



Financial Services Coverage

Capital Markets Sector Update

2019 YEAR IN REVIEW

APRIL 2020



HOULIHAN LOKEY

Leading Independent, Global Advisory Firm

Houlihan Lokey is the trusted advisor to more top decision-makers than any other independent global investment bank



1,300+
Employees

23
Offices

~45%
Employee-Owned

~\$3 billion
Market Cap

~\$1 billion
Annual Revenue

No
Debt

Corporate Finance

2019 M&A Advisory Rankings All U.S. Transactions

	Advisor	Deals
1	Houlihan Lokey	184
2	Goldman Sachs & Co	167
3	JP Morgan	141
4	Morgan Stanley	122
5	Evercore Partners	112

Source: Refinitiv (formerly known as Thomson Reuters)

No. 1 U.S. M&A Advisor

Top 10 Global M&A Advisor

Leading Capital Markets Advisor

Financial Restructuring

2019 Global Distressed Debt & Bankruptcy Restructuring Rankings

	Advisor	Deals
1	Houlihan Lokey	76
2	PJT Partners Inc	43
3	Moelis & Co	36
4	Lazard	29
5	AlixPartners	19

Source: Refinitiv (formerly known as Thomson Reuters)

No. 1 Global Restructuring Advisor

1,000+ Transactions Completed Valued
at More Than \$2.5 Trillion Collectively

Financial and Valuation Advisory

2000 to 2019 Global M&A Fairness Advisory Rankings

	Advisor	Deals
1	Houlihan Lokey	1,057
2	JP Morgan	929
3	Duff & Phelps	734
4	Morgan Stanley	621
5	Bank of America Merrill Lynch	612

Refinitiv (formerly known as Thomson Reuters). Announced
or completed transactions.

No. 1 Global M&A Fairness Opinion
Advisor Over the Past 20 Years

1,000+ Annual Valuation Engagements

North America

Atlanta Miami
Chicago Minneapolis
Dallas New York
Houston San Francisco
Los Angeles Washington, D.C.

Europe and Middle East

Amsterdam Madrid
Dubai Milan
Frankfurt Paris
London

Asia-Pacific

Beijing Sydney
Hong Kong Tokyo
Singapore

A Leading Advisor to the Capital Markets Sector

Houlihan Lokey is the **undisputed industry leader in broker-dealer and capital markets technology advisory** with deep domain knowledge and entrenched relationships with marquee clients

No. 1 Advisor to the capital markets sector cumulatively over the last 1-, 3-, 5-, 7-, and 10-year period...

...with extremely strong current momentum and an extensive track record advising on industry-transforming deals that spans more than two decades...

2010-2019 M&A Advisor Rankings All Capital Markets⁽¹⁾ M&A Globally

Rank	Advisor	Deals
1	Houlihan Lokey, Inc.	38
2	Bank of America Securities	30
3	J.P. Morgan Securities LLC	28
4	Piper Sandler & Co.	27
4	Berkshire Global Advisors LP	27
6	Barclays Capital Inc.	25
7	Morgan Stanley	24
7	Goldman Sachs & Co. LLC	24
9	Credit Suisse (USA) Inc.	23
10	Raymond James & Associates, Inc.	22

Source: SNL Financial

(1) Includes transactions classified by SNL as "Investment Banks, Brokers and Capital Markets", "Financial Exchanges" or "Investment and Capital Markets Technology"

Select Transaction Experience

 has been acquired by PEAK6 the parent company of APEX Clearing Sellside Advisor*	 and its wholly-owned subsidiary MERCURY Funds have been acquired by INVESTCORP Sellside Advisor*	 has acquired FIG Partners Buyside Advisor*	 has been acquired by UnionBank a subsidiary of MUFG Sellside Advisor*	 has sold a 20% non-voting ownership interest to TRUST BANK Sellside Advisor*	 a portfolio company of GTCR and minority-owned by INY MILLON has been acquired by COWEN Sellside Advisor*	 has received strategic investment from Continental Sellside Advisor*
 has been acquired by Broadridge Sellside Advisor	 has been acquired by bgc Sellside Advisor	 has been acquired by THE CARLYLE GROUP GLOBAL ALTERNATIVE ASSET MANAGEMENT Sellside Advisor*	 has been acquired by BROADWAY TECHNOLOGY Sellside Advisor	 has been acquired by KeyCorp Sellside Advisor*	 has been acquired by INSTINET a subsidiary of NOMURA Sellside Advisor*	 has been acquired by ICC IntercontinentalExchange, Inc. Sellside Advisor
 a portfolio company of Five Arrows has been acquired by BOWMARK CAPITAL Sellside Advisor	 has acquired the Calgary-based unit of ITG now operating under the new name RS Energy Group Buyside Advisor*	 a portfolio company of FTV CREDIT SUISSE NEXT Investors has been acquired by JANUS CAPITAL GROUP Sellside Advisor*	 has been recapitalized and received a growth equity investment from BEAR STEARNS CREDIT SUISSE SIG Financial Advisor*	 has been acquired by J.P.Morgan Sellside Advisor*	 has acquired LAVA a portfolio company of TA Associates Buyside Advisor*	 has been acquired by JEFFERIES Sellside Advisor*

