IHS Markit®

Securities Finance Quarterly Review

Q4 2019

A very happy new year and wishing you all great success in 2020

As we reflect on the past year and as you will see reflected in greater detail in this review, Q4 2019 improved by 3.8% with $2.4bn in revenues versus the same period in 2018. This put the total for 2019 at $10.1bn, a decline of 6.3% relative to 2018. While the yearly revenue comparison is less favorable, the underperformance was primarily concentrated in the first half of the year.

From a business perspective, reflection is sometimes a worthy occupation and so with this in mind I feel really positive about what we have managed to accomplish this past twelve months, with some key highlights:

- **Data** – significant focus on data growth and quality with 30 new data contributors and a 50% increase in intraday volumes
- **Technology** – making products quicker and improving client experience from infrastructure upgrades and benchmarking performance optimizations
- **Usability** – making products easier to use including a new Home page, new Quote Page and new Benchmarking pages
- **Enhancements** – investing in the business to help our clients including enhanced League tables, enhanced borrower cost optimisation, IHS Markit Benchmark Peer group, stability metrics and Beneficial Owner program roll out
- **Client Service / Experience** – supporting our clients, when and where they want it, including implementing our client engagement strategy to strengthen overall client experience and expanding the product specialist team by +3 globally to meet needs of existing and growing client base

In December, we also added **HQLA classifications** to our dataset. The classification of securities between the three categories of HQLA has taken on great significance for the banking industry. To support independent review, the Portfolio Valuations & Reference Team (PVR) team at IHS Markit has created a model to classify fixed income securities based on a variety of fundamental and market-based characteristics. Breaking out the data by HQLA status provides deeper insight into the nature of lendable assets in terms of value as high-quality collateral. That can help market those securities and also aid in forecasting demand and revenues at a more granular level. Including new datasets to support existing processes for securities lending program management is an ongoing goal for us and we are excited to be able to offer the HQLA classifications in this context.

One of the areas that received extensive coverage in the quarter was that of **proxy voting and exercising corporate governance responsibilities** whilst participating in securities lending. There are a range of options available to beneficial owners seeking to manage a securities lending program and maintain their corporate governance responsibilities. By setting out lending parameters within the legal agreement and with the appropriate monitoring and oversight structure in place, a securities lending program can be aligned to the core investment activity of the fund. Information is essential to maintaining an effective balance between securities lending and corporate governance. Specifically, understanding and identifying corporate events combined with relevant market and lending data-sets. Leveraging these adjacent datasets allows beneficial owners to intelligently select which securities they may want to recall and to evaluate the profit trade-off to doing so. Corporate actions and securities lending data support an effective alert and evaluation process for lending programs. We believe that having the proper program management tools put beneficial owners in the best position to make that decision and to report the results.

As we look ahead to 2020, we have another exciting year of providing enhanced functionality, a deeper dataset and additional adjacent datapoints that will help increase opportunity and efficiency of our clients. Please look out for some announcements in the early part of 2020. Additionally, we will be changing the approach to these quarterly reviews. Clients really have valued the quarterly webinars we added in 2019 so we will continue with these, but in order to deliver even more timely relevant market level information, the quarterly reviews will move to a semi annual basis as at end of June and December and we will add summary snapshots on a monthly basis.

I look forward to working closely with you in 2020.

Regards,

Paul R. Wilson

Managing director and global head of Securities Finance, IHS Markit

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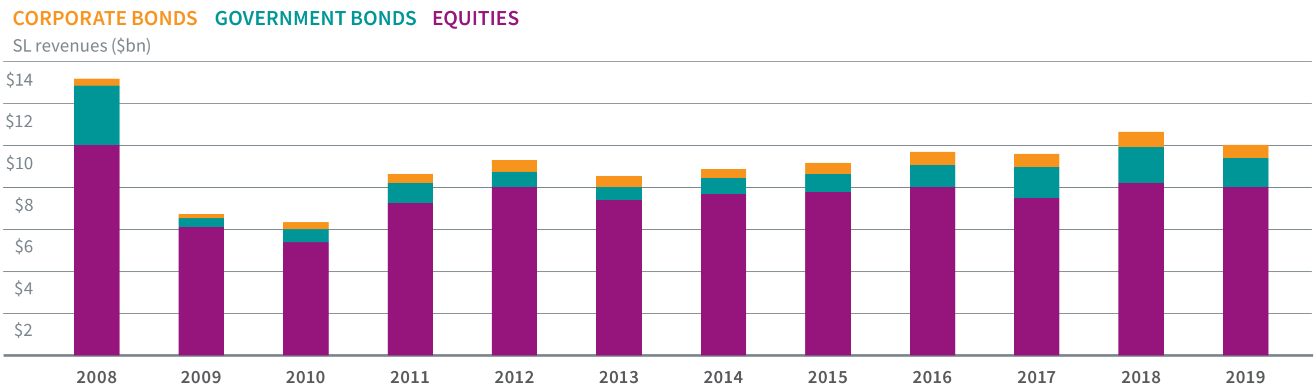
2019 Year in Review

Global revenue falls 6.3% to $10.1 billion

- 2019 delivers second highest annual revenue in the last decade
- In North America, equity specials shine in 2nd half of year
- Fee compression weakens global fixed income revenues

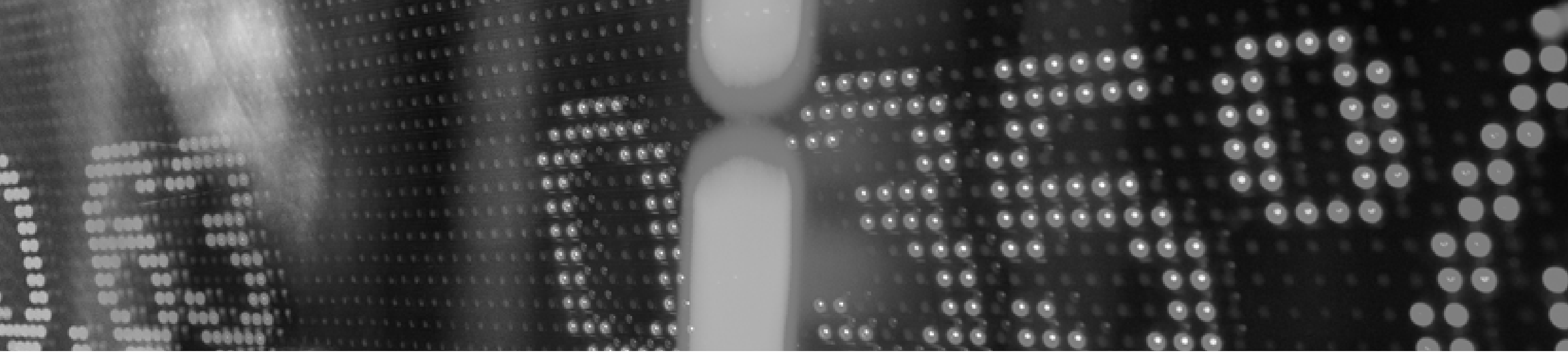
It is neither the best nor the worst of times for securities lending, which means there is the opportunity for movement in either direction as we look ahead to 2020. Before we turn the page, however, we review the year that was 2019. At the end of 2018, things looked rather bleak for capital markets and securities lending revenues were soft given the decline in asset values which reduced loan balances. That makes Q4 2018 a relatively easy YoY comp, which Q4 2019 improved on by 3.8% with $2.4bn in revenues. That put the total for 2019 at $10.1bn, a decline of 6.3% relative to 2018. While the yearly revenue comparison is less favourable, the underperformance was primarily concentrated in the first half of the year.

GLOBAL SECURITIES LENDING REVENUE



It was a mixed year to say the least for equity lending revenues. North American equities were the stand-out, led by recent IPOs and Cannabis related firms. The impact of Cannabis was such that 2019 was the best year on record for Canada equity lending, with revenues jumping 30% YoY. That joy was not widely distributed – excluding the impact of Cannabis CA equity, revenue was down 25% YoY. In the US, revenues were similarly concentrated in relatively few equities, which really didn't take off until Q3. For the first half of the year, US equity revenue was down 18%, however based on surging fees for Beyond Meat and some other recent IPOs in Q3, revenues were up 11% for the year. The YoY outperformance for NA equities was greater in Q4 than in Q3 (49% versus 43% respectively), however that was owing to the easy comp in Q4 as NA equity revenues fell 14% sequentially. It's also important to note the significance of corporate action related trades, particularly exchange offers. In Q1, the Eli Lilly exchange offer made LLY shares the most revenue generating for the quarter. In Q4, Danaher Corp was the most revenue generating US equity as a result of its exchange offer for shares of Envista.

It was a challenging year for deriving lending revenue from EU equities, with each quarter seeing a YoY decline and the total revenue of $1.7bn reflecting a 20% YoY decline. That makes 2019 the lowest revenue observed for EU equities in the last decade. There were some opportunities to generate significant lending returns such as Casino Guichard in France and a few UK firms relating to concern over Brexit. The overall trend was toward lower balances, -17% YoY, as well as lower fees, -3% YoY.

