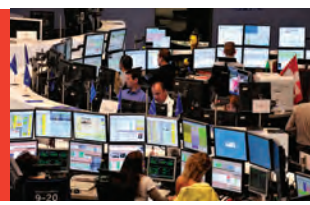
McKinsey&Company

Capital Markets Infrastructure: An Industry Reinventing Itself

Global Corporate & Investment Banking Practice

Capital Markets Infrastructure: An Industry Reinventing Itself

Introduction 2



Faster Growth and Increasing Margins 5

Accelerating Change 10

CMIPs Must Take Action Now 21

Introduction

Capital markets infrastructure providers (CMIPs) have been conspicuous high achievers in recent years, posting 3 percent average annual revenue growth despite mixed fortunes in the wider financial services sector. The stage is set for a bright future, but in a time of disruptive technological change, big opportunities and evolving regulation, individual providers must make the right choices now to stay ahead of the game.

CMIPs (including trading venues, interdealer brokers, clearing houses, information services and technology providers, securities depositories and servicing firms) posted average operating margins of 38 percent in 2015, some 5 percentage points higher than in 2010, amid rising demand for services, increased scale and more electronic trading. Revenues also grew, with Asia-Pacific posting 6 percent average annual gains, while the U.S. recorded a 3 percent increase and EMEA saw just 1 percent growth.

Alongside positive market dynamics, the competitive environment has swung in CMIPs' favor. As the sell side has been hit with heavier capital and cost burdens, infrastructure providers have stepped in to offer new services and develop fresh relationships. As those initiatives bear fruit and demand continues to rise, the industry's average revenue growth is set to reach 5 percent through 2020.

However, there are significant variations across segments and activities. Information services revenues rose 3 percent annually over the past five years, while custody and settlement managed just 1 percent annually over the same period. Exchange group margins held steady at around 50 percent, while margins at alternative venues rose 10 percentage points to 45 percent.

As executives decide how to shape the business models of the future, McKinsey sees five key trends impacting CMIPs:

- **Diversification across the value chain.** Firms have already diversified into alternative capital markets infrastructure businesses, helping the top 15 players take a 41 percent share of industry revenues in 2015, compared with 35 percent in 2010.[1] Exchange groups are leading the trend and an elite group of "CMIP champions" has been emerging.
- **Buy side moving into the spotlight.** CMIPs are expanding services to the buy side (where revenues are growing strongly), while maintaining a strong relationship with their sell side client base. In 2015, the buy side accounted for 38 percent of global capital markets ecosystem revenues, compared with 30 percent five years ago.[2]
- **Increasing demand for data and analytics.** New technologies have opened the door to a revolution in data and analytics, leading to new products, more efficiency and higher margins. However, amid creeping commoditization in certain traditional data businesses, a strategic approach is required.
- **The rise of fintechs.** Fintechs are growing in number and influence. While some are disrupting the business model or owning the client relationship, others aim to boost efficiency. CMIPs can leverage partnerships to drive innovation and growth, e.g., by jointly exploring distributed ledger technology (blockchains).
- **Utilities as core service offerings.** Financial services firms are increasingly willing to outsource processes that lack a unique value proposition. If they choose to establish utilities, CMIPs must become technology leaders and reach sufficient scale to guarantee cost and service quality advantages.

As these dominant trends play out, McKinsey's view is that CMIPs must make a determined pursuit of growth strategies over the next five years, finding the models to step up services and tap new revenue streams.

The good news is that following several years of profitable growth most companies are in a strong financial position. However, an organic approach to expansion is unlikely to be sufficient. Instead, companies must proactively reposition along the value chain, based on a strategy and roadmap that reflects their expertise.

There are eight key principles that can support CMIP initiatives.

[1] McKinsey CMIP Revenue Pools, company filings.

[2] McKinsey Asset Management Growth Cube; McKinsey CMIB and CMIP Revenue Pools.

- **Strengthen the core.** Boost customer-centricity and commerciality and redouble efforts to constructively engage with regulators and fintechs. Work to attract high-quality talent and ensure post-merger integration capabilities are strong. Expand the local capital markets ecosystem, broadening financial literacy and promoting primary and secondary markets to issuers, banks and investors.

- **Double down on new and fast-growing asset classes.** Prioritize break-out growth, embrace new asset classes or securities, such as commodities or corporate bonds, where the sell-side role is changing.

- **Become a leader in data and analytics.** With the help of analytics, new intellectual property can be created from proprietary and external data. However, there is likely to be increased competition from fintechs and others, and operators must seize the day to maximize the opportunity by launching new indices and data products.

- **Develop integrated compliance and risk management solutions.** Offer standardized and scalable solutions to help market participants meet their growing regulatory obligations.

- **Scale up and venture into utilities.** In non-differentiating areas, such as parts of client onboarding and regulatory reporting, set up utilities that anchor capabilities at the center of the industry if the respective market conditions allow for consolidation.

- **Expand service offerings for corporations.** Do more to help companies operate in capital markets, for example in pre-IPO advisory, treasury services and investor relations. Help companies use data and analytics to form and manage relationships with investors and the media.

- **Enter new geographies and develop distribution networks.** Solo venturing into new markets outside a firm's traditional core geography has historically been tough. Consider targeted expansion through partnerships or new distribution networks. This is where developed market exchange groups have accelerated activities in recent years.

- **Set up an e-commerce and trading ecosystem.** Ramp up offerings in pre-trade, execution or post-trade, adding value with functionality that includes tools for reporting, visualization and collaboration. Aim to serve multiple markets, with platforms supported by strong back-end and analytics functionality.

The CMIP industry has expanded and diversified, generating strong financial returns. However, in a fast-changing environment, the choices made now are likely to "sort the wheat from the chaff" over the next five years. The biggest successes are likely to be inspired by visionary strategies and a fearless desire to grow and reshape the business model. New thinking is imperative, because one of the biggest risks in disruptive times is applying the responses of the past, or worse, doing nothing at all.

The insights in this report are based on proprietary research from McKinsey, including the McKinsey CMIP Index and Capital Markets & Investment Banking Revenue Pools.

Faster Growth and Increasing Margins

Capital markets infrastructure providers (CMIPs) have made steady progress in recent years, growing revenues and increasing margins on the back of strong growth in certain fast-expanding asset classes and regions and rising demand for risk and regulatory services as well as data and analytics.

Providers have leveraged their strong financial positions to diversify along the capital markets value chain, either through targeted mergers and acquisitions or new products and services (Exhibit 1, page 7). Diversification helped lift industry average operating margins to 38 percent in 2015 (Exhibit 2, page 7), according to McKinsey CMIP Revenue Pools data. By contrast, the top 10 investment banks posted operating margins of 26 percent in 2015, according

Defining CMIPs

Capital markets infrastructure providers are the platforms as well as the "pipes and plumbing" of global finance, offering a range of services that support financial institutions, companies, governments and investors in building businesses and contributing to growth in the wider economy. CMIPs range from international exchange groups with broadly diversified businesses to start-up technology vendors that cater to specific points on the value chain. Between those poles sit an array of trading platforms, interdealer brokers, clearing houses, securities depositories, securities services firms, information providers, data and analytics companies, index providers and technology vendors, all of which contribute to the operation and growth of capital markets around the world.

to McKinsey and Coalition data, compared with 39 percent in 2010, suggesting CMIPs are decoupling from the sell side in terms of profitability.

CMIP revenues grew an average 3 percent a year between 2010 and 2015, as the global revenue pool expanded by $22 billion to $159 billion, with Asia-Pacific the standout performer. The region posted 6 percent average annual revenue gains, while U.S. revenues rose 3 percent annually and EMEA revenues grew 1 percent (Exhibit 3, page 8). The U.S. saw the highest absolute levels of growth, with revenues reaching $66 billion in 2015, compared with $55 billion in 2010. EMEA revenues grew $2 billion to $48 billion, and Asia-Pacific revenues rose $10 billion to $39 billion over the same period.

McKinsey expects CMIPs will post average annual revenue growth of 5 percent through 2020, outperforming the buy side and sell side, which are expected to expand revenues 3 percent and 1 percent annually, respectively.

Operators have taken diverse paths to growth. Developed markets exchange groups have found organic expansion hard to come by and have instead grown through acquisitions and diversification into new businesses. Conversely, Asia-Pacific exchange groups have seen a sharp increase in core trading and facilitation activity. Interdealer broker revenues have declined following lower demand in their core businesses, and some are consolidating to scale up and generate efficiencies.

Some industry segments are better positioned than others; information and analytics services, technology infrastructure and securities services saw accelerating expansion from 2010 to 2015, while trading (excluding Asia) and custody and settlement have lagged. Clearing saw big gains in the Americas, following the introduction of mandatory clearing of over-the-counter derivatives in 2013, but remained flat in EMEA, even as volumes rose under the European Market Infrastructure Regulation.[3]

[3] Exchange-traded derivative notional volumes remained stable from 2010 to 2015, but the impact of euro depreciation (~-3% CAGR from 2010 to 2015) meant that volumes appeared to decline. In terms of the total revenue pool, which is measured in dollars, the rise in over-the-counter clearing was offset by the "decline" in exchange-traded clearing.

Exhibit 1

Capital markets infrastructure industry value chain

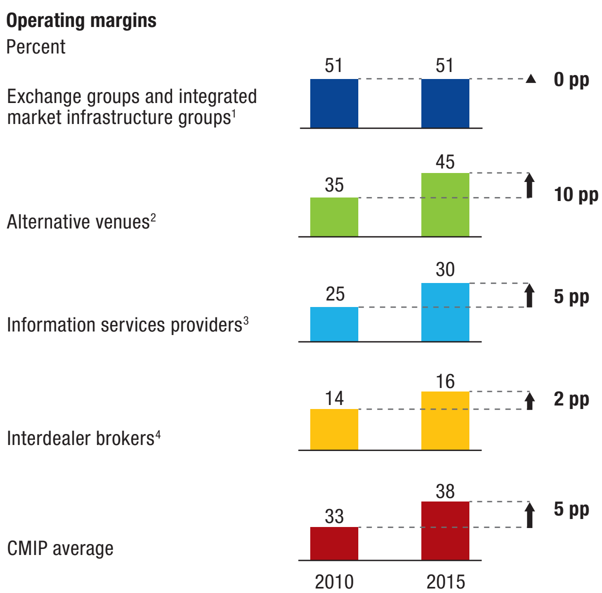
[1] Includes client servicing marketing, structuring, quote order management, risk management, price discovery, trade documentation, counter-party risk assessment, ongoing portfolio management, creation and listing.

