IHS Markit®

Securities Finance Quarterly Review

Q4 2018

Welcome to the final edition of the Securities Finance Quarterly Review for 2018. Over the last six months, I have been able to meet with many of our clients and I am grateful for all the support I have been given. I am also encouraged by the positive reaction to the product roadmap that we have laid out for 2019. We are making material investments across all aspects of the business, and the securities finance team is motivated and energized by the strategy, whilst at the same time, we are focused on delivering high levels of support and service to our clients. In the context of delivering new solutions and enhancing our existing products, 2018 was a year of great success, with a significant number of developments, the most noteworthy being:

- Global public disclosure datafeed
- Related corporate bond data
- Inventory stability metrics
- Borrower league table enhancements

Securities Lending Performance Measurement (Benchmarking)

A core element of our strategy is developing the next generation of benchmarking tools. Since IHS Markit pioneered the first benchmarking capabilities in the securities finance industry (2003), so much has changed across every aspect of the industry. Whilst benchmarking has evolved, perhaps it has not kept pace with the complexities across the industry today. Specifically, we are responding to the demand from the market, and once again leading the industry by enhancing and evolving Securities Lending Performance Measurement. In Q4, we added a recommended benchmark functionality which automatically creates a filter from the most meaningful comparison group, and also filters out lendable inventory which is not being actively lent. We will be making further enhancements throughout 2019, including improving transparency around revenue by collateral type as well as “what if” scenario testing.

Beneficial Owners

On a related note, another area of development for 2019 which I’m particularly excited about, is an enhanced and focused package of services for beneficial owners. This includes analytics, independent management reporting, compliance, consolidated performance and risk reporting, as well as framework and strategic alignment. The key aspect is providing beneficial owners with pertinent and actionable information to help them optimize their securities lending programs.

Short Interest

One use case for securities lending data is as a proxy for short interest. Other sources of short interest data, such as FINRA and ESMA mandated reports, are limited by frequency, completeness and timeliness. To provide our clients with the best possible short demand color, we’ve added a datafeed with all publicly available short interest data, along with our forecasts for the next report. The feedback on the new short interest fields has been positive from all quarters, and we look forward to further developments on that front.

Intraday

Along with expanding short color, we continue to see increased adoption of our intraday Securities Finance dataset, which is an exciting result from a multi-year process. We are currently working on an intraday tool for the buy side. We are also working with our third-party distributors on enhanced offerings of these additional datasets. We’ve made our name with the most complete global dataset and view the move into same day borrow rates as a key differentiator going forward.

If you’d like to hear more about any of these initiatives I would encourage you to reach out to your local product specialist team (contact details are on page 20). On that note, I’m pleased to announce that Melissa Gow now manages this team on a global basis, in addition to her previous role managing our large US based clients and consulting business. Please feel free to reach out directly to Melissa or to me with questions about our product and roadmap.

At IHS Markit, our mission is to empower clients with data and solutions to capture the present opportunity set for their businesses, while staying ahead of regulatory hurdles. We view ourselves as the leading independent global information powerhouse, and we continue to leverage the resources of our broader enterprise, as well as our strategic partners in the industry, to best serve our Securities Finance clients. A decade on from the financial crisis we’re pleased with the progress we are making toward that goal.

Regards,

Paul R. Wilson

Managing director and global head of Securities Finance, IHS Markit

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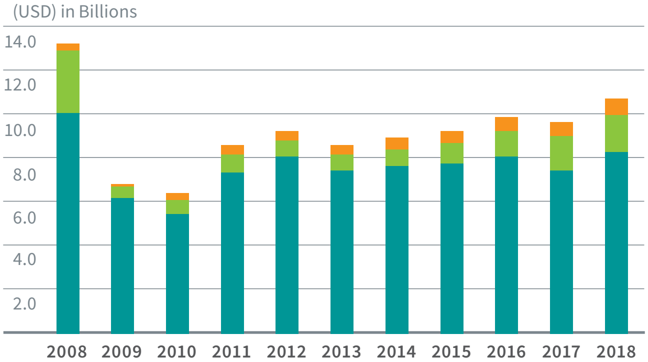
2018 Securities Lending Year in Review

Best post-crisis annual lending revenues

Emerging Market demand, global credit uncertainty and central bank tightening were the primary drivers of revenue for securities lending in 2018. These narratives included trade conflicts, the potential turning of the credit cycle and the coordinated effort to reverse QE and increase rates. The US market diverged from other equity markets in the middle of the year, resulting in pain for US short sellers, as well as a decrease in borrow demand, particularly in specials, during the summer and fall.

However, as valuations entered a downtrend in Q2, the demand for Emerging Markets soared with total borrow balances reaching a post-crisis peak in June. It was the best year ever for EM equity lending, delivering over $1bn in revenue for the first time. It was also a banner year for lending ETFs, which delivered $398m in 2018 revenue, an increase of 15% compared with 2017 and the best year on record. Overall, it was the best year since the financial crisis with total securities lending revenue coming in at $10.7bn in 2018.

Annual lending revenue by asset class



Equities:

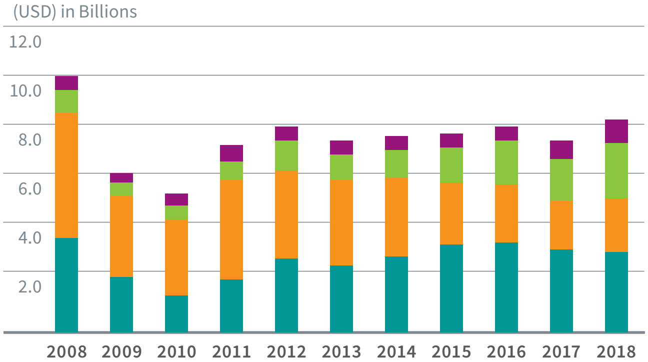
Asia was the bright spot for equity lending, with demand for EM equities surging along with increasing demand for shares of Japanese firms. Revenues in North America were held back by a lack of specials demand, however there was one red hot sector discussed below. Overall equity lending revenues were $8.2bn in 2018, which includes all ETFs and ADRs.

The uptrend in revenues for Japanese equities extended through 2018, with each quarter reflecting an improvement over its 2017 comparable, for a total of $878m. The rate of increase is slowing however, as the 23% YoY improvement in revenues was lower than the prior two years. Specials demand was consistently in the $3-4bn range through the first three quarters before tapering off to $2.7bn in December.

Demand for Hong Kong equities was robust, and the $388m in 2018 revenues are equivalent to an increase of 24% percent compared with 2017, as demand for shares of Chinese firms soared, reaching a post-crisis peak of $34bn in early June.

Revenues for South Korea reached a post-crisis peak with Celltrion delivering 23% percent of the country's $483m in revenue. Shares of Celltrion rallied in 2017, which led to declining borrow demand and fees. 2018 represented a return to form, coming off the back of 2014-2016 when the firm delivered more than 30% of all revenues for South Korean equities.

Historical Q4 global equity lending revenue

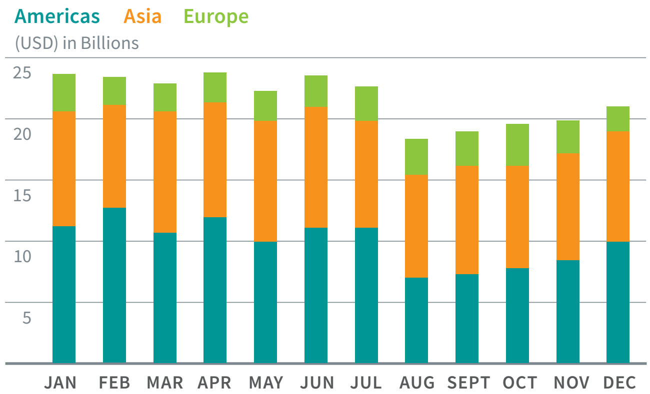


Revenues for the Americas were subdued by a lack of specials demand and challenging returns for short sellers. Total revenues declined 3% YoY to $3.1bn. Cannabis was the hot sector for region in 2018, delivering $230m in lending revenue, up from $106m in 2017. That is equivalent to 7.4% of all NA equity lending revenue. The top stocks were Tilray, Canopy Growth, Aurora Cannabis and Aphria, which combined for $177m of the total revenue. The sector is likely to deliver again in 2019, as Canada moves closer to full legalization of Cannabis derivatives along with more retail coming on line, the lure of which will likely continue to attract investors on the long and short side. Tilray was the standout from a revenue perspective, delivering $59m in revenue in less than half the year as the result of eye-popping fees.

At the mid-point of 2018, Tesla appeared as a golden egg laying goose, with the equity lending fee in the 2-300bps range on a balance greater than $10bn, while the 5.3% 2025 bond was among the most revenue generating corporate issues. The firm's Q2 and Q3 earnings reports failed to produce a lasting decline in valuations, which resulted in lower fees and borrow demand across the capital structure in the latter half of 2018. Given the volatility of the equity shares, whose price chart bore some resemblance to a cardiograph, long holders who stuck around for the 7% 2018 return could be said to have earned it. The road ahead for the firm, and borrow demand for its securities, is anything but certain: Tesla investors, and drivers, are reminded to keep both hands on the wheel at all times in 2019.

