FMIs' All-Weather Business Models Support Stability In 2024

Financial Market Infrastructure Sector View 2024

S&P Global
Ratings

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This report does not constitute a rating action

Key Takeaways

- We expect rated FMIs to repeat their generally solid 2023 performance in 2024. Treasury income (on reinvested client margins and deposits) is likely to fall in 2024, but many FMIs should benefit from continued volatility across asset classes.
- In general, the most unhelpful cyclical conditions for FMIs are low volatility, securities market prices that reset to a far lower level, and declining policy rates. But earnings in this cyclically-resilient industry have become more diverse and repeatable for many FMIs.
- Short-term risks to ratings are idiosyncratic. ICE and Nasdaq are deleveraging after previous deals, and a severe downside scenario could slow progress. Coinbase continues to face specific pressure as it rebuilds financial performance and navigates regulatory scrutiny. Historically a steady performer, SIX Group's earnings could come under more pressure if market conditions are unsupportive.
- Medium to long term, we see carbon transition trends as generally credit-supportive or neutral for the rated sector, though we would not rule out further governance events (despite the good record of the industry).
- We remain mindful also of the shift to decentralized finance and adoption of new technologies, which bring some opportunities but also risks if this subverts the franchise and dominance of these highly regulated centralized institutions.

Editor's note: This article was republished on Feb. 16, 2024 to correct the ratings data for Nasdaq Inc. on slide 42.

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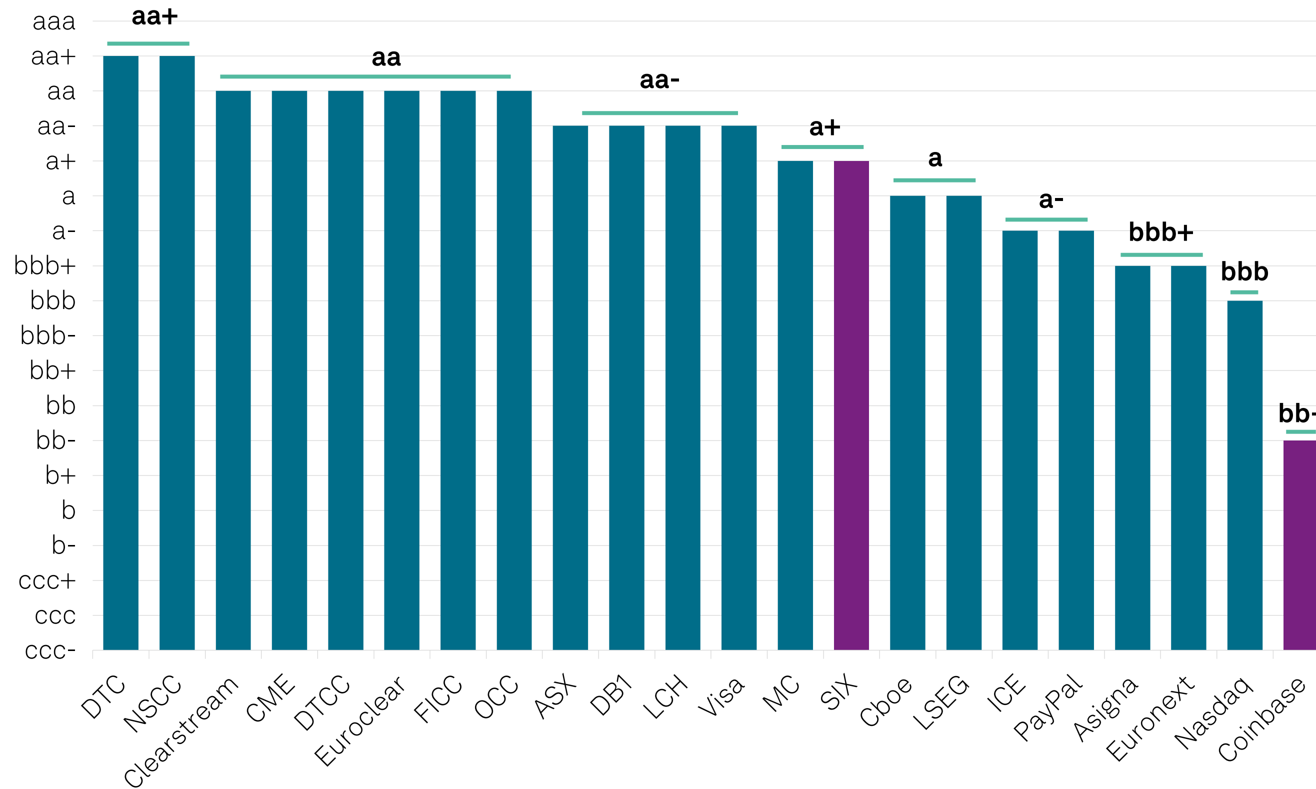
Sector Overview: Strong Issuers With Minimal Refinancing Needs

- Our issuer credit ratings (ICRs) on two FMIs currently carry a negative outlook (Coinbase, SIX), and the rest have a stable outlook.
- Sector financial performance in 2023 was mixed: FMIs with exposure to interest rates fared well, whereas equity market primary and many commodities were cyclically weaker, as were equity trading volumes in Europe. Many leading FMIs benefited from diversified asset class exposure, a solid base of annuity-like revenues, and secular growth.
- Total debt load among rated players continues to trend upward, but so does cash flow generation. Still, modest aggregate leverage belies diverging sector attitudes to financial risk.
- Sector refinancing risk in 2024 is very low, even if wholesale markets snap shut. But we expect that issuers will start to refinance the sizable volume of 2025 debt maturities.
- Irrespective of the macroenvironment, drivers of rating actions in 2024 will likely follow those of previous years--idiosyncratic factors or sovereign rating events.
- Those idiosyncratic events would most likely be acquisitions that materially change leverage trajectory, weaker performance, or risk management mistakes.

FMI Sector Ratings Distribution

Still a highly rated sector



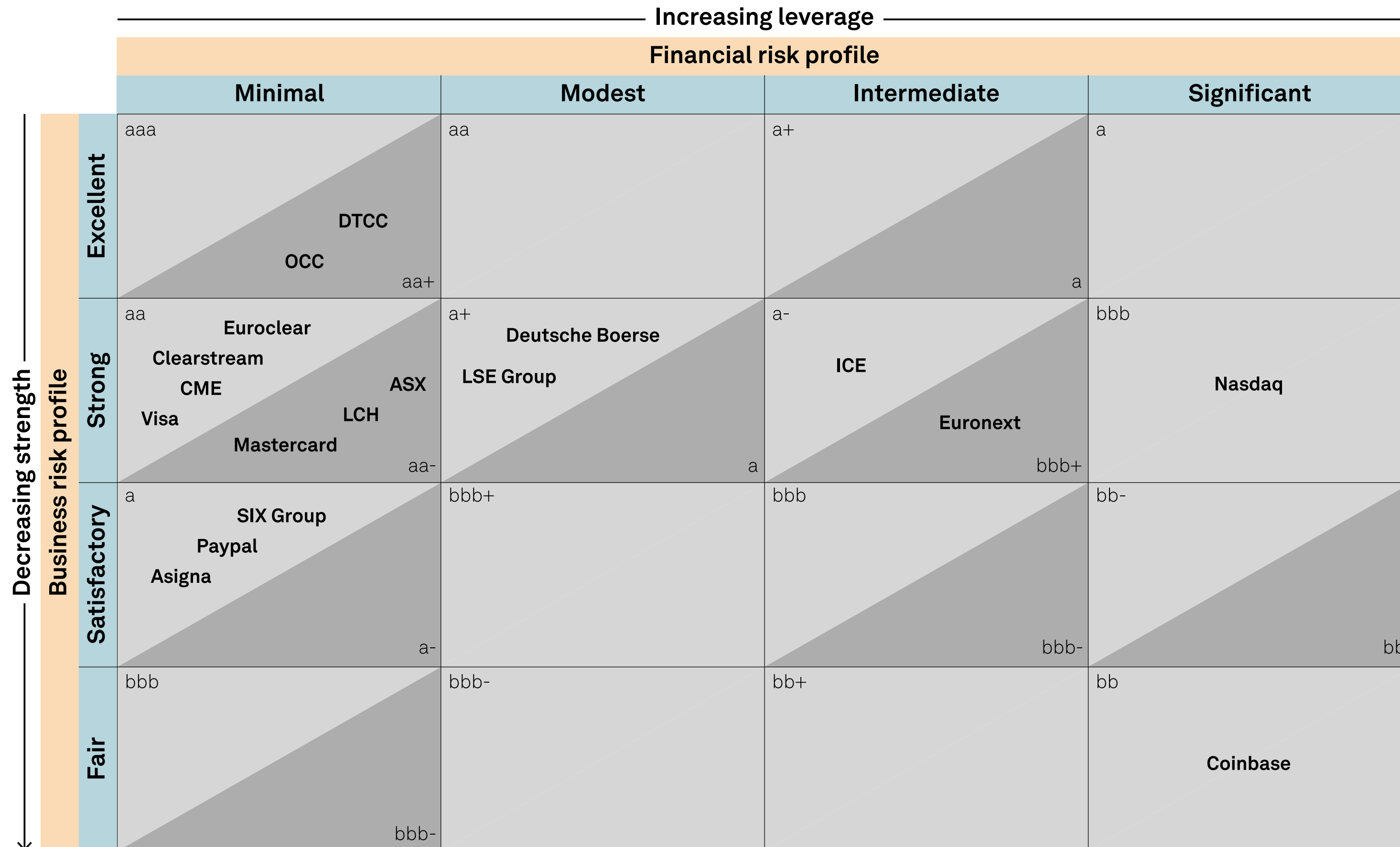
- We assign stand-alone credit profiles (SACPs) to 22 groups or companies in the sector and assign ICRs to a further handful of group members.
- Some entities' ICRs are in line with the SACP or group credit profile (GCP); some are one notch below, due to structural subordination of the holding company.
- The negative outlook on SIX reflects its uneven performance, not least due to unsupportive equity markets, and reduced financial flexibility.
- The negative outlook on Coinbase, after a downgrade in January 2023, acknowledges the recent resurgence in the crypto trading market but reflects an uncertain regulatory landscape in the U.S.

Data as of Jan. 24, 2024, reflects the group credit profile (GCP) or stand-alone credit profile (SACP) as appropriate. Bars indicate; gold where our outlook on related issuer credit ratings is positive, blue for stable, purple for negative. Source: S&P Global Ratings.

S&P Global Ratings

Rated FMIs Have A Bias To The Most Favorable BRP Assessments

But leverage risk appetite remains critical to the anchor outcome



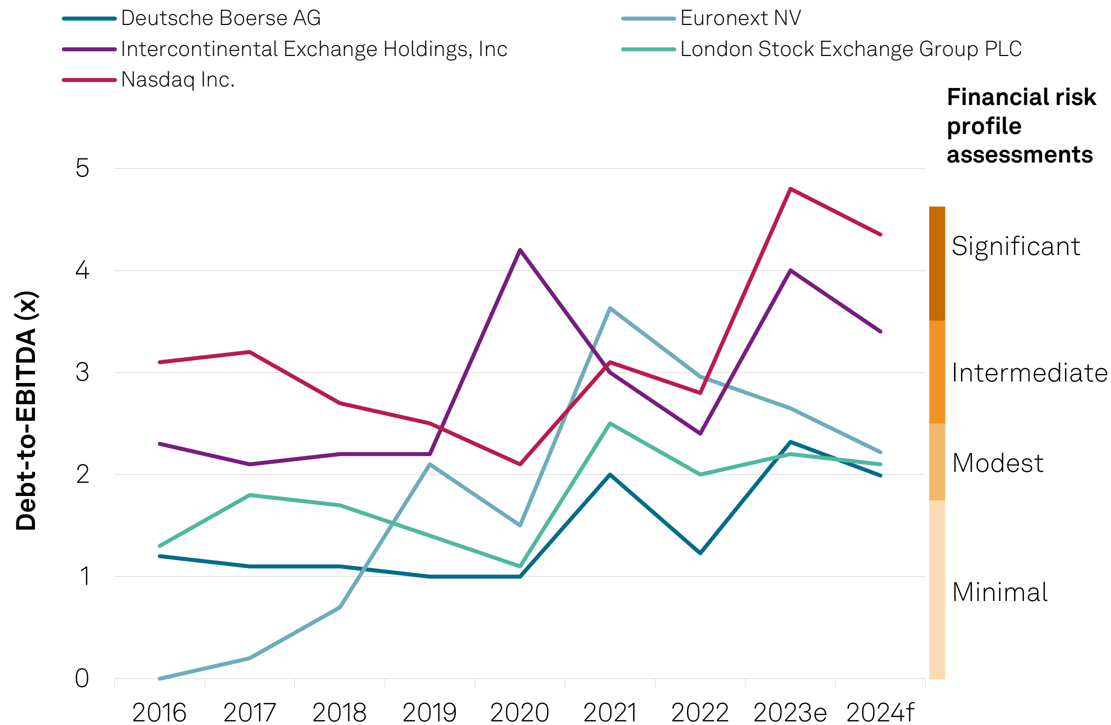
Data as of Jan. 24, 2024, reflects the anchor assessment for each group before considering our view of clearing and settlement risk management and other rating modifiers. Source: S&P Global Ratings.

- Ratings in the sector benefit from a high starting point due to our view of "low" industry risk. The sector is characterized by high margins, good through-the-cycle earnings, generally favorable regulatory trends, and high barriers to entry (for regulated activities).
- Rated FMI groups are among the largest global players, having dominant market positions in their sphere of operations. Strongest groups also benefit from earnings sourced across asset classes, across the value chain, and sometimes across regions.
- All FMIs tend to have high operating leverage (most costs are fixed), but the best have a substantial element of recurring or stable revenues.
- Leverage appetite differs, notably among the most acquisitive players--Deutsche Boerse, Euronext, ICE, LSEG, and Nasdaq.