[2] Includes ancillary services, trade registration, portfolio reconciliation, accounting, proxy voting and others.

Source: McKinsey & Company

Exhibit 2

Alternative venues and information services providers are experiencing margin growth



[1] ASX, BM&FBOVESPA, BME, Bursa Malaysia, CME, Deutsche Börse, Euronext, ICE, Johannesburg Stock Exchange, JPX, HKEX, London Stock Exchange, NASDAQ, Singapore Exchange, TMX.

[2] 360T, Market Axess, Tradeweb Europe, Turquoise.

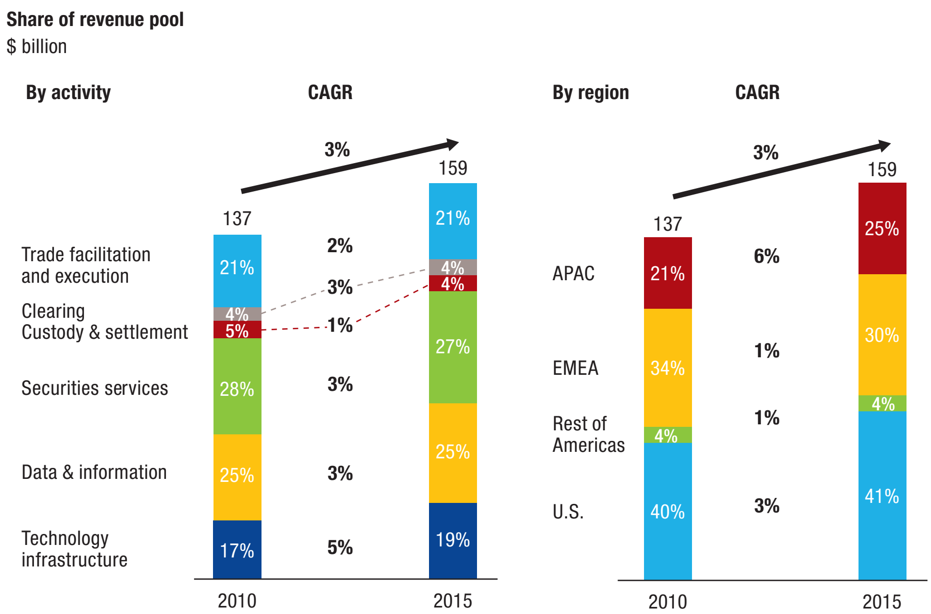
[3] Factset, Fitch Ratings, Markit, Moody's, Morningstar, MSCI, S&P Global, Thomson Reuters (Financial & Risk).

[4] BGC Partners, ICAP, Tradition, Tullett Prebon.

Source: Bloomberg; company filings; McKinsey CMIP Revenue Pools

Exhibit 3

CMIP revenues have grown fastest in APAC and the U.S.



Source: McKinsey CMIP Revenue Pools

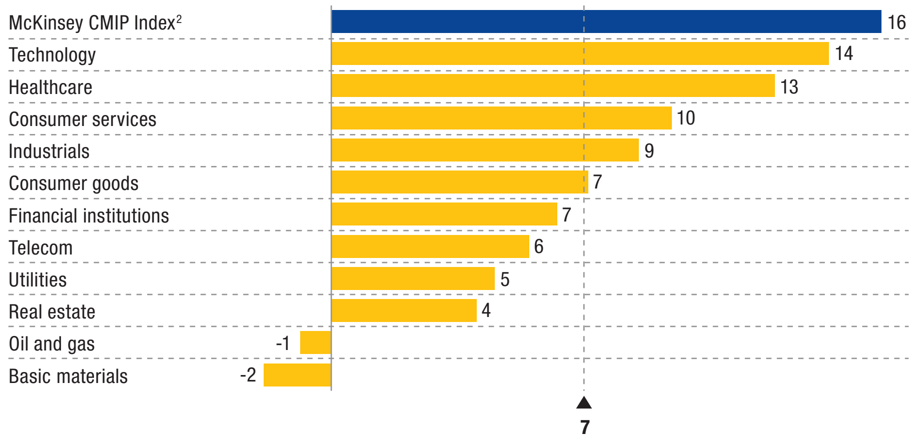
Investors in CMIPs earned 16 percent total returns between the beginning of 2013 and the end of 2016, according to McKinsey's proprietary CMIP Index, compared with a 7 percent average across sectors ranging from health care to consumer services and real estate (Exhibits 4, 5). Information services providers generated 17 percent returns over the period, while exchange groups made 15 percent.

Exhibit 4

CMIPs have performed impressively compared to many other sectors over the past few years

Total return to shareholders[1] last 4 years

January 2013 – December 2016, Percent



[1] Datastream defined world level sector index on US dollar.

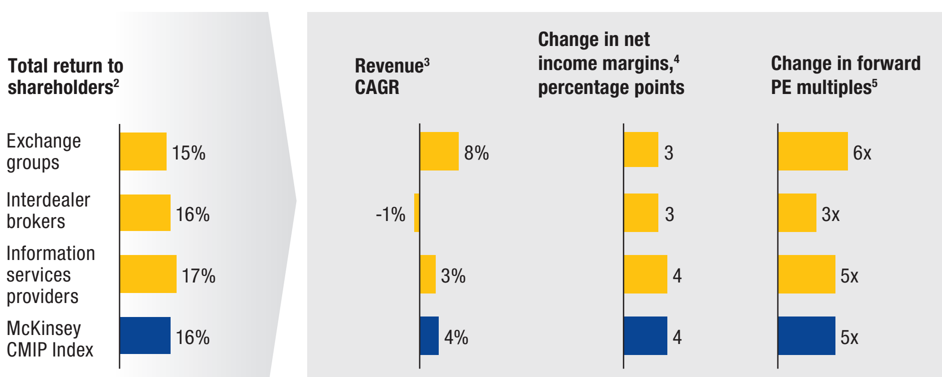
[2] CMIP index is a market capitalization-weighted TRS index on US dollar basis for 40 companies, including 28 exchange groups (ASX, Bats, BM&FBOVESPA, BVC, Bolsa de Valores Lima, Bolsa Mexicana de Valores SAB de CV, Bolsas y Mercados Españoles, Bucharest Stock Exchange, Bursa Malaysia, CBOE, CME, Deutsche Börse, DFM, Euronext, Gielda Papierow Wartosciowych, Hellenic Exchanges – Athens, HK Exchanges & Clearing, ICE, JPX, JSE, LSE, MCX, NSX, NZX, SGX, Nasdaq, Philippine Stock Exchange, TMX), 4 inter-dealer brokers (BGC Partners, Tradition, ICAP, Tullett Prebon), and 8 information service providers (FactSet, IHS Markit, McGraw Hill, Moody's, Morningstar, MSCI, Thomson Reuters, Verisk Analytics).

Source: Capital IQ; Datastream; company filings; McKinsey CMIP Index

Exhibit 5

CMIP firms have delivered strong returns to shareholders

Estimates, January 2013 – December 2016[1]



Exchange groups have delivered the highest growth and information service providers have shown maximum margin expansion in the last 4 years

[1] Revenue (CAGR) and net income margins calculated for the period FY2012 – 2016E.

[2] Market capitalization weighted index on US-dollar basis of the respective companies in the McKinsey CMIP Index.

[3] Total revenues as reported up to the end of 2015; analyst estimates for 2016.

[4] Calculated as post-tax profits, adjusted for non-operating and one-time expenses divided by total revenues; as reported up to the end of 2015; analyst estimates for 2016.

[5] Calculated as end-of-year market capitalization divided by the next financial year's net profit analyst estimates.

Source: Capital IQ; Datastream; company filings; McKinsey CMIP Index

Accelerating Change

CMIP outperformance in recent years has come in the context of a fast-changing commercial, technological and regulatory environment, alongside increasing competition and disruption. Many of the trends shaping the industry are connected, creating a critical mass that suggests there will be an extended window of strategic opportunity for CMIPs that take determined action.

Still, opportunities are accompanied by uncertainties and challenges, arising particularly from technology, ongoing regulatory pressure and continued change in the structure of the industry. Incumbents must respond to competitive threats, lay strong foundations for expansion and develop a growth strategy that leads to permanent decoupling from profit cycles on the sell side.

McKinsey sees CMIPs impacted by five key trends in the years ahead:

- Diversification across the value chain
- Buy side moving into the spotlight
- Increasing demand for data and analytics
- The rise of fintechs
- Utilities as core service offerings

Diversification across the value chain

Diversification into adjacent business areas, driven by margin pressure in some core activities and the need for faster revenue growth, is likely to be the primary driver of CMIP performance over the next five years. It will continue to blur boundaries between different parts of the value chain and offer astute providers the chance to build global portfolios across asset classes and services, reaping both significant revenue and cost synergies.

The industry's appetite for diversification can be seen in a wave of largely mid-sized M&A activity in recent years, which has often delivered growth where organic expansion has failed, in particular for exchanges. Whether M&A activity will continue at this pace will depend to some degree on the level of support from governments and regulators.

The companies best positioned to benefit from the diversification trend are the largest operators, which can target new offerings along the value chain, and leading regional players, which can use their local market strength to drive harmonization and consolidation. Niche businesses, or those with state sponsorship, will likely be sustained by increased levels of specialization.