European equities delivered $2.1bn in 2018 revenue, an improvement of 13% compared with 2017, though still 5% below 2016's total. Balances and revenues improved relative to 2017 for the first three quarters before balances fell with the broader market in Q4 as new demand failed to materialize. Popular themes for borrow demand included consumer stocks, particularly retailers. EU special balances averaged between $2.5-$3bn, with the Spanish equities seeing the largest increase in specials balances during 2018.

Equity, ETF & ADR special balances (fee > 500bps)



Corporate Bonds:

Borrow demand for corporate debt also increased throughout 2018, with increased demand for IG USD credits the most notable change in the first half of 2018, with an increase in demand for EUR credits notable in H2. Total revenue for corporate bond lending revenue reached $733m in 2018, the highest level recorded since at least 2006.

Given the scale of outstanding debt, it is unsurprising that USD denominated corporate issues delivered the most revenue for the asset class in 2018, $436m in total, an increase of 8% compared with 2017. However, it is notable that EUR denominated issues posted the largest increase, both in percentage and absolute terms, with total revenues coming in at $186m, a 40% YoY increase. Breaking returns out by credit rating, non-investment grade bonds delivered 63% of all revenue, up from 61% in 2017. The Q4 average corporate on-loan balances were $198bn, the highest on record, as credit spreads widened amid the global sell-off. The broad global increase in demand augurs well for lending opportunities in the asset class for 2019.

Government Bonds:

Government bonds delivered $1.7bn in 2018 lending revenue, an increase of 10% compared with 2017. Average fees also increased, driving $730 in total revenue for 2018, an increase of 13% YoY. There was an upswing in demand for Italian government debt, which delivered $51m in 2018 revenue, the highest level recorded. Emerging Market government bond loan balances were up 11% in 2018 to $17.7bn, however lower fees had a depressing impact on revenues. There was a spike in fees for US Treasuries into the last days of the year, however the impact was much smaller than at year-end 2016.

Wrap-up:

After 2017, a year best defined by low volatility, 2018 was a marked divergence – a benefit then for asset owners that securities lending revenues delivered the best post-crisis return. By way of comparison, total revenues for 2008 were $13.2bn, but not having to go through a financial crisis to achieve 2018's $10.7bn seems a fair tradeoff. The average global revenues over the last ten years have been $8.8bn and the trend higher over the last two years has primarily been driven by increases in Asia and government bond demand.

The road ahead looks bright, with demand trending higher on the margin for US specials at the end of the year, while demand for EM equities remains stable, despite declining valuations and corporate bond demand is trending higher. Demand for ETFs continues to trend upwards, with credit focused funds delivering special fees and equity funds driving balances. The rate of increase for Asia and government bond lending revenues is slowing, however both still boasted impressive growth in 2018. On the heels of the best annual lending revenue since 2008, there's cause for optimism looking ahead. Many of the demand drivers for 2018 are at least as relevant coming into the new year, which should make for a fruitful set of opportunities for 2019.

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Asia Equity

Revenue uptrend slowing

The Asian equity lending streak of YoY revenue increases persisted in the 4th quarter, up 8% from the comparable quarter of 2017, though lagging Q3 returns. The increasing revenues were driven by a 24% YoY increase in balances, with fees posting a 13% decline compared with Q4 2017. Specials balances fell 6% compared with Q3, however the $22.5bn average balance with greater than 100bps fee was 17% higher than Q4 2017. The good news for beneficial owners is that utilization also increased in all countries in the region except Taiwan and Malaysia.

Despite the strong YoY comparisons, the uptrend in revenue for Asian equities may be losing momentum, posting a 6% QoQ decline for the 4th quarter (the first 2018 in the fourth quarter). The reduction in QoQ revenues was entirely driven by fees declining, most notably a 4bps decline on Japan's $102bn in average balances and 47bps decline on South Korea's $14bn in balances. While Q4 revenues in the region were only just below the Q3 all-time high, the sequential decline in fees on relatively flat balances during a market sell-off is notable. More often, balances decline in a sell-off, while fees increase as borrowers exhibit a greater willingness to pay for hedging/short exposure during market declines.

Japanese equity revenues totaled $210 million for Q4, a 0.2% decline compared with Q4 2017. Robotics firm Cyberdyne was the highest revenue generating stock in Japan, pulling in $6.4m in Q4. The 68% reduction in balances during the quarter reflects a 46% decline in price as well as a 41% decline in shares on loan, with recalls on the back of a 31% decline in lendable shares.

South Korea retained the 2nd position in the region, with $124m in Q4 revenue, a 41% increase compared with Q4 2017. Celltrion and Celltrion Healthcare were the top two revenue generating stocks in the region. Celltrion revenues were down 40% compared with Q3 as the result of declining balances and fees. Conversely, Celltrion Healthcare revenue increased by 20% as the result of increasing demand and fees.

Hong Kong Q4 equity lending revenue bettered its 2017 comparable by 5% on the back of increasing balances compensating for declining fees. The largest contributors to Q4 revenues in Hong Kong were BYD Co, Xiaomi Corp, Fullshare Holdings and Meituan Dianping.