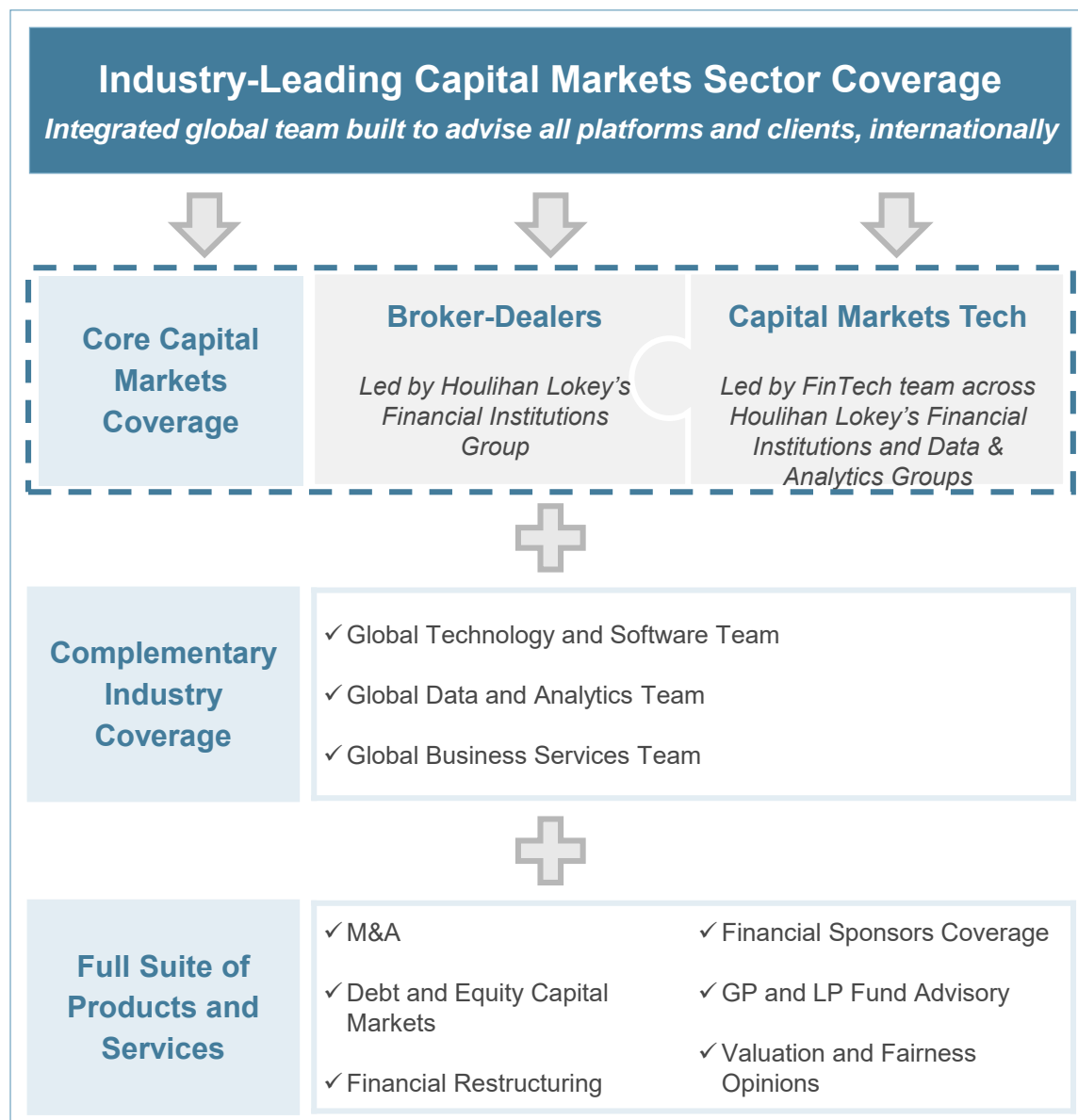
Refer to Pages 8–9 for Houlihan Lokey's additional transaction experience in the capital markets sector

Tombstones included herein represent transactions closed from 2012 forward.

* Selected transactions were executed by Houlihan Lokey professionals while at other firms acquired by Houlihan Lokey or by professionals from a Houlihan Lokey joint venture company.

Capital Markets Sector Coverage Overview

- Houlihan Lokey is the undisputed market leader in capital markets sector advisory to both the traditional and technological segments of the market
- 75+ dedicated FIG and fintech bankers representing one of the industry's largest and most active coverage groups
- 150+ broker-dealer and fintech transactions across both M&A and capital raising completed since 2010 ⁽¹⁾
- Diversified and highly complementary industry expertise with a unified and collaborative approach
- Specialized market knowledge and well-versed in nuances across various subsectors and business models
- In December 2019, Houlihan Lokey announced the acquisition of Freeman & Co. to significantly enhance its financial services industry coverage
- Combined platform provides for a dedicated coverage team in every vertical of the financial services industry
- Follows the 2018 acquisition of Quayle Munro and its European financial institutions team, further scaling the value proposition and depth of talent we offer to our clients globally



(1) Includes transactions executed by firms acquired by Houlihan Lokey, a Houlihan Lokey joint venture company, or by Houlihan Lokey professionals while at other firms

Financial Services Expertise and Capabilities

Dedicated Financial Institutions Group

- Based out of New York and London with additional offices in Los Angeles and Miami
- Long-term, relationship-driven approach toward clients; senior participation on all engagements
- 65+ dedicated FIG professionals

Extensive Industry and Transaction Experience

- Asset Management
- Broker-Dealers
- Commercial Finance
- Consumer Finance
- Depositories
- Financial Technology
- Insurance
- Mortgage and Real Estate
- Specialty Finance

M&A

- Among the most active M&A advisor to the broker-dealer, insurance, mortgage, and specialty finance industries
- Extensive experience in the asset management, commercial finance, consumer finance, and depository industries
- No. 1 M&A advisor across all industries for deals under \$1.0 billion for the last eight years
- Broadest financial sponsors coverage platform, with active coverage of more than 900 private equity firms and 250 hedge funds

Capital Markets

- Experienced and sophisticated capital markets team provides independent advice
- Provides access to senior debt, private mezzanine capital, high yield, public and private equity, hedge funds, and other institutional investors by leveraging broad relationships

Secondary Markets

- Dedicated team serving illiquid secondary markets for portfolios of financial assets
- Experience with a variety of clients, assets, and capital sources resulting in a comprehensive transaction platform
- Loan portfolio analysis and valuation for banks, as well as sales of loan portfolios, MSRs
- Close working relationships with regulatory agencies and regulatory counsel via loan valuation and asset sale assignments

Restructuring

- Leading restructuring advisor with a dominant position for the last decade
- Advised on the largest FIG restructurings (Lehman Brothers, CIT Group, ResCap, Thornburg Mortgage, Refco, and Taylor Bean)

Valuation

- No. 1 Global M&A Fairness Opinion Advisor Over the Past 20 Years
- Extensive experience with bank asset valuations and special situation advisory for distressed bank transactions
- Structured products team specializes in valuing complex structured investments
- Cutting-edge proprietary modeling and information-gathering technologies combined with access to real-time trading activity across the full spectrum of credit asset classes

Experienced Capital Markets Sector Coverage Team

Significant senior coverage expertise with relationships spanning the capital markets sector



Reinhard Koester

Group Co-Head
New York



Gagan Sawhney

Managing Director
New York



Chris Pedone

Director
New York



Matt Capozzi

Vice President
New York



Jeff Levine

Group Co-Head
Miami



Mark Fisher

Managing Director
London



Tim Shortland

Managing Director
London



David Sola

Managing Director
London

Global FIG and Fintech Coverage Team

One of the industry's deepest senior teams



North American Coverage Officers



Jeff Bollerman
Managing Director



Pat Collins*
Managing Director



Mike McMahon
Managing Director



Craig Muir
Managing Director



Jimmy Page
Managing Director



Arik Rashkes
Managing Director



Craig Tessimond
Managing Director



Eric Weber
Managing Director



Brent Ferrin
Director



Rob Freiman
Director



Kegan Greene
Director



Juan Guzman
Director



Sam Kramer
Senior VP



Rob Losquadro
Senior VP



Rich Saltzman
Senior VP



Faiz Vahidy
Senior VP



Matt Cornish
Vice President



Chuck Hibbs
Vice President



Justin Resnick
Vice President



Aaron Solomon
Vice President



Jim Freeman
Senior Advisor



European Coverage Officers



Johnny Colville*
Managing Director



Christian Kent
Managing Director



Lawrence Guthrie
Managing Director



Zam Khan
Managing Director



Paul Tracey
Director




































Yashin Mody
Senior VP

* Financial Sponsors Group (FSG) liaison to FIG Group

Transaction Experience

Traditional Investment Banks, Broker Dealers, and Advisory Firms

Houlihan Lokey is the undisputed industry leader in broker-dealer advisory with more than 10 deals closed since 2019 alone