If those patterns become established, they would reflect the recent dynamic, which has seen larger players expanding into services from clearing, custody and settlement to data and analytics and technology infrastructure (Exhibit 6, page 12). The preferred strategy has been focused strategic acquisitions in target business areas.

As businesses have diversified, revenue streams have followed suit. Post-trade accounted for 24 percent of exchange group revenues in 2015 (based on 10 exchange groups), compared with 21 percent in 2010, while revenues from trading and listing fell to 47 percent, from 59 percent in 2010. Information and technology-related services accounted for 29 percent of exchange group revenues in 2015, compared with 20 percent five years earlier (Exhibit 7, page 13).

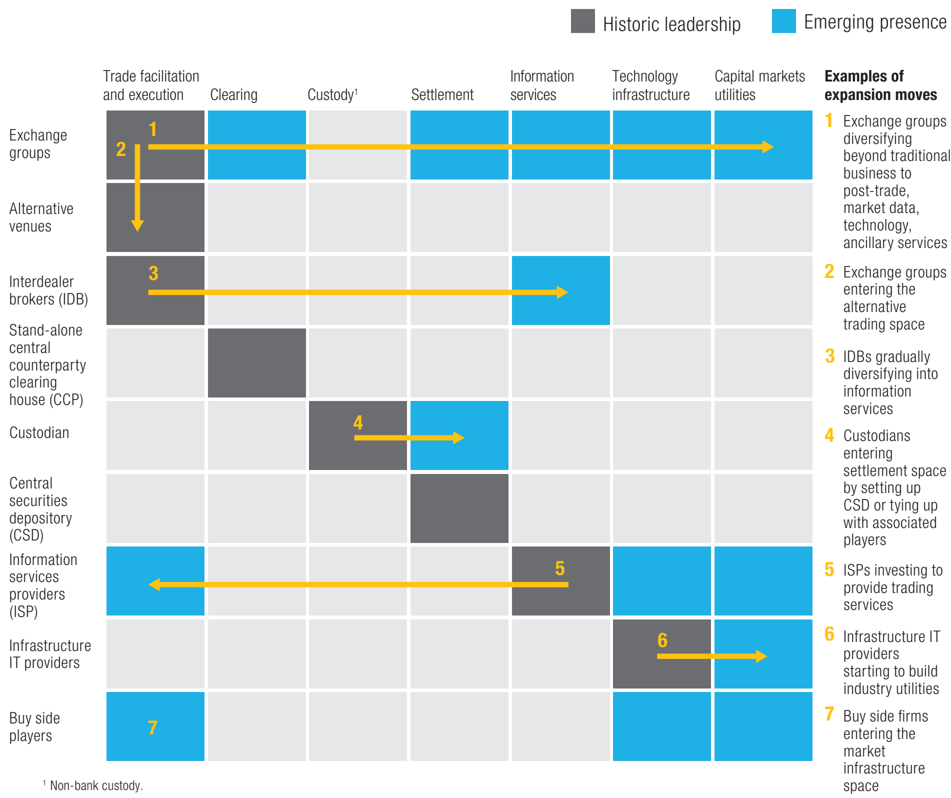
As a result of diversification, larger players across the CMIP industry now offer solutions through the trade lifecycle and increasingly in information services such as indices, market data and analytics. Information services are becoming a key battleground, attracting a growing cast of actors, including exchange groups and interdealer brokers. Some established information services providers, meanwhile, have moved in the opposite direction, venturing into trading and technology infrastructures.

McKinsey expects CMIPs will continue and in some cases accelerate their diversification activities, expanding to become more fully integrated service providers.

A small group of CMIP "champions" is likely to emerge in coming years, which

Exhibit 6

CMIPs have diversified across the value chain



[1] Non-bank custody.

Source: McKinsey & Company

will leverage their integrated business portfolios across the value chain to build ecosystems and truly own the customer relationship, while creating networks of strategic and regional partnerships, similar to the few remaining universal banks.

Expansion will continue to be driven by diversification, often through mergers and acquisitions with adjacent businesses. Among exchange groups, the consolidation seen among large and regional operators since the start of the millennium will likely continue, but at the moderate pace seen in the past few years as opposed to the earlier frenzied pace (Exhibit 8). However, this is likely to happen only if cross-border mergers in areas such as trading, clearing and custody are not restricted. Transactions in less regulated areas such as information services or technology infrastructure, should be less problematic.

Partly as a result of diversification and consolidation, the biggest CMIP players have increased their share of the global revenue pool, with the top 15 taking 41 percent in 2015, compared with 35 percent in 2010.[4] Exchange groups accounted for more than half the increase.

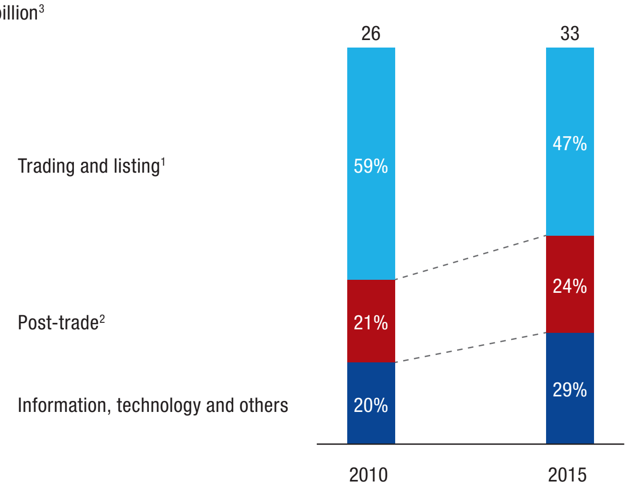
This trend could pose a strategic conundrum for small and medium-sized players. If a company becomes a target, executives must balance the scale advantages of a larger group against

[4] Excluding securities services revenues.

Exhibit 7

Leading firms continue to diversify and build out non-trading businesses

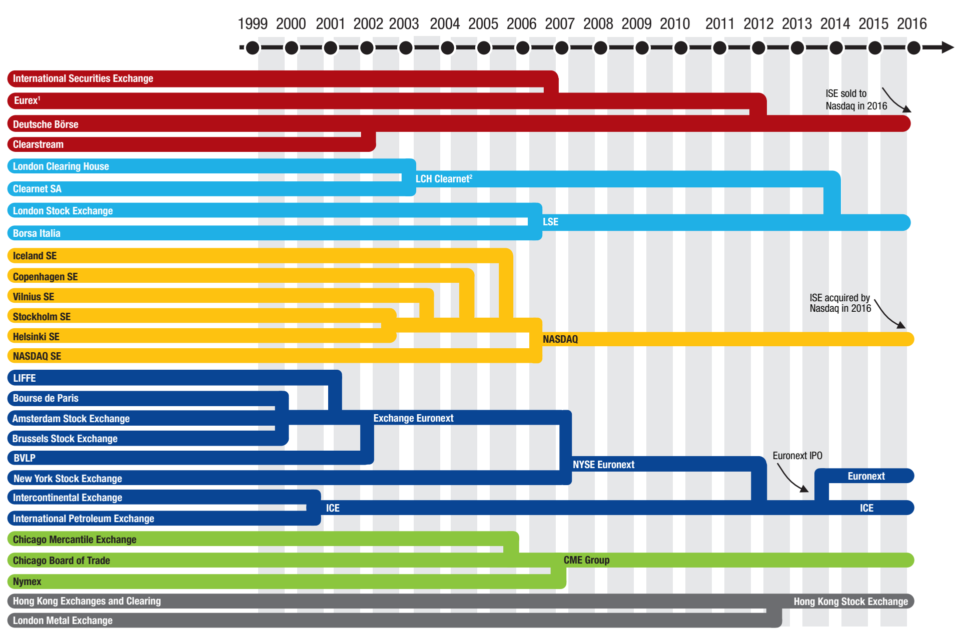
Global exchange groups revenues[4]
$ billion[3]



[1] Excludes transaction-based expenses.
[2] Includes clearing and settlement of securities.
[3] Exchange rate reference year: 2015.
[4] Distribution of revenue is identified according to the sample size including: ASX, BME, BM&FBOVESPA, Deutsche Börse, Euronext, HKEX, JSX, LSE, MOEX, NASDAQ.
Source: McKinsey CMIP Revenue Pools; company filings

Exhibit 8

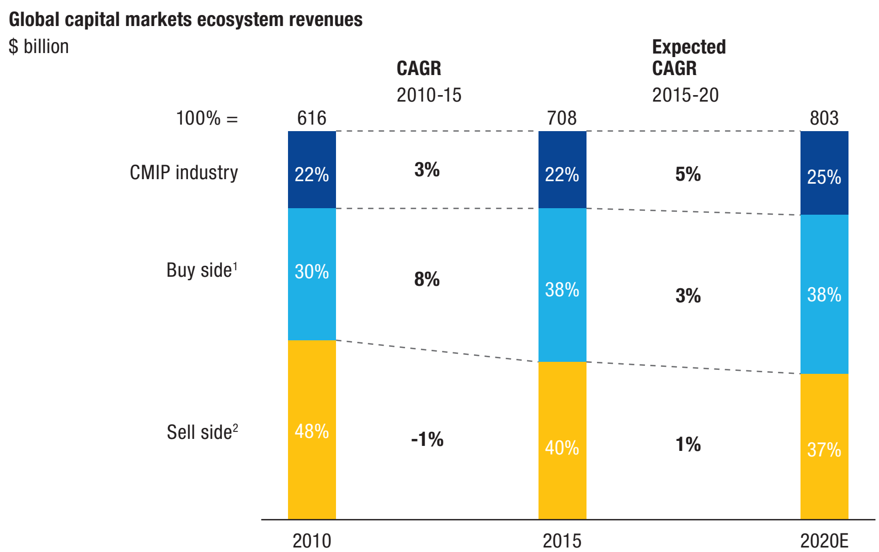
Since 1999, there has been significant consolidation among exchange groups



Note: Not all M&A deals shown.
[1] Eurex founded by Deutsche Börse and Swiss Stock Exchange in 1998.
[2] LSE acquired minority stake in LCH.Clearnet Group in Dec 2007.
Source: Press; company filings

Exhibit 9

Buy-side firms and CMIPs are growing in importance



[1] Revenues of major asset managers contributing 95% to global assets under management.
[2] Includes investment banking and institutional sales and trading revenues for banks and brokers.
Source: McKinsey Asset Management Global Growth Cube; McKinsey CMIB and CMIP Revenue Pools

remaining a niche player and aiming to enhance their competitive position in a particular area of expertise.