Leverage Path: Remains Sensitive To M&A Activity

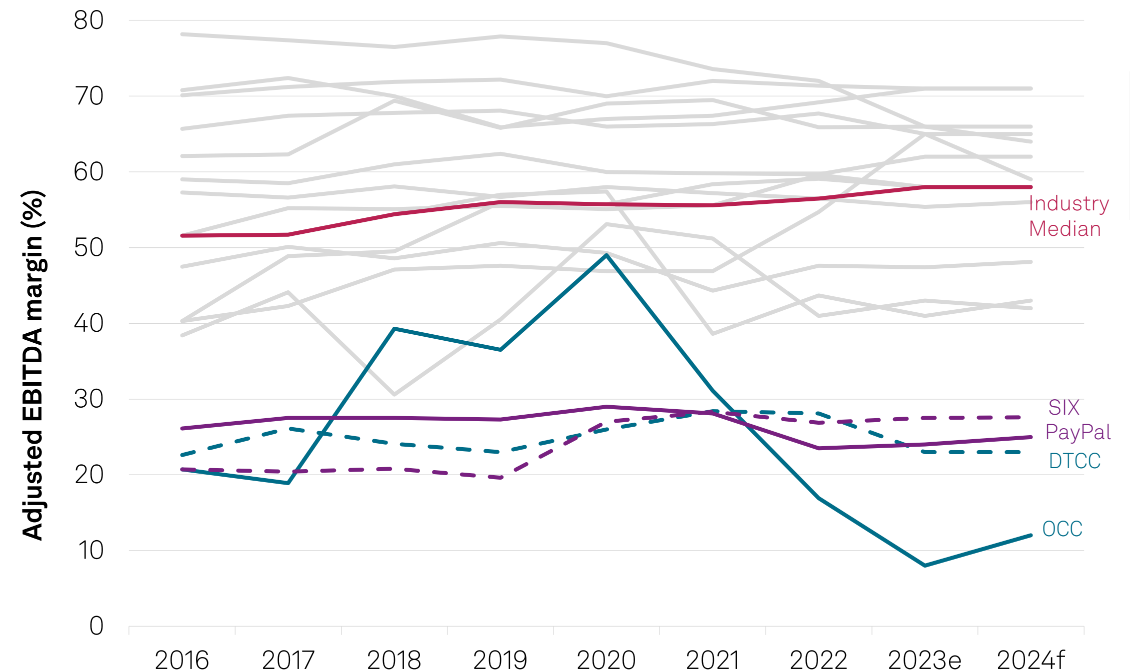
But EBITDA margins tend to remain steady

Leverage sensitivity primarily depends on M&A deal size and financing choice.



Source: S&P Global Ratings. Data as of Jan. 24, 2024. e--Estimate. f--Forecast.

Sector margins tend to remain steady, even for acquisitive firms. Among them, four operate with margins below the long-term typical range for the industry of 43%-66%: two member-owned utilities (DTCC, OCC) and two others with weaker than peer structural profitability (PayPal, SIX).



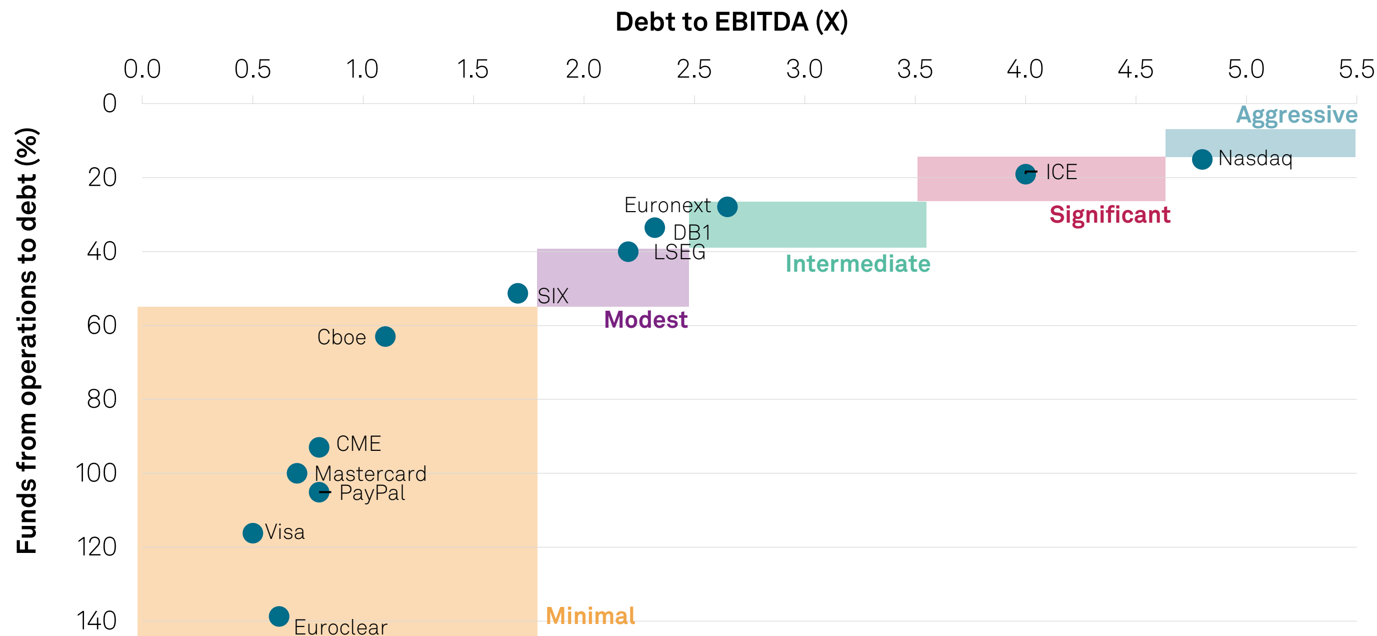
Source: S&P Global Ratings. Data as of Jan. 24, 2024. e--Estimate. f--Forecast.

Leverage Appetite Varies In The Sector

With likely divergent trends in 2023

Expected end-2023 leverage ratios

Colored boxes reflect standard ranges for the indicated financial risk profile assessments



Data as of Jan. 24, 2024. Under our base case, Asigna, Clearstream, Coinbase, DTCC, LCH Group and OCC will continue to have zero net debt on our S&P Global Ratings adjusted basis. ASX leverage would rise but remain far inside the threshold for a "minimal" assessment. Source: S&P Global Ratings.

- Using our favored metrics, many rated FMIs are lightly leveraged.
- Those with >1.0x leverage have all been active in M&A, albeit to varying degrees.
- Our financial risk profile assessments are strongly guided by our view of these FMIs' inherent leverage appetite, influenced also where their metrics will sit beyond the implied ranges for a sustained period.
- In 2023, we saw an incremental rise in leverage appetite for Deutsche Boerse (DB1), LSEG, and Nasdaq.
- Notably in 2024, we will monitor ICE and Nasdaq's deleveraging after sizable acquisitions in 2023.
- By contrast, Euronext has deleveraged after its Borsa Italiana deal and now has substantial capacity for further deals.
- Coinbase has no net debt (so is omitted from this chart), but our assessment incorporates the risk that the company's cash flow and leverage ratios could worsen if volatility exceeds our expectations.

Rated Sector Debt Now Above $100 Billion

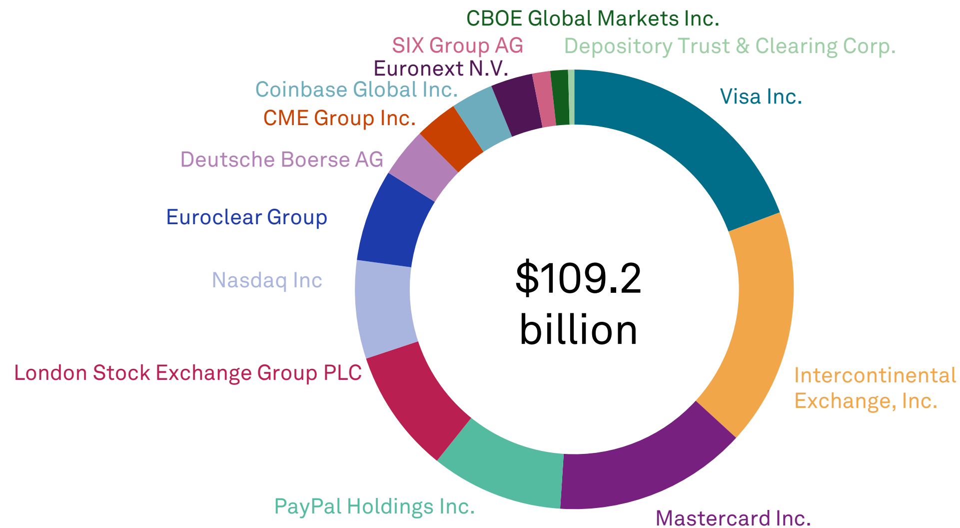
U.S. dollar and euro issuance continues to dominate

Rated sector debt is dominated by a handful of big issuers:

- Payments players that acquire emerging fintechs to extend their product suite: Visa, Mastercard, and PayPal.
- Markets-centric FMIs that diversify or consolidate through acquisitions: ICE, LSEG, Nasdaq, Euronext, and Deutsche Boerse.

Outstanding FMI sector debt by issuer

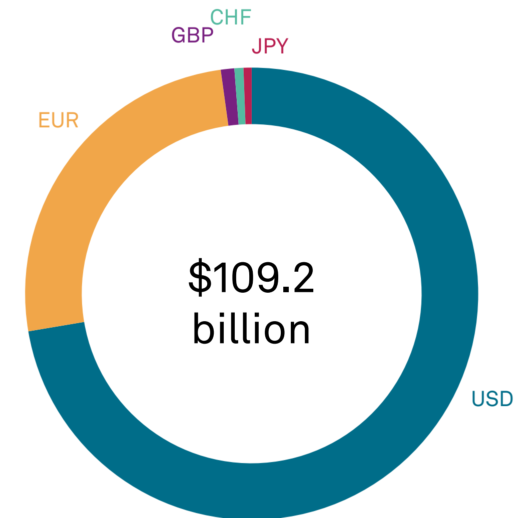
Bil. $ equivalent



Data as of Dec. 31, 2023. Revolving credit facilities and commercial paper are not included in this chart. Converted using foreign exchange rates as of Dec. 31, 2023. Source: S&P Global Ratings.

Outstanding FMI sector debt by currency

%



Data as of Dec. 31, 2023. Revolving credit facilities and commercial paper are not included in this chart. Converted using foreign exchange rates as of Dec. 31, 2023. CHF--Swiss franc. Source: S&P Global Ratings.

After A Quiet 2023/2024, Debt Maturities Pick Up In 2025

Some 2025 debt will be refinanced, some paid down as issuers deleverage

Group	Currency	2024	2025	2026	2027	Thereafter	Total	Foreign exchange rate	Total (USD)
Cboe Global Markets Inc.	USD				650	800	1,450	1.000	1,450
CME Group Inc.	USD		750			2,700	3,450	1.000	3,450
Coinbase Global Inc.	USD			1,400		2,000	3,400	1.000	3,400
Depository Trust & Clearing Corporation (The)	USD					500	500	1.000	500
Deutsche Boerse AG	EUR		850	1,500		4,800	7,150	1.104	7,894
Euroclear Group	EUR		500	600	500	1,050	2,650	1.104	2,926
	USD			600			600	1.000	600
	GBP	350					350	1.273	446
Euronext N.V.	EUR		500	600		1,950	3,050	1.104	3,367
Intercontinental Exchange Inc.	USD		2,500		2,000	14,600	19,100	1.000	19,100
London Stock Exchange Group	GBP					500	500	1.273	637
	EUR	500	500	700	500	2,200	4,400	1.104	4.858
	USD	500		1,000		3,000	4,500	1.000	4,500
Mastercard Inc.	USD	1,000	750	750	1,000	10,150	13,650	1.000	13,650
	EUR				800	900	1,700	1.104	1,877
Nasdaq Inc.	USD		500	500		3,550	4,550	1.000	4,550
	EUR					2,565	2,565	1.104	2,832
PayPal Holdings Inc.	USD	1,250	1,000	1,250	500	6,000	10,000	1.000	10,000
	JPY		30,000	23,000		37,000	90,000	0.007	638
SIX Group	EUR		650				650	1.104	718
	CHF			150		450	600	1.189	713
Visa Inc.	USD		4,000		2,750	11,000	17,750	1.000	17,750
	EUR			1,350		1,650	3,000	1.104	3,312
Total in USD									**109,166**

Data as of Dec. 31, 2023. The table does not capture commercial paper, certificates of deposit, or drawings on revolving credit facilities. Foreign exchange rate as of Dec. 31, 2023, from XE.com Inc. Source: S&P Global Ratings.

- Sector players took advantage of favorable debt markets in 2020 and 2021 to push out debt maturities and fix in highly attractive spreads.
- As a result, debt-servicing costs (that is, interest cover) remain highly comfortable, and less than $4 billion of sector rated debt falls due in 2024, rising to $14 billion in 2025.
- Absent major new debt-financed acquisitions, we expect 2024 activity to be dominated by refinancings. With policy rate path and timing likely to become more certain during the year, issuers may wait until late-2024 to address 2025 maturities.
- Even if markets become dislocated, these are strong names in a sector that is not very cyclical, and, as happened before, we would expect market access to remain intact or else return after a short hiatus (if severe dislocation).