Overview

Quarterly Revenues
$528M ▲ 8%

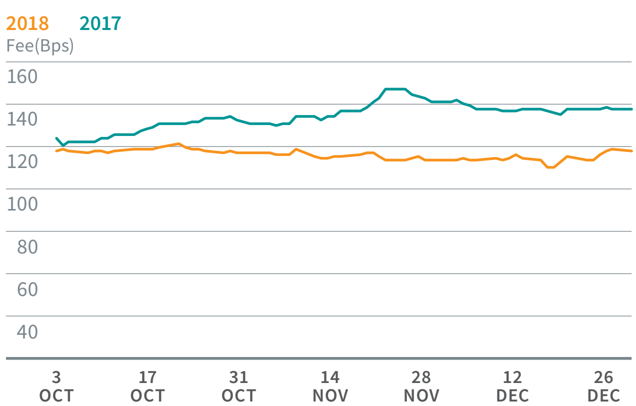
Average Balances
$180B ▲ 24%

Weighted Average Fee
1.27% ▼ 13%

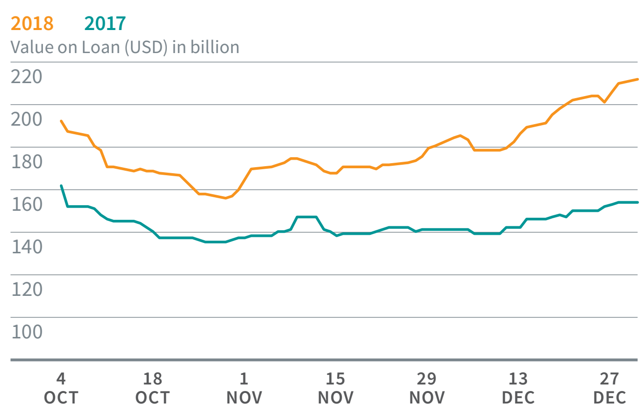
Average Inventory
$1.7T ▲ 4%

Utilization
6.35% ▲ 26%

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

Japan equity revenues flat YoY on increasing balances and decreasing fees

South Korea revenues increase with greater specials demand

Celltrion delivers 19% of South Korea equity revenue

Increased demand for Food & Staples Retailing

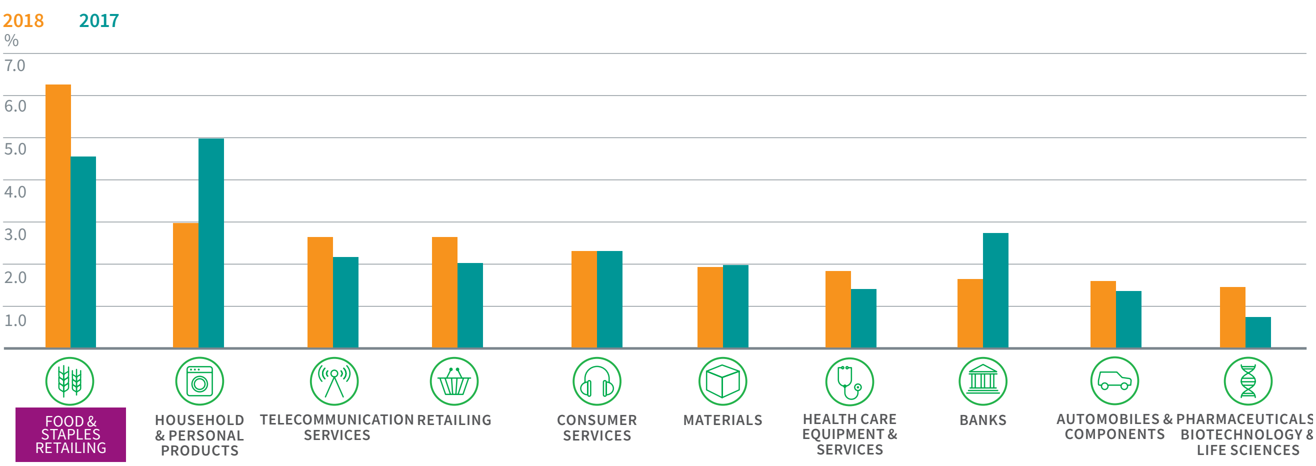
COUNTRY DETAILS

Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
Japan Equity	210.24	-0.2%	101.96	39.9%	0.89%	-29%	792.26	1.2%	6.97	48.2%
South Korea Equity	124.76	41.3%	14.60	20.2%	3.69%	18%	116.17	-7.8%	6.76	27.4%
Hong Kong Equity	96.91	5.2%	31.26	12.7%	1.34%	-7%	368.42	6.4%	6.05	5.2%
Taiwan Equity	47.79	-4.0%	8.02	-9.2%	2.57%	6%	53.92	0.9%	6.45	-8.2%
Australia Equity	31.60	2.6%	19.44	3.7%	0.70%	-1%	267.19	15.7%	5.65	8.5%
Singapore Equity	4.75	-24.4%	2.10	-0.4%	0.98%	-24%	48.98	-4.4%	3.23	8.1%
Malaysia Equity	6.32	-4.0%	0.70	-3.7%	3.88%	0%	14.05	15.8%	4.40	-21.4%
Thailand Equity	3.96	33.2%	0.83	9.2%	2.07%	22%	16.37	13.3%	3.73	6.5%
New Zealand Equity	0.95	17.2%	0.74	51.4%	0.55%	-23%	7.32	21.9%	7.32	27.0%

TOP 10 REVENUE GENERATING STOCKS

Instrument Name	Ticker	Sector	Country	Revenue Generated ($)
Celltrion Inc	068270	Pharmaceuticals, Biotechnology & Life Sciences	KR Equity	23.9
Celltrion Healthcare Co Ltd	091990	Health Care Equipment & Services	KR Equity	13.6
Byd Co Ltd	1211	Automobiles & Components	HK Equity	13.3
Xiaomi Corp	1810	Technology Hardware & Equipment	HK Equity	11.0
Fullshare Holdings Ltd	607	Capital Goods	HK Equity	7.7
Samsung Electro-Mechanics Co Ltd	009150	Technology Hardware & Equipment	KR Equity	7.3
Sillajen Inc	215600	Pharmaceuticals, Biotechnology & Life Sciences	KR Equity	6.6
Cyberdyne Inc	7779	Health Care Equipment & Services	JP Equity	6.4
Meituan Dianping	3690	Retailing	HK Equity	5.2
Yageo Corp	2327	Technology Hardware & Equipment	TW Equity	5.0

AVERAGE % OF SHARES ON LOAN



EMEA Equities

More of the same

European equity lending revenue was $377m for Q4, a 2% decline compared to Q4 2017 (a 2% improvement compared with Q3 2018). That may be viewed as a disappointing result given that the EU market was a fertile ground for short sellers in Q4, with broad indices "catching down" to Emerging Market 2018 returns. Borrow demand did not increase and loan balances declined 13% during Q4, nearly matching the decline in the broader market.

There have been some opportunities to achieve returns by lending out stocks in demand by short sellers. For example, Sweden saw a $20m revenue uptick in the 4th quarter, with three stocks contributing 58% of the $63.4m in revenue. Those three stocks were Intrum, Mycronic and H&M. The special rates for the first two drove the increase in the country's Q4 weighted average borrow fee to 1.5%, up from 0.9% in Q3. The increase in fees pushed up revenues, making Sweden the 2nd highest revenue generating EU equity market, leapfrogging over the UK and Germany.

France was the highest revenue generating EU country with $90.6m in Q4 revenues, an increase of 11% compared with Q4 2017. The revenue uptick was aided by special lending fees for Casino Guichard Perrrachon (and parent company Rallye), along with Vallourec and Bourbon Corporation.

UK equities turned in a lackluster Q4, with $47m in lending revenues, the least since Q1 2017. Declining fees drove down returns, with balances slightly higher in Q4 vs Q3. The most revenue generating UK equity, IQE Plc, saw surging lending fees in Q4, which appeared to dampen demand from short sellers, despite the 24.9% decline in share price during the quarter.

Overview

Quarterly Revenues
$377M ▼ 2%

Average Balances
$205B ▼ 3%

Weighted Average Fee
0.79% ▲ 1%

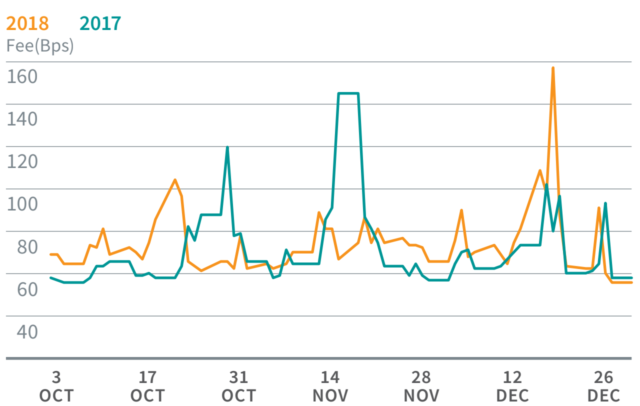
Average Inventory
$2.4T ▼ 6%

Utilization
5.71% ▲ 12%

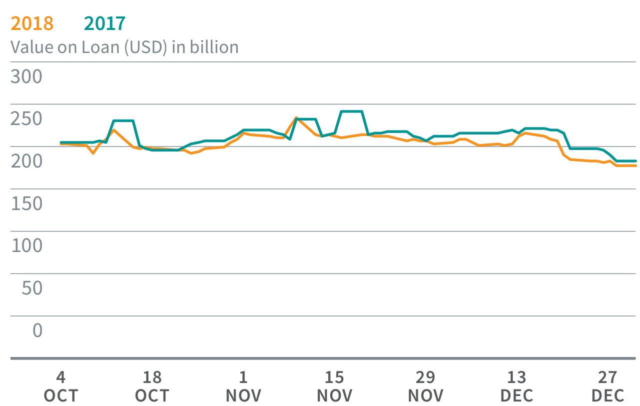
From an industry group perspective, semiconductor stocks saw the largest increase in demand. Aside from IQE, AMS was the 2nd most revenue generating EU semiconductor stock. The AMS Q4 return is unlikely to be replicated going forward, as balances fell 49% during the quarter, driven by a 57% share price decline.

Lendable balances declined by more than loan balances, given that there was a marginal increase in demand, which pushed utilization marginally higher for Q4. Spanish equities saw the largest increase in utilization moving from 6% in Q3 to 7% in Q4.

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

Revenue upswing in Sweden	Increasing demand for EU semiconductor stocks	Utilization increased in 12 countries	Increasing specials balances in Sweden