 <p>has been acquired by</p>  <p>Sellside Advisor</p>	<p>Undisclosed</p> <p>Generalist UK M&A</p> <p>Sellside Advisor*</p>	 <p>has been acquired by</p>  <p>Sellside Advisor*</p>	<p>MERCURY CAPITAL ADVISORS</p> <p>and its wholly-owned subsidiary</p> <p>MERCURY Funds</p> <p>has been acquired by</p> <p>INVESTCORP</p> <p>Sellside Advisor*</p>	 <p>has acquired</p>  <p>Buyside Advisor*</p>	<p>PetskyPrunier INVESTMENT BANKERS</p> <p>has been acquired by</p> <p>cg/Canaccord Genuity</p> <p>Sellside Advisor*</p>	 <p>has been acquired by</p> <p>COWEN</p> <p>Sellside Advisor*</p>	<p>FIRST EMPIRE</p> <p>has been acquired by</p> <p>STIFEL</p> <p>Sellside Advisor*</p>
 <p>has been acquired by</p>  <p>a subsidiary of</p>  <p>Sellside Advisor*</p>	 <p>has been acquired by</p>  <p>Sellside Advisor</p>	<p>GREENS LEDGE</p> <p>has sold a 20% non-voting ownership interest to</p>  <p>Sellside Advisor*</p>	<p>CAIN BROTHERS</p> <p>has been acquired by</p>  <p>Sellside Advisor*</p>	<p>Third Bridge</p> <p>has received an investment from</p> <p>IK Investment Partners</p> <p>Sellside Advisor*</p>	 <p>has acquired</p>  <p>Buyside Advisor</p>	 <p>has been acquired by</p>  <p>Sellside Advisor*</p>	<p>EATON PARTNERS</p> <p>has been acquired by</p> <p>STIFEL</p> <p>Sellside Advisor*</p>
<p>WARBURG PINCUS</p> <p>has acquired the Calgary-based unit of</p> <p>ITG</p> <p>now operating under the new name</p> <p>RS Energy Group</p> <p>Buyside Advisor*</p>	<p>SNS Bank</p> <p>has sold</p> <p>SNS Securities</p> <p>to</p>  <p>Sellside Advisor</p>	<p>ADVISORS EXCEL</p> <p>has obtained a term loan and revolver from</p>   <p>Financial Advisor*</p>	 <p>has received a minority investment from</p> <p>LDC</p> <p>Placement Agent*</p>	 <p>a portfolio company of</p>  <p>has been acquired by</p>  <p>Sellside Advisor*</p>	<p>PAGEMILL PARTNERS</p> <p>has been acquired by</p> <p>DUFF & PHELPS</p> <p>Sellside Advisor*</p>	<p>The Institutional Sales & Trading Business of</p> <p>BRAVER STERN</p> <p>has been acquired by</p>  <p>a portfolio company of</p> <p>AQUILINE CAPITAL PARTNERS LLC</p> <p>Sellside Advisor*</p>	<p>COWEN GROUP</p> <p>has acquired</p> <p>LaBranche & Co.</p> <p>Financial Opinion</p>
 <p>has merged with</p> <p>STIFEL FINANCIAL</p> <p>Fairness Opinion</p>	<p>Lane Berry INVESTMENT BANKING</p> <p>has been acquired by</p> <p>RAYMOND JAMES</p> <p>Sellside Advisor*</p>	<p>RAMIUS</p> <p>has been merged with</p> <p>COWEN AND COMPANY</p> <p>Financial Advisor</p>	<p>PANMURE GORDON & CO</p> <p>has acquired</p>  <p>Buyside Advisor*</p>	<p>LEERINK SWANN</p> <p>has sold a minority interest to</p>   <p>Sellside Advisor*</p>	<p>charles SCHWAB</p> <p>has acquired</p>  <p>Buyside Advisor*</p>	<p>BROADVIEW</p> <p>has been acquired by</p>  <p>Sellside Advisor*</p>	<p>ROBERTSON STEPHENS & COMPANY</p> <p>has been acquired by</p>  <p>Sellside Advisor*</p>





































































Tombstones included herein represent transactions closed from 2009 forward.

* Selected transactions were executed by Houlihan Lokey professionals while at other firms acquired by Houlihan Lokey or by professionals from a Houlihan Lokey joint venture company.

Transaction Experience

Capital Markets Technology

Houlihan Lokey has a long history advising investment and capital markets technology companies with exceptionally strong momentum

