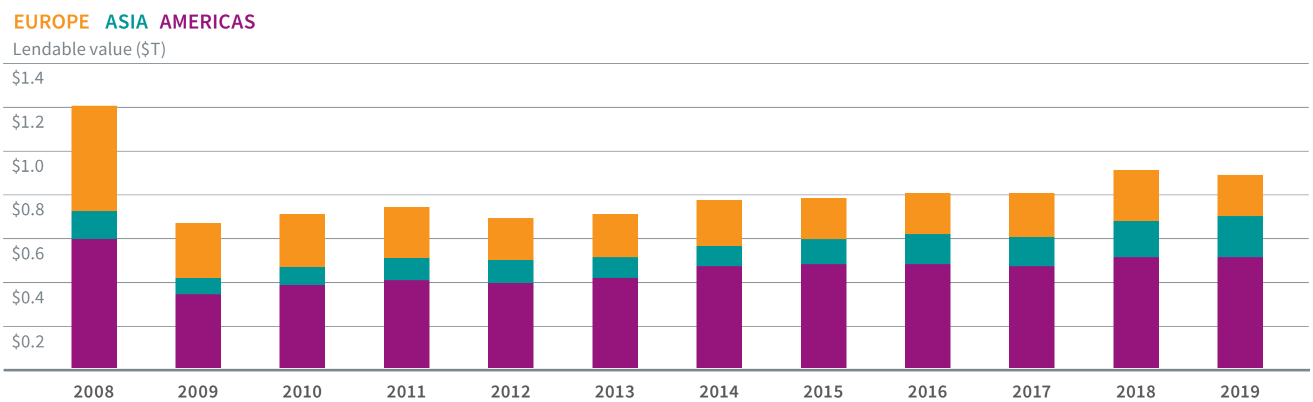


GLOBAL TOP REVENUE GENERATING EQUITIES FOR 2019

Ticker	Name	SL Revenue	Market	Industry Group
BYND	Beyond Meat Inc	$312	US Equity	Food, Beverage & Tobacco
NIO	Nio Ads Rep 1 Cl A Ord	$167	CN ADR	Automobiles & Components
WEED	Canopy Growth Corp	$153	CA Equity	Pharmaceuticals, Biotechnology & Life Sciences
ACB	Aurora Cannabis Inc	$124	CA Equity	Pharmaceuticals, Biotechnology & Life Sciences
CO	Casino Guichard Perrachon Sa	$93	FR Equity	Food & Staples Retailing
TLRY	Tilray Inc	$85	US Equity	Pharmaceuticals, Biotechnology & Life Sciences
AXDX	Accelerate Diagnostics Inc	$66	US Equity	Pharmaceuticals, Biotechnology & Life Sciences
OSTK	Overstock.Com Inc	$52	US Equity	Retailing
LYFT	Lyft Inc	$52	US Equity	Transportation
LLY	Eli Lilly And Co	$50	US Equity	Pharmaceuticals, Biotechnology & Life Sciences
028300	Hlb Inc	$49	KR Equity	Consumer Durables & Apparel
3690	Meituan Dianping	$48	HK Equity	Retailing
DDS	Dillard'S Inc	$47	US Equity	Retailing
ZM	Zoom Video Communications Inc	$45	US Equity	Software & Services
GTT	Gtt Communications Inc	$39	US Equity	Software & Services

Asia equity lending revenues declined by 8.7% YoY, with only Q1 posting a gain relative to 2018. The general theme was decreased hard to borrow loan balances in EM markets set against increasing balances in the lower fee developed markets, most notably Japan but also including Australia. One stand-out against the broader trend was South Korean pharmaceutical firm HLB Inc, which delivered $38m in Q4 revenues as the share price and lending fees surged while shares on loan remained constant. South Korean equity revenues increased 4.4% YoY, to $130m for Q4, of which 29% was from lending shares of HLB.

GLOBAL EQUITY LOAN BALANCES



Corporate bond lending revenues continue the slide from the post-crisis peak in Q2 2018. That comes mainly as the result of lower fees as balances were essentially flat YOY, -0.7%, while fees declined 17%. There were some opportunities to generate lending returns, for example the energy and opioid related issuers, however the strong performance of the credit market and increase in lendable assets kept a lid on overall revenues. The $604m in corporate bond lending revenues reflects a decline of 17% YoY, though it's worth noting that 2018 was the best year on record, with 2017 and then 2019 ranking 2nd and 3rd most, respectively.

Government bond lending revenues continued the slide from post-crisis peak revenues in Q1 2018. The narrative in the latter portion of 2019 concerned more the funding of long positions in a function similar to the repo market. The spike in UST repo funding costs on September 17th spilled over into securities lending, as the rebate for cash collateralized funding transactions increased to more than 400bps. Subsequent accommodation by the Federal Reserve precluded similar funding stress at year-end. With increased issuance of US Treasuries, and increased holdings on broker-dealer balance sheets, the need to borrow in HQLA assets has declined, putting pressure on revenues from traditional securities loans. As such, US government bond lending revenues fell by 20% YoY, with ex-US government bond revenues falling 21%.

Conclusion:

Part of the narrative in recent years has been the push towards efficiency on the part of broker-dealers, which has resulted in greater amounts of broker-to-broker loans and internalized borrows. There has also been an increased presence on the part of retail brokers, in part the result of fully paid lending programs for retail investors gaining popularity. These sources of lendable assets have reduced the demand for the traditional agency lending model; we see revenues from agency lending down 12.6% YoY in 2019. These additional sources of borrow have added market share, however the majority of securities loans still come through the agency pipeline. The pressure on agency utilizations, along with a mandated lack of collateral flexibility for some beneficial owners, has caused a general shift in focus toward intrinsic value lending. The resulting increase in fee level and volatility for hard to borrow securities has in turn challenged borrowers. Hedge fund frustration with borrow cost variability has led to an increased use of synthetic products. In theory, those products would be hedged in the underlying, however there is also the possibility of hedging synthetically. A consideration of securities lending revenues is therefore incomplete if it excludes the growing alternative sources of lending revenue.

With the opportunities and challenges of 2019 in the rear view, the future looks bright for securities lending. There has been an emerging dialogue on corporate governance which is vital to beneficial owners, though it’s worth noting that agents have actively managed lendable assets around corporate action record dates over the last decade per academic research, so it’s still important, but not new. The increase in lendable assets continues, largely as the result of asset appreciation though there has also been a consistent increase in accounts reporting to IHS Markit since the low point in 2013. From 2008, the high point in securities lending revenue, to the low point in 2010, and up to the present much has changed and yet the core remains: The generation of lending revenues by beneficial owners, the funding of securities by asset owners and the provision of borrow to short sellers. Here’s to another decade of growth and prosperity for all capital market participants!

HQLA Classifications Data for Securities Finance

Leveraging a new dataset for lendable asset evaluation

- Classifying global fixed income securities by HQLA status
- Utilization broken out by collateral eligibility
- New characteristics for securities lending performance attribution

A key aspect of the BIS Basel III regulation is the Liquidity Coverage Ratio (LCR) which requires banks to hold enough High-Quality Liquid Assets (HQLA) to "survive a period of significant liquidity stress" lasting 30 calendar days. To maintain compliance banks must test assets for HQLA status and maintain 100% of their estimated 30 net cash outflow arising from a stress scenario. As a result, the classification of securities between the three categories of HQLA has taken on great significance for the banking industry. To support independent review, the Portfolio Valuations & Reference Team (PVR) team at IHS Markit has created a model to classify fixed income securities based on a variety of fundamental and market-based characteristics. While the model inputs are proprietary and only available to PVR clients, Securities Finance clients have been granted complimentary access to the output classifications.

The implications of HQLA classifications to the securities lending market are broad and include the marketability of lendable portfolios and the calculation of utilization in performance reviews. Given the need for HQLA makes eligible securities naturally more attractive as lendable securities and the utilization for Level 1 HQLA assets are higher than for the non-qualified securities from the same asset class. At the top level 44% of fixed income lendable assets are held in securities which are deemed to be HQLA Level 2b assets or better.

US Treasury bonds have $530bn in lendable assets, 60% is Level 1 HQLA. The Level 1 HQLA bonds have a utilization of 32% compared with a utilization of 29% for other UST bonds. An example of where the classification appears to have a larger impact on utilization are US Agency debt where Level 1 HQLA assets have a utilization of 8% compared with utilization of 2% for non-HQLA. Another example can be found in the euro denominated corporate bonds, where HQLA Level 1 securities have an average utilization of 11% compared with 7% for the rest of EUR corporates. Of the $527bn of EUR corporate lendable assets 23% or $120bn is in HQLA Level 1.

HQLA utilizations can be made even more meaningful when filtered to an appropriate beneficial owner location and type. Mutual Funds, the largest individual beneficial owner type by lendable assets, hold $340bn in assets deemed to be HQLA, equivalent to 27% of their fixed income lendable assets. The utilization for the HQLA portion is 15%, while the overall fixed income utilization is only 7%. By contrast Sovereign Wealth Funds' HQLA utilization of HQLA assets is 34%, compared with 22% for all fixed income securities. The comparison makes sense given the limitations on mutual funds engaging in term type structures or accepting equities as collateral, which are two of the requirements for borrowers of HQLA.

In addition to HQLA status another factor which may aid in the marketability of lendable assets is the turnover of the portfolio. We have developed Stability metrics which measure the turnover of the lendable assets within a portfolio and tag funds which demonstrate low turnover. Within this pool of lower turnover assets, the utilization of HQLA is even higher than for low stability HQLA assets. For example, the utilization for Level 1 HQLA US Treasury bonds from high stability funds is 35% compared with 28% for the Level 1 securities from funds which don't meet the low turnover requirement.

Conclusion:

Breaking out the data by HQLA status provides deeper insight into the nature of lendable assets in terms of value as high-quality collateral. That can help market those securities and aid in forecasting demand and revenues at a more granular level. Including new datasets to support existing processes for securities lending program management is an ongoing goal for us and we are excited to be able to offer the HQLA classifications in this context.