Buy side moving into the spotlight

The buy side accounted for 38 percent of global capital markets ecosystem revenues in 2015, compared with 30 percent in 2010. This growth can be seen as part of a wider trend in which firms including asset managers, pension funds and sovereign wealth funds have posted higher revenues and looked to access a broader range of liquidity providers and services. In response, CMIPs have continued to develop buy side relationships, offering direct access in execution and clearing, alongside a range of value-adding pre- and post-trade services (Exhibit 9). As direct access becomes standard, a greater variety of client interfaces and routes to market is likely to emerge.

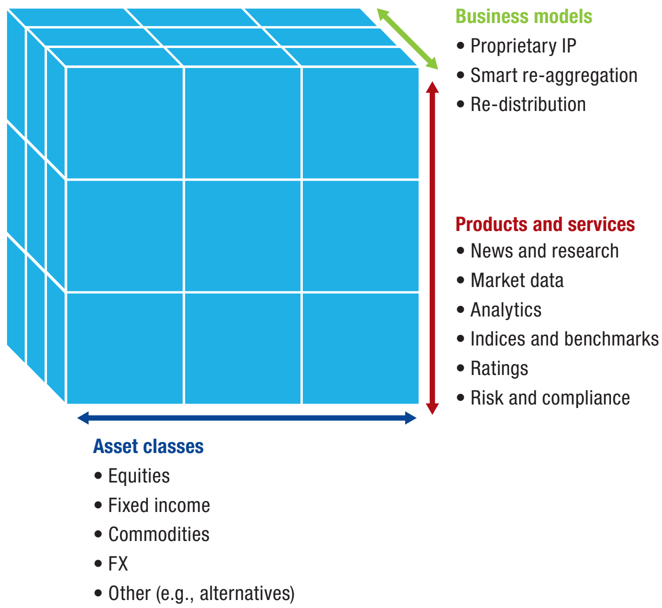
A key buy side trend has been a shift away from active management and towards passive investment. The share of passive investments in global fund assets under management rose to 18 percent in 2015 from 14 percent in 2007, as interest rates and investment industry returns remained low.[5] CMIPs are in pole position to leverage the rising popularity of exchange-traded funds, either through listings or data and index services for the buy side.

As the buy side has moved into the spotlight, the sell side appears to have stepped back. Sell side revenues were almost flat in the five years to 2015, resulting in an 8 percentage point decrease in their share of global capital markets ecosystem revenues to 40 percent. Still, few infrastructure providers wish to disintermediate banks, which continue to be their most important clients and the

[5] McKinsey Performance Lens Growth Cube

Exhibit 10

Data and analytics tools will create new revenue opportunities



Source: McKinsey & Company

biggest contributors to revenues. The preferred accommodation has been increased engagement with the buy side accompanied by tools and infrastructures that allow the sell side and buy side to continue their relationship.

Increasing demand for data and analytics

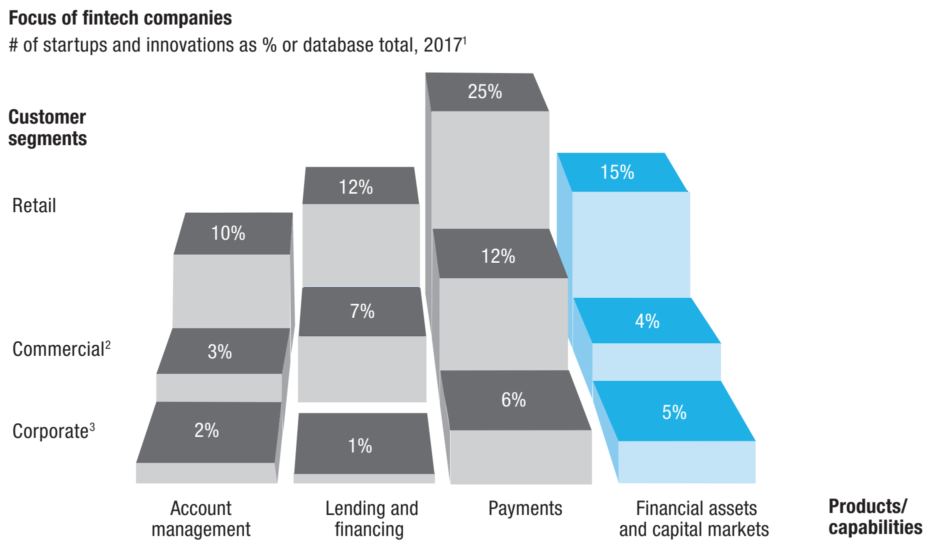
Data is increasingly a golden resource for CMIPs, and analytical tools that leverage data are set to create revenue opportunities across business models, asset classes, products and services (Exhibit 10). However, data is a heterogeneous asset; some traditional data sets and services have seen increased commoditization and others have become more valuable. Proprietary and smartly re-aggregated data are in the latter group and are increasingly likely to drive innovation.

The race to exploit data is in its infancy, but the competitive landscape is shaping up as firms use increasingly sophisticated tools to marshal internal and external resources (e.g., contributed data). Improved mining and aggregation techniques and a greater variety of analytics are improving utilization, and will likely lead to accelerated product development, more efficiency and sharpened competitiveness.

Exchange groups and others have leveraged proprietary data to offer solutions in information and analytics, often in real time, alongside a range of tools for risk and trade lifecycle management. A number of sell side firms have implemented big data-enabled transformation programs, and there are lessons in those experiences for CMIPs and the buy side. On the buy side itself, data mining, machine learning and artificial

Exhibit 11

24% of all fintech firms focus on financial assets and capital markets



[1] More than 650 commercially most well-known cases registered in the database; may not be representative.

[2] Includes small- and medium-size enterprises.

[3] Includes large corporates, public entities and non-banking financial institutions.

Source: McKinsey Panorama Fintech Database

intelligence are helping improve price discovery, trade cost analysis and liquidity management.

Regulations such as the European Markets Infrastructure Regulation and the U.S. Dodd-Frank Act require market participants to report data in standardized formats and have raised the bar on trade surveillance. And there are additional regulations coming into effect that will raise this bar even higher (e.g., MiFID II in Europe). Firms that develop enhanced capabilities to respond to these demands are likely to create value. Another potential growth area relates to financial and operational risk, with machine learning boosting capabilities in applications such as fraud detection.

Data and analytics are significant potential sources of added value, but management teams should understand the potential challenges, which include identifying winning solutions, attracting the right talent, realizing transformation programs and integrating capabilities. Firms that want to succeed here need to think big.

The rise of fintechs

As capital markets expand and banks retrench from some activities, an array of financial technology providers are offering innovative and low-cost solutions in pre-trade, execution and post-trade services. According to McKinsey Panorama Fintech, 24 percent of all fintech firms focus on financial assets and capital markets (Exhibit 11). Fintechs are adept at leveraging agile development methods to create efficiencies and boost returns, and are often open to work alongside CMIPs as part of “open platform” strategies.

Exhibit 12

Five broad investment themes in fintech in capital markets

Investment themes	Business model
Access to capital	Private placement, securitization and smart contracts Crowdfunding
Trade execution	Third-party e-platforms, e.g., for illiquid assets, FX, Bitcoin
Data & analytics	Data aggregators Insight providers/machine learning
Regtech	Fraud detection Compliance management Collateral and risk management
Post-trade	Post-trade (back-office) processing, e.g., cloud-based confirmation

Three fintech models are emerging:

Fundamental business model disruptors (e.g., peer-to-peer lending, application of blockchain)

Intermediaries that own the end-customer relationship (e.g., FX, payments processing)

Enablers of greater efficiency and effectiveness (e.g., workflow management, big data, analytics)

Source: Fintech Panorama by McKinsey & Company

Fintechs bring three basic approaches to innovation: disrupting the business model, becoming an intermediary and owning the relationship and enabling higher levels of efficiency. The most popular approach to date has been enablement rather than disruption; in the corporate and investment banking space enablement is the focus of 67 percent of fintech investment, according to McKinsey's Panorama Fintech database. Within that group, cloud/software-as-a-service providers have attracted just under a third of funding, while big data/analytics firms have attracted just over a quarter. Companies offering biometrics/cyber security, automation and distributed ledger technology have attracted relatively less investment interest (See “Exploring distributed ledgers” on page 18).

Overall investment in fintechs across industries has grown sharply, reaching $19.1 billion in 2015 compared with $2.4 billion in 2011.

McKinsey sees fintech initiatives accelerating in five key areas in capital markets infrastructure (Exhibit 12):

- **Access to capital:** New financing options through crowd-funding, private placements or new database technologies such as distributed ledgers.
- **Trade execution:** New platforms and liquidity pools enabling multilateral trading on a range of protocols. Illiquid assets are a key target area for new entrants, and regulation is one of the drivers, for example fuelling demand for collateral transformation.
- **Data and analytics:** Increased transparency, more accurate pricing, better modelling and improved understanding of customer needs.
- **Regulatory technologies (Regtech):** Know-your-customer, fraud detection and collateral and risk management

Exploring distributed ledgers

Experimentation with distributed ledger technology has proliferated of late, often through joint partnerships between fintechs and financial institutions or CMIPs. The technology, which comprises a cryptographically encoded ledger of transactions distributed across a public or private network, offers considerable potential value in post-trade. Specifically, elements of enhanced data security, integrity, permanence and transparency shared between counterparties could deliver benefits such as faster clearing and settlement, ledger consolidation, uncompromised audit trails and a reduction in system risk and operational costs.