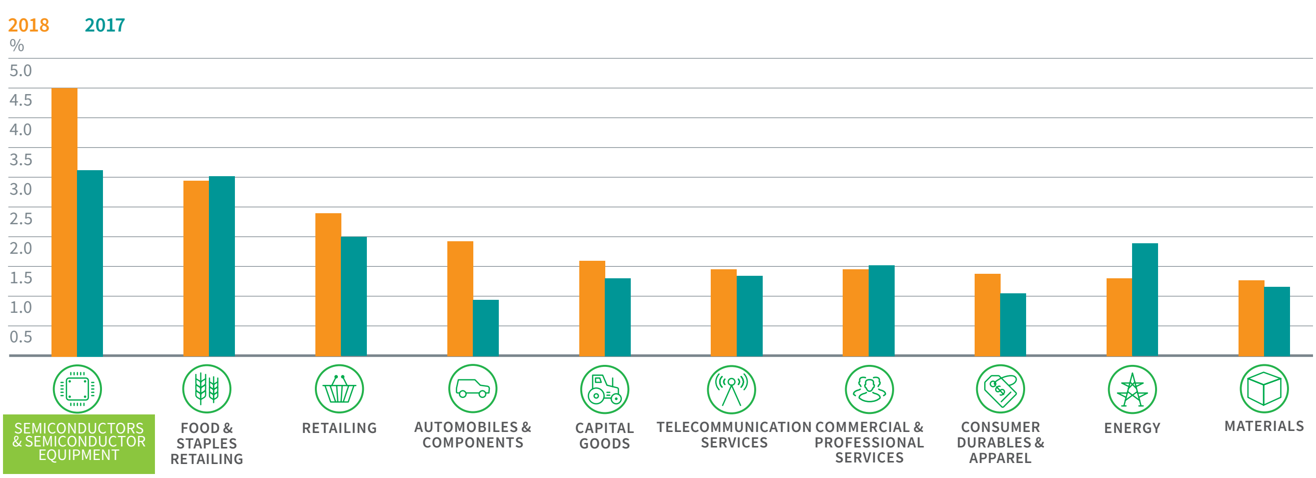
COUNTRY DETAILS

Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
France Equity	90.60	11.2%	39.52	-8.3%	0.99%	21%	354.50	-4.9%	6.38	-2.5%
Sweden Equity	63.38	79.9%	16.93	4.5%	1.61%	72%	112.09	-8.7%	10.05	27.8%
UK Equity	47.74	-36.5%	44.49	-4.5%	0.46%	-34%	715.97	3.1%	4.72	6.2%
Germany Equity	35.31	-10.7%	23.83	-5.3%	0.64%	-6%	295.58	-20.8%	4.94	27.4%
Switzerland Equity	26.82	41.0%	23.54	21.9%	0.49%	16%	319.45	2.2%	5.13	29.5%
Spain Equity	21.76	50.5%	10.32	14.1%	0.91%	32%	98.54	-9.4%	7.01	56.4%
Belgium Equity	21.36	-18.5%	5.69	-9.9%	1.62%	-9%	53.89	-22.6%	6.60	14.9%
Italy Equity	18.59	-19.3%	10.38	-25.1%	0.77%	8%	86.27	-18.4%	7.43	5.0%
Norway Equity	16.29	-50.1%	4.56	-11.2%	1.54%	-44%	36.82	15.5%	7.71	-17.3%
South Africa Equity	10.99	14.0%	4.96	-13.9%	0.96%	32%	54.75	-5.2%	3.75	-8.9%
Netherlands Equity	10.67	-26.2%	10.13	-7.7%	0.45%	-20%	126.36	-6.8%	5.02	1.9%
Turkey Equity	7.48	0.2%	0.91	3.0%	3.53%	-3%	6.85	-35.8%	7.77	28.4%
Denmark Equity	6.66	22.5%	6.57	1.9%	0.44%	20%	58.65	-14.5%	7.65	21.3%
Finland Equity	3.97	2.2%	4.45	-8.7%	0.38%	12%	41.24	0.2%	7.22	-4.7%
Greece Equity	1.77	63.8%	0.06	20.6%	12.47%	36%	1.61	-9.1%	2.95	40.6%
Austria Equity	1.37	-25.8%	1.19	2.5%	0.50%	-28%	12.90	-11.7%	6.16	43.1%
Poland Equity	1.26	-51.8%	0.81	-26.3%	0.67%	-35%	9.98	-14.7%	5.79	-25.3%
Portugal Equity	0.39	-55.1%	0.38	-63.6%	0.44%	23%	7.39	-2.4%	3.16	-56.3%

TOP 10 REVENUE GENERATING STOCKS

Instrument Name	Ticker	Sector	Country	Revenue Generated ($)
Total Sa	FP	Energy	FR Equity	26.9
Casino Guichard Perrachon Sa	CO	Food & Staples Retailing	FR Equity	18.2
Intrum Ab	INTRUM	Commercial & Professional Services	SE Equity	17.7
Mycronic Ab (Publ)	MYCR	Technology Hardware & Equipment	SE Equity	10.1
H & M Hennes & Mauritz Ab	HM B	Retailing	SE Equity	9.4
Lvmh Moet Hennessy Louis Vuitton Se	MC	Consumer Durables & Apparel	FR Equity	5.4
Iqe Plc	IQE	Semiconductors & Semiconductor Equipment	UK Equity	4.7
Anglo American Plc	AAL	Materials	UK Equity	3.1
Tecnicas Reunidas Sa	TRE	Energy	ES Equity	2.9
Vallourec Sa	VK	Energy	FR Equity	2.6

AVERAGE % OF SHARES ON LOAN



Americas Equities

Gone to pot

North American equities posted an 27% YoY decline in Q4 revenues, as the result of specials demand drying up. Average lendable inventories increased by 8% compared with Q4 2017, however they trended down with the market throughout the quarter. Similarly, loan balances posted a single digit increase compared with Q4 2017, however there was no increase in demand, and balances matched the broad market declines.

Tesla, the highest revenue generating NA equity in Q3, didn't even crack the top 10 in Q4 as the result of declining balances and lower fees. That pretty well sums it up for US equities in the 2nd half of 2018 – lower revenues as the result lower balances and declining fees.

The bright spot in the region has been the cannabis sector, which yielded 4 of the top 10 revenue generating NA equities. The most valuable of the group was Tilray, which generated a staggering $41m in Q4 revenue on average balances of only $280m. Aphria saw the largest increase in daily revenue during the quarter, making it a favorite to move onto the top 10 list for Q1. Total Q4 lending revenues across the sector were $79m, or 12% of the total Americas equity revenue, up from $63m in Q3.

Canadian equity lending revenue totaled $115m, an increase of 5% compared with Q4 2017. The Cannabis stocks remain key drivers of demand for specials in Canada, with revenues excluding cannabis down 7% compared with Q4 2017 ex-Cannabis.

The Retailing industry group saw the largest average increase in constituent borrow demand in Q4, which boosted it above the Pharma, Biotech & Life Sciences group for the top spot. Notable increases include Overstock.com, Wayfair, Stamps.com & Michaels Companies.

Overview

Quarterly Revenues
$649M ▼ 27%

Average Balances
$498B ▲ 3%

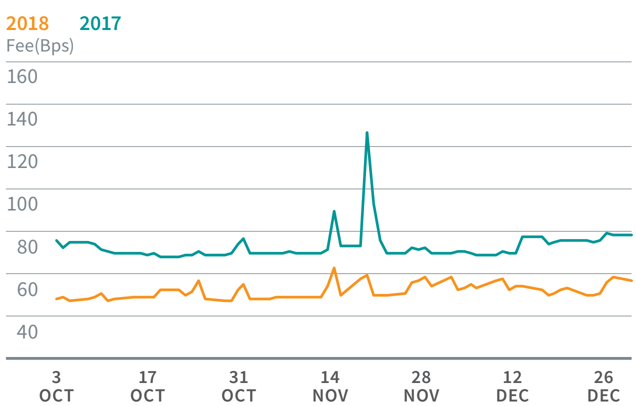
Weighted Average Fee
0.56% ▼ 29%

Average Inventory
$8.9T ▲ 8%

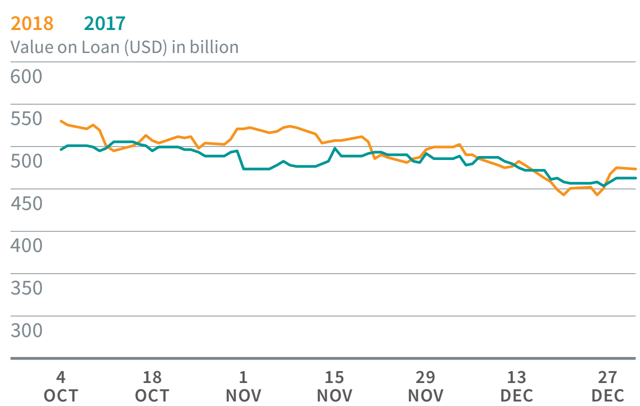
Utilization
4.46% ▲ 0%

The ADR revenue uptrend remains intact, with Q4 revenues of $82.6m, up 19% compared to Q4 2017. Revenues were resilient on the back of increasing fees offsetting declining balances. Shares of BABA remain the most in demand, representing 43% of ADR loan balances in the quarter; there is plentiful lendable supply which keeps a lid on fees, causing the firm to generate only 10% of ADR revenues. BABA balances decreased by 8% in Q4, as the increase in shares was insufficient to offset the 17% decline in price.