	LENDABLE VALUE $T				UTILIZATION			
Asset Class	All	Level 1	Level 2a	Level 2b	All	Level 1	Level 2a	Level 2b
Americas Bonds (Govt)	$2.23	$1.55	$0.01	$0.00	28.3%	32.1%	5.5%	0.8%
European Bonds (Govt)	$1.06	$0.85	$0.00	$0.00	25.9%	28.1%	3.5%	4.0%
Asian Bonds (Govt)	$0.08	$0.04	$0.02	$0.00	14.2%	20.8%	3.0%	
Corporate Bonds	$3.50	$0.26	$0.07	$0.47	5.0%	12.8%	4.6%	3.6%
EM Govt	$0.23	$0.03	$0.03	$0.00	5.6%	3.9%	3.6%	3.3%

APAC Equity

HLB Inc pushes up on SK revenues

Overview

Quarterly Revenues
$490M ▼ 7%

Average Balances
$192B ▲ 7%

Weighted Average Fee
1.02% ▼ 13%

Average Lendable
$1.9T ▲ 13%

Utilization
5.27% ▼ 17%

Asian equity lending delivered $490m in Q4, down 7% from Q4 2018, however the Q4 return does represent a 2.3% sequential increase compared to Q3. The first quarter of 2019 saw the highest revenue of the year, $540m, boosted by exceptional revenue for the most in-demand shares. The lower 2019 revenues were driven by a reduction in average fees, while loan balances increased by 10% YoY. The increase in loan balances was concentrated in Japan and Australia. The top 10 Asian equities returned $98m in Q4 revenues, up from $62m in Q3.

The sequential increase in revenue in the top 10 Asian equities was led by South Korean listed HLB Inc, whose soaring share price elevated loan balances along with an increase in lending fee. Including the impact of HLB, SK equity revenues increased 42% compared with Q3, however excluding HLB the increase was only 5%. The increasing revenues for HLB in Q4 improved on what had been a slow year for lending SK equities, as the prior revenue leader, Celltrion Inc, went from generating over $100m in 2018 to just $23m in 2019. The spike in HLB balances and fees pushed up the weighted fee for all SK equities by 11% YoY in Q4, while average balances fell by 6%. South Korean (SK) equities remained the 2nd most revenue generating in the Asian equity market, having overtaken Hong Kong in Q2. The other two most revenue generating SK equities in Q4 were Netmarble and Sillajen. South Korea was the only Asia market to have the highest revenue of 2019 in Q4, on the strength of the HLB revenues.

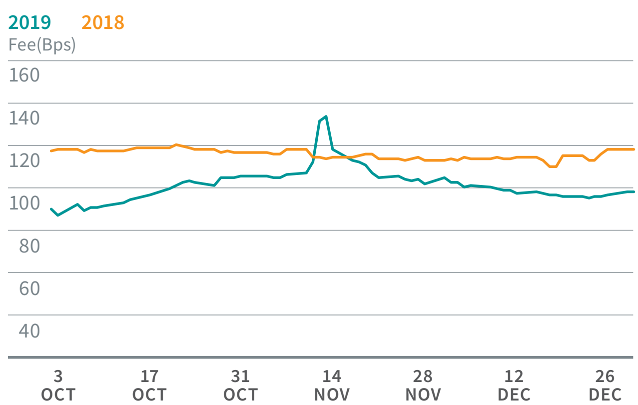
Japanese equity revenues totaled $196 million for Q4, a 6.6% decline compared with Q4 2018. Loan balances saw significant growth, however that was mainly in low fee equities. Zozo Inc generated the most Q4 revenue for Japanese equities in the quarter with $12.2 million. The most revenue generating JP equity for Q2 and Q3, Tokai Carbon, saw revenues decline 50% sequentially in Q4 as the result of lower fees and balances.

Hong Kong (HK) equity revenues came in at $73.8m for Q4, a 23% YoY decline, capping a year where only the first quarter managed to improve on the comparable 2018 quarter. Byd Co was again the most revenue generating HK equity, with returns increasing sequentially to $9.8m in Q4. Lending revenues of $5.7m for Zhongan Online P&C Insurance made it the 2nd most revenue generating HK equity, driven by an increase in fees. Ping An Healthcare and Technology fell to 3rd place for HK equities, with the increase in balances insufficient to offset lower average fees.

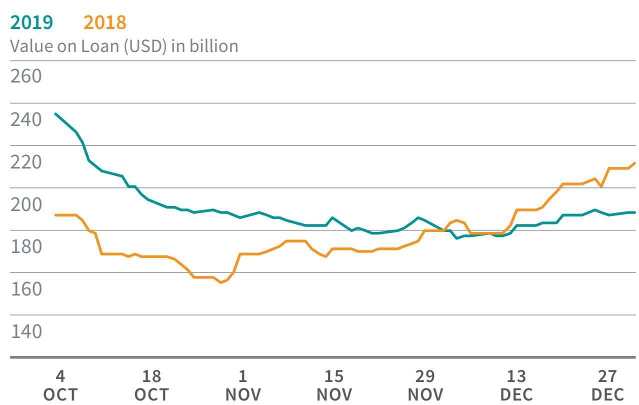
Yageo Corp was the again most revenue generating Taiwanese equity in Q4, however the $4.8m of revenue represents a 42% decline compared with Q3 and the lowest revenue since Q4 2018, when the firm went public. The decline in Yageo revenue was entirely fee driven, with average balances increasing slightly. The other notable name in Taiwan was Walsin Technology Corp, whose $4.5m in Q4 revenues reflects a 32% sequential decline.

As noted in the exchange traded fund section, funds which invest in Chinese equities were four out of the top 10 most revenue generating funds.

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

- HLB Inc drives SK equity revenue uptick
- Uptrend in Japanese equity balances remains in tact
- Spread compression in most markets
- Utilization in decline across Asia equities

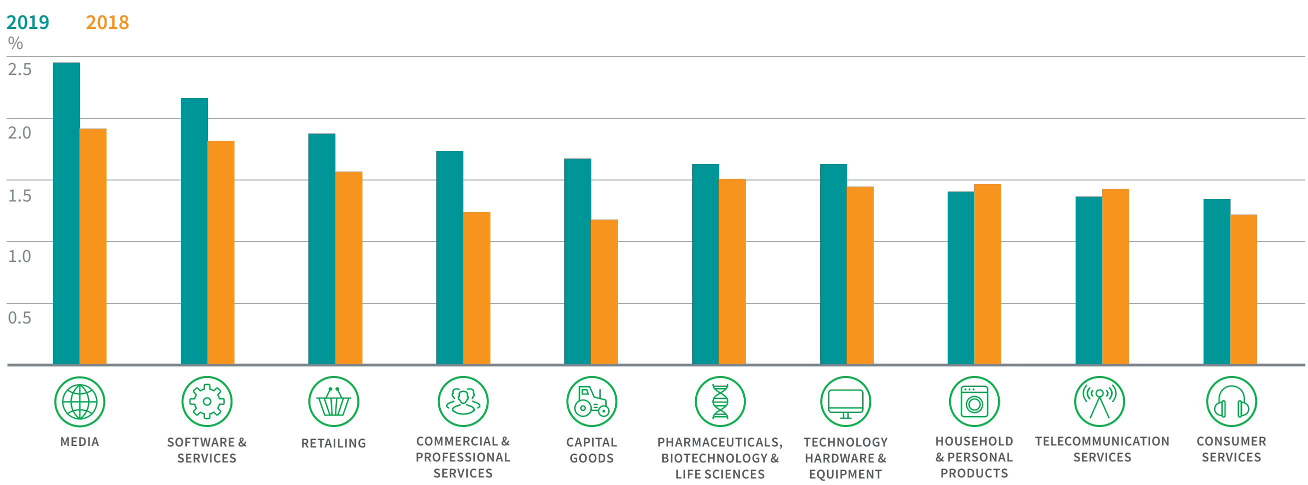
COUNTRY DETAILS

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	196.30	-6.6%	115.92	13.7%	0.7%	-17.0%	880.30	11.1%	5.82	-16.3%
South Korea Equity	130.19	4.4%	13.76	-5.7%	3.8%	11.0%	122.99	5.9%	5.29	-21.8%
Hong Kong Equity	73.82	-23.7%	30.28	-3.0%	1.0%	-21.0%	414.31	12.5%	5.27	-12.8%
Taiwan Equity	49.60	3.8%	9.01	12.4%	2.2%	-8.0%	61.36	13.8%	4.56	-29.1%
Australia Equity	26.56	-16.0%	18.71	-3.8%	0.6%	-14.0%	325.14	21.7%	4.62	-18.2%
Singapore Equity	6.71	41.8%	2.07	-1.5%	1.3%	43.0%	51.06	4.3%	3.28	1.7%
Malaysia Equity	3.09	-51.2%	0.52	-25.8%	1.3%	-34.0%	13.06	-7.1%	2.45	-44.2%
Thailand Equity	2.52	-36.3%	0.54	-35.0%	1.9%	-3.0%	18.17	11.0%	2.14	-42.7%
New Zealand Equity	0.78	-18.3%	0.89	20.7%	0.3%	-32.0%	9.10	24.3%	7.04	-3.8%

TOP 10 REVENUE GENERATING STOCKS

Instrument Name	Ticker	Sector	Country	Revenue Generated ($)
Hlb Inc	028300	Asia Consumer Durables & Apparel	KR Equity	36.70
Zozo Inc	3092	Retailing	JP Equity	12.25
Byd Co Ltd	1211	Automobiles & Components	HK Equity	9.84
Netmarble Corp	251270	Media and Entertainment	KR Equity	7.11
Anritsu Corp	6754	Technology Hardware & Equipment	JP Equity	6.17
Zhongan Online P & C Insurance Co Ltd	6060	Insurance	HK Equity	5.73
Sillajen Inc	215600	Pharmaceuticals, Biotechnology & Life Sciences	KR Equity	5.36
Ping An Healthcare And Technology Co Ltd	1833	Health Care Equipment & Services	HK Equity	5.32
Yageo Corp	2327	Technology Hardware & Equipment	TW Equity	4.81
Walsin Technology Corp	2492	Technology Hardware & Equipment	TW Equity	4.57

AVERAGE % OF SHARES ON LOAN



EMEA Equities

Lendable assets increase

European (EU) equity lending revenue was subdued throughout 2019, extending into Q4, which saw the least revenue for a quarter since Q3 2015. The $289m in Q4 revenues reflects a 23% YoY decline, wrapping up a year where total revenues have declined by just over 20%. The drivers of the shortfall in Q4 were split between lower fees, -12% YoY, and lower balances, -13% YoY. Utilizations were challenged across the region, with lendable assets increasing 11% YoY, while average loan balances decreased.

