - Maximum exposure: 10.4%
- Average ratings are in the 'B'/'B-' category.
- Three issuers were classified as defaulted by the managers among the 31 issuers identified by Fitch in the retail sector in European CLO.
- Retail issuers are concentrated in Germany (26%), the UK (23%), Netherlands (19%) and France (13%).

Rating Distribution



Source: Fitch Ratings, Investor reports

Retail Exposure in European CLO

| | | | |
|--|--|---------------------------|--|
| Belk, Inc. | HEMA BV | LKQ Corporation | Salsa Retail Holding DebtCo1 S.a.r.l. |
| Blitz F14-232 GMBH (Christ) | Holland & Barrett International Ltd. | Maxeda DIY Holding B.V. | Scotch & Soda N.V. |
| CatLuxe S.a.r.l | Horizon Bidco Limited (Photobox Group) | Mobilux 2 SAS | Selecta Group BV |
| CBR Fashion GmbH (CBR) | HSE24 Holding GmbH | New Look Retail Group Ltd | Stargazer Holding GmbH (Jack Wolfskin) |
| CD&R Firefly Bidco Limited | Hunkemoller International BV | Novartex SAS | Tendam Brands, S.A. |
| Creatrade Holding GmbH | Iceland Topco Limited | Peer Holding III B.V. | Thom Europe SAS |
| EG Group Limited | Kirk Beauty One GmbH | Picard Bondco S.A. | ZF BIDCO |
| Fat Face World Borrowings Ltd (Fat Face) | Lion Adventure B.V. | PrestigeBidCo GmbH | |