After Mixed Fortunes In 2023, 2024 Promises Further Volatility

- Looking beyond moribund primary equity markets, markets' capitalization generally held up well in 2023 despite higher policy rates. Secondary volumes remained robust in the U.S., Japan, and some emerging markets, but were notably weak in many Western European markets and Hong Kong.
- Volatility, lower than in 2022 but still meaningful, supported derivatives activity in many asset classes--rates, equities, commodities. Though less in energy contracts, where power contract margins retrenched from 2022's highs.
- Rising policy rates led to buoyant treasury income for many CCPs and ICSDs.
- The year was notable for wild swings in U.S. bond yields, though there were no episodes of persistent high volatility or market illiquidity despite the rapid shift in monetary policy and febrile sentiment around banks in March/April.
- For 2024, political events and monetary policy shifts are likely to buoy volatility and so derivatives volumes. The outlook for equity markets is uncertain--will sentiment improve aided by cuts to policy rates, or weaken due to flaky economic growth?
- Amid tighter money supply, collateral and liquidity will remain critical to the efficient functioning of the financial system--an opportunity for some FMIs.

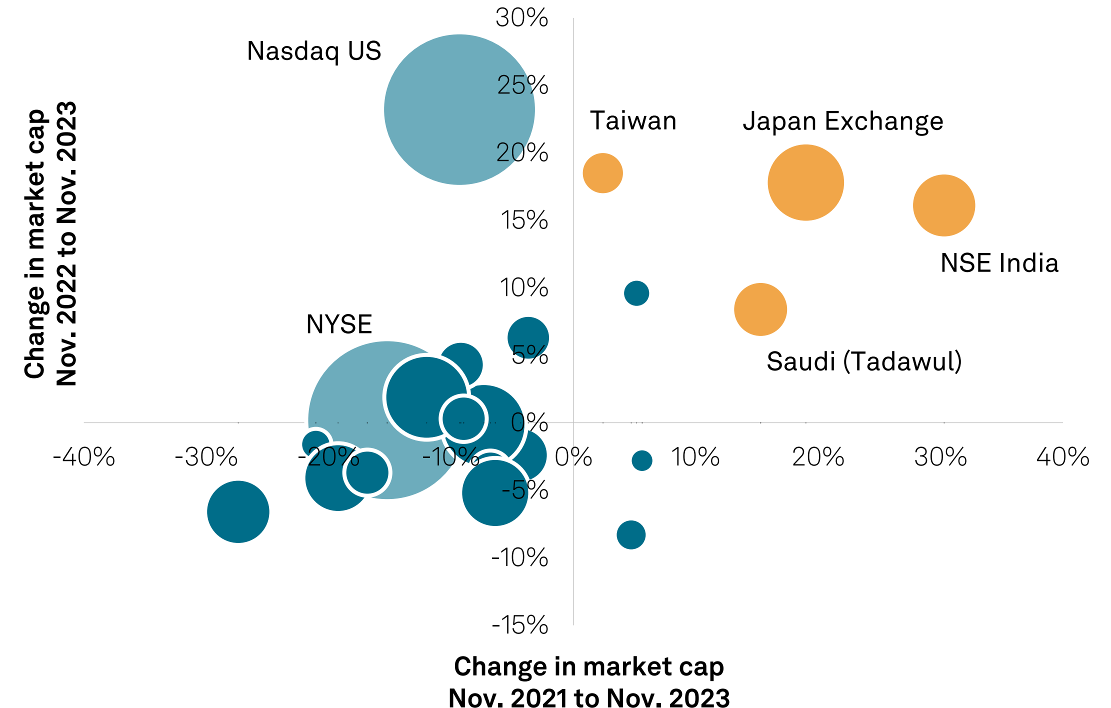
Amid Consistently Weak Primary Markets, Valuations Held Up

But India stands out as the leading growth market

- 2023 was a remarkably robust year for equity market capitalization, despite the sharp rise in policy rates and weakening outlook for economic growth--with Nasdaq US standing out.
- Nevertheless, capitalization of major global stock markets remains generally below the post-pandemic peak, and trading volumes were typically materially lower than in 2022.
- Among the notable exceptions, National Stock Exchange of India (NSE) market capitalization has grown around 30% in the past two years, and it now vies with HKEx to be the fourth largest market in Asia-Pacific. It is also by far the largest stock index derivatives exchange globally*.
- The Japanese market is also seeing an upswell, amid renewed interest from foreign investors.

Markets' capitalization generally remains below 2021 peaks

But some are bucking the trend



Data as of Nov. 30, 2023, except London Stock Exchange (Dec-2023). Bubble size represents market capitalization in US dollars. Year to year changes are in local currency. Sources: S&P Global Ratings, LSE Group. WFE.

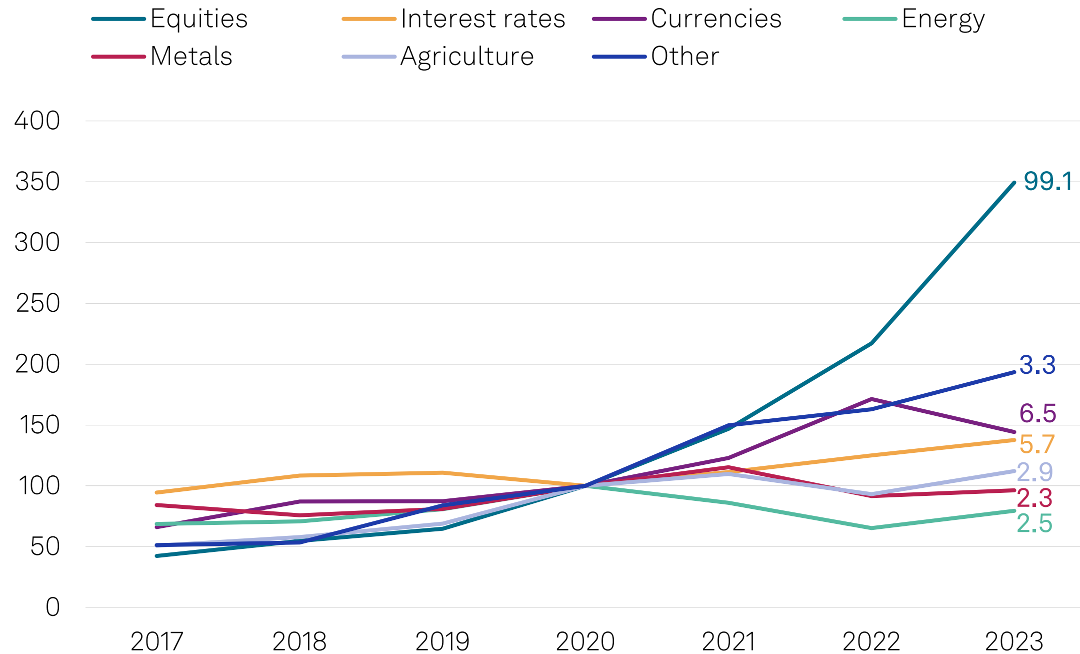
*By number of contracts. According to data from the WFE—World Federation of Exchanges.

Derivatives Volumes Remain Largely On A Rising Trend

Equities, currencies, and rates lead the way, energy and metals lag

Global Equity Derivatives Volumes Have Boomed Since 2020

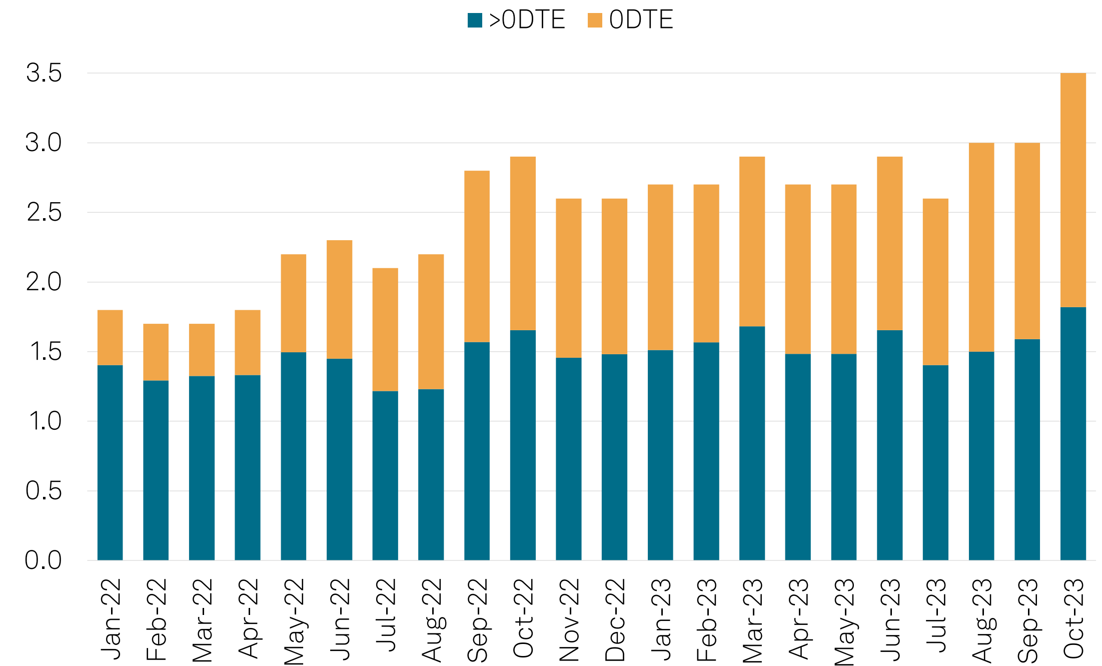
Currencies and rates contracts also benefited from volatility



Data represents volumes of exchange traded contracts indexed to 2020. Absolute numbers on the right are volumes in 2023 in billions of contracts. Source: Futures Industry Association, S&P Global Ratings.

SPX Futures Volumes Continue To Strengthen

Aided by a striking rise in 0DTE contracts



Volumes are in millions of contracts. 0DTE—zero days to expiry contracts. >0DTE—contracts with longer expiries. Source: Cboe.

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Incumbents' Robust Liquidity Hubs Face Competitive Tensions

Structural growth remains possible also

Superficially, **FMI incumbents' product sets and franchises look impregnable--and to a large degree they are**. The market benefits from liquidity (i.e., price formation) being centralized on one or a very few hubs, and the lion's share of derivatives volumes continues to arise from some key contracts in each asset class. But innovation is a constant, and from time to time bubbling competitive tensions erupt. In 2024, **we have our eye on the following developments:**

- **€STR/euro rates:** the replacement of IBORs with new rate benchmarks offers a competitive opening in related derivatives. CME, the U.S. rates incumbent, has quickly built sizable open interest in SOFR contracts, and ICE similarly defended its hegemony in U.K. rates, when SONIA launched. CME stole a march for €STR futures, but euro rates incumbents ICE (for the short end of the curve) and Eurex (long end) are fighting back. Concurrently, Eurex hopes to build its clearing franchise in euro rates OTC contracts, aided by a concentrated push by EU policymakers to reduce EU actors' reliance on non-EU CCPs--and the larger this franchise, the greater the margining benefits it can offer for €STR futures. The battle may reach a tipping point in 2024.

- **FMX:** it's not novel for derivatives exchange/CCP behemoths to face upstart competitors. But the demise of CurveGlobal, NY Portfolio Clearing, and others demonstrates the formidable challenge they face to build a profitable pool of liquidity. Still, Nodal's seizure of sizable U.S. power open interest shows that it's possible. Latest is FMX Futures Exchange, backed by Cantor/BGC, which will vie with CME's complex in cash treasuries and SOFR futures, aided by LCH's clearing service.

- **Private markets:** outside the U.S., stock exchanges face limited competition for listings. However, the Nasdaq market's deep liquidity and strong valuations remain a magnet for global fintech and other "new economy" stock listings--as Grab Holdings and ARM Holdings can attest. This aside, exchanges' strongest competitor is the private market--they lose listings when equity funds take companies private. For 2024, the door may rather revolve, as private equity funds look at further opportunities among public companies, but as they accelerate exits of investees, the IPO route may look attractive for some.

Weak economic growth limits structural growth opportunities in the traditional exchange value chain. Many stock exchanges benefit from the boom in ETFs and continue to enhance ecosystems to support listings by small cap companies. For derivatives, we highlight one notable development in particular:

- **The rise of "zero-day" options:** daily-expiring index options volumes have exploded in the U.S. over the past two years, driven partly by retail demand, but also institutional activity. These zero-day options now account for 45%-50% of SPX volume. European markets lack the vibrancy of the U.S. in terms of the weight of retail activity, but having launched daily-expiring options in August 2023, Eurex appears well-positioned for further growth.

IBOR—interbank offered rates. SOFR—secured overnight financing rate, the replacement for U.S. dollar LIBOR. SONIA—sterling overnight index average, the replacement for sterling LIBOR. €STR—euro short-term rate, a new benchmark that does not replace EURIBOR. IPO—initial public offering. ETF—exchange-traded fund. SPX—S&P 500 index.

Payment Processing Companies Returned To Normalized Growth in 2023

Travel and entertainment-related spending will likely moderate in 2024

- While cross-border travel payment volume was higher in 2023 than in the previous two years, we believe that the recovery has been fully achieved and growth should moderate in 2024-2025.
- An ongoing shift to electronic payments from other payment forms globally, most notably cash, should partly offset the pressure from the potential economic slowdown.
- Ancillary services account for over one-third of Mastercard's net revenue, over 20% for Visa, and about 10% for PayPal. We expect their contribution to grow in the coming years.
- PayPal faces headwinds from subdued e-commerce consumer spending growth and rising competition in the digital wallets space.

Source: Visa and Mastercard quarterly filings.