Casino Guichard was once again a bright spot for lending revenues, for the 2nd consecutive quarter being the only EU equity to crack the top 10 overall earners. The $29m in Casino shares was far and away the most for an EU equity, however a 25% reduction in average balances, along with a marginal decline in average fee, drove a 28% decline in revenues compared with Q3.

Osram Licht was the most revenue generating German equity for the 2nd consecutive quarter, on the strength of a 45% increase in average fees, which more than offset the 27% decrease in average balances. German equity lending revenue increase by 38.5% YoY as the result of a 13% increase in average balances and a 22.5% increase in fees. The other notable GR equities were Wirecard, Corestate Capital & Grenke.

UK equities revenues declined in Q4, both YoY and sequentially. The $33m in Q4 revenues was the least revenue generated in a quarter since Q4 2013.

Greek equities continued to deliver significant returns in Q4 relative to the size of the market. The revenue upswing has been led by the banking sector based on higher loan balances and fees. Most of the country's equities are hard to borrow, a fact reflected in the 13% average lending fee, easily the highest for any country globally.

Overview

Quarterly Revenues
$289M ▼ 23%

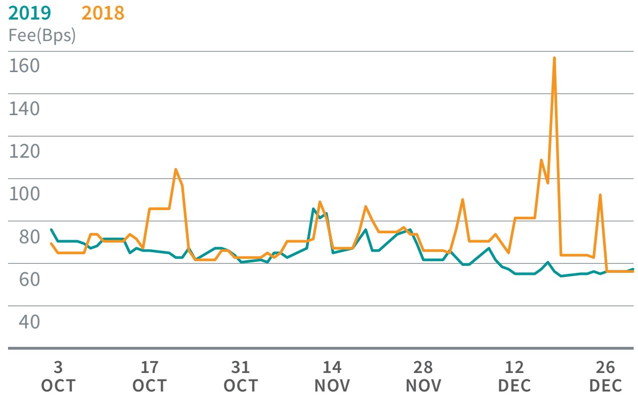
Average Balances
$178B ▼ 13%

Weighted Average Fee
0.64% ▼ 12%

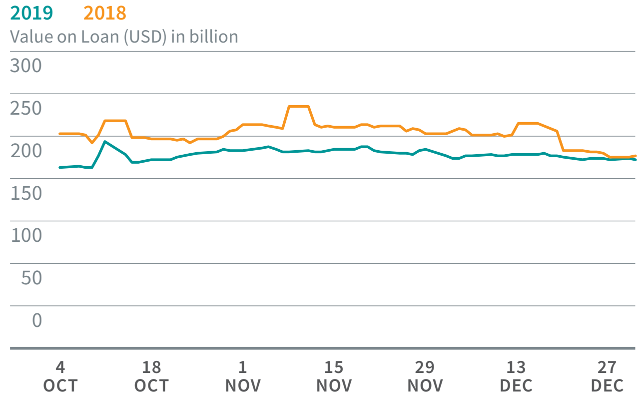
Average Inventory
$2.6T ▲ 11%

Utilization
4.68% ▼ 18%

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

Revenues decline on lower fees and loan balances	Specials deliver revenue growth for German equities	Casino Guichard repeats as most revenue generating EU equity	Utilization in decline for most markets

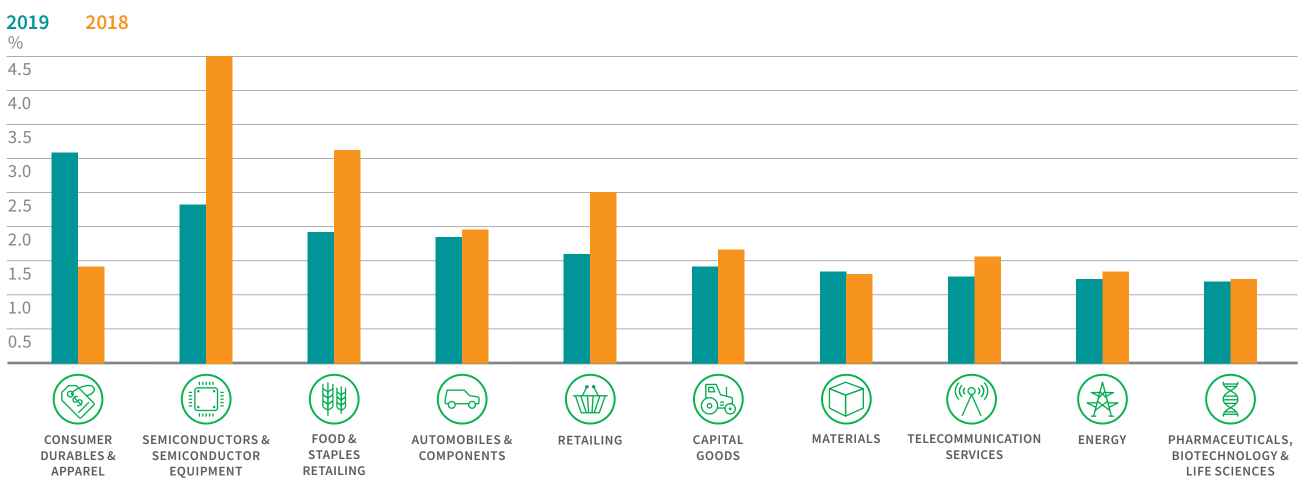
COUNTRY DETAILS

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	66.95	-26.4%	31.41	-20.5%	0.85%	-7.43%	416.12	17.4%	5.02	-21.4%
Germany Equity	48.84	38.5%	26.80	13.1%	0.72%	22.52%	310.92	5.7%	5.49	11.6%
UK Equity	33.03	-6.5%	33.69	0.0%	0.39%	-6.51%	773.56	8.1%	3.58	-24.3%
Sweden Equity	28.03	-55.7%	14.69	-13.2%	0.76%	-49.01%	124.15	10.8%	8.20	-18.4%
Italy Equity	22.15	19.0%	8.25	-20.6%	1.06%	49.81%	99.25	15.1%	5.18	-30.4%
Switzerland Equity	17.13	-36.1%	23.54	0.0%	0.29%	-36.10%	388.30	21.6%	4.30	-16.1%
Norway Equity	11.94	-26.9%	4.13	-9.4%	1.15%	-19.32%	35.28	-4.2%	7.17	-7.1%
South Africa Equity	11.77	7.3%	4.24	-14.5%	1.10%	25.56%	51.11	-6.6%	4.67	23.6%
Spain Equity	10.90	-49.9%	8.33	-19.0%	0.52%	-38.14%	102.07	3.6%	5.31	-23.8%
Netherlands Equity	10.23	-3.8%	7.79	-22.6%	0.52%	24.31%	153.54	21.4%	3.26	-34.3%
Belgium Equity	8.97	-58.2%	4.49	-21.2%	0.79%	-46.96%	50.83	-5.7%	6.05	-8.3%
Denmark Equity	8.24	23.6%	5.98	-9.0%	0.55%	35.83%	69.03	17.7%	5.94	-22.3%
Turkey Equity	7.12	-4.2%	0.79	-14.0%	3.60%	11.28%	6.80	-0.8%	8.47	8.5%
Finland Equity	4.57	14.6%	3.70	-16.7%	0.49%	37.65%	40.12	-2.7%	6.51	-9.7%
Greece Equity	4.07	130.0%	0.12	101.1%	13.12%	14.37%	2.31	43.4%	4.42	50.0%
Austria Equity	2.29	67.0%	1.67	40.5%	0.54%	18.86%	13.32	3.3%	7.87	27.9%
Poland Equity	0.87	-31.0%	0.46	-43.1%	0.74%	21.17%	9.00	-9.8%	3.40	-41.2%
Portugal Equity	0.38	-1.6%	0.50	33.5%	0.30%	-26.33%	8.01	8.4%	4.00	26.8%

TOP 10 REVENUE GENERATING STOCKS

Instrument Name	Ticker	Sector	Country	Revenue Generated ($)
Casino Guichard Perrachon Sa	CO	Food & Staples Retailing	FR Equity	29.64
Osram Licht Ag	OSR	Capital Goods	DE Equity	7.48
Wirecard Ag	WDI	Software & Services	DE Equity	5.71
Corestate Capital Holding Sa	CCAP	Real Estate	DE Equity	4.04
Hsbc Holdings Plc	HSBA	Banks	UK Equity	3.54
Eurofins Scientific Se	ERF	Pharmaceuticals, Biotechnology & Life Sciences	FR Equity	3.35
Mediaset Spa	MS	Media and Entertainment	IT Equity	3.27
Ambu A/S	AMBU B	Health Care Equipment & Services	DK Equity	3.24
Grenke Ag	GLJ	Diversified Financials	DE Equity	2.91
Orange Sa	ORA	Telecommunication Services	FR Equity	2.66

AVERAGE % OF SHARES ON LOAN



Americas Equities

Still pretty good

The third quarter of 2019 had the most revenue for North American equities since 2008, in no small part the result of surging revenues for Beyond Meat. That was a tough act to follow, though Q4 was a solid follow up. The $969m in revenues was the most since Q1 2016, excluding of course the preceding quarter. The revenue drivers which made Q3 great faded on the margin, but they were sufficient to make Q4 still pretty good. In percentage terms the YoY increase was greater than Q3, 49%, however that is a function of a soft comparison in Q4 2018, when declining asset prices dragged on loan balances.