Source: Fitch Ratings, Investor reports

European CLOs: Industry Rating Map

| Fitch Industry | Issuer Count | BBB | BBB- | BB+ | BB | BB- | B+ | B | B- | CCC+ | CCC | CCC- | CC | C | D | Default | CCC+ & Below | TOTAL CLO | CCC+ Ratio |
|--------------------------------------|--------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|---|---------|--------------|-----------|------------|
| Pharmaceuticals | 15 | | | | 0.02% | | 0.88% | 1.63% | 0.51% | 0.24% | | | | | | 0.06% | 0.30% | 3.35% | 8.99% |
| Broadcasting and media | 21 | | | | 0.13% | 0.29% | 0.64% | 1.70% | 0.72% | 0.26% | | | | | | | 0.26% | 3.72% | 6.85% |
| Food and beverage and tobacco | 14 | | | | | 0.27% | 1.41% | 0.45% | 1.24% | 0.07% | 0.16% | | | | | | 0.24% | 3.60% | 6.54% |
| Healthcare | 41 | | | | | 0.73% | 0.49% | 8.62% | 2.21% | | 0.10% | | | | | | 0.10% | 12.16% | 0.84% |
| Retail | 29 | | | | 0.04% | | 0.79% | 2.76% | 1.22% | | | | 0.01% | | | 0.08% | 0.09% | 4.90% | 1.86% |
| Packaging and containers | 21 | | | 0.04% | 0.15% | 0.17% | 0.11% | 1.32% | 1.06% | | 0.09% | | | | | | 0.09% | 2.93% | 3.00% |
| Industrial and manufacturing | 39 | | | | 0.25% | 0.18% | 0.77% | 2.68% | 2.07% | 0.01% | 0.08% | | | | | | 0.09% | 6.04% | 1.41% |
| Banking and finance | 26 | | | | 0.03% | 0.36% | 0.01% | 2.20% | 0.26% | | 0.05% | | | | | | 0.05% | 2.92% | 1.87% |
| Chemicals | 37 | | | 0.88% | 0.54% | 0.79% | 2.22% | 1.74% | 3.46% | 0.04% | | | | | | | 0.04% | 9.68% | 0.45% |
| Business services | 45 | | | | 1.10% | 0.35% | 2.04% | 5.88% | 1.32% | | 0.03% | 0.01% | | | | | 0.04% | 10.73% | 0.37% |
| Computer and electronics | 31 | | | | 0.02% | 1.01% | 0.01% | 6.50% | 2.25% | | 0.03% | | | | | | 0.03% | 9.83% | 0.34% |
| Lodging and restaurants | 15 | | | | | | 0.02% | 0.78% | 0.62% | | 0.02% | | | | | 0.01% | 0.02% | 1.44% | 1.69% |
| Building and materials | 13 | | | | 0.00% | | 0.16% | 1.32% | 1.81% | | | | | | | 0.01% | 0.01% | 3.31% | 0.42% |
| Transportation and distribution | 10 | | | | 0.01% | 0.01% | 0.65% | 0.14% | 0.55% | | | 0.01% | | | | | 0.01% | 1.37% | 0.95% |
| Energy oil and gas | 5 | | | 0.01% | | | | | 0.03% | | 0.00% | 0.00% | | | | | 0.01% | 0.04% | 15.95% |
| Automobiles | 13 | | | 0.02% | | 0.73% | 0.39% | 0.43% | 0.19% | | 0.00% | | | | | | 0.00% | 1.76% | 0.20% |
| Metals and mining | 1 | | | | | | | | | | 0.00% | | | | | | 0.00% | 0.00% | 100.00% |
| Aerospace and defence | 4 | | | 0.00% | | | 0.39% | 0.20% | 0.01% | | | | | | | | 0.00% | 0.61% | 0.00% |
| Cable | 6 | | | | | 0.49% | 1.69% | 0.69% | 0.26% | | | | | | | | 0.00% | 3.13% | 0.00% |
| Consumer products | 20 | | | | 0.03% | 0.44% | 0.10% | 2.63% | 0.98% | | | | | | | | 0.00% | 4.17% | 0.00% |
| Environmental services | 5 | | | | | 0.26% | | 0.72% | | | | | | | | | 0.00% | 0.98% | 0.00% |
| Farming and agricultural services | 2 | | | | | | | 0.12% | 0.19% | | | | | | | | 0.00% | 0.31% | 0.00% |
| Gaming and leisure and entertainment | 27 | | | 0.45% | 0.05% | 0.12% | 0.87% | 3.40% | 0.65% | | | | | | | | 0.00% | 5.55% | 0.00% |
| Paper and forest products | 3 | | | | | | 0.21% | | 0.19% | | | | | | | | 0.00% | 0.41% | 0.00% |
| Real estate | 3 | | | | 0.00% | 0.00% | | | 0.33% | | | | | | | | 0.00% | 0.33% | 0.00% |
| Retail food and drug | 3 | | | | | | | 0.32% | 0.04% | | | | | | | | 0.00% | 0.35% | 0.00% |
| Telecommunications | 14 | | 0.00% | | 0.09% | 2.24% | 2.27% | 0.65% | 0.18% | | | | | | | | 0.00% | 5.44% | 0.00% |
| Textiles and furniture | 2 | | | | | | 0.02% | | 0.16% | | | | | | | | 0.00% | 0.17% | 0.00% |
| Utilities power | 3 | | | | | 0.02% | 0.10% | 0.80% | | | | | | | | | 0.00% | 0.92% | 0.00% |