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

US equity revenue depressed by lack of specials

Canada revenues supported by Cannabis demand

Tilray top revenue generating security globally in Q4

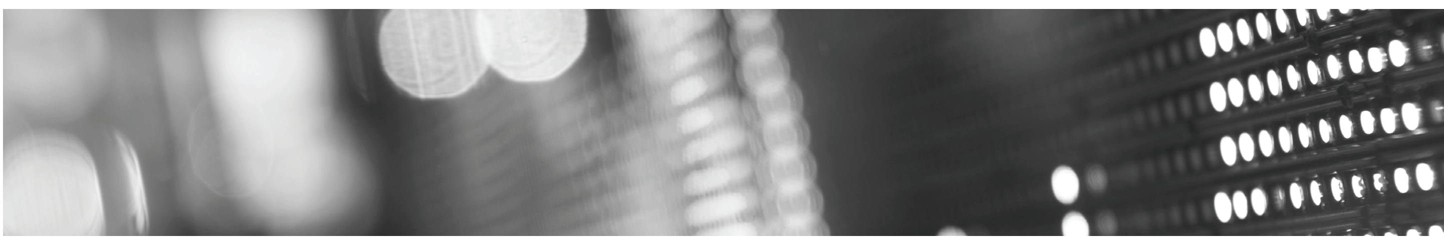
Increasing Retail borrow demand

COUNTRY DETAILS

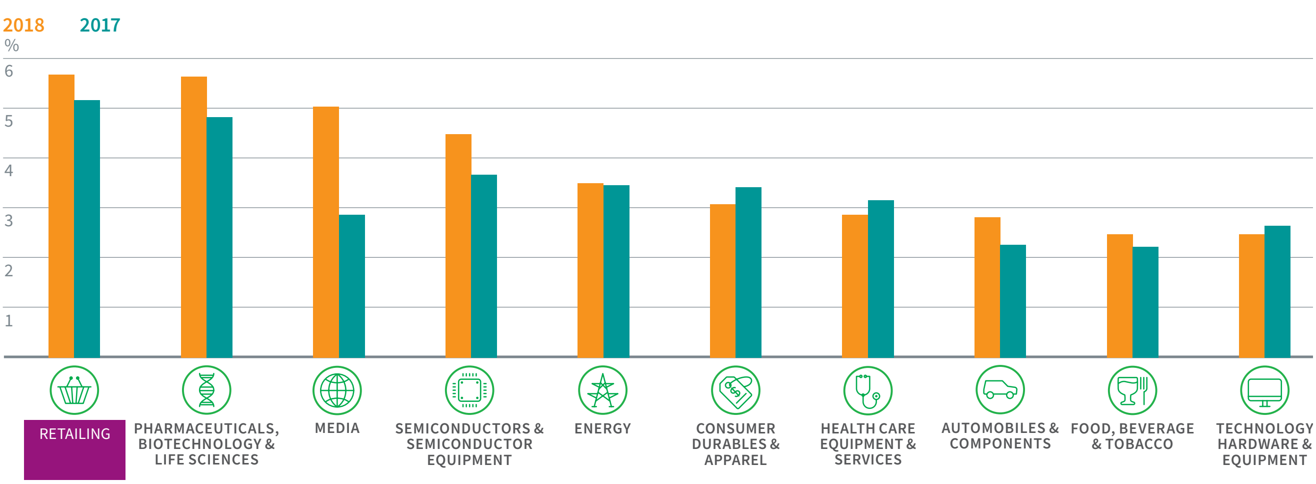
Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
USA Equity	531.02	-31.9%	457.06	3.4%	0.50%	-34%	8,358.06	8.8%	4.33	-0.1%
Canada Equity	115.21	5.4%	39.64	-4.2%	1.25%	10%	469.04	-6.2%	6.87	1.9%
Brazil Equity	1.47	-42.7%	0.52	-19.2%	1.21%	-29%	1.68	-44.2%	6.90	11.5%
Mexico Equity	1.14	1.0%	0.86	-17.0%	0.57%	22%	25.17	-1.7%	2.70	-18.6%
American Depository Receipts	82.16	19.0%	43.12	-14.3%	0.82%	39%	197.94	-5.6%	15.41	-15.4%

TOP 10 REVENUE GENERATING STOCKS

Instrument Name	Ticker	Sector	Country	Revenue Generated ($)
Tilray Inc	TLRY	Pharmaceuticals, Biotechnology & Life Sciences	US Equity	41.6
Cronos Group Inc	PRMCF	Pharmaceuticals, Biotechnology & Life Sciences	US Equity	14.0
Camping World Holdings Inc	CWH	Retailing	US Equity	13.6
Sirius Xm Holdings Inc	SIRI	Media	US Equity	13.4
Visa Inc	V	Software & Services	US Equity	10.4
Gtt Communications Inc	GTT	Software & Services	US Equity	9.7
Canopy Growth Corp	WEED	Pharmaceuticals, Biotechnology & Life Sciences	CA Equity	9.6
J C Penney Company Inc	JCP	Retailing	US Equity	9.0
Aurora Cannabis Inc	ACB	Pharmaceuticals, Biotechnology & Life Sciences	CA Equity	8.8
B&G Foods Inc	BGS	Food, Beverage & Tobacco	US Equity	8.6



AVERAGE % OF SHARES ON LOAN



Exchange Traded Funds

Good year ends on a strong note

The best year ever for ETF lending revenue ended with Q4 delivering a total of $111m lending revenue, the most on record for any quarter. That tally reflects an increase of nearly 30% compared with Q3 or Q4 2017. The uptrend in revenue over the past three years has been primarily driven by increasing balances, following the 2009-2014 period where both fees and balances grew significantly.

In a fitting end to the year, there was a surge in balances and fees in the last half of December, which made it the most profitable two-week stretch on record for ETF lending revenues. If market volatility extends into 2019, the demand for ETFs will likely remain elevated, which could drive further increases in fees and revenues.

Fixed income ETFs retained their prominence in the top 10 revenue-generating ETFs, and the total revenue share from the asset class increased from 31% in Q3 to 33% in Q4. In particular, high-yield ETFs were a significant source of demand for ETF borrowing as well as create-to-lend trades. On a related note, demand for the Invesco Senior Loan ETF surged as concerns about the leveraged loans market caused investors to add hedges and short positions.

The total AUM for global ETFs reached $5tn this year, an increase of $280bn compared with end of 2017. The increasing use by institutional investors is reflected by the growth of lendable assets in securities lending, which also reached a new high this year, though like total AUM, declined with markets in Q4. Compared with 2017 average, global ETF lendable assets increased by $58bn in 2018. Utilization of ETF lendable supply increased to 11.9% in Q4, up from 9.9% in Q3.

Overview

Quarterly Revenues
$111M ▲ 27%

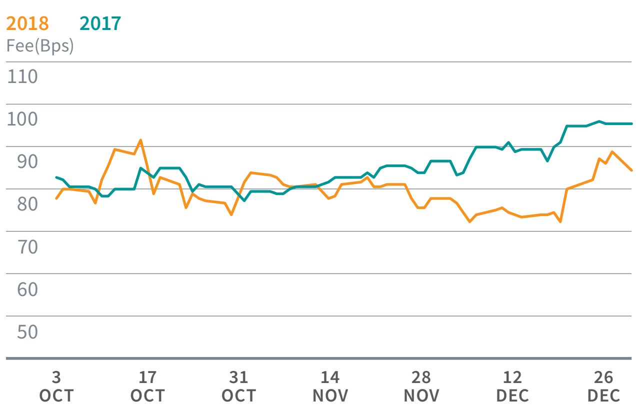
Average Balances
$55B ▲ 35%

Weighted Average Fee
0.87% ▼ 6%

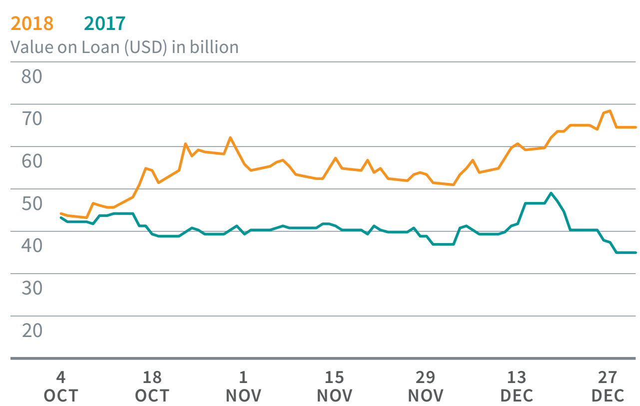
Average Inventory
$268.7B ▲ 4%

Utilization
11.91% ▲ 37%

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

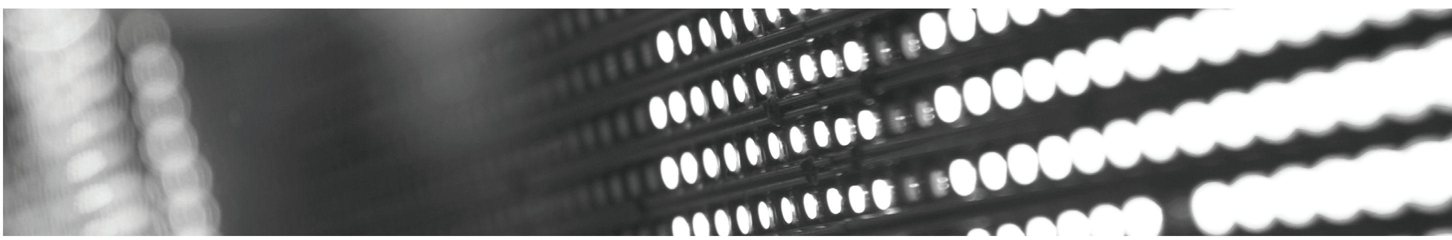
Credit ETFs remain atop top revenue drivers	Best year ever for ETF lending revenue	Demand for leveraged loans ETF BKLN surged in Q4	Equity ETFs deliver 67% of ETF revenue