After delivering the most quarterly revenue for any security since Tesla in Q3 2016, shares of Beyond Meat were unlikely to follow that act in Q4 as the result of a lockup expiry for pre-IPO investors in mid-October (following the increase of shares available for borrow after the lockup fees declined sharply). The meat-alternative producer contributed 21% of US equity revenues in Q3, however the decline in fees and balances in Q4 saw the contribution drop down to “only” 8% of the total. The 10 most revenue generating US equities delivered 25% of total Q4 revenues, down from 40% of Q3. The decline in revenue at the top wasn’t purely a function of BYND, as Overstock.com fell from $33m in Q3 to $3m in Q4. Another retailer, Dillard’s, also saw revenue decline QoQ, however it remained in the top 10.

The declines in revenue for BYND and the retailers mentioned above was partly offset by shares of UBER, which had a GC fee almost immediately following the IPO, however the fee and value on loan spiked in front of the lockup expiry in the first week of November (and subsequently declined sharply). Shares of LYFT did not generate any significant revenue in Q4, following a lockup expiry in August. Another 2019 vintage IPO, Peloton, delivered $12.9m in Q4 revenue and is likely to generate significant revenues in Q1 ahead of the lockup expiry in March.

Overview

Quarterly Revenues
$969M ▲ 49%

Average Balances
$492B ▼ 1%

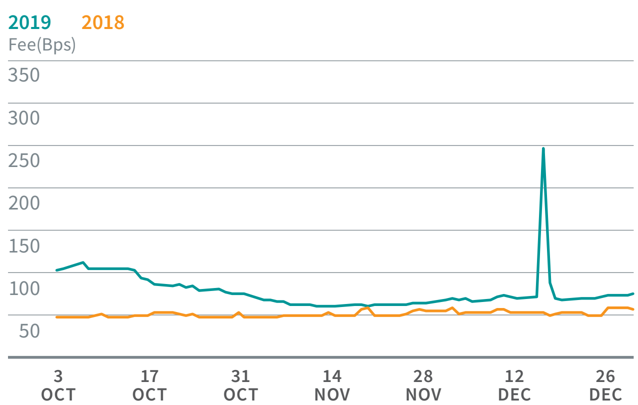
Weighted Average Fee
0.78% ▲ 51%

Average Inventory
$10.4T ▲ 17%

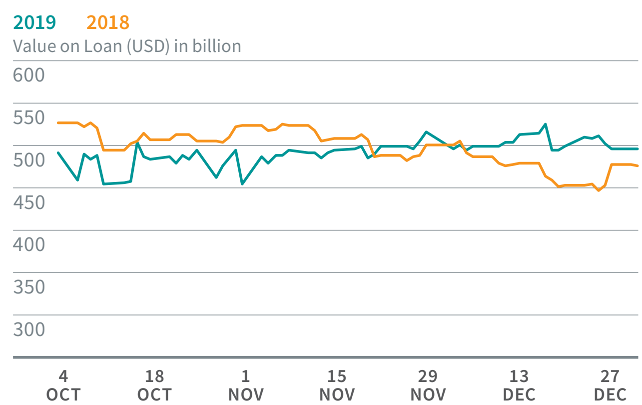
Utilization
3.91% ▼ 12%

Overall, Canadian equities delivered $154m in Q4 revenues, a YoY increase of 34%. It’s hard to overstate the impact of Cannabis related firms to lending revenues. For all of 2019, Canadian Cannabis firms delivered $372m in revenue, a staggering 59% of all Canadian equity revenue. One non-Cannabis CA equity which warrants a mention is Ballard Power Systems which delivered just over $4.7m in Q4 revenues, improving on the Q3 return for the most revenue on record for the manufacturer of fuel cell products.

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

Revenues increase YoY on greater specials balances

BYND still on top, but revenues in decline post lockup expiry

Cannabis related equities drive Canada revenue uptick

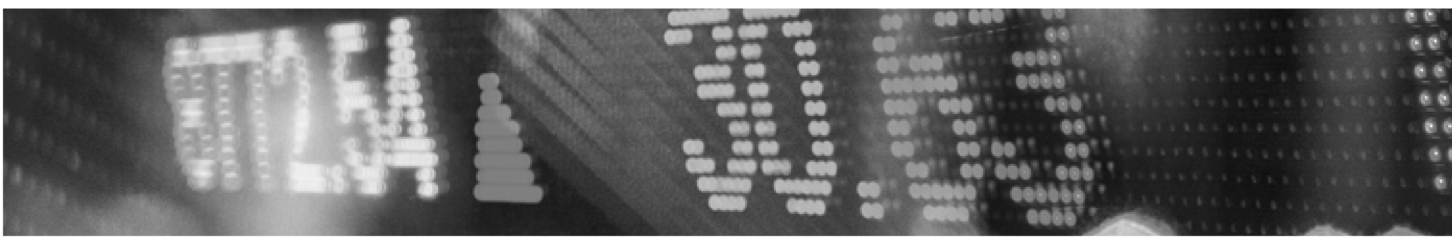
Lendable assets reach all-time high

COUNTRY DETAILS

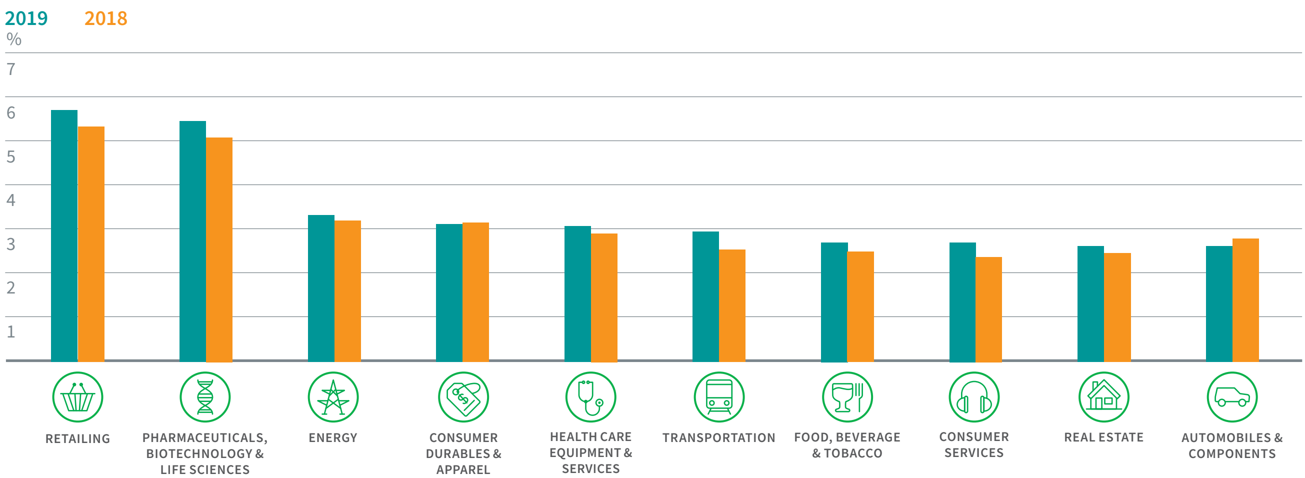
Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
USA Equity	812.48	52.9%	452.46	-1.1%	0.71%	55%	9,834.15	17.6%	3.79	-12.6%
Canada Equity	154.48	33.9%	38.74	-2.3%	1.58%	37%	528.95	12.8%	6.25	-9.1%
Brazil Equity	1.42	-3.4%	0.33	-36.6%	1.69%	52%	1.42	-15.5%	6.19	-10.2%
Mexico Equity	0.53	-53.1%	0.56	-34.3%	0.38%	-29%	27.53	9.4%	1.66	-38.5%
American Depository Receipts	133.77	62.8%	23.31	-45.9%	2.28%	201%	233.93	18.1%	7.62	-50.5%

TOP 10 REVENUE GENERATING STOCKS

Instrument Name	Ticker	Sector	Country	Revenue Generated ($)
Beyond Meat Inc	BYND	Food, Beverage & Tobacco	US Equity	62
Nio Ads Rep 1 Cl A Ord	NIO	Automobiles & Components	CN ADR	60
Canopy Growth Corp	WEED	Pharmaceuticals, Biotechnology & Life Sciences	CA Equity	46
Aurora Cannabis Inc	ACB	Pharmaceuticals, Biotechnology & Life Sciences	CA Equity	34
Zoom Video Communications Inc	ZM	Software & Services	US Equity	21
Tilray Inc	TLRY	Pharmaceuticals, Biotechnology & Life Sciences	US Equity	21
Uber Technologies Inc	UBER	Transportation	US Equity	18
Realreal Inc	REAL	Retailing	US Equity	17
Dillard'S Inc	DDS	Retailing	US Equity	16
Accelerate Diagnostics Inc	AXDX	Pharmaceuticals, Biotechnology & Life Sciences	US Equity	15



AVERAGE % OF SHARES ON LOAN



Exchange Traded Funds

China focused funds increase revenue

Unlike most other financial products represented in this review, ETFs had a particularly strong Q4 2018, which made for an elevated hurdle for Q4 2019 revenues to clear. They didn't. The revenues earned by lending ETFs in Q4 came in at $65m, a 41% decline YoY. For the full year 2019, revenues were down 26%. The YoY decline was due to lower fees, with the $51bn in 2019 average loan balances being the highest on record for exchange traded products. With that said, balances for Q4 were down 11% YoY, as the sell-off in the fourth quarter of 2018 was met with increased borrow demand sufficient to more than offset declining valuations, unlike most asset classes.