Post-pandemic payments volume has continuously increased

Quarterly global purchase volume dynamics (y-o-y change)

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Markets Will Continue To Pose Financial Stability Risks

Banks are in the front line, and policy intervention can carry unintended consequences

	Cause	Possible mitigants	Potential consequences for banks
Disorderly asset repricing exposes financial vulnerabilities	• Fast markets, fragile confidence, and external/geopolitical shocks • Decreased liquidity in some key markets (e.g., U.S. treasuries) • Margining requirements that transform counterparty credit risk into potential liquidity risk • Tougher bank regulations impede their market intermediation role	• Central bank intervention to avoid disorderly market corrections (e.g., gilts, TPI) • Leverage is lower in the NBFI sector, with few forced sellers • Antiprocyclicality reduces volatility in CCP margins • Switch to T+1 U.S. cash equity clearing cuts required margin	• Drawdown of liquidity by clients and to meet own obligations • Materialization of market tail risks • Possible counterparty default events among troubled clearing clients and trading counterparts
What to look out for in 2024	• QT still has a long way to go. It removes large buyers from bond markets and cuts bank reserves • Banks will manage liquidity resources more tightly • Policy rate changes could be unpredictable and unaligned • Some nonbank FIs (NBFPIs) will continue to unwind leverage • Markets are vulnerable to event risk	• Reform of U.S. treasury market to expand central clearing, from 2025 • Expansion of central bank repo access to some nonbanks / injections of collateral by central banks • Regulatory monitoring of NBFI risks via bank oversight • Collateral mobilization / reuse will rise	• Higher margining requirements increase liquidity consumption • Banks expand investment in sovereign bonds • Banks compete more for marginal funding, weak liability franchises come under more pressure • Sustained bank provision of liquidity / credit to core clients, reduced lines to marginal clients

FI—Financial institution. NBFI—Nonbank financial institution. CCP—central counterparty / clearinghouses. TPI--The EU's transmission protection instrument. QT--Quantitative tightening..

Sector Top Trends

1. FMIs are, in essence, specialized technology and data companies that benefit from the centralization benefits to the market of deep liquidity pools and multilateral netting.

- Most rated FMIs serve developed economies and capital markets, where growth has slowed. Growth opportunities remain in the traditional value chain notably through novel products, but acquisitive growth is a standard strategy for these highly cash-generative players.
- Strong FMIs are deploying ample cash flow into capital investments as they seize the capability and efficiency advantages of new technologies and enhance risk management.
- Some FMIs are reinventing the meaning of market infrastructure as they push heavily into fast-growing data, analytics, and technology services.

2. Policy and regulation retain a huge influence on market dynamics, but we see no seismic shifts that will catalyze or undermine incumbent FMIs.

3. Digital assets (cryptocurrencies and related derivatives, stablecoins, and beyond) are a major growth trend and institutional allocation is set to grow further. Incumbent FMIs compete with each other and new entrants to identify market demand and attract liquidity. But, digital or not, strong FMI franchises rely on operationally resilient infrastructure, and regulatory expectations continue to rise.

4. Carbon transition and broader ESG investment trends carry opportunities and risks for FMIs.

How To Find Growth In A Mature Industry?

Multifaceted growth strategies have moved FMIs beyond the traditional value chain | Sector trend 1

- Structural growth trends, seized organically and through acquisitions, have been a key earnings growth driver for the FMI sector.
- Some FMIs benefited much more than others, due to a mix of existing franchise strength and breadth, strategic thinking, M&A budget, and leverage appetite.
- Many FMIs have moved into neighboring lines of business, including through some marquee deals (Ellie Mae, Black Knight, Refinitiv, Verafin, Adenza). Often these are less-regulated businesses and offer greater annuity-like income.
- This extension strategy is not equally shared by all acquisitive FMIs though.

Traditional Value Chain Growth Trends

1. **Growing and maturing economies:** stimulate deeper and more active capital and financial markets
2. **Benchmark indices:** linked in large part to the upswing in passive investment
3. **Regulation:** policy decisions that push trading activity and clearing from bilateral / OTC to electronic venues and central clearing
4. **Collateral:** enhanced services to improve mobilization and efficiency for market intermediaries
5. **Buy-side:** expanded direct relationships with large buy-side players who prefer to access markets/infrastructure directly
6. **Asset class extension:** e.g., funds, commodities, digital assets, private markets, often enabled by technological innovation

Ancillary Businesses

7. **Data and analytics:** expanded products and services related to ESG investing, novel trading-linked data, broader analytics capabilities and data platforms.
8. **Technology as a service:** including FMI-centric and post-trade technology, but also adjacent markets like U.S. mortgage servicing and compliance

FMI Sector Remains A Highly Acquisitive One

With a key focus on data and analytics and infill trading businesses | Sector trend 1

	Post-trade / risk management	Market / scheme operator	Data and analytics	Tech	Other	Deal count
B3-Brasil Bolsa Balcao	**Cetip**		Neoway	Datastock , Neurotech		4
CBOE Holdings	EuroCCP	Hotspot, **BATS**, Chi-X Asia-Pac, Bids Trading, MatchNow	Trade Alert, Hanweck, FT Options			9
CME Group		**NEX Group**				1
DTCC	CMRS			Securrency		2
Deutsche Borse Group	UBS Fondcenter, Crypto Finance	360T, Nodal, GTX, Nasdaq Futures	Stoxx/Indexium, Axioma, Kneip, Discovery Data, **ISS, SimCorp**			13
Euroclear	MFEX					1
Euronext	VPS, Oslo Bors, **Borsa Italiana**	FastMatch, ISE, NordPool			iBabs	7
Ice		BondPoint, TMC	**IDC**, BAML Indices, MERS, Simplifile, **Ellie Mae**	**Black Knight**		8
JPX		Tokyo Commodity Exchange	SCRIPTS Asia			2
London Stock Exchange Group	Acadia, Quantile	**Refinitiv**	Mergent, Citi Yield Book Indices, Maystreet, GDC	TORA		8
Mastercard		Adaptive, Vocalink, **Nets Corporate Services**	RiskRecon, Ekata, Dynamic Yield	DukaConnect, Finicity, Aiia, Baffin Bay		10
NASDAQ		**ISE,** Puro.earth, LeveL	eVestment, Qdiligence, Metrio	Cinnober, **Verafin, Adenza**		9
PayPal		Xoom, TIO, **iZettle**, Hyperwallet, Simility, GoPay, Curv, **Paidy**	Simility		Honey	10
SGX		Baltic Exchange, BidFX, MaxxTrader	Scientific Beta			4
Siz Group	REGIS-TR, **BME**				**Aduno**, Swiss Euro Clearing Bank, Ultumus	5
TMX			Trayport, Wall St Horizon, vettafi		AST	4
VISA		**VISA Europe, Earthport, Tink**, Currencycloud, YellowPepper, **Pismo**				6

Note: Bold text indicates deals greater than $1 billion in value. Figure reflects deals completed since 2015; data may not be exhaustive. It includes rated FMIs and selected unrated FMI peers for comparison. Source: S&P Global Ratings.

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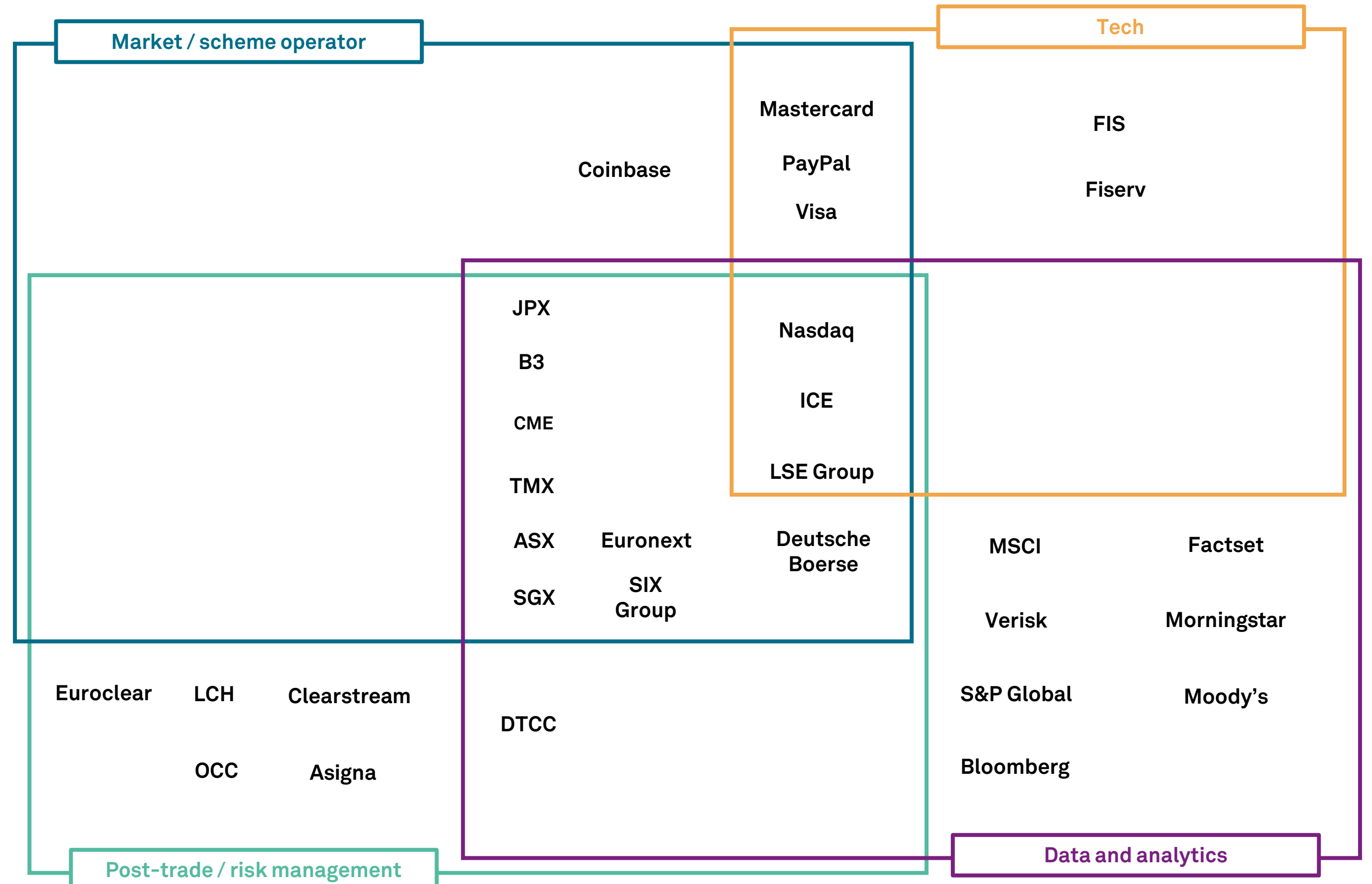
Redefining The Vision Of Market Infrastructure

Expansion invites comparison with a broader set of corporates | Sector trend 1

- The strategic shift of some FMIs beyond their traditional core competence areas has resulted in increased differentiation with FMI peers in scale and scope.
- This evolution also encourages comparison with some nonfinancial corporates, notably those active in data, analytics, payments, and technology.
- From a credit perspective, we see these acquisitions as supportive where:
  - Leverage remains within appetite
  - They materially improve diversification or deepen competitive advantage (for in-market consolidation)
  - They materially increase the weight of recurring, annuity-like revenues, like subscriptions
  - Acquired businesses are cash-generative and have established a robust competitive position in their sphere of operations.

FMIs now have highly variable dependence on traditional value chain business



Regulatory And Policy Initiatives: Important But Not Game Changers

Overall, these continue to provide a modest tailwind to incumbent FMIs | Sector trend 2

Key initiative	Overview	Our base case
U.S. Treasury market reform	Regulators will expand mandatory central clearing of the treasury market and repo market, in expectation that this will improve market resilience. Scope is narrower than original proposed and delayed until 2025/2026. This could add all-in trade costs to market participants.	FICC would be the main beneficiary, albeit it is anyway run as a market utility. FICC has until 2025 to explain the rule changes it would need to make. For example, it could need to broaden its default liquidity mechanism to cope with the extra liquidity risk.
U.S. review of equity market microstructure	Regulators propose to better regulate PFOF, a practice that is central to the handling of US retail equity trades, to improve end-client outcomes. Possible changes also for equity market micro-structures such as lowering the tick size or changes to the National Best Bid Offer.	Proposed changes to market micro-structures are positive for FMIs as this could bring more orders to lit exchanges. For PFOF, the consequences for U.S. FMIs of the new proposed system of auctions for executing retail orders remain unclear. On the one hand, more orders may hit the exchanges as opposed to being internalized by wholesale market-makers. On the other hand, total retail transaction volumes may drop substantially if retail brokers reinstate trade commissions due to lower PFOF revenues.
EU Markets in Financial Instruments Directive (MiFID) review	15 years after MiFID, five years after MiFID II, and post-Brexit, EU policymakers have made tweaks to improve transparency, address level-playing-field issues in EU capital markets, and further the EU's long-term Capital Markets Union project.	End of open access obligation for exchanged-traded derivatives supports incumbent exchanges. Creation of post-trade consolidated tape will have limited revenue impact for exchanges. Outright ban of PFOF reinforces exchanges/MTFs, but they continue to face substantial competition from lighter-regulated venues like SIs.
European Market Infrastructure Regulation review (EMIR 3.0)	EU policymakers continue to push EU firms to decrease reliance on systemically relevant ("tier 2") non-EU CCPs, such as ICE Clear Europe and LCH Ltd.	Policymakers use a carrot-and-stick approach (such as mandatory active accounts) to effect behavioral change, rather than a ban on the use of these non-EU CCPs. ICE and LCH's franchises with EU clients remain substantially intact, but Deutsche Boerse wins more euro rates business. There is no broader policy push beyond the EU to deglobalize OTC liquidity pools.
	Policymakers consider changes after the liquidity squeeze in European energy markets in 2022 and partial drift of activity from exchanges to OTC.	Policymakers remain cautious about changes that could undermine the soundness of clearinghouses.