In capital markets, some of the most promising use cases for distributed ledgers are in trading of over-the-counter derivatives, equities and the repurchase agreement (repo) market. In those applications, distributed ledgers can match assets, manage collateral and synchronize cash movements (i.e., more effective netting), especially if combined with central clearing and settlement. Benefits include both cost savings and reduced capital requirements and systemic risk, as well as potential revenue opportunities. However, these benefits could take three to five years to materialize, and it may be even longer before new revenues begin to flow.

Many challenges remain, including increased capital requirements arising from instant cash settlement, the need for tradeable assets to exist in digital form and different rules across multiple jurisdictions. Probably the biggest challenge is the "co-opetition paradox," requiring sustainable methods of collaboration between (competitive) counterparties. Ironically for a technology designed to eliminate the need for counterparty trust, participants must work together to establish new standards, protocols and governance.

McKinsey expects the early challenges will be overcome, and that networks of participants in distributed or shared ledger technology solutions will grow, most likely focusing on specific use cases rather than systemic disruption. Already in 2016, NASDAQ opened up its blockchain services to more than 100 of its financial infrastructure clients around the world. However, development of applications that function at scale across networks will require patience and a long-term strategic commitment. Recent successful proofs of concept by financial technology players suggest that the potential of distributed ledgers might be at least partially realized, but successful pioneers will need to be bold and invest for the long-term.

are attracting a new generation of fintech providers.

- **Post-trade:** From clearing and settlement, to trade lifecycle management and reporting, there is demand for faster, more connected and more tailored functionality. Shared technologies such as distributed ledgers may play an increased role in reducing disputes and reconciliation processes and in providing real-time connectivity with regulators.

Financial services firms leverage a range of organizational structures to engage with fintechs, from digital capability centers to business idea incubation and venture capital/private equity. Most firms typically focus on two or three approaches.

As the sell side withdraws from some capital-intensive activities and legacy systems become obsolete, CMIPs and fintechs are stepping in and sometimes collaborating to create efficiencies and improve customer services. At the cutting edge of the fintech ecosystem, robotics, machine learning and smart work flows offer the potential for improvements in individual tasks, particularly in the back office and for end-to-end processes.

Utilities as core service offerings

Market participants have been reluctant until recently to build utilities or industry solutions, amid concern over sharing of intellectual property and a lack of common ground on platform models. That mindset is changing as cost pressures highlight the benefits of sharing services that lack a unique value proposition or the ability to serve as a strategic differentiator. CMIP executives also recognize the potential of establishing significant entities that would sit the center of the industry. Nearly half of the participants at McKinsey's SIBOS Future of Securities Services roundtable in September 2016 said utilities would break through in that sector in the next five years.

Utilities deliver cost and efficiency benefits and can help catalyze technology upgrades, resulting in fewer fails and additional scale. Potential savings include a 21 percent drop in European cash settlement and payments expenses, a 26 percent reduction in reconciliations solutions and a 31 percent reduction in spend on reference data, based on McKinsey's Capital Markets Trade Processing Survey. Other service areas that stand to benefit include post-trade operations, credit control, compliance and infrastructure in areas such as document management and cloud applications. In the post-trade space there are applications across settlement, asset servicing and safe-keeping, including collateral management, corporate actions and custodian services.

A key driver of appetite for shared services is regulation, which has led to higher costs and increased transparency requirements for certain market segments. MiFID II, set to take effect in Europe by January 2018, will boost transparency and reporting through the trade lifecycle. Heavier capital requirements under Capital Requirements Directive IV may bring pressure on trading income streams. Partly because of the impact of regulation, return on equity in the capital markets and investment banking sector (top 10 banks) was a disappointing 7 percent in 2015, while the average cost-to-income ratio among that group was 76 percent.[6]

[6] *Capital Markets and Investment Banking 2016: Time for Tough Choices And Bold Actions*, McKinsey & Company, September 2016.

In technology infrastructure services, cost pressure has boosted the allure of scaled solutions that can create value in high-volume, low-margin environments, and will likely be conducive to vertically integrated business models and utilities. FIS's 2015 acquisition of SunGard is an example of the recent tendency of technology vendors to scale.

Appetite for shared services reflects a broader trend of players shifting to external, software-as-a-service models for technology, and away from the previous norm of heavily customized bespoke offerings. In one of many examples, Goldman Sachs, J.P. Morgan and Morgan Stanley are partnering with a software and managed services provider to provide data normalization and validation.

The cost efficiencies and risk mutualization offered by utilities are antidotes to the increased capital and operational costs arising from regulation, suggesting they are set to become a permanent feature of the landscape. Still, there is uncertainty around optimal operational and ownership structures, and how individual roles should be defined. And some local or regional market structures are so atomized that an industry solution seems unrealistic, at least in the near term. Certainly, significant financial resources, great execution and the ability to set industry standards are prerequisites for those aspiring to take a lead.

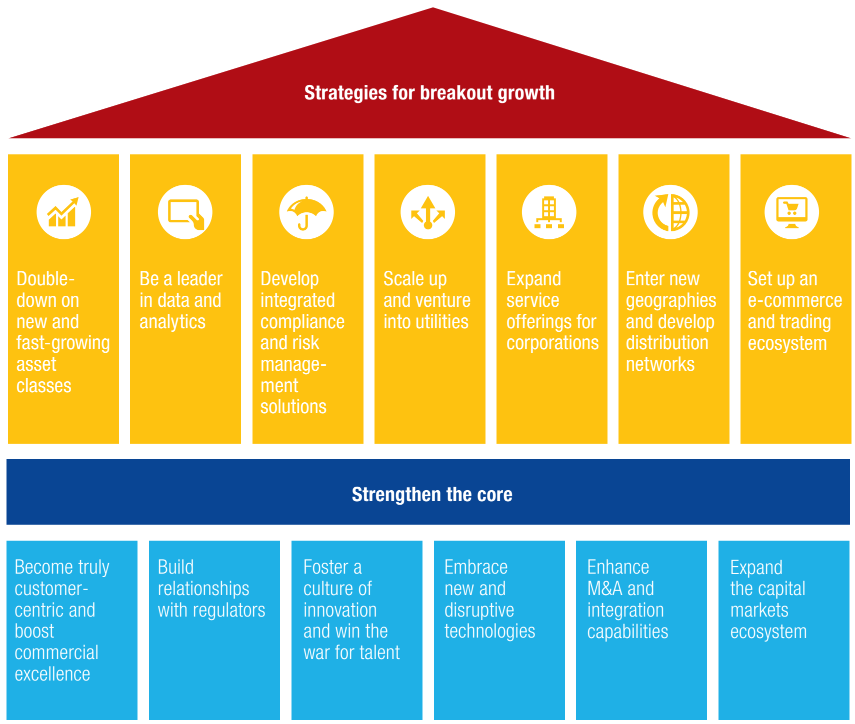
CMIPs Must Take Action Now

Following a period of positive earnings performance, CMIPs are in a position of financial strength that supports a strategic agenda for growth. However, an organic or geography-focused approach, or an undifferentiated bid for scale without capturing real synergies, is unlikely to be sufficient for most to realize their ambitions. Instead, companies must prepare for expansion across the value chain.

Given the important decisions ahead, executives must take a strategic approach to capturing new opportunities. The near future requires vision and strategy, rather than risk aversion and a focus on efficiencies.

Exhibit 13

CMIP growth moves



Source: McKinsey & Company

A key focus must be strengthening the core business, which includes embracing customer-centricity and disruptive technologies, and enhancing M&A capabilities. At the same time, growth strategies should reflect individual objectives and capabilities. For large providers that may mean scaling up and building a portfolio of high-margin fast-growing businesses. Smaller players may be better served by identifying winning niches.

There is no one-size-fits-all solution, and no CMIP should aim to succeed in too many areas. A successful strategy always requires clear prioritization and deliberate choices about what not to do.

McKinsey suggests the following eight actions for CMIP executives to consider (Exhibit 13):

Strengthen the core

Organic growth is unlikely to be sufficient for CMIPs. Instead, they must maximize a core skill set to lay the foundations for performance across multiple expansion paths. Strong margins mean most CMIPs are well placed, but those that act decisively are most likely to succeed in the bid for growth. The following elements are key:

- **Become truly customer-centric and boost commercial excellence.** Management teams should shift their focus away from pure efficient product delivery and toward understanding customer needs, customizing offerings, providing tailored portfolios and developing true solutions. Building the foundation for this shift starts with listening to customers and ensuring alignment with their priorities and timelines. Subsequent elements include segmentation, wallet sizing, target setting and prioritization, followed by improvement of sales-force effectiveness. Pricing strategy must be aligned with value provided, particularly given the emergence in recent years of cut-price alternatives. Additional practical elements may include incentives for customers to submit correct data, which may cut failure rates, and cross-selling. Organizations that complete a comprehensive sales and services transformation can expect to boost sales effectiveness by about 20 percent.

- **Build relationships with regulators.** Financial market regulations, such as the Dodd-Frank Act in the U.S. and Europe's MiFID II, entail significant cost, capital and reporting requirements for banks, creating an opportunity for CMIPs to launch services that help banks navigate the new regulatory landscape.

  Given the changing environment, CMIP firms should implement a managed compliance process and build relationships with regulators, in order to understand their long-term vision and strategy. Key elements include a dedicated engagement program, regulatory change screening and prioritization, value-at-stake analysis, and stakeholder outreach and communication.

  Business areas that are migrating from the sell side to CMIPs include direct market access solutions (in place of the broker relationships of the past), data management and liquidity provision. Another growth area is collateral management, which is becoming more important as market participants increasingly face stricter margin regulations on uncleared derivatives under MiFID and EMIR. Additional collateral is also required for central clearing, and with demand rising and some sell side firms withdrawing from securities financing, competition among technology firms, custodians and securities depositories is heating up.

  Still, while some regulatory-related initiatives are improving capital and cost efficiencies, work is required to optimize the overall effectiveness of these measures. Many are small in scale, and no provider has captured a significant chunk of any single revenue pool.