The decline in revenues and fees are partly the result of lower demand for corporate bond related products. Revenues for HYG & JNK, the two most liquid High-yield ETFs had revenues less than $1m in Q4 2019, down from $22m in Q4 2018. HYG did come back into the top 10 most revenue generating funds in Q4, however that was a function of the revenues generated by the top 10 falling sharply compared with Q3. The revenue contribution from fixed income ETFs fell to 12% in Q4, down from 33% in Q4 2018.

On the equity side, revenues declined by 6.5% sequentially compared with Q3. Unlike single name equities, the Cannabis sector did not deliver significant revenues in Q4. The funds tracking the Cannabis sector were not represented among the top 10 most revenue generating, the only such quarter of 2019. The decline in Cannabis fund revenue was both the result of lower lending fees and lower balances, with the latter driven by sharp declines in valuation across the sector.

It is worth noting the presence of US and HK listed ETF's with exposure to China on the top 10 list, featuring four such funds over the last half of 2019.

Overview

Quarterly Revenues
$65M ▼ 41%

Average Balances
$49B ▼ 11%

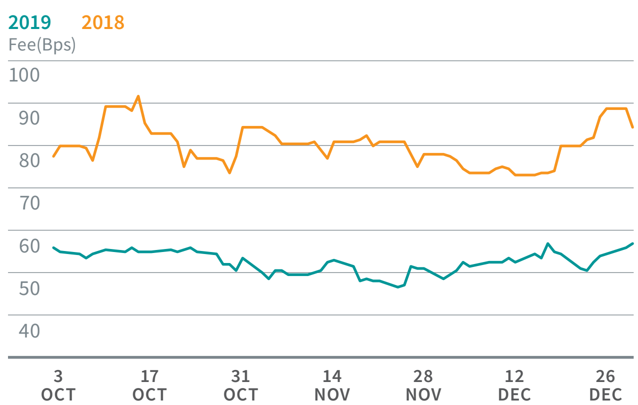
Weighted Average Fee
0.53% ▼ 34%

Average Inventory
$323B ▲ 20%

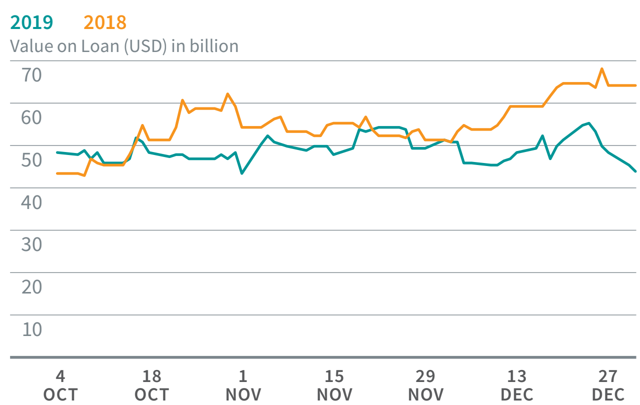
Utilization
9.54% ▼ 20%

Global ETF AUM first reached $5T in Q2 2018. That once significant threshold has now been left in the dust with ETF AUM blowing past $6T in Q4. The increase in use by institutional investors is reflected by the growth of lendable assets in securities lending. Global ETF lendable assets ended 2019 at $339bn, the highest level on record.

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

China focused funds top revenue generators in Q4

YoY spread compression driven by HY credit funds

Lendable assets reach all-time high

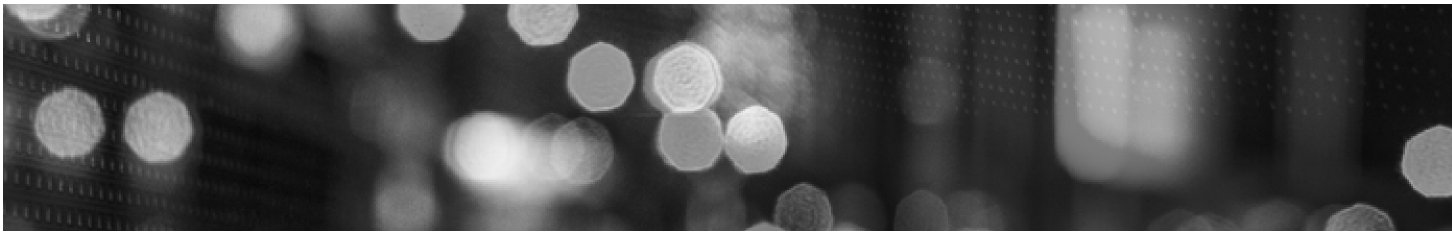
Equity ETFs deliver 77% of Q4 revenues

COUNTRY DETAILS

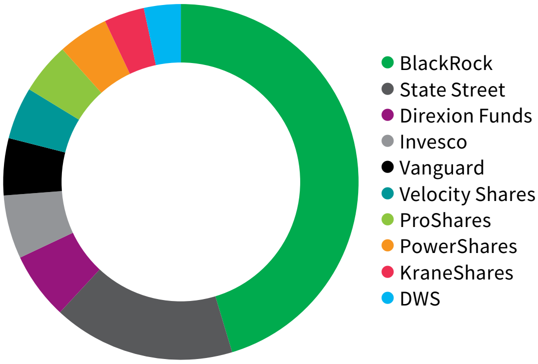
Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
Americas ETF	42.94	-49.6%	42.33	-12.5%	0.40%	-42%	206.77	27.8%	13.18	-26.8%
European ETF	15.01	-24.5%	4.36	-13.5%	1.37%	-13%	60.50	19.4%	4.54	-6.0%
Asian ETF	4.20	39.6%	1.01	0.7%	1.64%	39%	2.63	27.9%	13.74	50.4%

TOP 10 REVENUE GENERATING FUNDS

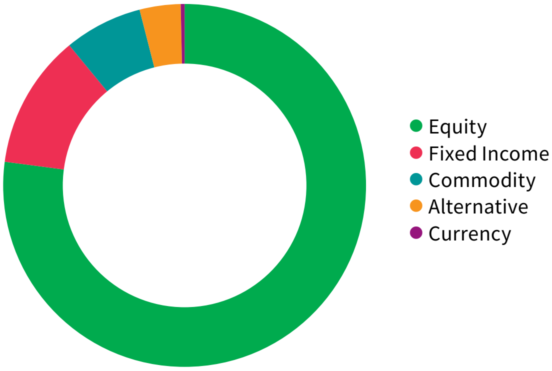
Instrument Name	Ticker	Listing Country	Asset Class	Q4 Revenue Generated ($)
Kraneshares Csi China Internet Etf	KWEB	US ETF	Equity	$1.7
Chinaamc Csi 300 Index Etf	3188	HK ETF	Equity	$1.6
Ishares Russell 2000 Etf	IWM	US ETF	Equity	$1.2
Spdr S&P 500 Etf Trust	SPY	US ETF	Equity	$1.0
Spdr S&P Biotech Etf	XBI	US ETF	Equity	$1.0
Ishares Msci Emerging Markets Etf	EEM	US ETF	Equity	$1.0
Xtrackers Hvst Csi 300 China A-Shs Etf	ASHR	US ETF	Equity	$0.9
Ishares Ftse A50 China Index Etf Hkd	2823	HK ETF	Equity	$0.9
Invesco Senior Loan Etf	BKLN	US ETF	Loans	$0.8
Ishares Iboxx $ High Yield Corporate Bond Fund	HYG	US ETF	HY Credit	$0.7



LENDING REVENUES BY ISSUER



LENDING REVENUES BY ASSET CLASS



Corporate Bonds

Credit rally continues

Overview

Quarterly Revenues
$132M ▼ 24%

Average Balances
$190B ▼ 4%

Weighted Average Fee
0.28% ▼ 20%

Average Inventory
$3.9T ▲ 19%

Utilization
4.34% ▼ 19%

Global corporate bond lending revenues came in at $132m for Q4, a 24% YoY decline. The decline from peak revenue in Q2 2018 has been primarily driven by fee compression, with loan balances hovering around $200bn globally since Q1 2018. With that said, balances were down 4% YoY in Q4, with the $190bn in average balances the lowest since Q4 2017. Average fees declined 20% YoY in Q4. That combination made Q4 revenues the lowest for any quarter since Q3 2015. Overall for the year revenues were $603m, the lowest annual return since 2016, and a disappointing follow up to 2018, which saw the most corporate bond lending revenue on record.

USD denominated credits continue to be the most in demand, which is mainly due to the relative scale of issuance, however for the full year 2019 the contribution from USD denominated credits was only 52% of total corporate bond revenues; that figure is down from 58% in 2018 and the lowest percentage contribution since 2014. Average daily loan balances for USD credits were $109bn in Q4, a 2% decline YoY. USD credit revenues came in at $68m, down 27% YoY compared with Q4 2018.

The most revenue generating credit was the Range Resources Corp 4.875% note maturing in May 2025, which delivered $1.3m in the quarter. RRC was the most recent energy related issuer to see increasing borrow demand and fees, capping a challenging year for returns to investors in the sector.