<p>Transaction Pending</p>  <p>has agreed to invest in</p>  <p>Financial Advisor</p>	 <p>has been acquired by</p>  <p>the parent company of</p>  <p>Sellside Advisor*</p>	 <p>has been acquired by</p>  <p>Sellside Advisor</p>	 <p>has been acquired by</p>  <p>Sellside Advisor</p>	 <p>a portfolio company of</p>  <p>has been acquired by</p>  <p>Sellside Advisor</p>	 <p>a portfolio company of</p>  <p>has received a minority investment from</p> <p>Undisclosed Investor Group</p> <p>Sellside Advisor*</p>	 <p>a portfolio company of</p>  <p>has been acquired by</p>  <p>Sellside Advisor</p>	 <p>has been acquired by</p>  <p>Sellside Advisor*</p>
 <p>a portfolio company of</p>  <p>has merged with</p>  <p>a portfolio company of</p>  <p>Sellside Advisor*</p>	 <p>a portfolio company of</p>  <p>has been acquired by</p>  <p>Sellside Advisor</p>	 <p>has closed a funding round led by</p>   <p>FINANCIAL VENTURE FUND</p> <p>Financial Advisor*</p>	 <p>has been acquired by</p> <p>Vermeg Group N.G.</p> <p>Sellside Advisor*</p>	 <p>has received an investment from</p> <p>Francisco Partners</p> <p>Sellside Advisor*</p>	 <p>has received strategic investment from</p>  <p>Sellside Advisor*</p>	 <p>a portfolio company of</p>  <p>has been acquired by</p> <p>Moody's Corporation</p> <p>Sellside Advisor*</p>	 <p>has been acquired by</p> <p>STONE POINT CAPITAL</p> <p>Sellside Advisor</p>
 <p>a portfolio company of</p>  <p>and minority-owned by</p>  <p>has been acquired by</p>  <p>Sellside Advisor*</p>	 <p>has acquired</p> <p>BISAM</p> <p>Buyside Advisor*</p>	 <p>has been acquired by</p> <p>Broadridge</p> <p>Sellside Advisor*</p>	 <p>a portfolio company of</p>  <p>has been acquired by</p>  <p>a portfolio company of</p>  <p>Sellside Advisor*</p>	<p>The In-House Fund Administration Business of</p> <p>Rydex Fund Services</p> <p>a wholly-owned subsidiary of</p>  <p>has been acquired by</p>  <p>Sellside Advisor*</p>	 <p>has acquired</p> <p>Trucoat PLC</p> <p>Buyside Advisor*</p>	 <p>has sold</p> <p>DailyFX</p> <p>to</p> <p>IG Group</p> <p>Sellside Advisor*</p>	 <p>has been acquired by</p> <p>Euromoney Institutional Investor PLC</p> <p>Sellside Advisor*</p>
 <p>has been acquired by</p> <p>Broadridge</p> <p>Sellside Advisor*</p>	 <p>has sold</p>  <p>CORPORATE & FUND ADMINISTRATION SERVICES</p> <p>to</p>  <p>Sellside Advisor</p>	 <p>has been acquired by</p>  <p>GLOBAL ALTERNATIVE ASSET MANAGEMENT</p> <p>Sellside Advisor*</p>	 <p>has acquired an interest in</p> <p>Pirum Systems Limited</p> <p>Buyside Advisor*</p>	 <p>a portfolio company of</p>   <p>has been acquired by</p>  <p>Sellside Advisor*</p>	 <p>have acquired</p>  <p>a portfolio company of</p>  <p>€303 million</p> <p>Buyside Advisor*</p>	 <p>has been acquired by</p>  <p>IntercontinentalExchange, Inc.</p> <p>Sellside Advisor</p>	 <p>has acquired</p> <p>Misys</p> <p>Financing Advisor*</p>

Tombstones included herein represent transactions closed from 2015 forward.

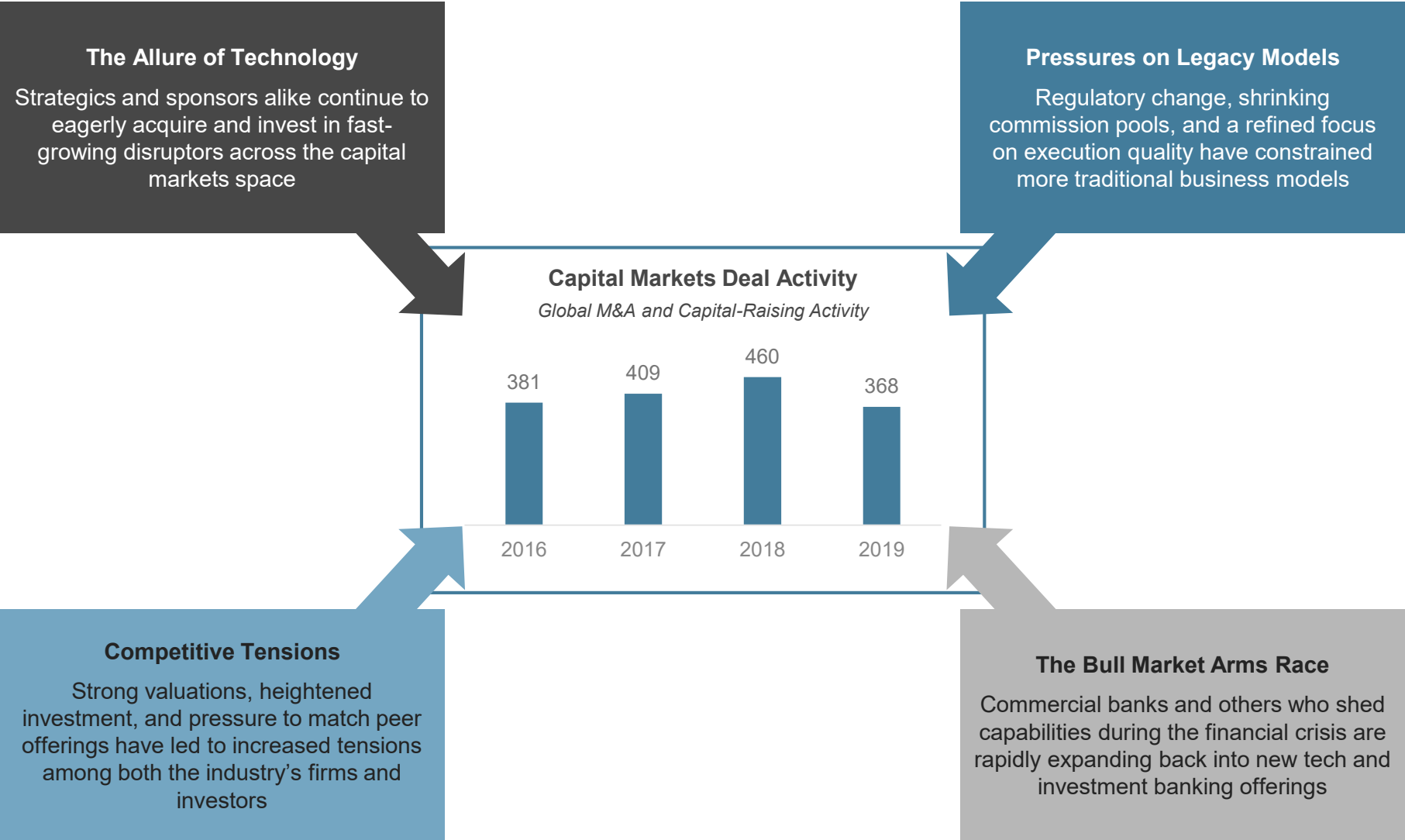
* Selected transactions were executed by Houlihan Lokey professionals while at other firms acquired by Houlihan Lokey or by professionals from a Houlihan Lokey joint venture company.