- **Foster a culture of innovation and win the war for talent.** The CMIP industry is increasingly susceptible to disruption. Providers can respond by focusing on innovation funding and functionality, organizational structure and governance, with the aim of hardwiring innovation into internal processes. Successful large financial services companies invest a substantial proportion of their operating income in innovation-related activities.

  A standard approach to building innovation into internal frameworks comprises five steps: mapping of industry trends and challenges, understanding of customer needs, analysis of the competitive landscape and rival innovations, identification of key innovation streams across the business model and strategic prioritization of innovation streams according to level of disruption and profit pool.

Attracting and retaining human capital is a significant challenge, particularly in areas such as big and smart data, analytics and machine learning, which face significant talent shortages. Companies require people who can create links between advanced applications and practical business problems. Larger organizations in particular should work to establish themselves as preferred destinations for younger technologists, inter alia by prioritizing efforts to reflect the values of that cohort.

A venture capital funding arm can be used to drive innovation externally, and should be backed by a dedicated organizational framework. It can also help screen the market and identify targets for partnership or acquisition.

Low-cost execution and processing, the rise of fintechs and increased customer appetite for new trading protocols and platforms have generated enough momentum to threaten current business models.

- **Embrace new and disruptive technologies.** Low-cost execution and processing, the rise of fintechs and increased customer appetite for new trading protocols and platforms have generated enough momentum to threaten current business models. To keep pace, CMIPs must ensure their technology platforms are geared for high-speed execution, liquidity and standout efficiency.

According to McKinsey estimates, some 45 percent of global finance is capable of being automated by existing technologies, with a further 13 percent susceptible to new technologies. However, many current automation efforts are focused on client-facing activities, leaving more than 50 percent of back-office full-time equivalent activity largely untouched.

Back-office savings of up to 30 percent can be achieved through automation of tasks and processes. Automation can be divided into four broad categories: robotic processes, deep insights and machine learning, smart work-flows and cognitive agents.

Robotics are helpful in tasks with repetitive and predictable steps, such as data entry and analysis, while deep insights and machine learning enable complex pattern recognition, which can be useful in fraud detection. Smart work-flow automation is useful where there are multiple hand-offs between people, robots and other systems, for example in reconciliation or settlement. Finally, cognitive agents can help scale simple but time-consuming tasks, such as the operation of a help desk.

Technologies generate upticks in productivity, but they also bring improved accuracy, scalability, round-the-clock operation and traceability.

Distributed ledgers and cloud solutions have also attracted significant attention, the latter reflecting the trend away from large and expensive databases and processing capabilities and toward more collaborative and agile ways of working together.

A key principle in preparing for technological change is identifying the right organizational framework to implement roadmaps efficiently, and success requires a dedicated culture of flexibility and responsiveness.

- **Enhance M&A and integration capabilities.** Mergers and acquisitions, especially in adjacent businesses, have been a primary CMIP growth driver over the past five years, and the trend shows little sign of slowing. However, in the rush to accumulate assets, firms must mitigate the risk of missteps. Tools including a programmatic agenda and roadmap can help.

  A programmatic M&A strategy is defined as a unified series of multiple, related transactions, designed to systematically build a business. It is a proactive approach to deal flow, the path of which should not deviate based on the success or failure of any single deal. Other key elements include a strong vision, continuous and systematic target screening and a dedicated integration team.

  Another element of a successful strategy is a pipeline of potential acquisitions around explicit themes, which are effectively business plans that use M&A and organic investment to reflect a firm's priorities—as opposed to an undifferentiated M&A agenda that is decoupled from strategy. Priority themes are those where M&A is required to deliver strategy and where the company can add value. In all cases the themes should have measurable potential impacts.

  Key principles of conducting successful M&A transactions in capital markets include:

  - Deals should be predicated on a clear value proposition in terms of revenue and customer growth and offer sufficient scale.
  - Regulatory approval is critical, and it is important to be realistic about how likely clearance will be and to work closely with regulators throughout the process. Experience indicates that clearance is more likely in less regulated areas than in heavily regulated traditional core businesses, such as trading and clearing.
  - Integration can be challenging, particularly in trade-related functions, where failure is expensive. Fragmented platforms erode efficiencies and increase the likelihood of breaks and fails.

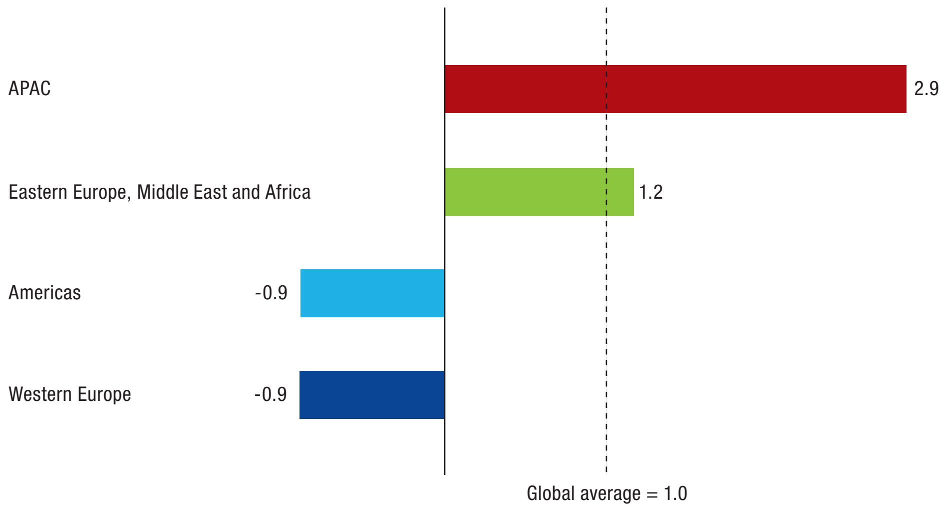
- **Expand the capital markets ecosystem.** CMIP operators should work individually and collectively to promote primary and secondary markets to issuers, banks and investors, and partner with policymakers to develop and strengthen regulatory frameworks. In emerging markets, development initiatives may, in line with World Bank principles, aim to promote the ability of capital markets to fund governments and companies at scale, as well as increase liquidity and support pricing transparency. Initiatives should be backed by reliable government bond programs, and follow internationally recognized tax, regulatory and accounting standards and professional qualifications for financial market employees.

  Exchange groups are in a good pos-

Exhibit 14

CAGR of number of exchange listed companies

CAGR[1] of number of companies listed 2007-2016
Percent



[1] CAGR of companies listed between January 2007 and January 2016.
Source: World Federation of Exchanges; McKinsey & Company

ition to drive development and encourage financial literacy. In one example, the Indonesian Stock Exchange (IDX) introduced several programs to boost retail investment, including educational initiatives, information centers and IDX galleries at universities. Asia-Pacific has been at the center of capital markets expansion, evidenced by a recent surge in exchange listings (Exhibit 14).

Double down on new and fast-growing asset classes

Exchanges and other trading facilities may achieve revenue growth by boldly venturing into new and fast-growing asset classes. Reaching scale quickly will likely entail inorganic moves. The choice of product should reflect a company's portfolio and geography or regulatory and market-driven shifts in demand. Fast-growing asset classes that vary by geography should be a focus (Exhibit 15). The APAC region in particular, is expected to show strong growth in index, commodities and FX products.

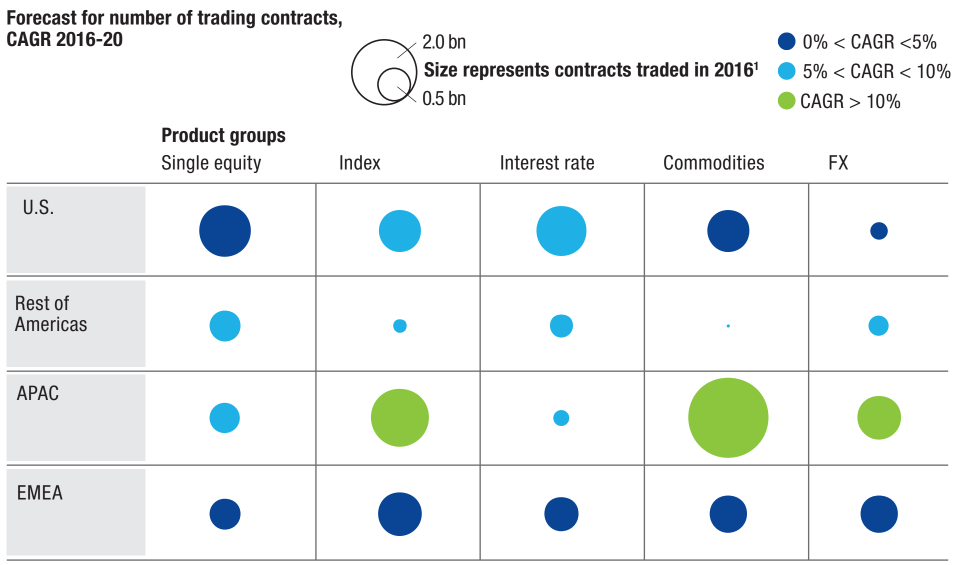
New product listings can also contribute to revenue growth. There is a conspicuous upside in pursuing synergies with existing contracts. In listed derivatives, for example, a new future is more likely to be successful if it references a liquid underlying, and that logic is reflected in the majority of recent offerings (Exhibit 16, page 28). Asia was the fastest-growing region for futures and options trading in 2015. Total volume on Asia-Pacific exchanges jumped 34 percent to 9.7 billion contracts in 2015, the highest level for that region since 2011.[7]

There are also opportunities for exchange groups and other trading venues arising out of the "futurization" trend, and several have launched new futures con-

[7] Futures Industry Association

Exhibit 15

APAC expected to grow strongly across asset classes



[1] 9 months annualized data for Index, Interest rate, Commodities and FX.
Source: WFE, FIA, McKinsey Global Banking Pools

tracts based on over-the-counter instruments such as interest rate swaps. The jury is out on whether those contracts will be able to take significant market share from the bilateral market.