CCP--Central counterparties, i.e. clearinghouses. FICC--Fixed Income Clearing Corp. MTF--Multilateral trading facilities. OTC—over the counter. PFOF--Payment for order flow. SI--Systematic internalizer.

Regulatory And Policy Initiatives: Important But Not Game Changers

Overall, these continue to provide a modest tailwind to incumbent FMIs | Sector trend 2

Key initiative	Overview	Our base case
T+1 settlement	In May 2024, the U.S. cash equity market will move from T+2 to T+1 settlement. This shorter cycle reduces credit-related settlement risks and cuts margin requirements but requires substantial preparations for market participants to be able to reliably avoid settlement failures and could mean that they need to dedicate higher excess liquidity to smooth settlement funding requirements. India already moved successfully to T+1 in 2023. European regulators are consulting with the market on whether to follow suit.	Greater resource efficiency (if it arises) could cut all-in costs, and in theory may spur higher trading activity and so boost exchange revenues. If so, CCP revenues could also rise, even if total margins fall. European markets will move to T+1 in the coming years.
Crypto and digital asset regulation	Until now, national-level initiatives (e.g., in Switzerland) have created regulation to support the development of digital assets. Since June 2023, the EU's markets in crypto assets (MiCA) regulation created a harmonized EU framework, albeit subject to level 2 and level 3 measures that will take effect only in late 2024. Related, in Singapore for example, regulators are on the one hand operating a digital sandbox, and concurrently increasing investor protection around cryptocurrencies and other digital assets. The U.S. currently lags other countries in developing a comprehensive framework for the crypto industry. FIT21 and CPSA draft legislation would substantially deliver this but could struggle to gain sufficient bi-partisan acceptance.	Combined with distributed ledger technology (DLT) pilots, strong legal and regulatory frameworks could further stimulate an upswell in the adoption of these technologies and related financial innovation.
Recovery, resolution, and central bank access	CCPs are almost always systemically important. Having developed bank-focused standards for recovery and resolution, at a global level standard-setters like the FSB continue to promulgate guidelines for CCP-centric frameworks. Many jurisdictions are now expanding or developing their national level CCP resolution frameworks, and working with CCPs to enhance their financial resilience, notably through additional loss-absorption mechanisms. Policymakers continue to acknowledge the likely greater resilience of FMIs that have access to central banks--whether for placements or collateralized lending. While CCP and ICSD access remains commonplace in Europe--including prospectively in Sweden--it is rarer elsewhere.	We anticipate relatively few new developments to enhance resilience to member default losses; many changes were made already, including the mandatory second tranche of skin in the game in the EU and fairly routine inclusion of margin gains haircutting and tear-ups. The debate is hotter around non-default loss resilience. Measures that improve CCP resilience are likely to be supportive for our ratings in the sector, unless they obliged CCPs to take on material leverage.

CCP--Central counterparties, i.e. clearinghouses. ICSD—international central securities depository. MTF--Multilateral trading facilities. FIT21--Financial Innovation and Technology for the 21st Century Act. CPSA--Clarity of Payment Stablecoins Act.

Resilient Enough?

Regulators turn the screw on operational resilience | Sector trend 3

- FMIs are regionally and globally systemic nodes in the financial system, but, at heart, **they are specialized, regulated technology companies.** Financial stability (and FMI franchise stability) relies on the smooth functioning of the critical services that FMIs provide. Operational risk is the most significant risk for most FMIs.
- **Cyber risk** is critical. **2020's NZX DDOS attack aside, FMIs have a solid track record on cyber risk** despite the constant threat from sophisticated global actors. But they must continue to invest to reduce their attack surface, to defend and mitigate penetration of own and third-party networks, and to reduce complexity. From time to time, this yields true innovation, like SIX's deployment of SCION technology in the secure Swiss financial network (SSFN).
- But cyber risk needs to be seen in the broader context of **operational resilience**. Most FMIs coped comfortably with the spike in trading volumes in 2020, and years after Regulation SCI and comparable rulemaking outside the US, the industry's track record continues to improve. These days, **operational outages are sporadic but common for exchanges globally**, but individually rare and often minor. But regulators want FMIs to be even better-prepared to ensure a speedy return to operations when events strike. In the EU and U.K., CCPs and ICSDs have long been targets of regulatory focus, but the EU's DORA implementation will up the stakes further for FMI groups.
- While rarely a cause for rating actions to date, FMI's operational resilience is **highly credit-relevant--**speaking to risk appetite, investment capacity, effectiveness of deployment, and quality of risk management. Incumbent FMIs have robust franchises, but they could nevertheless be knocked off-course by recurrent episodes of weakness in this area.

For further comments, see "Operational Resilience Is Key To Global FMIs' Rating Strength", published Oct. 4, 2023.

NZX—New Zealand exchange. DDOS—distributed denial of service. DORA—digital operational resilience act.

Digital Markets: Build It, But Who Will Come, And When? (I)

Crypto derivatives lead the way | Sector trend 3

- **Can highly centralized traditional FMIs harness decentralized technology** to develop digital asset franchises to grow new revenues and avoid being disintermediated? The jury is out.
- Leading global FMIs have substantial investment capacity, regulated status, and long-established connections with the buy- and sell-side. And where fintechs innovate first, FMIs are often able to reach to their M&A wallets to acquire the capability. Deutsche Boerse, DTCC, and many others have made bolt-on capability acquisitions in this space. So **they are well-positioned as second-movers, and even first-movers**. But where is the revenue opportunity?
- For crypto, **traditional FMIs appear to have almost no interest in becoming spot exchanges** (where Binance, Coinbase and Kraken now hold substantial incumbency). But **they are moving into cash-settled crypto derivatives--**a regulated business that offers trade and post-trade revenues--and related ETFs. Led by CME with its Bitcoin and Ether futures and options, Coinbase (cleared by Nodal) and CBOE (self-cleared) are set to compete in futures, Unusually for an exchange operator, **Coinbase (through its Financial Markets arm) received CFTC approval to operate as a FCM.** In Europe, U.K. upstart GFO-X is similarly set to launch crypto futures (cleared by LCH). SIX is backing the AsiaNext crypto derivatives joint venture in Singapore aimed at institutional clients. The ability to leverage the licences, clearing funds, and risk management experience of incumbent CCPs offers a head-start to new ventures.
- **Spot crypto ETFs now have regulatory approval** in the U.S. and Singapore and are under consideration elsewhere. This offers revenue opportunities for exchanges (as well as leading fund managers), but also players like Coinbase who could earn sizable custody fees. ETFs' impact--positive or negative--on spot crypto volumes remains unclear.
- Beyond crypto, Switzerland moved early in 2021 to create a legal framework to support DLT-enabled markets, and **SIX's digital exchange (SDX) remains ground-breaking as a fully-digital securities exchange**. However, it has yet to build volume, and, while growing, digital bond issuances remain a tiny proportion of total bond issuances.
- For non-traditional, historically illiquid assets (like real estate and fine art), Singapore's SDAX Exchange is licensed for the listing and trading of tokenized digital assets since 2021, and AsiaNext appears to have ambitions in this space also. However, the size of **the revenue opportunity for this nascent market remains unclear**.

Digital Markets: Build It, But Who Will Come, And When? (II)

DLT will serve a broader use than digital assets | Sector trend 3

- **Distributed ledger technology (DLT) remains a conundrum**: Can highly centralized traditional FMIs harness this decentralized technology to develop digital asset franchises without becoming the victim of disintermediation?
- While the volume of digital bonds steadily increases, it remains modest--and **we consider it unlikely that there will be a wholesale switchover** from the traditional to digital environment for securities anytime soon. The two worlds are likely to coexist for a long time, but also become intertwined--for example, Deutsche Boerse's D7 platform uses security tokens to support post-trade efficiency for traditional bond issuances.
- Nevertheless, **DLT is a game-changing technology for post-trade efficiency***, and incumbent FMIs are acquiring capability in DLT-enabled systems, backing innovative developments like **Fnality** (a wholesale digital cash payment ecosystem) for post-trade, and participating in various pilot regimes, for example:
  - **Project Guardian** (the asset tokenization and DeFi sandbox under the MAS) is multi-faceted but includes SGX exploring a digital assets register where security tokens represent traditional fixed-income securities, and SGX working with Standard Chartered on an initial token offering platform for asset-backed claims.
  - The **EU DLT** pilot regime for FMIs has been running since March 2023, focused on traditional securities / asset classes.
  - In 2023, SIX launched a pilot with the Swiss National Bank to issue **wCBDC in Switzerland**.
  - In 2024, BoE/FCA will oversee the new **U.K. FMI-centric digital securities sandbox** for tokenized securities and DLT applications.
  - **Canton Network**, which has 30+ market participants that include FMIs, banks and others, aims at improving interoperability within blockchains and financial applications (such as integrating cash payments with the asset movement).
  - **Swift's** experiment with a dozen participants (including banks and FMIs) that proved the transfer of tokenised value across multiple public and private blockchains.
- **Already proven DLT use cases include: Distributed Ledger Repo (DLR)** from Broadridge, which now has $1 trillion of monthly volumes**; HQLAx,** the collateral optimization solution backed by Deutsche Boerse; and JPMorgan's **Onyx** repo platform.

MAS—Monetary Authority of Singapore. FCA—UK Financial Conduct Authority. BoE—Bank of England. wCBDC--wholesale central bank digital currency. * See for example "Advancing the Digital Asset Era, Together" an industry paper from DTCC, Clearstream & Euroclear, published Sept. 2023.

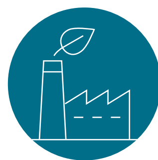
ESG: Likely To Have A Modest Influence On FMI Ratings (I)

Governance is likely to remain the most relevant | Sector trend 4

- FMIs face risks to credit quality but also commercial opportunities from increased stakeholder focus on ESG factors and the huge financing need for global carbon transition.
- Strong governance and robust enterprise risk management support our high ratings on FMIs, but the sector's record is not perfect. As in the past, material failures in these areas could precipitate negative rating actions.

Most influential ESG factors

Risk management, culture, and oversight
Governance-related risk is elevated for FMIs, whose central role in global financial ecosystems necessitates robust risk management. The sector has generally high governance standards; however, deficiencies in risk management have arisen previously



Climate transition
FMIs' climate transition risk balances relatively limited own-emissions footprints against prospective earnings opportunities from the global carbon transition

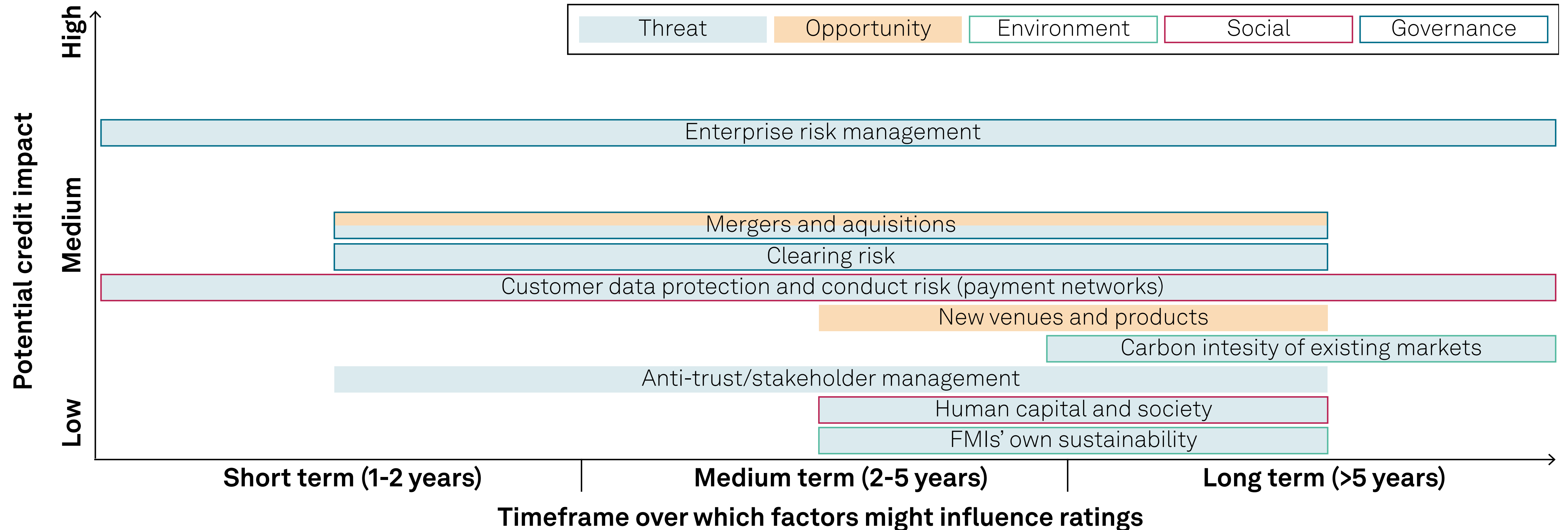
Social capital
While human capital remains the foremost social risk for FMIs, for the small set of entities that face retail consumers directly, social capital is elevated, with the potential to diminish franchises and ratings.

For more information, see "ESG Credit Indicator Report Card: Financial Market Infrastructure," published May 20, 2022, and "ESG Industry Report Card: Financial Market Infrastructure Companies," published Dec. 3, 2020.

ESG: Likely To Have A Modest Influence On FMI Ratings (II)

Governance is likely to remain the most relevant | Sector trend 4

ESG: Credit-relevant opportunities and threats for FMIs



For more information, see "ESG Credit Indicator Report Card: Financial Market Infrastructure," published May 20, 2022,.