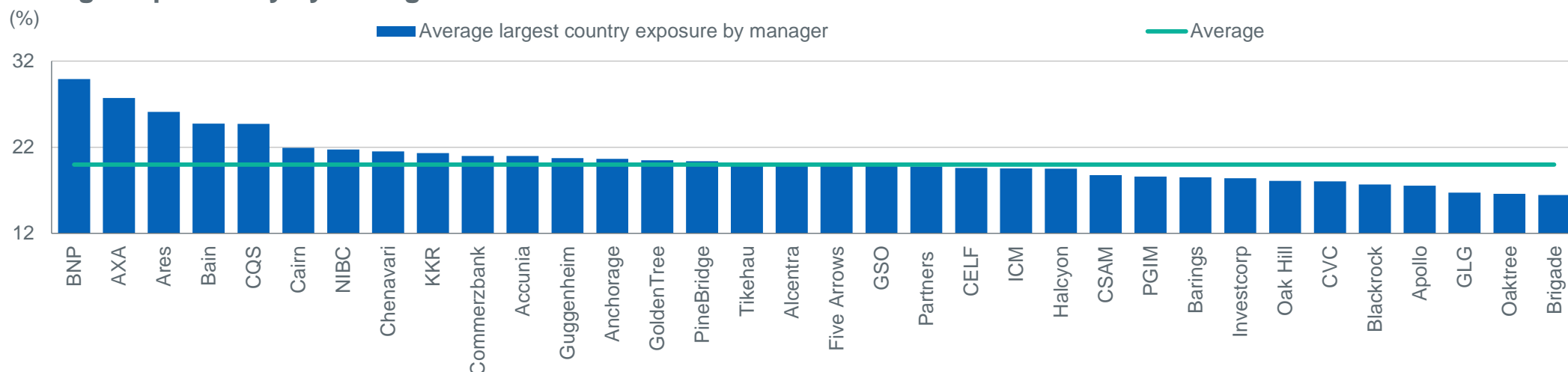
Source: Fitch Ratings

Country Concentration Largely Stable, Portfolio Remains Diversified

- Portfolio remains well diversified across countries.
- Germany, the US and France remain the largest countries in Fitch rated CLO.
- The US's exposure decreased to 15.6% at end-4Q18.
- The UK's exposure increased to 11.3% at end-4Q18.
- Exposure to peripheral eurozone (mainly Spain and Italy) remains relatively low and well below the typical 10% limit allowed under the transaction documents.

| Measure (average) | 4Q18 | 3Q18 | 4Q17 |
|------------------------------|--------|------|------|
| Largest country exposure (%) | 20.0 ↓ | 20.7 | 21.5 |
| Germany (%) | 15.4 ↓ | 16.7 | 18.5 |
| United States (%) | 15.6 ↓ | 15.7 | 17.9 |
| France (%) | 17.9 ↑ | 17.6 | 17.2 |
| United Kingdom (%) | 11.3 ↑ | 10.8 | 10.3 |
| Italy & Spain (%) | 7.5 ↑ | 7.3 | 6.1 |

Average Top Country by Manager



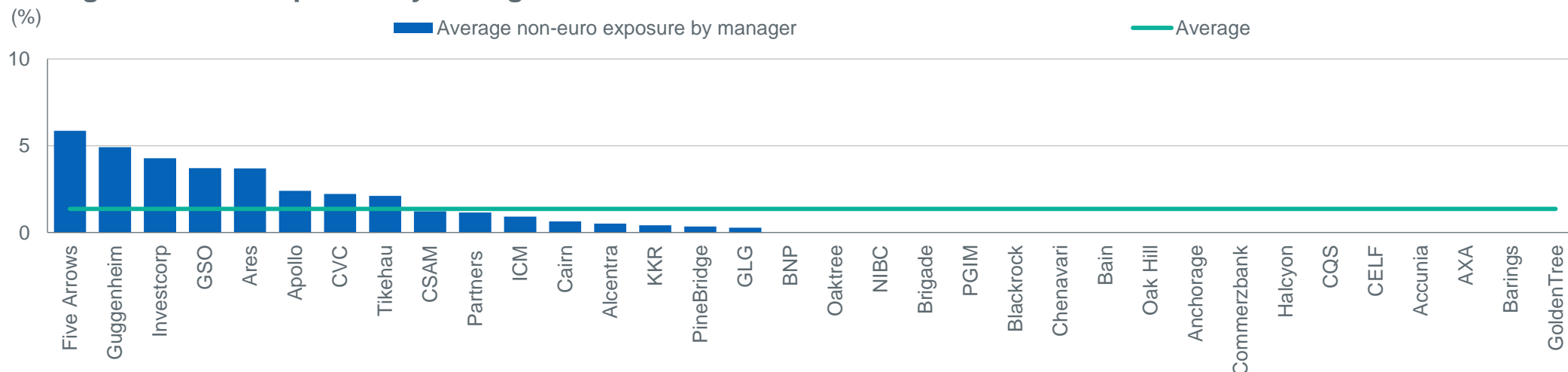
Source: Fitch Ratings, Investor reports

Non-Euro Exposure Remains Limited

- Most of the non-euro exposure is hedged via perfect asset swaps.
- Some transactions have a small bucket for unhedged or FX forward hedge obligations, but managers do not typically use this flexibility.
- BNP and JP Morgan are the largest currency swap counterparties.
- Interest in multicurrency structures has almost completely disappeared and most of the post-crisis multi-currency transactions have been reset to a single-currency structure.

| Measure (average) | 4Q18 | 3Q18 | 4Q17 |
|---------------------------------------|---|------|------|
| Average non-euro exposure (%) | 1.4 ↓ | 1.5 | 2.3 |
| % transactions with non-euro exposure | 50.9 ↓ | 54.7 | 59.3 |