Deal Activity Update

Sector Landscape

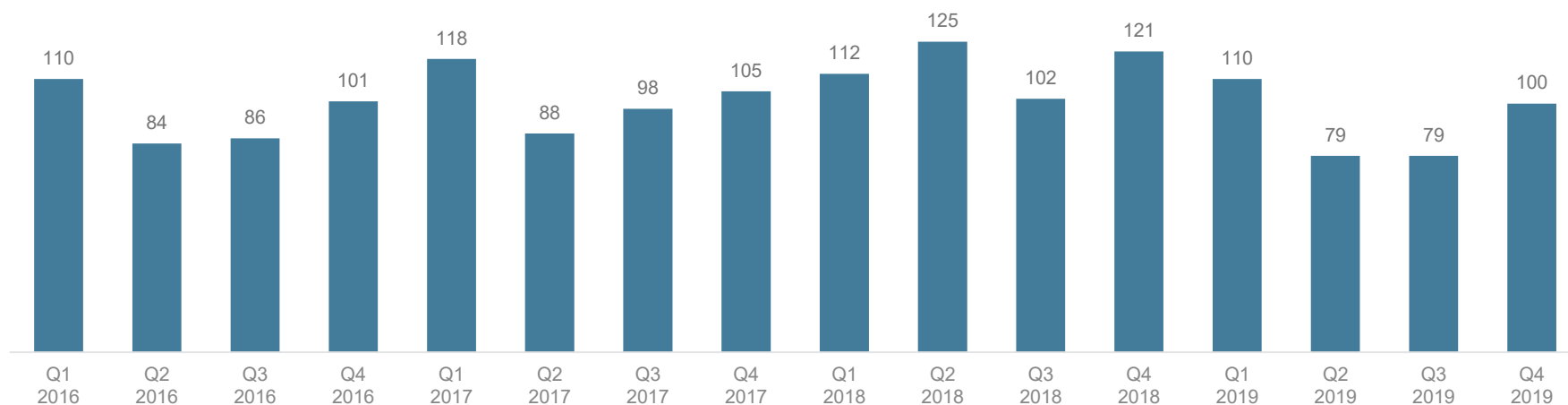
Fintech Subsector	Description	Four-Year Deal Count (2016 to 2019)
 Diversified and Full-Service Broker-Dealers	Firms with services across investment banking, capital markets, securities/brokerage, and more	 60
 Institutional Research, Sales, and Trading	Research, sales, and trading firms with limited advisory and other financial services	 93
 Boutique Investment Banks and Advisory Firms	Independent financial advisory firms without capital markets/research, sales, and trading	 163
 Electronic Trading/Risk Systems and Software	Online trading platforms and electronic trade risk analytics/services	 400
 Exchanges and Other Trading Venues	Securities and other asset class trading venues and liquidity platforms	 140
 Capital Markets Workflow and Infrastructure	Diversified trading infrastructure and financial data delivery services	 250
 Post-Trade, Processing, and Clearing	Settlement, clearing, custody, and other post-trade functionality	 93
 Asset and Fund Servicing	Diversified back-office support services for investment managers	 205

Deal Activity Trends

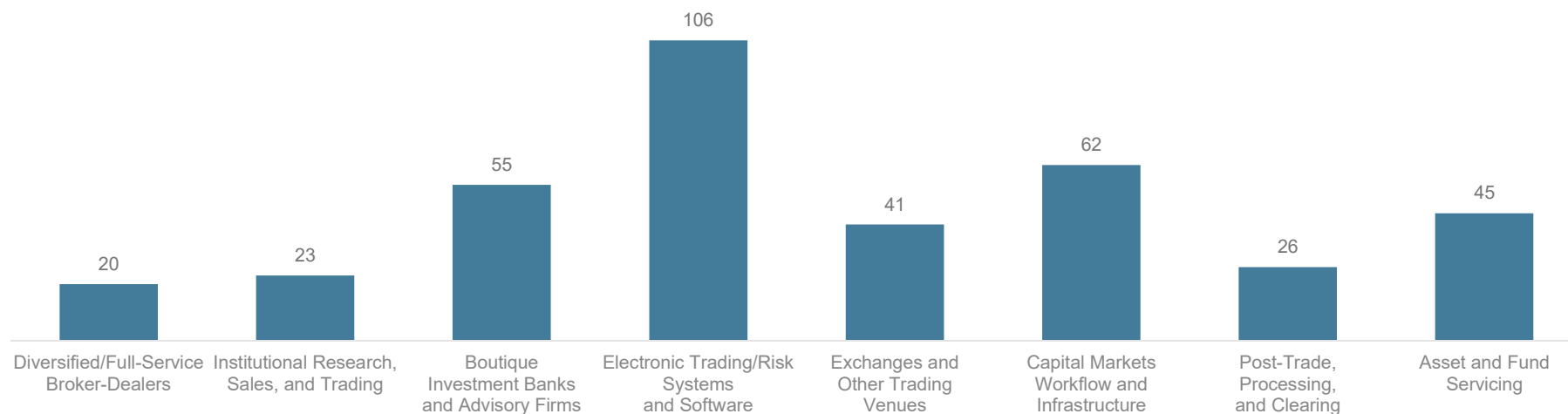


Deal Activity Summary

Quarterly Deal Activity (Announced Deal Count)



2019 Deal Activity by Target Subsector (Announced Deal Count)



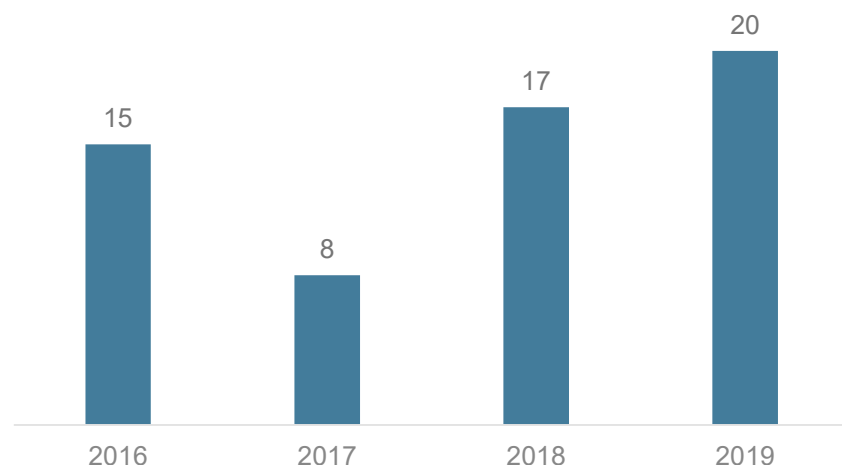
Diversified and Full-Service Broker-Dealers



Market Commentary

- With demand for new issues strong across equity, FI, and muni markets, acquirers have prioritized origination capabilities
- Public finance consolidation was a particular bright spot, with muni issuance surging through 2019 in a regionally fragmented and very competitive landscape
- Industry specialization has also been a key priority for acquirers—many 2019 deals involved single-sector targets, including FIG specialists Sandler O'Neill and FIG Partners
- As bulge brackets either lose relevance or focus upmarket, the timing remains favorable for middle-market IBs and commercial banks to gain share in banking and markets through acquisitions