Safe As Clearinghouses?

- Clearinghouses act as central counterparties (CCPs). Our ratings acknowledge their robust business models and lack of leverage, but their exposure to, and management of, clearing risks is of crucial importance, and a differentiating factor.
- Post-GFC reforms that encouraged central clearing and exposure collateralization have reduced systemic credit risk and heightened liquidity risk for market participants, but not unmanageably so.
- They have also made CCPs even more critical nodes in the financial ecosystem.
- CCPs (and their major bank clearing members) are now arguably more resilient to stress than ever, but CCPs vary significantly in their structural and behavioral setups.
- Regulators are focused on enhancing CCPs' resilience to member default and non-default losses, and developing resolution frameworks that can respond flexibly to unprecedented stress events. Of these, specific risk management techniques and enhancements protect CCPs but push the risk back on their members (margin haircuts, investment loss absorption, contingent liquidity mechanisms, etc) or the market (client portfolio liquidation). Risk is redistributed but not mitigated.
- The lack of central bank placement rights and discount window access remains a key point of addressable weakness for many CCPs globally.

CCPs Are Stronger Now Than At Any Time Previously

CCPs' record even before the post-GFC reforms was already very strong. CCPs exhaust their resources very infrequently, and managed events like Lehman.

Clearing mandates have provided a strong tailwind for the industry. This has boosted volumes (good for business risk) and created deeper liquidity pools of contracts that can be safely risk-managed (i.e., mandates have not pushed illiquid / niche contracts / asset classes into CCPs).

CCPs face reduced inherent risk from their members. The major banks remain the most important, risky (in terms of open interest and stress loss) clearing members. Banks are stronger thanks to years of capital building, and (for many) resolution provides a backstop that does not fuel the sovereign doom loop.

PFMIs and other CPMI-IOSCO work have enhanced global minimum standards, with EMIR regime implementation setting some of the highest standards globally, e.g., insistence on cover 2 for all, ban on use of letters of credit as margin collateral, anti-procyclicality rules etc

Supervisory oversight continues to deepen. Notably, CCP stress testing enhances scrutiny, and explores systemic risks--giving good market transparency.

Risk management tools / models are more sophisticated. In developed markets, CCPs continue to move away from SPAN-style risk-array margining to multi-factor VaR or, better, expected shortfall risk modelling. CCPs also continue to reduce the procyclicality of margin requirements, aiding financial stability.

Greater portfolio margining, aided by changed models and related processes, has generally recognized true risk offsets, enhancing netting / risk-reduction for trading firms, is often better at picking up concentrated positions, and not been used to systematically reduce total margins.

Market events and stresses have provided further insights. Industry has learned from events like the 2018 Aas default at Nasdaq Nordic and overlaid extra controls, e.g., around concentrated positions and nonbank CMs.

Focus on enhancing CCP resilience has led to extra layers of loss absorption for clearing risks (e.g. VMGH) and investment risks (e.g. excess of loss), and improved operational resilience (capacity, reliability, continuity).

CCP resolution offers an uncertain path, but these toolkits provide legal capacity and maintain flexibility to diverge from the rulebook in extremis.

CM—clearing member. CPMI-IOSCO—Global standard setters, the committee on payments and markets infrastructures and international organization of securities commissions. GFC—global financial crisis. SPAN—CME Group's standardized portfolio analysis of risk methodology. VaR-value-at-risk methodology. VMGH—variation margin gains haircutting

But CCPs And Their Ecosystems Are Not Riskless (I)

General risks

Some CCPs have meaningful business risk. CCPs tend to be legal monopolies or natural ones (due to the powerful benefits of liquidity pooling / netting). But some CCPs operate in a competitive environment. This risk is heightened for undiversified CCPs that serve low-margin / highly commoditized asset classes (e.g., cash equity in Europe). In practice, the risk may be somewhat mitigated by CCPs being part of integrated siloes or having stronger parents. However, commercial weakness can incentivize a CCP to compete on risk/margin or undermine its investment capacity and longevity.

Even when CCPs appear structurally similar (e.g., on the basis of the items above), CCPs are not homogenous. There are many areas where a CCP's individual risk management standards and practices could render it more or less resilient than peers. Examples include default management routines, margin routines, member monitoring and intervention, clearing service structure, stress testing, and operational resilience.

Risks linked to membership and markets

Some, typically smaller, CCPs have a concentrated and/or low-quality base of clearing members. This is prominent in Europe and the U.S., though can be true for some smaller European CCPs, e.g., in small/novel clearing services or even cash equity. High concentration can exacerbate business risk and challenge default management effectiveness. Related, the increasing concentration of FCMs in the U.S. is notable and could eventually challenge existing assumptions on default management / porting.*

Some CCPs accept nonbank ICMs who may be poorly equipped to self-clear. These players can have highly directional on-exchange positions and can lack the liquidity to meet extraordinary margin calls[§†]. It's arguably better that they go through GCMs or use "sponsored access" arrangements.

The default of the largest GSIBs would affect many CCPs. A few of the largest GSIBs are the most important GCMs (by open interest / IM) for many CCPs across developed markets globally. Even with greater collateralization of exposures outside of central clearing, they are also key counterparts to many FI and non-FI players. Outside a managed resolution scenario, such as for Lehman, a default of one or two of these GSIBs could have an unpredictable systemic network effect, even if each CCP has, in theory, sufficient modelled resources to survive this. ESMA stress testing does explore this risk, however.

ESMA—European Securities & Markets Authority. FCM—futures commission merchant. GCM—general clearing member. GSIB—globally systemically important bank. ICM—individual clearing member. IM—initial margin. *For example, for CME Clearing, Top 5 / Top 10 GCMs now comprise 60% / 85% of total IM, which is high for such a large CCP. §Exemplified by Nasdaq Nordic event of 2018. †Exemplified by LME nickel event of 2022.

But CCPs And Their Ecosystems Are Not Riskless (II)

Risks linked to membership and markets (cont'd)

Some CCPs accept higher inherent risk through the contracts / asset classes they choose to clear. Clearing effectiveness is greatest in transparent, deep markets that lend themselves to reliable mathematical modelling and default management processes. For example, forex and rates are deep, broad traded markets with cash settlement. But events in U.S. bond/repo markets in 2020 and U.K. LDI / "mini budget" in 2021 highlight the importance of event risk and market structure. Furthermore, some commodities are physically settled with a lot of trading uncleared, leaving a risk of erratic price formation, non-transparent large positions, and short squeezes*.

Risks linked to clearing risk management standards and concepts

Some very large CCPs continue to be held only to a cover 1 standard. This may be PFMI-compliant for non-international CCPs, but leads to a materially reduced level of protection vs cover 2. Key examples include CCPs in Asia and, to a lesser extent, the U.S. (Some U.S. CCPs anyway deliver a cover 2 level in practice, but some (such as FICC) cannot deliver cover 2 for both credit and liquidity risk.

Some key assumptions might be challenged in an extreme but plausible stress. For example, CME Clearing has historically been able to achieve its assumed 1-day close-out with end-client porting, but would this reliably hold even when 2 major GCMs failed amid extreme but plausible market moves? By contrast in Europe, CCPs routinely assume that omnibus end-client portfolios would be liquidated (not transferred) if their GCM fails, but this could exacerbate systemic stress. Is this still tenable?

Some innovations have not been deeply tested in practice. In Europe, we have co-CCP arrangements for cash equity (LCH / CboeClear / SIX) and bond clearing (LCH / Euronext Clearing). In the U.S., cross-CCP arrangements (OCC / CME, CME / FICC) seek to better recognize risk offsets (and reduce the margin burden on clients). These arrangements are subject to close regulatory review before approval, ongoing default management dry-run exercises, and some have been tested in practice in a limited way (e.g., Ronin Capital hedge fund default of 2020). But they arguably complexify risk management as opposed to when there is no CCP connectivity.

DF-default fund. LDI—liability driven investment. PFMI—CPMI/IOSCO principles for financial market infrastructures, 2012. *Exemplified by the Sumitomo copper affair of 1996 and the LME nickel event of 2022.

But CCPs And Their Ecosystems Are Not Riskless (III)

Risks linked to clearing risk management standards and concepts (cont'd)

So far, no surveilled CCP embarked on allowing cross-asset class margin offsets, but the industry's efforts to ease margin burden mean it could happen. Such risk offsets could no doubt be justified mathematically. But they would increase the inherent risk arising from modelling risk (de)correlation. Furthermore, these cross-asset class offsets are to some extent already a feature for CCPs that operate single "general" default funds. These single DFs are rarely sized to address "worst in all cases" risk events, so they attract smaller paid-in resources than if the asset classes were covered by segregated clearing services (each with its own DF). Single DFs also offer a point of direct systemic risk transmission from one asset class to another.

Risks linked to collateral and investments

Some CCPs accept forms of margin collateral that may expose them to heightened credit risk and unnecessary liquidity risk. Eg1: promissory (non paid-up) collateral such as letters of credit remain a feature in US for energy markets. Eg2: some CCPs accept equities (not only against short positions), which (even with modelled haircuts) might be more vulnerable to unexpectedly sharp price moves and are not easily monetized (e.g., at CB discount window, or else there would be a settlement delay).

Many CCPs do not have central bank (CB) access for placements or for borrowing (discount window). CB access is the norm in some European countries, but often not elsewhere. While CCPs are not credit institutions and are often not directly overseen by the CB, the lack of reliable CB access--in the U.S. for example--is unusual given that CCPs are some of the most systemically important financial institutions, and many are relevant also to money policy transmission.

Some CCPs rely on commercial bank money settlement (CoBM). Central bank money settlement (CeBM) is arguably safer than CoBM since it removes reliance on nodes that may fail, but CoBM is standard for multi-currency CCPs and CeBM is not available in some markets.

CCP resilience may be weaker where there is no deep repo market. For example, in Asia. This means that margin collateral tends to remain heavily weighted to cash (not a risk in and of itself) but the CCP may be forced to place the cash unsecured with commercial banks. Even in jurisdictions with large repo markets, it may be hazardous to rely on the monetization of non-cash collateral in a stress (as repo markets could dry up in a stress scenario).

But CCPs And Their Ecosystems Are Not Riskless (IV)

Risks linked to collateral and investments (cont'd)

Some CCPs' contingent liquidity call on their GCMs could be a procyclical amplifier of stress. CCPs face unequal challenges to meet stressed liquidity needs with liquidity resources. This is heightened for cash products with short settlement periods, e.g., repo and cash equity. As a result, and particularly for CCPs with no CB access, they may rely on committed liquidity calls on their GCMs (either as a standard committed facility, or FICC CCLF, or ASXClear OTA forced repos).

Other risks

CCPs' use of novel technologies (e.g., cloud or other key third party services) may improve resilience but could add new risks.

CCPs remain somewhat vulnerable to tail events linked to non-clearing losses. CCP waterfall resources to absorb clearing risk losses have never been deeper, and loss allocation for investment risks (that some CCPs introduced) provides a key enhancement. Many CCPs (but not all) hold cash capital modelled to absorb other residual losses and to cover a service closure / run-down period. But this equity buffer is typically thin in absolute terms, while remote, these losses could be material*, and most CCPs have no further committed / contingent capital.

Application of resolution tools to CCPs remains untested. Flexibility in these frameworks is a strength and raison d'etre, but could lead to unpredictable or surprising outcomes.

*Exemplified by litigation arising from the LME nickel event of 2022. OTA—offsetting transaction arrangements. CCLF—comminuted contingent liquidity facility.

Issuer Report Card And Data Annex

Issuer Report Card (1/6)

Company	LT Rating and outlook	Primary analyst	Comment
Asigna Compensacion y Liquidacion	BBB+/Stable	Gabriela Torillo	We expect Asigna's liquidity will remain strong, supported by its unrestricted cash position, cash flow generation, and the lack of debt. We consider the company will maintain a conservative financial risk profile with no debt on its balance sheet while its high amount of cash financial resources continue to enable it to pass our sovereign stress test for Mexico. We expect that Asigna will maintain its leading market position in the Mexican derivatives market as the sole domestic central counterparty (CCP). Nevertheless, the company will continue facing notable competition from international financial market infrastructure (FMI) companies. Finally, we anticipate Asigna will continue to have significant concentrations in terms of margins and clearing members compared to other rated CCPs.
ASX Ltd.	AA-/Stable	Nico DeLange	We expect ASX's profitability will remain strong in the coming two years, with high margins relative to peers. Current economic conditions are relatively unsupportive for business volumes, but we expect ASX's asset class diversification and high policy rates to help sustain group revenues. We expect ASX to maintain its dominant market position in key financial markets in Australia. The group's planned replacement of its equities clearing and settlement platform, CHESS, will be critical in improving services for stakeholders. The financial impact will be minimal, in the context of ASX's strong profitability and low leverage. In August 2023, ASX announced its intention to launch a corporate bond of between A$200 and A$300 million in the current financial year. We view ASX's balance sheet as strong and the debt raised will leave its leverage assessment unchanged. Unlike many peers in the FMI sector, it has not pursued an acquisitive growth strategy.
Cboe Global Markets	A-/Stable	Prateek Nanda	2023 was a solid year for Cboe. We expect revenue growth in 2023 to have surpassed the higher end of its guidance of 7%-9%, primarily reflecting higher average daily volumes in index options (up 33% on solid growth in 'zero day to expiry' options volumes) and strength in its data and access business. We believe this strength will persist into 2024 as market participants continue to rely on index options as a tool to hedge risks stemming from the uncertainty around a Fed pivot and a U.S. presidential election. We also expect expense growth to moderate this year following past acquisitions as the company prioritizes organic growth and focuses on enhancing EBITDA margin, in line with the new CEO’s strategic priorities. We project leverage to remain below 1.2x over the next 12 months (was 1.2x as of Sept. 30, 2023), aided by strong free cash flow generation.