COUNTRY DETAILS

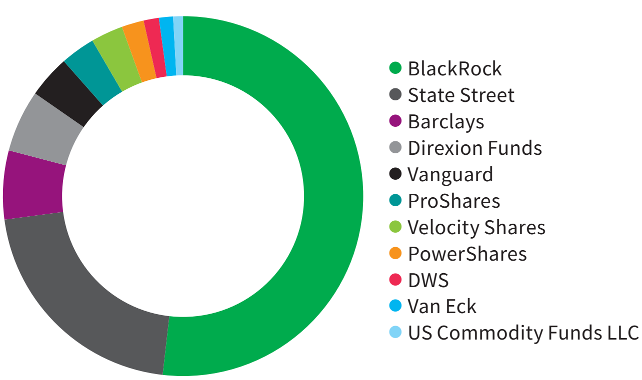
Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
Americas ETF	85.26	40.5%	48.37	37.1%	0.76%	2%	161.67	1.9%	6.97	0.0%
European ETF	19.86	-8.1%	5.04	17.8%	1.70%	-22%	50.77	6.4%	12.26	0.0%
Asian ETF	3.01	16.6%	1.01	44.2%	1.29%	-19%	2.06	19.6%	10.31	0.0%

TOP 10 REVENUE GENERATING FUNDS

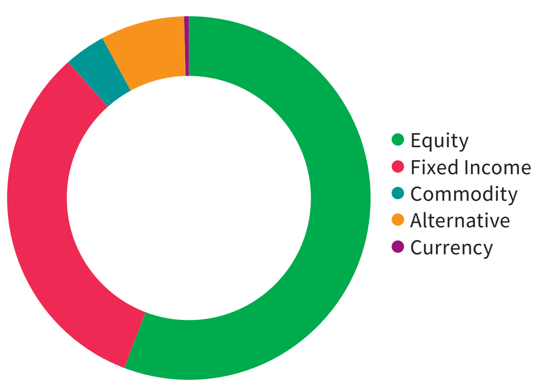
Instrument Name	Ticker	Listing Country	Asset Class	Q4 Revenue Generated ($)
Ishares Iboxx $ High Yield Corporate Bond Fund	HYG	US ETF	Credit	$16.6
Spdr Bloomberg Barclays High Yield Bond Etf	JNK	US ETF	Credit	$6.1
Spdr S&P 500 Etf Trust	SPY	US ETF	Equity	$2.7
Alerian Mlp	AMLP	US ETF	MLP	$2.8
Invesco Senior Loan Etf	BKLN	US ETF	Loans	$1.1
Ishares Msci Brazil Etf	EWZ	US ETF	Equity	$1.9
Invesco Ftse Rafi Developed Mkts Ex-Us Etf	PXF	US ETF	Equity	$0.1
Ishares Core Ftse 100 Ucits Etf (Dist)	ISF	IE ETF	Equity	$0.9
Ishares Msci Emerging Markets Etf	EEM	US ETF	Equity	$0.8
Ishares Core Msci Total International Stock Etf	IXUS	US ETF	Equity	$0.2



LENDING REVENUES BY ISSUER



LENDING REVENUES BY ASSET CLASS



Corporate Bonds

Worst quarter of the best year

The borrow demand for corporate bonds continues to increase, but the rate of change has slowed. The YoY increase in Q4 loan balances was insufficient to offset declining fees, which made Q4 the only quarter of 2018 where corporate bond lending revenues failed to match the 2017 comparable. Nonetheless, it was the best year on record for corporate bond lending revenues, and the decline in Q4 was the result of a small decline in fees while balances ended just below the all-time high of $200bn.

Investment grade bond balances increased 7% YoY and delivered 68% of all corporate bond revenue in Q4. Higher fees for non-investment grade bonds invert that ratio, with NIG delivering 62% of all revenues. The combination of increasing fees and balances pushed NIG revenues up 13% YoY, while NIG revenues increased 10%.

As noted in the European equity section, equity shorts haven't maintained exposure to EU issuers, however borrow demand for EUR denominated corporate bonds has increased. The total EUR denominated corporate issues on loan at the end of 2018 (41.7bn EUR), reflects an increase of 3.6% in Q4. The IEAC ETF, which tracks an index of EUR denominated corporate debt, declined in value by 1.5% in Q4. Taken together, the implication is increasing short positions, which were sufficient to more than offset the decline in market value.

One emerging source of borrow demand for corporate bonds is the creation of ETFs which track credit indices. The focal point of this trade has been the USD high-yield ETFs HYG & JNK, where exchange reported short positions averaged $9.3bn in Q4, of which an average of $5.1bn were borrowed as ETFs in securities lending. That leaves an estimated $4.2bn balance that was likely created by borrowing the underlying credits, equivalent to 15% of all USD HY corporate borrowing. The estimated creation from borrowed corporates is up 23% compared with Q3, on the back on increasing short demand for the ETFs.

Convertible bond lending revenue was down 31% YoY on the back of declining balances and fees. Booking Holdings remains the only convertible bond in the top ten corporates, having achieved just over 10% of all revenues associated with converts.

Overview

Quarterly Revenues
$173M ▼ 2%

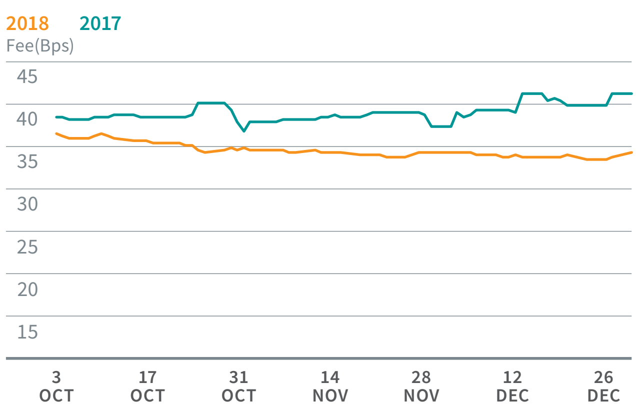
Average Balances
$198B ▲ 10%

Weighted Average Fee
0.38% ▼ 11%

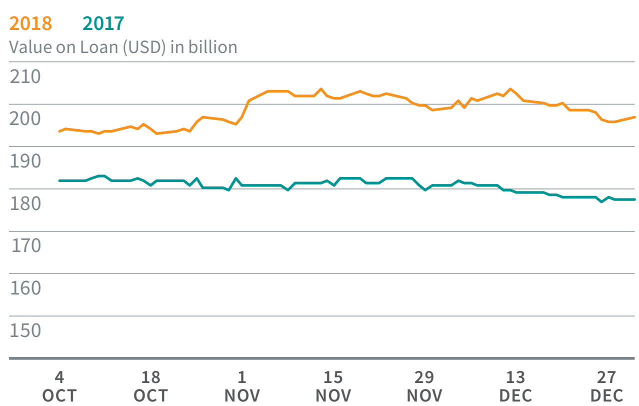
Average Inventory
$3.3T ▲ 5%

Utilization
5.39% ▲ 6%

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

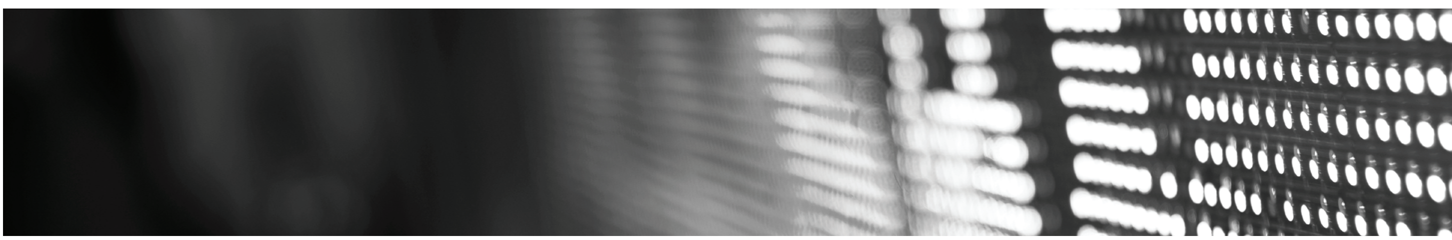
Best post-crisis revenue for corp bond lending	Uptrend in balances remains intact	Increasing demand for EUR denominated issues	NIG credits deliver 65% of revenues

ISSUE TYPE DETAILS

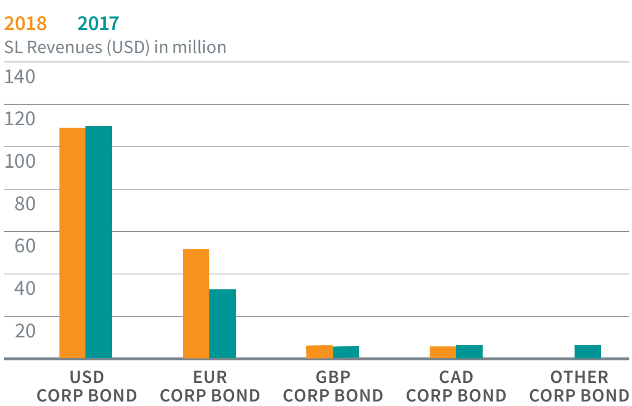
Issue Type	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
Corp Bonds	161.35	-0.1%	191.79	10.7%	0.36%	-10%	2,960.48	3.1%	5.84	8.9%
Conv Bonds	10.74	-31.6%	5.31	-25.3%	0.87%	-8%	45.18	-11.4%	8.47	-18.6%
Asset Backed Securities	0.94	680.5%	1.35	419.3%	0.30%	50%	282.82	27.1%	0.16	46.6%