Announced Deal Count ⁽¹⁾



Source: Cap IQ, S&P, Pitchbook.com, Public Information, Press Releases

(1) Includes transactions with North American and Western Europe-based targets only

Select 2019 Transactions

Month	Target	Acquirer/Investor	Deal Value	Percent Acquired	Target Focus
Mar.	FIG Partners	Janney	---	100%	Financial Institutions
Mar.	Stockdale	SHORE CAPITAL CAPITAL MARKETS	\$12M	100%	U.K. Small- and Mid-Cap Full-Service
Apr.	WELLS NELSON & ASSOCIATES INVESTMENT BANKING/WEALTH MANAGEMENT	D A DAVIDSON	---	100%	Public Finance
June	GMP Capital Markets	STIFEL	\$52M	100%	Canadian Investment Banking and Markets
July	SANDLER O'NEILL + PARTNERS	Piper Jaffray	\$600M	100%	Financial Institutions
Sep.	George K. Baum & Company INVESTMENT BANKERS SINCE 1886	STIFEL	---	100%	Public Finance
Oct.	THE WILLIAMS CAPITAL GROUP	Siebert Cisneros Shank & Co.	---	Merger	Public Finance/ Investment Banking
Nov.	Goodbody	中國銀行 BANK OF CHINA	\$166M	100%	Irish Full-Service Capital Markets
Nov.	LADENBURG THALMANN ESTABLISHED 1876	AG Advisor Group	\$1.3B	100%	Full-Service Retail and Institutional
Dec.	DOUGHERTY & COMPANY LLC	Colliers INTERNATIONAL	---	100%	Municipal and Mortgage Bonds

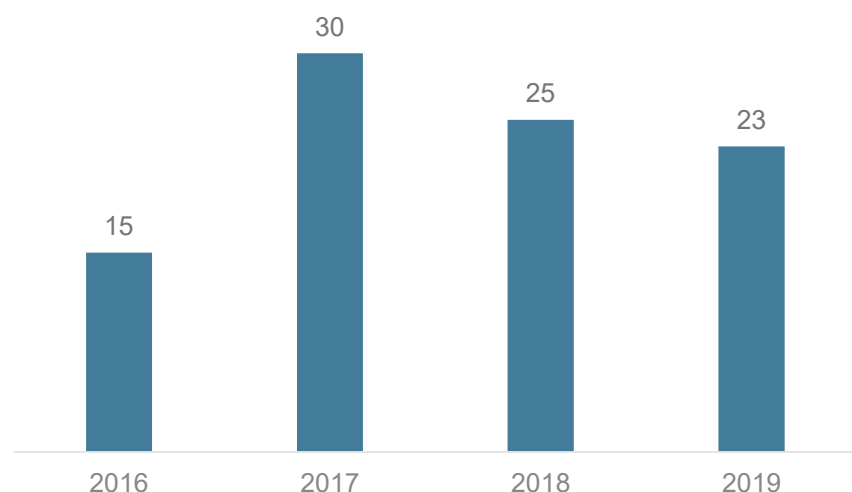
Institutional Research, Sales, and Trading



Market Commentary

- Trading-oriented broker-dealers have been under pressure: commission wallets and research budgets are declining, while expectations for execution quality and proprietary insight rise
- Consolidation has generally served as a tool for reducing costs to adapt to the new lower-margin world
- Acquisitions of Green Street, G.Research, and Redburn demonstrate the lasting value of niche, differentiated research in a post-MiFID II environment
- Turmoil also breeds opportunity, with a few forward-thinking brokers vacuuming up S&T talent and doubling down on execution capabilities

Announced Deal Count ⁽¹⁾



Source: Cap IQ, S&P, Pitchbook.com, Public Information, Press Releases

(1) Includes transactions with North American and Western Europe-based targets only

Select 2019 Transactions

Month	Target	Acquirer/ Investor	Deal Value	Percent Acquired	Target Focus
Jan./ Dec.		INTL · FCStone [®]	---	100%	Commodities/ Emg. Mkt. Equities
Jan.		Marex Spectron	---	100%	Commodities/ Energy
Feb.		Piper Jaffray	\$74M	100%	Institutional Equities
June		WCAS	---	Maj.	REIT Research
June		FIRST first financial bancorp	\$110M	100%	Foreign Exchange Hedging
July/ Oct.		SIEBERT	\$28M/ \$7M	85%/ 100%	Retail Brokerage/ Prime Broker
July			---	Min.	U.K. Equity Research
Aug.		Eq./Op. Mkt Making	---	100%	Equities/Options Market-Making
Sep.			---	100%	Equities Prime Brokerage
Nov.		Morgan Group	\$19M	100%	Small- and Mid-Cap Equity Research
Nov.			---	100%	U.K. Derivative and Debt Hedging
Dec.			\$44M	100%	Institutional Multiasset

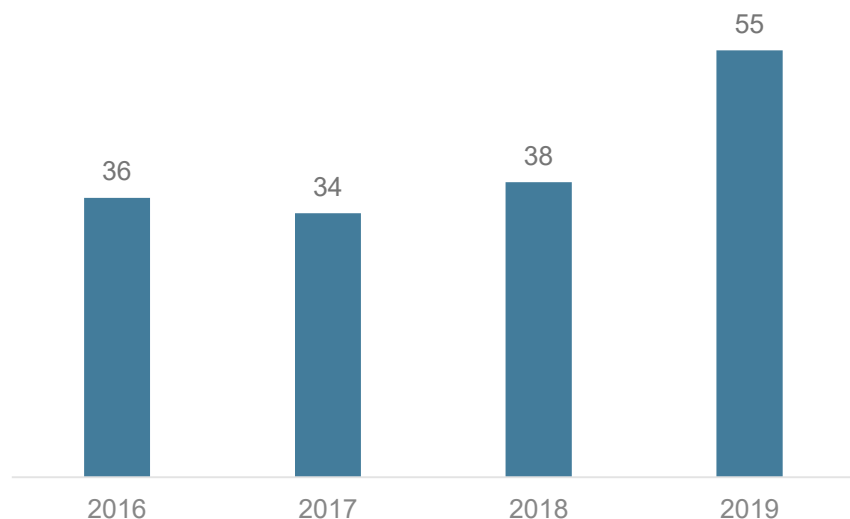
Boutique Investment Banks and Advisory Firms