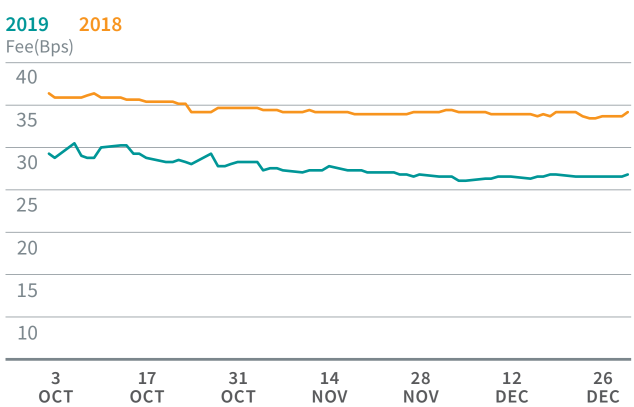
Euro denominated corporates, the most revenue generating apart from USD, were down 23% in Q4, however a particularly strong Q1 was sufficient to hold total annual revenues essentially flat YoY (-0.2%). The shortfall in Q4 was mainly the result of lower balances, but fees also declined.

Overall, non-USD had been stable over the first three quarters of 2019, however even there the increase in valuations across the asset class drove a decline in sequential and YoY revenue comparisons. That figure belies some internal movement. CAD denominated corporates doubled revenue YoY as the result of demand for the Canada Housing Trust bonds, though it would be valid to consider those to be more like agency bonds given the government backing.

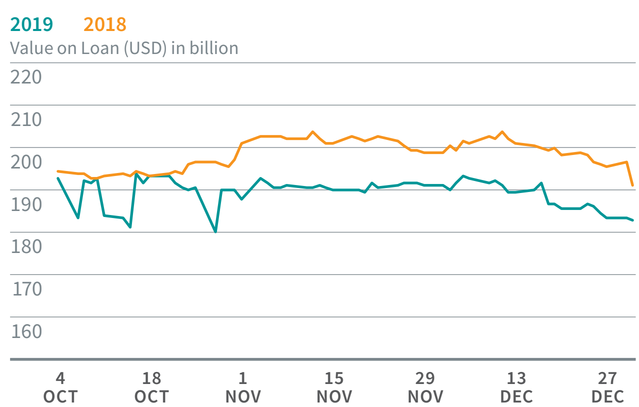
Investment grade bond balances increased 2% YoY for Q4, however declining fees caused revenues to fall 16%. Non-Investment grade credit lending revenues were down 20% YoY, primarily as the result of lower fees, though balances also declined. NIG credits generated 58% of Q4 corporate bond revenue.

Convertible bond lending revenues were down 35% YoY in Q4, as the result of both lower average fees and balances. Once again, Illumina's 2023 bond was the only convertible in the top 10 most revenue generating corporate bonds in Q4.

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

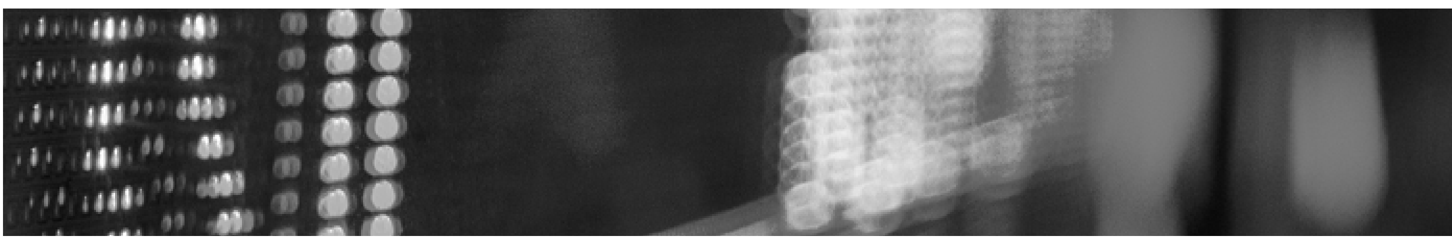
Revenues decline as result of lower fees	Growth trend in lendable assets remains in place	NIG credits deliver 57% of Q4 revenue	Flat demand and lendable asset growth lead to declining utilization

ISSUE TYPE DETAILS

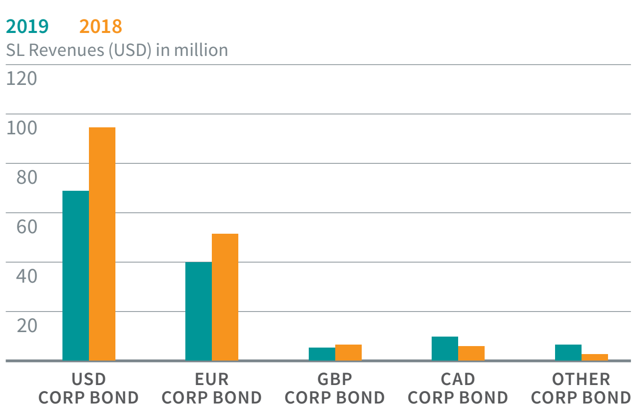
Issue Type	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
Conventional Bonds	129.13	-19.6%	190.80	0.0%	0.27%	-20%	3,462.33	16.9%	4.78	-18.2%
Convertible Bonds	6.96	-35.2%	4.40	-17.2%	0.63%	-22%	47.31	4.6%	7.49	-11.5%
Asset Backed Securities	0.21	-78.2%	0.53	-60.4%	0.15%	-45%	395.50	39.6%	0.13	-22.5%

TOP 10 REVENUE GENERATING BONDS

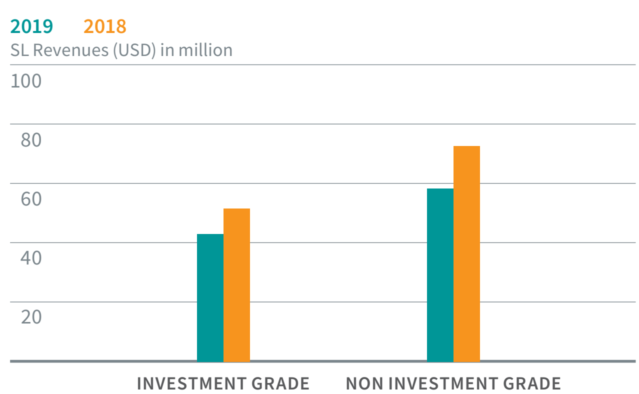
Top Earning Assets	Cusip	Denomonation	Aseet Class	Revenue Generated ($)
Range Resources Corp (4.875% 15-May-2025)	RRC	USD	Non-Investment Grade	$1.3
Diamond Bc Bv (5.625% 15-Aug-2025)	CNTLI	EUR	Non-Investment Grade	$1.3
Goodyear Tire & Rubber Co (5% 31-May-2026)	GT	USD	Non-Investment Grade	$1.2
Norddeutsche Landesbank Girozentrale (6% 29-Jun-2020)	NORDL	EUR	Non-Investment Grade	$1.1
Illumina Inc (0% 15-Aug-2023)	ILMN	USD	Convertible	$1.0
Teva Pharmaceutical Finance Netherlands Iii Bv (6.75% 01-Mar-2028)	TEVA	USD	Non-Investment Grade	$1.0
Rackspace Hosting Inc (8.625% 15-Nov-2024)	INCPR	USD	Non-Investment Grade	$0.9
Teamhealth Holdings Inc (6.375% 01-Feb-2025)	TNNSP	USD	Non-Investment Grade	$0.8
Men's Wearhouse Inc (7% 01-Jul-2022)	TLRD	USD	Non-Investment Grade	$0.8
Trafigura Group Pte Ltd (6.875% Undated)	FRNOD	USD	Non-Investment Grade	$0.8



Q4 SECURITIES LENDING REVENUES BY DENOMINATION



Q4 SECURITIES LENDING REVENUES BY RATINGS CATEGORY



Government bonds

Limited opportunities for spread income

Government bond lending revenues were $328m for Q4, an 18% YoY decline. That makes Q4 2019 the lowest revenue generating quarter since Q3 2016. Compared with the post-crisis peak in Q1 2018, revenues from lending government bonds at positive spreads have declined by 30%.

US Treasuries were the primary driver of record government bond lending revenues in Q1 2018, so it is no surprise that they have led the way down from the peak. For Q4, however, lending revenues for sovereign debt declined more in nominal terms in Europe, -$37m YoY, than in the US, -$22m. Italian debt revenues declined by more than 70% YoY, continuing the slide from the peak in demand for the 10Y in 2018. Revenues for lending UK debt declined 21% YoY.

The decline in UST lending revenue is primarily explained by increase Treasury issuance, which has increased the supply of HQLA assets. Additionally, the cost of foreign ownership increased on a currency adjusted basis, detracting from foreign demand at the same time issuance increased. The bond rally which extended through Q3 made short positions in rates instruments challenging; the US Federal Reserve cut rates for the first time in the decade following the financial crisis and the ECB cut rates further into negative territory. The US 10Y yield increased after initially dipping in the first week of Q4, suggesting a more conducive environment for short positions in rates positions may be at hand, however such demand, if it exists, created no net increase in borrow demand in the quarter.

The spike in the funding cost for Treasuries on September 17th, reflected in the rebate for funding transactions in securities lending market reaching 440bps, demonstrating the changing dynamics in both supply of and demand for US Treasuries, at the time exacerbated by the run-off of the Fed balance sheet. Since then Federal Reserve intervention in repo markets has kept a lid on funding costs, with no notable increase over year-end, as had been observed in previous years.

European government bond lending revenues faced a similar decline to the US, with revenues declining 27% YoY in Q4 and 26% compared with full year 2018. Asia government bond revenue held up better, declining only 3.1% YoY for the full year.