TOP 10 REVENUE GENERATING BONDS

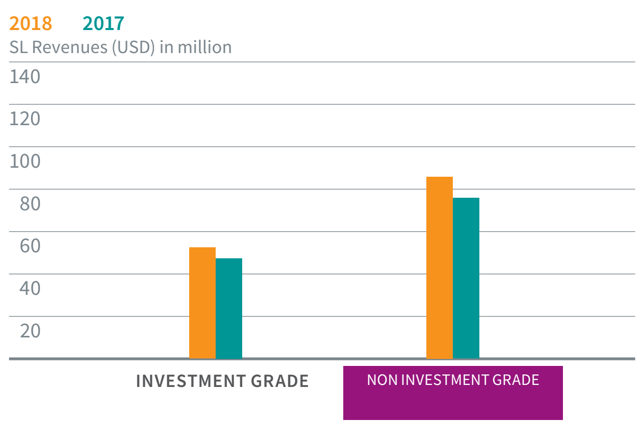
Top Earning Assets	Cusip	Denomonation	Aseet Class	Revenue Generated ($)
Tereos Finance Groupe I Sa (4.125% 16-Jun-2023)	F9294CAB9	EUR	Non-Investment Grade	3.1
Booking Holdings Inc (0.9% 15-Sep-2021)	741503AX4	USD	Non-Investment Grade	1.7
Altice Luxembourg Sa (7.25% 15-May-2022)	L0179ZAB0	EUR	Non-Investment Grade	1.1
Centurylink Inc (7.5% 01-Apr-2024)	156700BA3	USD	Non-Investment Grade	1.1
Pitney Bowes Inc (6.7% 07-Mar-2043)	724479506	USD	Non-Investment Grade	1.1
Mohegan Gaming & Entertainment (7.875% 15-Oct-2024)	608328BF6	USD	Non-Investment Grade	0.9
Walt Disney Co (2.95% 15-Jun-2027)	25468PDV5	USD	Investment Grade	0.9
Centurylink Inc (5.625% 01-Apr-2025)	156700AZ9	USD	Non-Investment Grade	0.8
Chs/Community Health Systems Inc (5.125% 01-Aug-2021)	12543DAU4	USD	Non-Investment Grade	0.8
Esselunga Spa (1.875% 25-Oct-2027)	T3725LAA8	EUR	Investment Grade	0.8



Q4 SECURITIES LENDING REVENUES BY DENOMINATION



Q4 SECURITIES LENDING REVENUES BY RATINGS CATEGORY



Government bonds

Best year post-crisis, growth slowing

Government bond lending revenue shared some characteristics with corporate bonds, in that Q4 saw the lowest quarterly returns in a very good year, and was the only quarter which came in lower than it's 2017 comparable. Sovereign debt lending revenues have increased 135% since 2014, however the rate of change is slowing; 2018 was the only year out of the last four where the YoY percentage increase in revenue was lower than the prior year.

US debt lending revenues fell 4.2% YoY, the primary driver of declining Americas revenues, though CAD revenues also fell 2.3%. While Emerging Market and European debt lending failed to better Q4 2017, both were sequentially higher compared with Q3 2017.

In Europe, soaring revenues for lending the Italian 10Y bond drove the largest absolute gains for a sovereign issuer. The increasing revenue in that instrument was primarily driven by increasing fees. Gains in Italy, along with France and the UK were offset by a 36% decline for German debt compared with Q4 2017.

While the primary driver for government bond lending remains the demand for HQLA, there have also been some directional trading opportunities driven by rising interest rates and uncertainty about future central bank actions. With the Fed's path forward potentially muddied by the Q4 sell-off, both sources of demand may increase in 2019.

Overview

Quarterly Revenues
$398M ▼ 2%

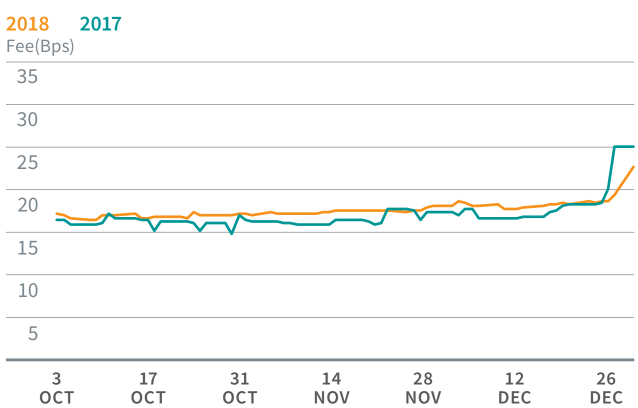
Average Balances
$895T ▼ 5%

Weighted Average Fee
0.19% ▲ 3%

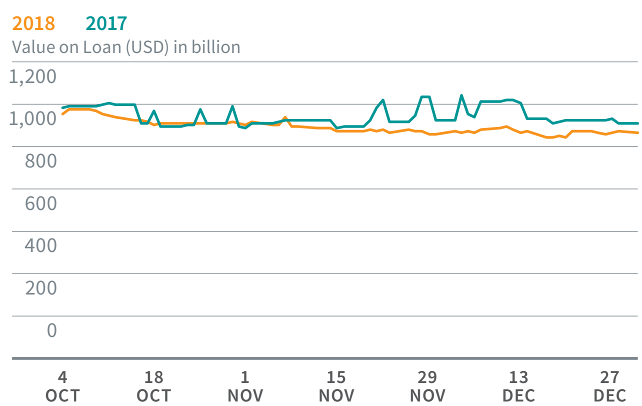
Average Inventory
$2.9T ▲ 9%

Utilization
24.24% ▼ 10%

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

Americas revenues in uptrend, though rate of increase slowing	Best annual revenue for Italian govt debt revenue on record	Sovereign debt loan balances increase 10.6% YoY	USTs deliver 55% of govt bond revenues

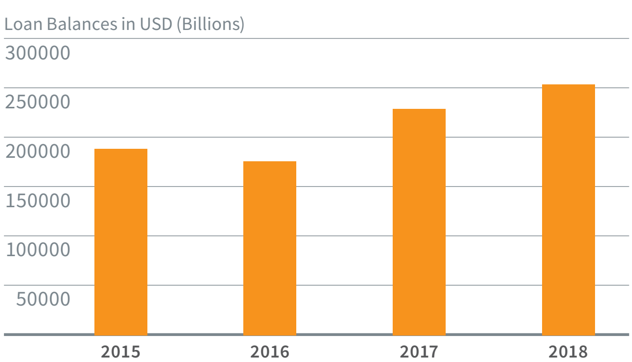
REGIONAL DETAILS

Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
Americas Bonds (Govt)	231.09	-4.0%	499.07	-9.1%	0.20%	6%	1,903.55	10.8%	21.61	-16.8%
Asian Bonds (Govt)	10.29	36.8%	34.03	-0.7%	0.13%	38%	63.94	32.5%	11.78	63.8%
European Bonds (Govt)	156.79	-0.4%	361.43	1.1%	0.19%	-1%	934.29	5.3%	30.44	0.9%
Emerging Market Bonds	14.14	-16.4%	17.33	-2.9%	0.35%	-14%	237.66	13.0%	6.83	-12.5%

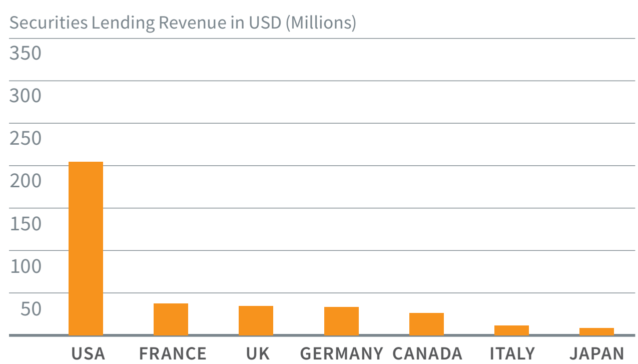
TOP 10 REVENUE GENERATING BONDS

Instrument Name	ISIN	Currency	Issuer	Revenue Generated ($)
Italy, Republic Of (Government) (4.75% 01-Sep-2028)	T6247AVQ6	EUR	Italy	16.6
United States Treasury (2% 31-Jul-2022)	912828XQ8	USD	USA	2.3
United States Treasury (1.875% 31-May-2022)	912828XD7	USD	USA	2.2
United States Treasury (1.375% 30-Sep-2019)	9128282X7	USD	USA	1.9
United States Treasury (2.75% 15-Nov-2023)	912828WE6	USD	USA	1.6
France, Republic Of (Government) (0% 25-Mar-2023)	F43750JL7	EUR	France	1.2
Germany, Federal Republic Of (Government) (1.5% 15-Feb-2023)	D206588X7	EUR	Germany	1
Germany, Federal Republic Of (Government) (0.25% 15-Aug-2028)	D2R8H4DM8	EUR	Germany	0.8
Germany, Federal Republic Of (Government) (1% 15-Aug-2025)	D2R8H4AM1	EUR	Germany	0.7
United States Treasury (0.875% 15-Apr-2019)	912828Q52	USD	USA	0.7