Market Commentary

- As M&A fee pools experience continued growth, buyers have rushed to add highly profitable advisory capabilities
- Mid-market investment banks are making acquisitions to fill industry coverage gaps, while universal banks are seeking to diversify away from interest-based business lines
- A massive cohort of M&A boutiques formed in the wake of the financial crisis are now reaching critical mass and becoming ideal acquisition targets
- Interest has centered on boutiques with true sector expertise, upmarket client focus, institutionalized management, and diversified productivity

Announced Deal Count ⁽¹⁾



Source: Cap IQ, S&P, Pitchbook.com, Public Information, Press Releases

(1) Includes transactions with North American and Western Europe-based targets only

Select 2019 Transactions

Month	Target	Acquirer/Investor	Deal Value	Percent Acquired	Target Focus
Feb.	PetskyPrunier INVESTMENT BANKERS	cg/Canaccord Genuity	\$85M	100%	Technology, Media, and Marketing
Feb.	BOWSTRING ADVISORS	Citizens Financial Group, Inc.	---	100%	Healthcare and Business Services
Feb.	B · S · P BANKS STREET PARTNERS	PERFORMANCE TRUST CAPITAL PARTNERS	---	100%	Financial Institutions
Apr.	MOORELAND PARTNERS	STIFEL	---	100%	Technology
May	RIVERON	H · L · G CAPITAL	---	Min.	M&A Support Services
May	MERCURY CAPITAL ADVISORS	INVESTCORP	---	100%	Fund Placement
June	Teneo	CVC	\$350M	50%	Consulting and Strategy
July	CLEARY GULL	CIBC	---	100%	Generalist
July	LOUGHLIN MANAGEMENT PARTNERS	BDO	---	100%	Restructuring and Turnaround
Aug.	KippsDeSanto INVESTMENT BANKING	CapitalOne	---	100%	Aerospace/Defense and Gov't Services
Dec.	greentech capital advisors	NOMURA	\$92M	100%	Sustainable Infrastructure
Dec.	LionTree	RIT Capital Partners plc	\$42M	Min.	Technology, Media, and Telecom

Electronic Trading/Risk Systems and Software

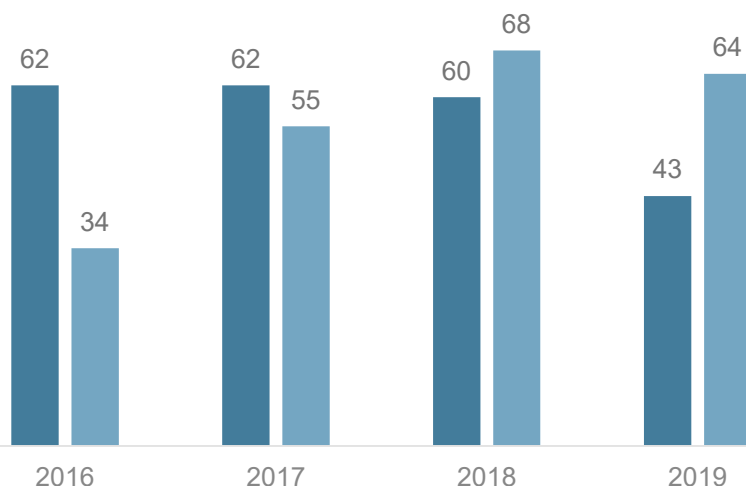


Market Commentary

- Most active subsector in 2019, accounting for more than one-third of all capital markets technology activity
- Following a historic year in 2018 in terms of extremely large transactions, 2019 activity remained robust despite the lack of mega-deals aside from Refinitiv's \$27 billion acquisition by the London Stock Exchange Group
- Deal activity was driven by systems and software focused on non-equities asset classes, as these markets experience increased electronification

Announced Deal Count

■ M&A ■ Financing/Minority



Select 2019 Transactions

Month	Target	Acquirer/Investor	Deal Value	Percent Acquired	Target Focus
Jan.	 MARIANA SYSTEMS	 BLACK MOUNTAIN	---	100%	Credit
Mar.	 BID FX	 SGX	\$25M	20%	FX
Apr.	 Allegro	 ION	\$435M	100%	Commodities
Apr.	 BARRACUDA ^{FX}	 BROADWAY TECHNOLOGY	---	100%	FX
May	 BLACK MOUNTAIN	 VISTA EQUITY PARTNERS	>\$500M	100%	Credit
May	 QuantHouse	 iress	\$45M	100%	FX
May	 VISOTECH	 TMX / TRAYPORT	---	100%	Commodities
May	 ALPHADESK	 REFINITIV	---	100%	Diversified
June	 oneZero FINANCIAL	 LMP LOVELL MINNICK PARTNERS	---	Min.	FX
Aug.	 REFINITIV	 London Stock Exchange	\$27.0B	100%	Diversified
Nov.	 BRADY	 HANOVER INVESTORS	\$10M	100%	Commodities
Nov.	 MarketFactory	 ION	---	100%	FX

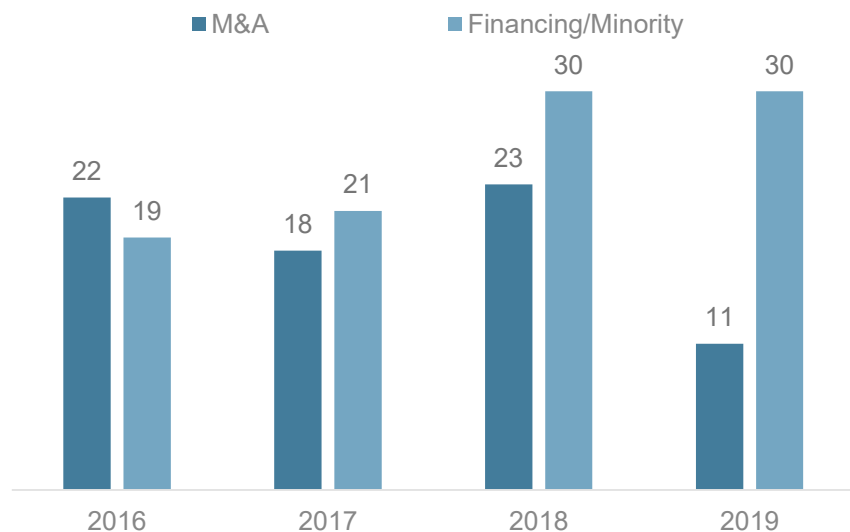
Exchanges and Other Trading Venues



Market Commentary

- Larger exchanges maintain inorganic expansion strategies while looking to add multijurisdictional scale as well as add new asset classes to a growing list of core competencies
- Several startup trading systems emerged with the backing of consortiums of leading firms seeking to disrupt traditional market structure
- Crypto-focused venues saw robust activity in 2019, accounting for nearly 50% of transactions in the subsector, as the asset class gradually institutionalized