Cited leverage metrics and margins are all on an S&P Global Ratings-adjusted basis unless indicated.

Issuer Report Card (2/6)

Company	LT Rating and outlook	Primary analyst	Comment
Coinbase Global Inc.	BB-/Negative	Prateek Nanda	After a difficult 2022, we expect Coinbase's full-year 2023 EBITDA to have finished in solidly positive territory--the company had reported positive adjusted EBITDA of $659 million in the first three quarters, despite slowing transaction volumes. In the fourth quarter, crypto asset prices rose following Binance’s settlement with the Department of Justice and in anticipation that the SEC would approve spot Bitcoin ETFs. The resulting uptick in transaction revenues and supportive stabilization in the market cap of the USDC stablecoin should have boosted Coinbase’s revenues in the fourth quarter. Gross debt decreased by about $328 million to $3.1 billion as of Sept. 30, 2023 compared with year-end 2022 due to debt repurchases, while its liquid resources (including cash, USDC holdings, and custodial account overfunding) increased by $20 million in the third quarter to $5.5 billion. We estimate the company will continue to operate with zero net debt-to-EBITDA leverage. We believe regulatory risks remain heightened for Coinbase, underpinning our negative outlook on the company.
CME Group Inc.	AA-/Stable	Prateek Nanda	CME had a solid 2023, after a strong 2022. Average daily volumes across most asset classes (except equity index derivatives) exhibited double-digit increases for interest rates, agricultural, and metals contracts. As market participants continue to hedge risks stemming from central banks’ shifting monetary policies, interest-rate derivatives trading volumes--that account for 31% of overall revenue--should remain elevated this year, boosting overall revenues. CME Group's EBITDA margin of over 70% is above most peers, while projected leverage, at below 1x over the next 12 months, is one of the lowest ratios among major FMI peers worldwide.
Depository Trust & Clearing Corp. (The)	AA-/Stable	Prateek Nanda	We expect DTCC to post modest revenue growth for 2023 aided by higher treasury clearing volumes at its FICC subsidiary, amid an uncertain interest rate outlook, partly offset by lower equity clearing volumes at NSCC. DTCC has very low leverage, with debt-to-EBITDA expected to remain de minimis over the next two years.

Cited leverage metrics and margins are all on an S&P Global Ratings-adjusted basis unless indicated.

Issuer Report Card (3/6)

Company	LT Rating and outlook	Primary analyst	Comment
Deutsche Boerse AG	AA-/Stable	François Monéger	Deutsche Boerse (DB1) is the holding company of one of the leading global FMI groups and operates the German securities exchange. Notably, it delivers post-trade services through Clearstream, and owns Eurex, which is a leading European derivatives exchange. We assess the group credit profile of DBI's Clearstream subgroup at 'aa', which reflects its own strength, underpinned by its minimal financial risk profile and crucial role in international financial markets. DB1's leverage spiked in 2023 following the acquisition of SimCorp for about €3.9 billion, and we now view its financial risk profile as modest, from minimal previously. We expect debt to EBITDA in the range of 1.8x-2.2x and FFO to debt of 35%-40% in 2024, reflecting our assumption of a reduction in net debt through strong discretionary cash flow generation. We see DB1 as well positioned to deliver its "Horizon 2026" plan target of compound annual growth rate of 10% in net revenue and 11% in EBITDA targets over 2023-2026, supported by the contemplated benefits from the integration of SimCorp and continued secular growth in post-trade services. In light of the 15% year-on-year growth in net revenue and 14% growth in EBITDA reported in the first nine months of 2023, we anticipate double-digit net revenue growth for the full year, as tailwinds in net interest income more than offset headwinds in cash equities and financial derivatives businesses due to lower market volatility.
Euroclear Bank S.A./N.V.	AA/Stable	François Monéger	We anticipate that Euroclear will report a record-high performance for 2023, with underlying revenue up by 55%-60%, supported by elevated net interest income in the high-interest-rate environment, and despite a 20% increase in operating expenses. We look to Euroclear's performance on an underlying basis, that is, adjusted for profits on assets related to international sanctions on Russia, because we consider that these profits reflect events beyond Euroclear's normal business operations. We anticipate business income to grow by a moderate 2% in 2023 and we expect that it will be flat in 2024. As a result of strong cash-flow generation in 2023 and 2024, we anticipate that the group's underlying debt to EBITDA will be 0.5x-1.0x and FFO to debt above 100% until 2024, assuming no sizable debt-funded acquisitions. We anticipate Euroclear's adjusted EBITDA margin to improve to 65% in 2023, before normalizing to 50%-60% over 2024-2025 on lower banking revenue and still significant cost inflation. We see this margin as reflective of improved, but more volatile, profitability compared to past years. Despite a long-standing experience in sanctions compliance, Euroclear faces a high degree of operational risk amid the web of international sanctions on Russia, as the spread and complexity of the current exercise is unusually high.
Euronext N.V.	BBB+/Positive	François Monéger	We anticipate robust operating profits for the full-year 2023, following the performance reported during the first three quarters, which showed resilient revenue from the listing, trading and post-trade activities despite weak market activity, and solid growth in technology solutions and data services. Since 2022, Euronext (ENX) has reduced investment risk in the Euronext Clearing treasury portfolio--a step we view as positive for its clearing and settlement risk profile (now assessed as neutral, from negative previously). We estimate that ENX ended 2023 with group debt to EBITDA of 2.5x-3.0x and FFO to debt of 25%-30%, reflecting material deleveraging since the transformational acquisition of Borsa Italiana (BI) in 2021. In 2024, we expect continued deleveraging, with debt to EBITDA of 2.0x-2.5x and FFO to debt of 30%-35%, assuming no sizable debt-funded acquisitions. Euronext's Italian cash market activities migrated to the Optiq trading platform in 2023, and derivatives are set to follow in 2024. ENX will grow clearing revenues in 2024 after it ended its reliance on LCH as a third-party clearinghouse for non-Italian cash equity activities in 2023, with non-Italian derivatives following in 2024.

Cited leverage metrics and margins are all on an S&P Global Ratings-adjusted basis unless indicated.

Issuer Report Card (4/6)

Company	LT Rating and outlook	Primary analyst	Comment
Intercontinental Exchange Inc.	A-/Stable	Michal Selbka	We expect ICE to post good performance for 2023, thanks to its diversity across asset classes. This reflects strength in natural gas trading, interest rate futures, equity index futures, U.S. cash equity and equity options, CDS clearing, and fixed-income execution activity. In its mortgage technology segment, ICE successfully closed the acquisition of Black Knight in September 2023--we expect growth in recurring revenue likely remained stable, though transactional fees will have further declined as mortgage origination volumes remain subdued due to high interest rates. Nevertheless, ICE’s mortgage technology revenue continues to outperform industry origination activity, reflecting the uptake in new solutions, strong retention, and pricing. Given Black Knight's acquisition, we estimate leverage at about 3.9x-4.1x as of year-end 2023. However, we expect leverage to improve to 3.3x-3.5x by the end of 2024 and to 2.8x-3.0x by the end of 2025, owing to strong cash flow generation, share buyback suspensions, and synergies.
LCH Ltd. and Banque Centrale de Compensation S.A. (LCH SA)	AA-/Stable	Dmitry Nazarov	We expect LCH will report solid results for 2023 with revenue growth in the range of 10%-15%, thanks to the volatile interest rate environment, driving strong clearing volumes in interest rate swaps, repo clearing, and higher net treasury income. In 2024, however, we expect that revenue growth will slow to low- to mid-single digits as volumes and treasury income would reduce on subsiding volatility and LCH will lose some of its revenues from severance of the derivative clearing contract with Euronext. We think that ForexClear and CDSClear, LCH's smaller clearing franchises, will remain an important mid-term source of growth. Post-trade capital management solutions will remain another growth driver. We expect LCH will maintain its focus on cost efficiency and keep its EBITDA margin above 50%, inching closer to 60%, in line with an average EBIDTA margin of about 58% over 2020-2022. The ratings on LCH ratings will continue to benefit from its market-leading risk management framework and diverse membership base. LCH has no debt and we do not expect that position to change.
London Stock Exchange Group PLC	A/Stable	Dmitry Nazarov	We expect LSEG will report robust results for 2023 with revenue growth of 7.0%-8.0% on a constant currency basis, driven by rising prices and sales in data and analytics segment as well as solid growth in Tradeweb and the post-trade segment. In 2024, LSEG will continue to actively invest in its global data and FMI business to enhance the customer experience, deliver synergies from greater connectivity of its products and platforms, and drive growth. With an expected EBITDA margin of 42%-44%, LSEG's profitability will remain solid but lower than that of many FMI peers. Nevertheless, strong cash flow generation and a high share of predictable recurring revenue will allow LSEG to keep its high appetite for acquisitions, although we don't expect a transformative deal in the coming year. Furthermore, we expect that LSEG might continue to deploy cash flow to directed share buybacks and material capex, which might lead it to take on more debt. Nevertheless, we expect that any increase in debt will be offset by EBITDA growth with a broadly neutral effect on leverage, leaving debt to EBITDA in the range of 2.0x-2.2x.

Cited leverage metrics and margins are all on an S&P Global Ratings-adjusted basis unless indicated.

Issuer Report Card (5/6)

Company	LT Rating and outlook	Primary analyst	Comment
Mastercard Inc.	A+/Stable	Michal Selbka	Mastercard's earnings rose meaningfully in 2023, following their record rebound of 2021 and 2022, on the back of the post COVID in-person spending rebound, especially for the travel and leisure sectors. Inflation supports earnings, as higher consumer spending in U.S. dollar terms translates into higher fee income for Mastercard. Cross-border spending, an important source of revenue, has meaningfully recovered and normalized too. We expect long-term profitability to benefit from the ongoing worldwide incremental shift toward electronic payments away from cash. In our base case, we expect Mastercard to maintain debt-to-EBITDA leverage and EBITDA margin of about 0.6x-0.9x and 60%, respectively. We remain mindful of the meaningful regulatory and legal risks the company faces. While Mastercard has managed those risks well, lawsuits and regulatory changes have repeatedly challenged card networks, their rules, and the fees associated with payment processing.
Nasdaq Inc.	BBB/Stable	Michal Selbka	Nasdaq had a solid 2023, benefitting from its strong position in the trading and listing of cash equity in the U.S. and the Nordics, trading of equity options in the U.S., and trading and clearing of equity derivatives, fixed-income, and commodities in the Nordics. This was accompanied by a meaningful acquisition of Adenza (closed in November 2023), a software application provider specializing in capital markets and regulatory reporting, for over $10 billion. In our view, this move may complement Nasdaq's existing market platform and anti-financial crime (AFC) segments offerings but it has pushed leverage higher than most FMI peers. We expect debt to EBITDA to be elevated at or above 4.7x at the end of December 2023. We project the company's leverage to gradually decline but to remain above 4.0x until at least the end of 2024. In June 2023, Nasdaq announced an agreement with the European Energy Exchange to sell its European power trading and clearing business. This transaction remains subject to regulatory approval. We note that a successful exit of the commodities business by Nasdaq Nordics should reduce potential future clearing and settlement risks for Nasdaq.
Options Clearing Corp.	AA/Stable	Prateek Nanda	Despite higher average daily trading volumes (+7.5% in 2023), we expect OCC to report a sharp decline in net income in 2023 due to higher operating expenses related to increased headcount, additional liquidity facilities, and investments in risk management. However, we do not view profitability as a major rating factor because OCC operates as an industry utility and focuses more on cost recovery than on profit maximization. We expect the company to continue to operate with zero adjusted debt. Faced with increasing hypothetical liquidity needs in a stress scenario following the surge in equity options trading volumes, OCC ramped up its liquidity sources in 2022--increasing committed liquidity facilities to $4.5 billion and the minimum cash clearing fund contribution to $6 billion in December. We will continue to monitor whether these resources will be sufficient to cope with ever-increasing liquidity needs. We will also review whether the current margining system can quickly evolve to cope with increasing intra-day clearing risks in light of the rapid growth of zero day to expiration options.

Cited leverage metrics and margins are all on an S&P Global Ratings-adjusted basis unless indicated.

Issuer Report Card (6/6)

Company	LT Rating and outlook	Primary analyst	Comment
PayPal Holdings Inc.	A-/Stable	Michal Selbka	In our view, PayPal continues to benefit from strong long-term growth prospects in online and digital payments, but may need to operate with a lower profit margin to defend its market share. PayPal's revenue growth slowed to below 9% in 2022 and we expect it to have remained below 10% in 2023. PayPal's profitability, as measured by EBITDA margin, dropped to about 25%. While that's still solid, it is far lower than the margins that most rated FMIs generate. The last quarter of 2023 was characterized by widespread changes in the top management as the new CEO took over at the end of September. Whether the company chooses to make strategic acquisitions or revises the strategy will depend on the stance of incoming management and extent of available opportunities. We expect PayPal's leverage to remain below 1.0x in the next two years. We note that the partnership agreement with KKR (that settled at the end of 2023, including the sale of the $1.8 billion buy now, pay later (BNPL) consumer loan portfolio) will limit PayPal's credit risk exposure and free up some funding capacity previously used to finance BNPL lending in Europe. We expect PayPal to continue taking manageable credit risk by providing business loans, other consumer loans, and protections to merchants and consumers on payments.
SIX Group AG	A/Negative	William Edwards	SIX's performance has been uneven over the past 12 months. We see this as a product of a difficult environment, unsupportive equity market activity, and intense competition. Alongside this, the group's deleveraging has been slower than we previously anticipated, with S&P Global Ratings-adjusted leverage hovering around 1.7x through 2022 and much of 2023--an elevated level for the rating. Due to this limited leverage headroom and the declining value of SIX's Worldline stake, we consider that the group's financial flexibility has contracted significantly in the past 12-18 months. We therefore revised our outlook on the ratings on SIX group companies to negative from stable in recent weeks. We could lower the ratings in the next 24 months if we believe the group's creditworthiness has weakened materially relative to peers'. This would be the case, for example, if the group is unable to achieve profitable organic growth, or its leverage remains elevated--that is, close to or above 1.75x on a sustained basis. Conversely, we could revise the outlook to stable if SIX is able to deliver on its core strategic priorities--realizing moderate organic growth across its geographies and business lines while tightly controlling cost. This would most likely align with adjusted leverage close to or sustainably below 1.5x, and FFO-to-debt materially exceeding 50%.
Visa Inc.	AA/Stable	Michal Selbka	Visa's earnings rose meaningfully in 2023, following their record rebound of 2021 and 2022, on the back of the post-COVID in-person spending rebound, especially for the travel and leisure sectors. Inflation supports group earnings as higher consumer spending in U.S. dollar terms translates into higher fee income for Visa. Cross-border spending, an important source of revenue, has meaningfully recovered and normalized too. In our base case, we expect Visa to maintain debt-to-EBITDA leverage of about 0.3x-0.6x and an EBITDA margin of about 70%. We expect profitability to continue to benefit from the long-term shift toward electronic payments away from cash. We remain mindful of the meaningful regulatory and legal risks the company faces. While Visa has managed those risks well, lawsuits and regulatory changes have repeatedly challenged card networks, their rules, and the fees associated with payment processing.