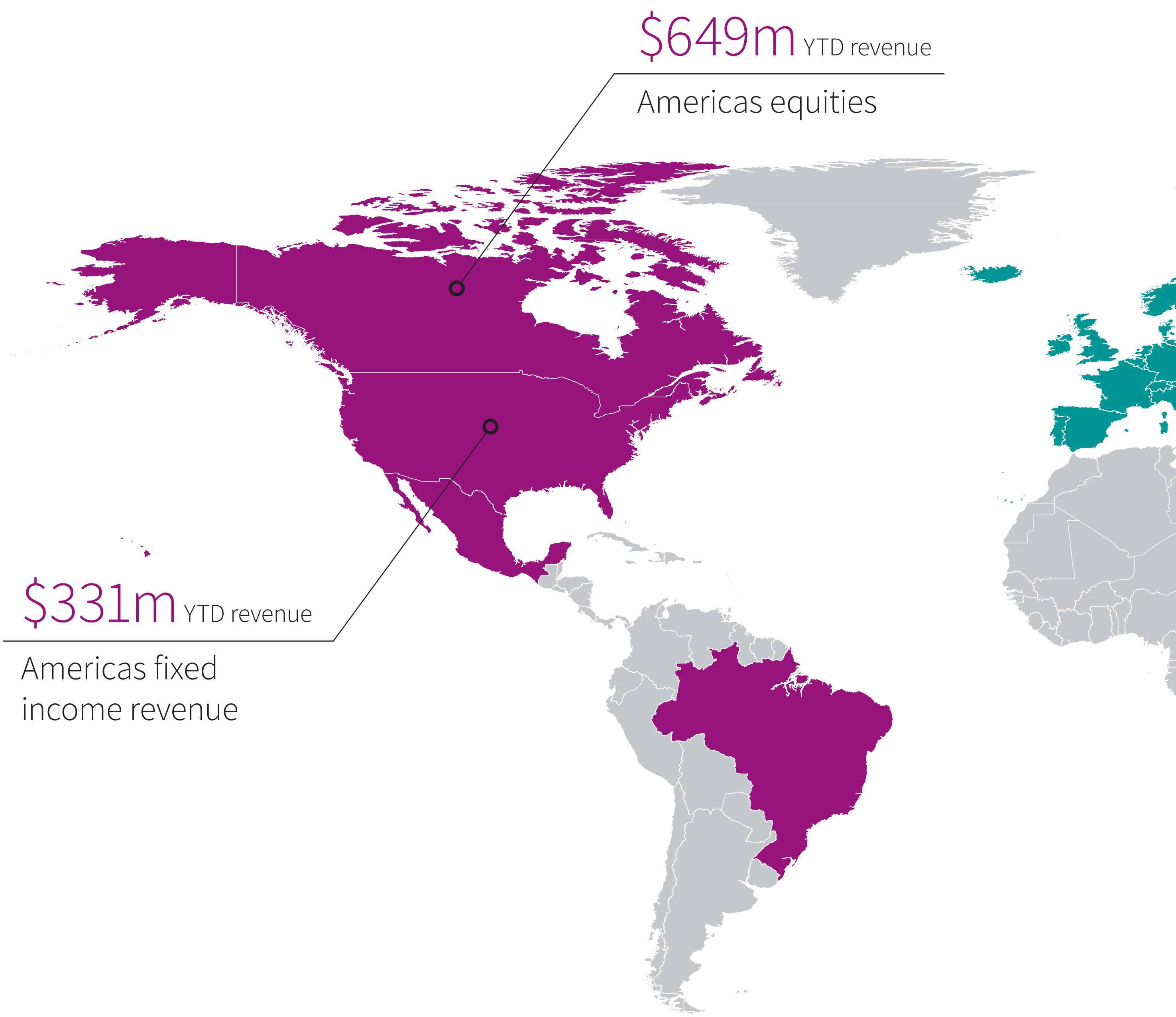
GOVERNMENT BOND BALANCE TREND



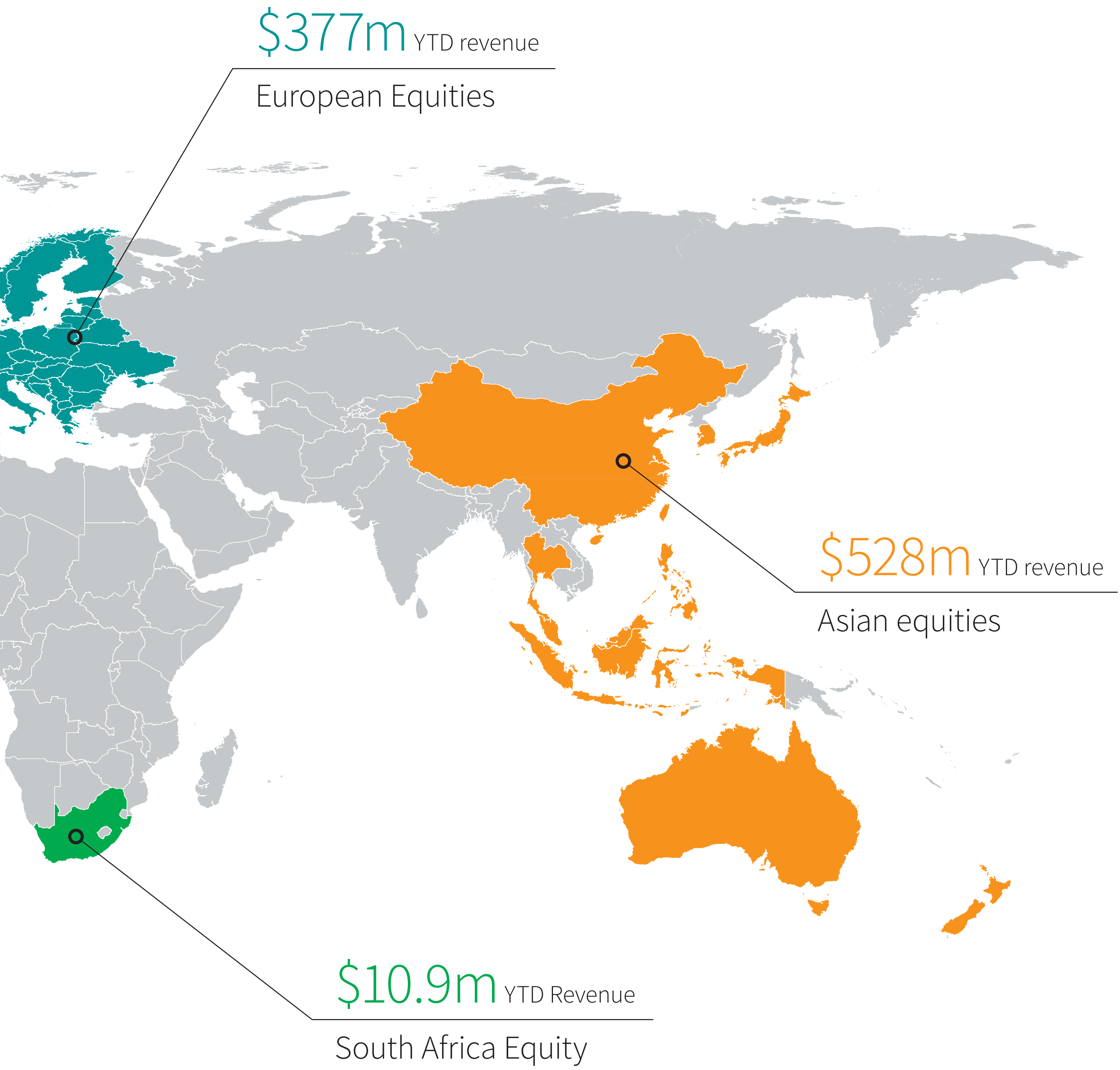
Q4 REVENUES BY ISSUER



Global snapshot



Asset Class	Lendable Assets ($T)	Loan Balance ($T)	% Non-Cash	Utilization (%)	SL Fee
All Securities	$19.9	$2.1	65%	8	0.45%
Government Bonds	$2.9	$0.9	75%	24	0.18%
Corporate Bonds	$3.0	$0.2	50%	6	0.33%
Equities	$13.0	$0.9	60%	5	0.70%
Depository Receipts	$0.2	$0.0	52%	15	0.76%
Exchange Traded Funds	$0.3	$0.1	29%	12	0.80%


$377m YTD revenue
European Equities
$528m YTD revenue
Asian equities
$10.9m YTD Revenue
South Africa Equity

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