Overview

Quarterly Revenues
$328M ▼ 18%

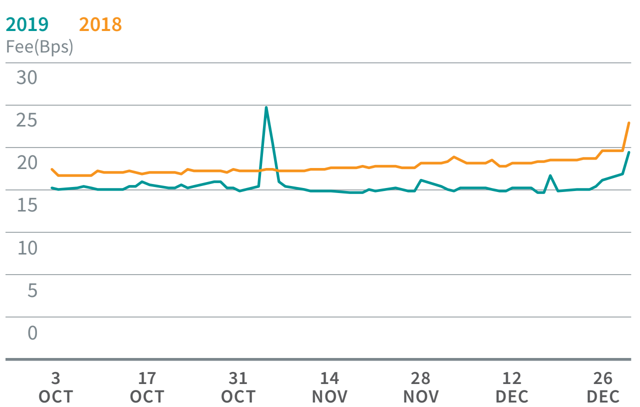
Average Balances
$845B ▼ 5%

Weighted Average Fee
0.15% ▼ 13%

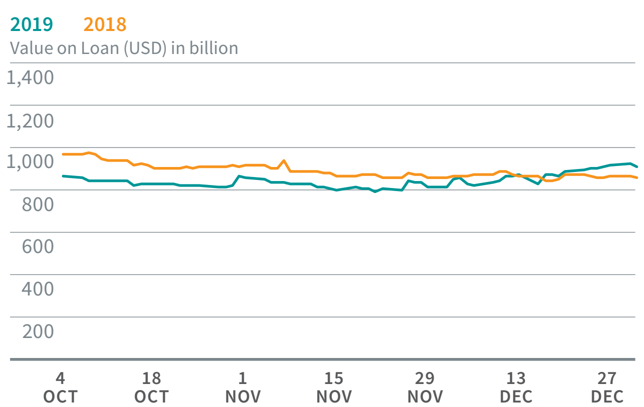
Average Inventory
$3.3T ▲ 15%

Utilization
21.63% ▼ 11%

Q4 FEE TREND



Q4 BALANCE TREND



OVERVIEW

Spread compression extends into Q4

Limited opportunities to lend specials in Q4

Lowest Q4 revenue since 2015

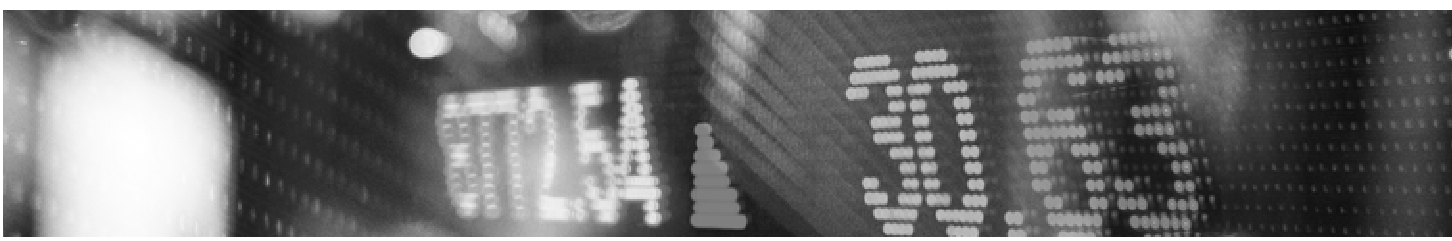
UST securities generate 57% of government bond lending revenues

REGIONAL DETAILS

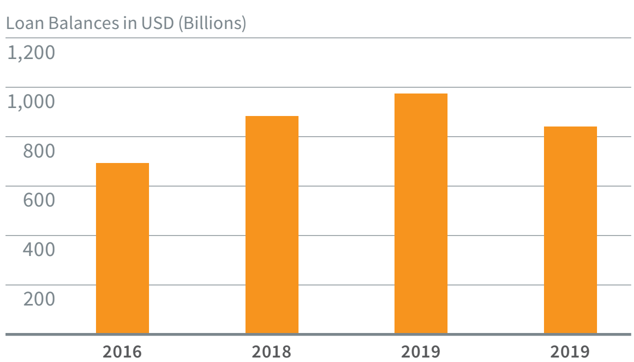
Country	Quarterly Securities Lending Income (USD M)	YoY Change	Average Value on Loan (USD Bn)	YoY Change	Weighted Fees	YoY Change	Average Lendable (USD Bn)	YoY Change	Average Utilization	YoY Change
Americas	204.15	-11.7%	505.85	1.4%	0.16%	-13%	2,213.69	16.3%	20.19	-6.5%
Europe	114.13	-27.2%	315.13	-12.8%	0.14%	-17%	1,047.47	12.1%	25.35	-16.7%
Asia	9.93	-3.5%	24.43	-28.2%	0.16%	34%	79.91	25.0%	13.06	10.9%
Emerging Market Bonds	12.71	-9.9%	16.74	-3.2%	0.30%	-7%	303.89	27.9%	5.11	-25.0%

TOP 10 REVENUE GENERATING BONDS

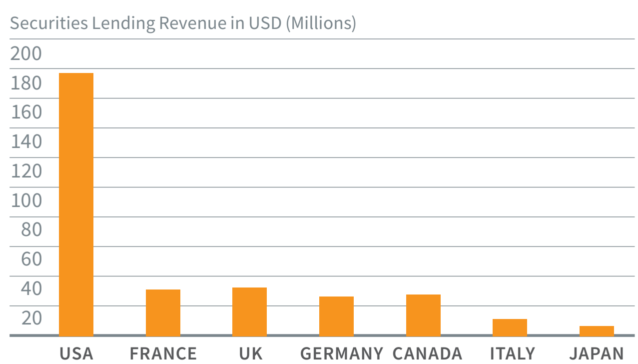
Instrument Name	ISIN	Currency	Issuer	Revenue Generated ($)
United States Treasury (2.75% 15-Nov-2023)	912828WE6	USD	US Govt Bond (Notes)	2.30
Canada (Government) (2.25% 01-Jun-2029)	135087J39	CAD	CA Govt Bond (Domestic)	2.22
Canada (Government) (2.75% 01-Dec-2048)	135087D35	CAD	CA Govt Bond (Domestic)	1.76
United States Treasury (2% 31-Jul-2022)	912828XQ8	USD	US Govt Bond (Notes)	1.64
United States Treasury (1.875% 31-May-2022)	912828XD7	USD	US Govt Bond (Notes)	1.58
United States Treasury (1.75% 15-Nov-2029)	912828YS3	USD	US Govt Bond (Notes)	1.53
United States Treasury (1.5% 15-Aug-2026)	9128282A7	USD	US Govt Bond (Notes)	1.37
United States Treasury (2.25% 15-Aug-2049)	912810SJ8	USD	US Govt Bond (Bonds)	1.34
United States Treasury (2.375% 15-May-2029)	9128286T2	USD	US Govt Bond (Notes)	1.33
United States Treasury (2% 15-Feb-2023)	912828UN8	USD	US Govt Bond (Notes)	1.29



GOVERNMENT BOND BALANCE TREND



Q4 REVENUES BY ISSUER



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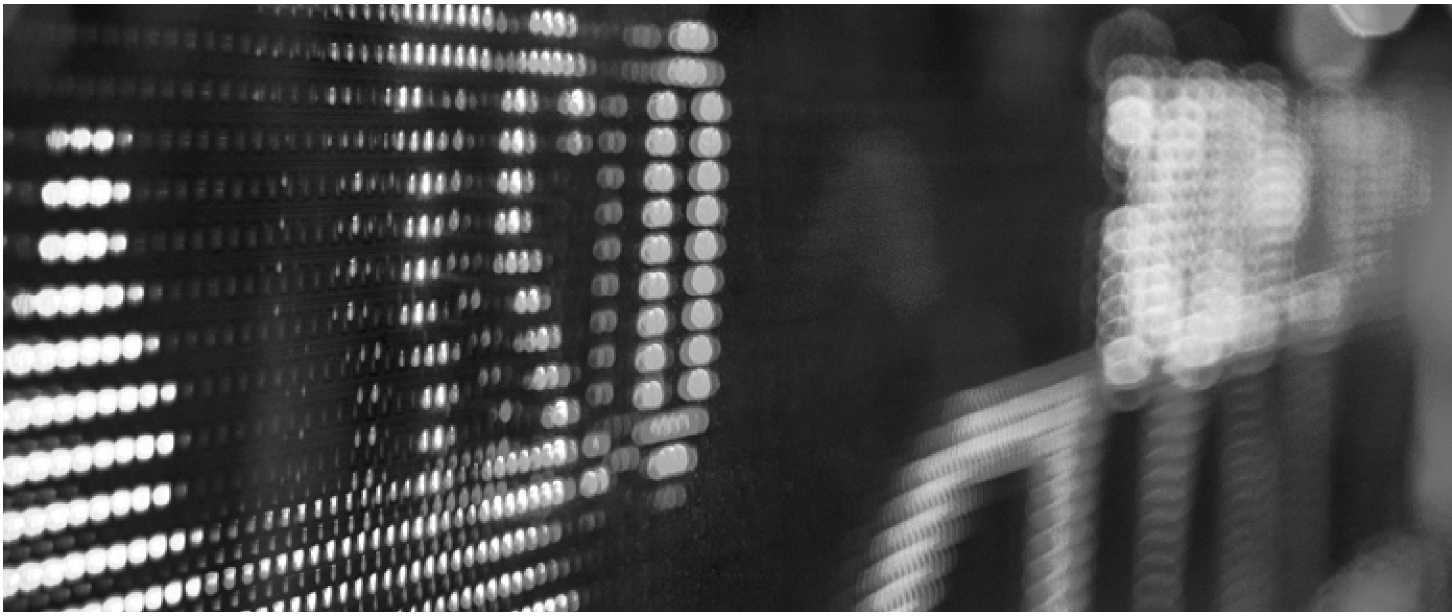

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IHS Markit (NYSE: INFO) is a world leader in critical information, analytics and expertise to forge solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 business and government customers, including 80 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.

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