Cited leverage metrics and margins are all on an S&P Global Ratings-adjusted basis unless indicated.

Key Credit Metrics For Selected Global FMI Companies

		--EBITDA margin (%)--			--Funds from operations to adjusted debt (%)--			--Debt to adjusted EBITDA (x)--			--EBITDA interest coverage (adjusted) (x)--		
Company	FRP assessment	2022a	2023e	2024f	2022a	2023e	2024f	2022a	2023e	2024f	2022a	2023e	2024f
Asigna Compensacion y Liquidacion	Minimal	51	43	42	N.M.	N.M.	N.M.	0.0	0.0	0.0	N.M.	N.M.	N.M.
ASX Ltd.*	Minimal	74	66	64	>200	>200	160	0.1	0.1	0.4	N.M.	N.M.	N.M.
Cboe Global Markets Inc	Minimal	68	>65	>65	48	60-65	65-70	1.5	1.0-1.2	1.0-1.2	19	>20	>25
CME Group Inc.	Minimal	70	70-72	70-72	83	>90	>95	0.8	0.8	0.7	20	>20	>20
Coinbase Global Inc.	Significant	-37	25-30	<25	N.M.	N.M.	N.M.	0.0	0.0	0.0	N.M.	N.M.	N.M.
Depository Trust & Clearing Corp. (The)	Minimal	26	20-25	20-25	N.M.	N.M.	N.M.	0.0	0.0	0.0	38	38	39
Deutsche Boerse AG	Modest	48	46-49	46-49	68	30-35	35-40	1.2	2.1-2.5	1.8-2.2	45	25-30	13-17
Euroclear Group†	Minimal	55	64-66	58-60	59	>100	>100	1.2	0.5-1.0	0.5-1.0	31	54-56	40-42
Euronext N.V.	Intermediate	57	55-57	55-57	23	27-29	32-34	3.0	2.5-2.7	2.1-2.3	21	19-21	17-19
Intercontinental Exchange, Inc.	Intermediate	67	64-66	64-66	28	18-20	21-23	2.5	3.9-4.1	3.3-3.5	8	7-8	8-9
LCH Group	Minimal	58	56-60	56-60	N.M.	N.M.	N.M.	0.0	0.0	0.0	N.M.	N.M.	N.M.
London Stock Exchange Group PLC	Modest	40	40-42	42-44	37	39-41	39-41	2.2	2.1-2.3	2.0-2.2	11	12-13	12-13
Mastercard Inc.	Minimal	62	61-63	61-63	111	>100	>100	0.7	0.7-0.8	0.6-0.9	28	28-32	30-34
Nasdaq, Inc.	Significant	55	57-59	57-60	29	14-17	15-18	2.8	4.6-4.9	4.2-4.5	14	7	6-8
Options Clearing Corp.	Minimal	18	<10	<15	N.M.	N.M.	N.M.	0.0	0.0	0.0	30	8	7
PayPal Holdings Inc.	Minimal	25	23-25	24-26	130	>100	>100	0.6	<1.0	<1.0	21	18-22	20-25
SIX Group AG	Minimal	27	26-28	27-29	45	>50	>50	1.7	1.6-1.7	1.6-1.7	46	>50	>50
Visa Inc.§	Minimal	72	71-72	71-72	158	>100	>100	0.5	0.3-0.6	0.3-0.6	39	37-40	38-42

Data as of Jan. 24, 2024. *Financial year ends in June. §Financial year ends in September. †Figures are on an underlying basis, that is, excluding extraordinary income on assets under Russian sanctions. a--Actual. e--Expected. f--Forecasted. FRP--Financial risk profile. N.M.--Not meaningful. Source: S&P Global Ratings.

FMI Sector Rating Factor Assessments

Company	Business risk profile	Financial risk profile	C&S risk	Anchor	Capital structure	Financial policy	Liquidity	Management and governance§	Peer adjustment	GCP*	LT ICR	Outlook
Asigna Compensacion y Liquidacion	Satisfactory	Minimal	-3	bbb	Neutral	Neutral	Strong	Satisfactory	Favorable	bbb+	BBB+	Stable
ASX Ltd.	Strong	Minimal	0	aa-	Neutral	Neutral	Exceptional	Moderately Neg.	Favorable	aa-	AA-	Stable
Cboe Global Markets, Inc	Satisfactory	Minimal	-1	a-	Neutral	Neutral	Adequate	Positive	Favorable	a	A-	Stable
Coinbase Global Inc	Fair	Significant	0	bb	Neutral	Neutral	Adequate	Moderately Neg.	Negative	bb-	BB-	Negative
Clearstream Banking S.A. / Clearstream Banking AG†	Strong	Minimal	0	aa	Positive**	Neutral	Exceptional	Positive	Neutral	aa	AA	Stable
CME Group Inc.	Strong	Minimal	0	aa	Neutral	Neutral	Adequate	Positive	Neutral	aa	AA-	Stable
Depository Trust & Clearing Corp. (The)	Excellent	Minimal	-1	aa	Neutral	Neutral	Exceptional	Positive	Neutral	aa	AA-	Stable
Depository Trust Co. (The)	Excellent	Minimal	0	aa+	Neutral	Neutral	Exceptional	Positive	Neutral	aa+	AA+	Stable
Deutsche Boerse AG	Strong	Modest	0	a+	Neutral	Neutral	Strong	Positive	Favorable	aa-	AA-	Stable
Euroclear Bank S.A./N.V.†	Strong	Minimal	0	aa	Positive**	Neutral	Exceptional	Positive	Neutral	aa	AA	Stable
Euronext N.V.	Strong	Intermediate	0	bbb+	Neutral	Neutral	Strong	Positive	Neutral	bbb+	BBB+	Stable
Fixed Income Clearing Corp.	Excellent	Minimal	-1	aa	Neutral	Neutral	Exceptional	Positive	Neutral	aa	AA	Stable
Intercontinental Exchange Inc.	Strong	Intermediate	0	a-	Neutral	Neutral	Adequate	Neutral	Neutral	a-	A-	Stable
LCH Ltd. / And Banque Centrale de Compensation S.A. (LCH SA)†	Strong	Minimal	1	aa	Neutral	Neutral	Strong	Positive	Unfavorable	aa-	AA-	Stable
London Stock Exchange Group PLC	Strong	Modest	0	a+	Neutral	Negative	Strong	Positive	Negative	a	A	Stable
MasterCard Inc.	Strong	Minimal	-1	a+	Neutral	Neutral	Strong	Neutral	Neutral	a+	A+	Stable
Nasdaq Inc.	Strong	Significant	0	bbb	Neutral	Neutral	Adequate	Neutral	Neutral	bbb	BBB	Stable
National Securities Clearing Corp.	Excellent	Minimal	0	aa+	Neutral	Neutral	Exceptional	Positive	Neutral	aa+	AA+	Stable
Options Clearing Corp.	Excellent	Minimal	0	aa+	Neutral	Neutral	Adequate	Moderately Neg.	Neutral	aa	AA	Stable
PayPal Holdings, Inc.	Satisfactory	Minimal	-1	a-	Neutral	Neutral	Strong	Neutral	Neutral	a-	A-	Stable
SIX Group AG	Satisfactory	Minimal	0	a	Neutral	Neutral	Strong	Neutral	Favorable	a+	A	Negative
Visa Inc.	Strong	Minimal	-1	aa-	Neutral	Neutral	Strong	Neutral	Neutral	aa-	AA-	Stable

Data as of Jan. 24, 2024. In addition to the companies above, we rate certain subsidiaries of ASX Ltd. and SIX Group AG based on our view of their core or highly strategic group status to their parent. *Except for DTC, NSCC, FICC, and Asigna, for which we show the stand-alone credit profile (SACP). †GCP construction reflects our assessment of Clearstream Group, Euroclear Group, and LCH Group, respectively. §"Methodology: Management And Governance Credit Factors For Corporate Entities", Nov. 13, 2012 continues to apply to Asigna. **No notching benefit, as per Section G of "Corporate Methodology," Jan. 7, 2024. C&S--Clearing and settlement. GCP--Group credit profile. LT ICR--Long-term issuer credit rating. Source: S&P Global Ratings.

FMI Sector Rating Actions 2023

Modest revisions, typically negative, for idiosyncratic reasons

Company	From	To	Date	Rationale
Coinbase Global Inc.	BB/Negative/--	**BB-**/Negative/--	01/12/2023	Downgrade due to weaker trading volumes and rising regulatory risks
Euronext NV	BBB/Positive/A-2	**BBB+/Stable**/A-2	02/09/2023	Upgrade on reduced clearing and settlement risk and continued deleveraging
ASX Ltd	AA-/Stable/A-1+	AA-/Stable/A-1+	04/06/2023	Ratings affirmed despite governance weaknesses
Nasdaq Inc.	BBB+/Stable/A-2	**BBB**/Stable/A-2	06/12/2023	Downgraded on higher leverage after announced acquisition of Adenza group
PayPal Holdings , Inc.	A-/Stable/A-2	A-/Stable/A-2	06/16/2023	Affirmed despite series of changes to management team
London Stock Exchange Group PLC	A/Positive/A-1	A/**Stable**/A-1	08/04/2023	Outlook revised to stable on higher target leverage range
Intercontinental Exchange Inc.	A-/Stable/A-2	A-/Stable/A-2	09/06/2023	Ratings affirmed on Black Knight acquisition
Deutsche Boerse AG	AA/WatchNeg/A-1+	**AA-/Stable**/A-1+	09/20/2023	Downgrade on sustained higher leverage after SimCorp acquisition
SIX Group AG	A/Stable/A-1	A/**Negative**/A-1	12/21/2023	Outlook revised on uneven performance and lower financial flexibility

Red denotes a downgrade. **Green** denotes an upgrade. Source: S&P Global Ratings.

Debt Issuance By Rated FMIs, 2023

A quiet year

Rating date	Issuer	Issue credit rating	Instrument	Purpose
03/06/2023	Mastercard Inc.	A+	$750 mil 4.875% senior unsecured callable notes due 2028 $750 mil 4.85% senior unsecured callable notes due 2033	General corporate purposes
06/01/2023	PayPal Holdings Inc.	A-	¥30 bil senior unsecured notes due 2025 ¥23 bil senior unsecured notes due 2026 ¥37 bil senior unsecured notes due 2028	Refinance credit facility underlying Paidy Japan lending
06/23/2023	Nasdaq Inc.	BBB	$500 mil 5.65% senior unsecured callable notes due 2025 $1.0 bil 5.35% senior unsecured callable notes due 2028 €750 mil 4.50% senior unsecured callable notes due 2032 $1.25 bil 5.55% senior unsecured callable notes due 2034 €750 mil 5.95% senior unsecured callable notes due 2053 €750 mil 6.10% senior unsecured callable notes due 2063	Financing of Adenza acquisition
09/27/2023	London Stock Exchange Group plc*	A	€700 mil 4.125% senior unsecured notes due 2026 €700 mil 4.231% senior unsecured notes due 2030	General corporate purposes and refinancing of term loan
10/04/2023	Deutsche Boerse AG	AA-	€1.0 bil senior unsecured notes due 2026 €750 mil senior unsecured notes due 2029 €1.25 bil senior unsecured notes due 2033	Financing of SimCorp acquisition

Source: S&P Global Ratings. *Acting through Lseg Netherlands BV

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Related Research

Sector Research:

- Ratings On Seven Financial Market Infrastructure Companies Affirmed Following Management And Governance Review, Jan. 22, 2024
- Operational Resilience Is Key To Global FMIs' Rating Strength, Oct. 4, 2023
- Key Rating Metrics For Global Financial Market Infrastructure Companies (July 2023), July 6, 2023
- FMIs Will Ride Out Economic Gloom, But Beware Financial Stability Risks, Jan. 31, 2023
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- ESG Industry Report Card: Financial Market Infrastructure Companies, Dec. 3, 2020
- Clearinghouses Continue To Up Their Risk Management Game, Jan. 29, 2020

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- Credit Conditions Emerging Markets Q1 2024: Not Getting Easier, Nov. 28, 2023
- Credit Conditions Europe Q1 2024: Adapting To New Realities, Nov. 28, 2023
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- Global Macro Update: 2024 Is All About The Landing, Nov. 23, 2023

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