Average Non-Euro Exposure by Manager



Source: Fitch Ratings, Investor reports

Related Research

- [*CLOs and Corporate CDOs Rating Criteria*](#)
- [*European Leveraged Loan CLO 4Q18 Tracker Data File*](#)
- [*European CLO 2.0: Selected Transaction Features Explained from a Credit Perspective*](#)
- [*European Leveraged Loan Chart Book – 1H18*](#)
- [*Fitch Ratings: Investors Push Back on Weaker Terms in European CLOs*](#)
- [*Fitch Rtg: Snr Secured Definitions May Change CLO Recovery Expectations*](#)
- [*Fitch Ratings: New Covenant Limits Maturity Risk in European CLOs*](#)
- [*Fitch Ratings: CLO Concentration a Potential Risk*](#)
- [*What Investors Want to Know: Topics in Leveraged Loans and CLOs*](#)
- [*Late Cycle Risk Building for CLOs & Leveraged Loans*](#)
- [*Fitch Ratings 2019 Outlook: Global CLO and Leveraged Loans \(Global Review\)*](#)
- [*Global CLO Market Trends Quarterly - 4Q18*](#)
- [*CLO Asset Manager Handbook \(Seventh Edition\)*](#)
- [*U.S. CLO Index: Issuance, Reset Activity Supports Stable Metrics*](#)

Recent Presales and New Issue Reports

- [Penta CLO 5 Designated Activity Company](#)
- [Armada Euro CLO III Designated Activity Company](#)
- [GoldenTree Loan Management EUR CLO 2 Designated Activity Company](#)
- [Invesco Euro CLO I Designated Activity Company](#)
- [Providus CLO II Designated Activity Company](#)
- [Dryden 66 Euro CLO 2018 B.V.](#)
- [OZLME V Designated Activity Company](#)
- [BlackRock European CLO VII DAC](#)
- [CVC Cordatus Loan Fund XII Designated Activity Company](#)
- [Jubilee CLO 2018-XXI B.V.](#)
- [Rockford Tower Europe CLO 2018-1 DAC](#)
- [Contego CLO VI DAC](#)
- [Harvest CLO XX DAC](#)
- [Oak Hill European Credit Partners VII Designated Activity Company](#)
- [Bain Capital Euro CLO 2018-2 Designated Activity Company](#)
- [Halcyon Loan Advisors European Funding 2016 DAC](#)
- [Griffith Park CLO Designated Activity Company](#)
- [Carlyle Global Market Strategies Euro CLO 2014-2 Designated Activity Company](#)
- [Phoenix Park CLO Designated Activity Company](#)
- [Laurelin 2016-1 Designated Activity Company](#)

European CLO Index Assumptions

- “European Primary Market Update” statistics are based on the universe of post-crisis European CLOs. “Fitch Rated European CLO Performance” statistics are based on Fitch-rated European CLOs.
- 4Q18 data are as of 17 January 2019 and based on investor reports available at that time (31 October 2018 to 4 January 2019).
- All stratifications and bucket allocations reflect Fitch's rating methodology, detailed in CLOs and Corporate CDOs Rating Criteria. For example, industry stratification charts reflect Fitch's industry classification and 'CCC' buckets reflect Fitch's Equivalent Ratings. These calculations are consistent across all transactions and mirror the inputs into Fitch's PCM model. Consequently, they may not match the values used for operational tests.
- All portfolio statistics are based on asset balance and are calculated relative to the current outstanding balance of the portfolio, which includes cash and defaulted assets taken at par.
- The weighted-average life calculation excludes defaulted assets. The calculation is based on the legal final maturity dates of corporate assets.
- Defaulted assets refers to obligors that are reported as defaulted assets by the trustee.
- In the recovery stratification charts, the recovery rate of assets that do not have a Fitch asset-specific recovery rate assigned to them are based on Fitch's standard recovery rate assumptions as specified in Fitch's criteria.
- Transaction net gains/losses are calculated as the difference between the current portfolio par and the target par (initial target minus reduction in liabilities). The net gains/losses take into account the benefit of excess spread used to deleverage the transaction and offset portfolio losses, as well as par building through the purchase of discounted assets.
- Credit Enhancement calculation includes defaulted assets at Par.
- Manager overlap matrix is based on issuer count. The overlap is the number of issuers 2 CLO managers have in common and is measured relative to the number of issuers the managers referenced CLO (presented in the rows of the overlap table) have.

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