ETFs and related indices may be another area of focus, amid explosive growth in the sector (particularly in developed markets) that saw the number of listed products rise to around 4,500 globally at the end of 2016, representing assets under management of around $2.8 trillion, compared with $400 billion 10 years earlier.

In scoping demand for new products, operators may also consider more exotic alternatives, including syndicated lending, originate-to-distribute deals, real estate and insurance-linked securities trading.

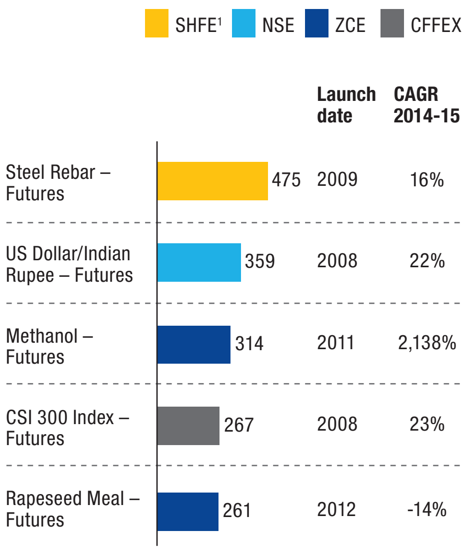
While there is risk in product launches, there is a higher chance of success if the contracts complement existing offerings, for example creating new tenors or payoffs, or offering collateral netting opportunities. New products should also be targeted at specific client needs, and accessibility and technical product support should be a primary consideration. Partnership may be a key enabler in the process.

Corporate bond trading has been an area of intense focus, with about 130 new bond platforms competing with market leaders Bloomberg, Marketaxess and Tradeweb. The launch of these new platforms is due to a decline in primary dealer inventories of corporate bonds, as the sell side reduces risk-weighted assets. Overall, outstanding corporate bond volumes have increased, e.g. in

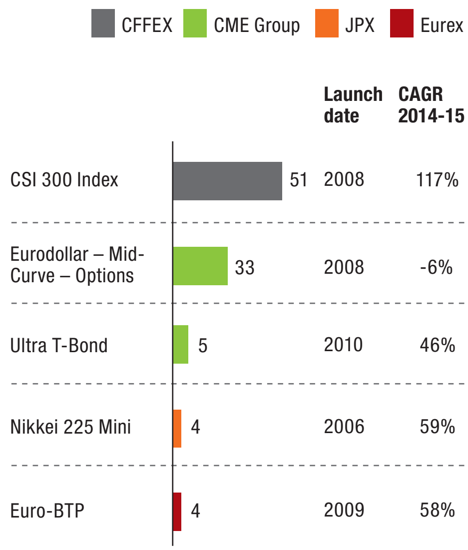
Exhibit 16

Top 5 futures and options launches, according to number of contracts traded and notional values

Top 5 products by number of contracts traded, 2015
Millions of contracts



Top 5 products by notional values, 2015
$ trillion



Note: Includes products launched since 2005. Single stock futures and options not included in analysis.

[1] CFFEX (China Financial Futures Exchange); JPX (Japan Exchange Group); NSE (National Stock Exchange of India); SHFE (Shanghai Futures Exchange); ZCE (Zhengzhou Commodity Exchange).

Source: Bloomberg; FIA Annual Futures and Options Volume Survey; public exchange information

the U.S., from $3.8 trillion in 2001 to $8.1 trillion in 2015.

Electronification is expected to increase 40 percent in the government bond space and 75 percent in corporate bonds between 2015 and 2020, with the biggest opportunity in U.S. and European corporate debt. Meanwhile, four out of five corporate bond investors feel reduced liquidity is hindering their ability to implement their investment strategy, and half of U.S. investors in a recent survey said they plan to add an execution platform in the current year.[8]

There are contrasting lessons. On one hand, the volume of new platforms is a positive example of the industry's dynamism and ability to respond to evolving opportunities. On the other, it is a warning that those that aim to succeed must offer a standout proposition.

Be a leader in data and analytics

Value-added information services offer the potential to boost revenues and generate higher margins, particularly for companies with unique data resources and strong analytical capabilities. Still, amid rising competition there is an imperative to act decisively.

Success in data and analytics is predicated on high-quality scalable offerings that embrace the following elements:

- **Enhanced data sourcing:** New data sources (e.g., contributed data, social sentiment data), real-time trading data

[8] Corporate Bond Liquidity Solutions Emerging, Greenwich Associates, January 2017.

and improved data mining can bolster service offerings and cut costs.

- **Sophisticated analytics and insights:** Fresh sources of insight through analytics, modeling and "smart" re-aggregation, leveraging machine learning, big data and pattern recognition.
- **Data delivery and workflow management**: CMIPs can develop data marketplaces, data visualization and presentation tools, and tailored data access.

Decision-makers must base their strategic approach to exploiting data and analytics on an understanding of how the capabilities will drive value and how the new products and services can actually be monetized. The approach should be explicitly tied to the company's existing and new businesses and key capabilities.

Given the creeping commoditization of some of the traditional basic data sets and products, internal intellectual property and high-value external data are most promising. Data can be monetized directly or repurposed through "smart" re-aggregation—that is, aggregation combined with insight. CMIPs can also seek to widen distribution, create sector-specific offerings or develop industry benchmarks.

Data aggregation products in the form of indices have proved to be reliable and profitable revenue generators, and with rising demand for passive investments their role is likely to be undiminished in the years ahead. Exchanges have made determined moves into the space, with deals including London Stock Exchange Group's acquisition of FTSE in 2011, and their landmark purchase of index provider Russell Investments in 2014.

Data and analytics technology has the potential to boost revenue and margin performance, but CMIPs face a challenge in securing the right talent to manage and implement programs. Employees must combine sufficient business insight with strong data, analytics and modelling capabilities. Where competitive advantage is paramount, investment in internal teams, innovation labs or start-ups may be an optimal strategy.

To encourage innovation and streamline implementation, chief data officers (CDOs) should be appointed and charged with driving initiatives. CDOs should be backed by dedicated cross-functional teams and central project management capabilities. A key early focus is likely to be governance frameworks that support innovation and the ability to implement change at scale. In some cases, a dedicated group-wide data strategy may be appropriate, whereby the company collects its data into a single pool, which becomes the resource for analytics, insight generation and product development.

Where partnerships with fintechs are considered, a typical process would start with strategic prioritization of target business areas, then move to partner selection, pilots and roll out. Fintech partnerships must be rigorously aligned with the mission of the wider business to avoid the loss of strategic focus. In one example of the accelerating collaboration trend in the space, Euronext in November 2016 agreed to launch a bond-trading platform joint venture with fixed income solutions provider Algomi.

Where partnership is not considered appropriate, firms can consider a venture capital approach, comprising screening and investment in a portfolio of ideas based on deep research and diagnostics. However, alignment with the group's strategic priorities is key.

Develop integrated compliance and risk management solutions

As the regulatory program continues to roll out, providers can offer standardized, scalable and software-enabled compliance and risk management solutions to help market participants meet their obligations. Focus areas can include know-your-customer/onboarding, regulatory reporting, trade surveillance, collateral management and tax solutions.

Large banks are already spending more than €150 million a year on risk data and technology, and many sell-side firms are accelerating preparations for regulation that will continue to come into force for themselves and clients over the coming period. One piece of legislation in focus is the Fundamental Review of the Trading Book (FRTB). The FRTB is set to take effect for banks through requirement of reporting under the new standards by January 2020. While this new regulation is expected to imply a substantial increase in risk-weighted assets, the use of internal models is likely to lead to an increase of about 47 percent, while the standardized approach may increase risk-weighted assets by 84 percent. The implementation process creates opportunities for CMIPs to offer services that help banks mitigate the effects of the legislation.

Another growth area is trade surveillance, with requirements under MiFID II and other regulations requiring market participants to keep track of real-time trader activity across channels (voice, email, physical movement) by 2018. They will also need to correlate trader behaviour with external factors such as market movements or related community communications.

Other solutions that reflect the new regulatory landscape include reporting services (offered by several exchange groups in partnership with trade repositories) and real-time pre- and post-trade risk management solutions; for example the New York Stock Exchange's Risk Management Gateway.

Scale up and venture into utilities

Cost pressure and regulation have boosted the attractiveness of utilities for non-differentiating elements of the value chain. According to McKinsey's Capital Markets Trade Processing Survey, single utilities may reduce cost-per-trade by as much as 70 percent, suggesting there is an opportunity for platforms that offer scale advantages, reduced cost volatility and lower operational risk.

Potential areas for scaled up and shared solutions include post-trade operations (clearing, tax, custody, collateral management, transfer and reconciliation), credit (processing and trading), data and infrastructure solutions such as cyber security and cloud services (Exhibit 17).

Exchange groups, clearing houses and information service providers may consider building and operating utilities/industry solutions to position themselves

Exhibit 17

A number of services have the potential to be offered as utilities

Post-trade operations	Cash and liquidity management
	Transmission and validation
	Corporate actions
	Tax services and reporting
	Custodian services
	Collateral management
	Transfer of legal ownership
	Management of payments
Credit services	Credit processing
	Sec. loan portfolio trading platform
Data hub	Reference data
	Market data
	Data administration
Compliance and regulation	KYC/onboarding services
	Fraud monitoring
	Trade surveillance
	Reference document hub
	Vendor risk management services
	Reporting engine
	Regulatory intelligence services
Other infrastructure services	Physical document management
	Security operations center/cybersecurity
	Cloud services
	Messaging

Note: Services listed are examples.
Source: McKinsey & Company

at the center of a particular value proposition. In doing so, it may be initially preferable to focus on core areas of competence and adopt an open source approach, which will help create network effects as fintechs and others add services. Other success factors include a clear offering of immediate benefits to clients, platform neutrality and a broad potential customer base.

A related initiative would be services pooling in activities such as trade surveillance, where players may share talent, analytical capabilities and regulatory expertise, creating headcount efficiencies and reducing licensing costs.

It is worth remembering that the strategic challenges in launching a utility are significant, and there may be significant legacy challenges and barriers to maximizing value from the businesses' customer network. New pricing models will also be required, reflecting the move into managed services. In addition, large-scale outsourcing to CMIPs is relatively untested, suggesting there may be hard-to-quantify control and management risks.

Expand service offerings for corporations

Corporate services are a potential source of differentiation, particularly for companies with a strong primary markets business. Offerings may be marketed across customer segments, but are likely to be especially useful for small and medium-sized enterprises that do not have internal capabilities. In the area of treasury services, CMIPs can also offer a value proposition for large enterprises and multinational corporations. Three broad categories of solution merit consideration:

- **Investor relations and pre-IPO advisory:** Three broad business lines include data and reporting (e.g., detailing shareholder structure), analytics and targeting (algorithmically driven) and advisory and consulting. Ahead of IPOs, a business-support program can help companies position for growth, increase visibility and boost branding with potential investors. In one example, London Stock Exchange's ELITE program prepares companies for raising equity finance. Other Europe-based players, including Euronext, NASDAQ, OMX and Deutsche Börse, have been active in this area.
- **Communication solutions**: Services may include press releases, web-based disclosure, digital media distribution, media reporting and score coverage to track market sentiment. NASDAQ, in one example, offers a full suite of multimedia offerings.
- **Management services:** CMIPs can help boards and support governance with media analysis, risk management and compliance, internal reporting, collaboration tools, and document management solutions. These offerings can strengthen the ties between CMIPs and their corporate client base and support the positioning of CMIPs as part of the corporate financing universe.

Bringing corporate solutions and treasury services businesses to market requires collaboration with clients and service providers to amalgamate analytics, news, data and portal elements. Those requirements play to the strengths of many CMIPs, which already have robust client franchises and significant data resources.

Enter new geographies and develop distribution networks

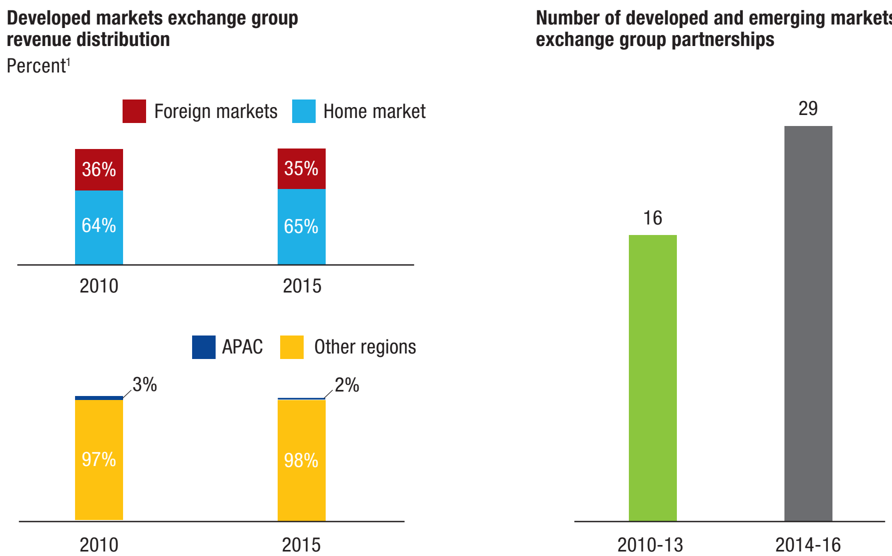
Developed markets exchange groups have struggled in their attempts to build revenues outside their home markets, which have remained stuck at around one third of the total over the past five years, the vast majority of which is U.S. exchange activity in Europe. Asia-Pacific accounted for just two percent of developed market exchange revenues in 2015, which is actually a decline from 2010, despite a number of high-caliber efforts.

The numbers highlight how difficult it is for developed markets exchange groups to structurally increase exposure to high-growth geographies and earn significant revenues in emerging markets. Still, there is an opportunity to leverage the growing role of capital markets in financing companies and governments globally.

For players lacking a substantial footprint, an effective method of entering or scaling up is through a joint venture, which reduces operational and other

Exhibit 18

Developed market exchange groups' exposure to emerging markets has been limited, but partnerships are on the rise



[1] Arithmetic average of DBG, ICE, LSE, NASDAQ; home market defined as US for ICE and NASDAQ and Eurozone for DBG and LSE.
[2] Includes partnerships of CME, Deutsche Börse, Euronext, HKEX, ICE, JPX, LSE, NASDAQ, SIX, TMX.
Source: Company filings; McKinsey & Company

risks and brings benefits including access to established liquidity pools and customer networks. Between 2014 and 2016, developed markets exchange groups ramped up partnerships in emerging markets (Exhibit 18). The alternative route—starting from scratch—tends not to be cost effective and increases the regulatory challenge. In addition, many governments regard capital markets as critical domestic infrastructures that are unsuitable for foreign majority involvement, reinforcing the case for partnerships rather than acquisitions.

Local firms may also leverage joint ventures, which can help them access talent and know-how and build strategic relationships. Shanghai Stock Exchange, China Financial Futures Exchange and Deutsche Börse entered into a joint venture and set up the China Europe International Exchange (CEINEX) to market and trade financial instruments based on renminbi-denominated underlyings. Another example was the establishment in 2014 of Shanghai-Hong Kong Stock Connect, which connected Shanghai Stock Exchange with Hong Kong Stock Exchange, enabling investors in each market to trade on the other using local brokers and clearing houses. Trading northbound and southbound increased substantially after the inception of the program, and Hong Kong Stock Exchange has seen more listings and an increase in trading volumes. The tie-up was followed in 2016 by Shenzhen-Hong Kong Stock Connect, formed by subsidiaries of Hong Kong Stock Exchange, Shenzhen Stock Exchange and China Clear.

International distribution and partnerships are potential drivers of (some) growth. Companies should work to launch platforms that bring together unconnected investors and businesses, while partnerships are an effective way to increase exposure and reach new audiences, as was the case when Korea Exchange and Eurex Exchange entered into an agreement in 2010 to offer round-the-clock trading of KOSPI 200 Options (the world's most liquid index option).

Elsewhere, Mecado Integrado Latinamericano (MILA) has since 2011 provided integrated access to stock exchanges in Chile, Colombia, Mexico and Peru, which together had a market capitalization of around $700 billion in November 2016. Alongside broader market access, the service offers tax and consolidated listing benefits to increase interconnectedness.

CMIPs must carefully weigh the benefits of partnerships against the required investment. If the tie-up is limited to order-routing and cross-trading, or perhaps a form of cross-membership, it is not likely to lead to a step change in volumes or revenues. Other challenges include diverse tax regimes, unmatched clearing and settlement processes and differing attitudes to capital flows and investment. In any case, regional diversification into developing markets should in most cases not be the focus of strategy, given the difficulty of achieving a significant increase in revenues and true bottom-line impact.

Set up an e-commerce and trading ecosystem

As the traditional relationship between market participants evolves it may make sense for providers to ramp up offerings of new trading platforms and trade lifecycle ecosystems. Optimally, the platforms should serve multiple markets and be supported by strong back-end and data and analytics functionality.

In formulating a platform strategy, market participants should prioritize the creation of a clear value proposition for target end users. For example, a new trading venue aimed at retail customers might be supported with education tools, while corporate users may require speed, efficiency and comprehensive access.

Execution of platform initiatives requires skilled orchestration of core competencies, and a willingness to embrace alternative sources of expertise, which may for example reside with fintechs. Platform architectures should be open, and support upgrades, new modules and multiple geographies and asset classes, ensuring they remain flexible enough to respond to new regulatory frameworks and the continued expansion of capital markets.

In many cases, platforms can support a community of developers who would provide their own services as part of the package. As enablers and aggregators of services and users, CMIPs can position themselves at the center of a particular asset class or service line and own a particular digital ecosystem.

■ ■ ■

Capital markets infrastructure providers have taken advantage of changes in market structure to expand, increase revenues and innovate, and the industry's performance in recent years puts it in a strong position to continue its success. However, the landscape is changing quickly, due to regulation, the rise of fintechs, the increasing importance of the buy side, and the still emerging potential of data and analytics. Individual CMIPs must make haste to align with these dynamics.

CMIP executives should take the initiative and position their firms to capitalize on these trends. This will include both strengthening their core business and identifying the best opportunities for growth. Some leading CMIPs have already defined break-out growth strategies and started to fundamentally transform and reinvent their companies. Others will follow quickly.

Given the variety of routes to expansion, growth plans should be guided by a robust strategic agenda, strong decision-making and efficient execution. The wrong approach or lack of focus could lead to marginalization and a loss of competitiveness, while the riskiest response is to do nothing.

In a time of reinvention, advantage will shift to firms with strong strategic leadership and the commitment to pursue their goals, who are likely to reap significant rewards.

Contact

For more information about this report, please contact:

Matthias Voelkel
Partner, Frankfurt
matthias_voelkel@mckinsey.com

Markus Röhrig
Partner, Munich
markus_roehrig@mckinsey.com

Rushabh Kapashi
Partner, New York
rushabh_kapashi@mckinsey.com

Jonathan Klein
Partner, New York
jonathan_klein@mckinsey.com

Andreas Waschto
Associate Partner, Hamburg
andreas_waschto@mckinsey.com

Emre Akgül
Consultant, Istanbul
emre_akgul@mckinsey.com

The authors would like to acknowledge the contributions of the following colleagues to this report: Kevin Buehler, Daniele Chiarella, Matthieu Lemerle, Akash Lal, Roger Rudisuli, Philipp Härle, Jared Moon, Matt Higginson, Jeff Penney and Vahan Vardanian. Thanks also to Allison Kellogg, David Wigan and Paul Feldman for editorial support.