Announced Deal Count



Select 2019 Transactions

Month	Target	Acquirer/ Investor	Deal Value	Percent Acquired	Target Focus
Jan.	MEMX	Consortium	\$70M	Maj.	Equities
Feb.	Forge	BNP PARIBAS Munich RE	\$85M	23%	Private Equities
May	TRUMID	HILLHOUSE CAPITAL	\$60M	Min.	Credit
May	the SMALL exchange	CITADEL Jump Capital	\$10M	25%	Futures
May	OneChronos	Rising Tide	\$9M	29%	Equities
May	MIAX	Consortium	---	Min.	Options
May	MAXEX	AGNC INVESTMENT CORP.	---	Min.	Residential Mortgages
June	OSLO OSLO BORS	EURONEXT	\$863M	100%	Regional
Aug.	LIQUIDITY EDGE	Market Axess	\$150M	100%	Treasuries
Nov.	Nasdaq Futures	eex Deutsche Borse	---	100%	Commodities Futures
Nov.	BSX	MIAX	---	100%	Regional
Dec.	NORD POOL	EURONEXT	\$61M	66%	Commodities

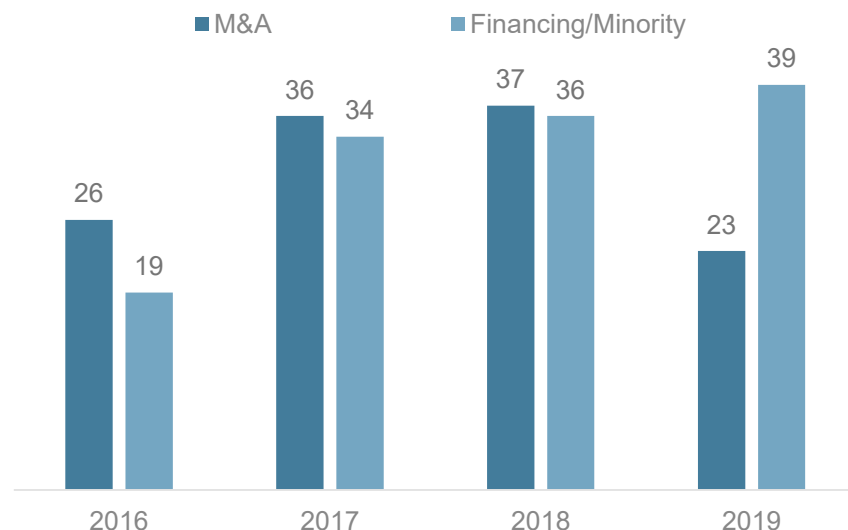
Capital Markets Workflow and Infrastructure



Market Commentary

- Subsector has remained highly active, with firms seeing increased demand from the continued electrification of trading across asset classes
- Firms such as Bloomberg, Citi, and Moody's continue to invest in firms that provide more granular trade lifecycle data and analytics to the investment management community
 - Demand for cost-effective solutions for asset managers continues to be at the forefront of thought for strategic investors as they attempt to gain scale and appeal to larger blue-chip client bases

Announced Deal Count



Select 2019 Transactions

Month	Target	Acquirer/ Investor	Deal Value	Percent Acquired	Target Focus
Apr.	SOLARFLARE	XILINX	---	100%	Trading Infrastructure
May	SYMPHONY	MUFG Standard Chartered	\$165M	12%	Capital Markets Communications
May	openfin	WELLS FARGO	\$17M	20%	Capital Markets Operating System
May	ChartIQ	citi	\$15M	Min.	Data Processing and Visualization
May	RSRCHXCHANGE	Liquidnet	---	100%	Research Management
June	MACKEYRMS	RESURGENS TECHNOLOGY PARTNERS	---	Min.	Research Management
July	Corvil	PICO	---	100%	Trading Analytics
July	NetXpress	Transaction Network Services	---	100%	Trading Infrastructure
Aug.	RegTek SOLUTIONS	Bloomberg	---	100%	Trade Reporting and Compliance
Sep.	SELERITY	dealogic	---	100%	Unstructured Data Processing
Oct.	Deloitte. ABS Suite	MOODY'S	---	100%	Structured Product Issuance Software
Dec.	GREENWICH	CRISIL An S&P Global Company	\$40M	100%	Capital Markets Consultancy

Post-Trade, Processing, and Clearing

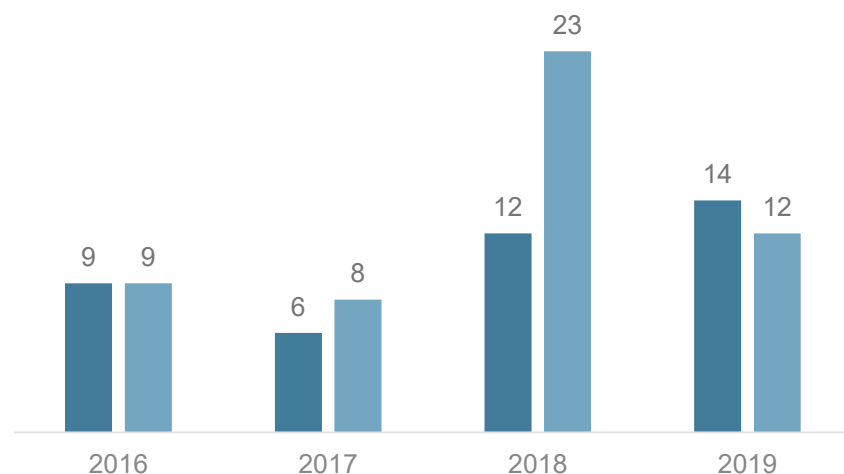


Market Commentary

- Financial market infrastructure participants continue their desire to enhance service capabilities, expand asset class coverage, and position themselves throughout the transaction lifecycle, specifically in the post-trade sector
- The rise of AI-enabled risk reporting and collateral management has caused disruption among traditional players, leading to a desire to bring independent technology providers in-house
- Majority transactions remain on an upward trend, while VC/minority investments have slowed from a record-setting 2018

Announced Deal Count

■ M&A ■ Financing/Minority



Select 2019 Transactions

Month	Target	Acquirer/Investor	Deal Value	Percent Acquired	Target Focus
Jan.		 London Stock Exchange	\$318M	5%	Traditional Clearing and Settlement
Feb.	APEX Clearing™	 SoFi	---	Min.	Equities Clearing and Custody
Mar.	 pirum	 BOWMARK CAPITAL	---	Maj.	Post-Trade Reconciliation
Mar.	 Meritsoft	 Cognizant	---	100%	Post-Trade Reconciliation
May	 ROCKALL	 Broadridge	---	100%	Collateral Management
July	 GBST	 FNZ	\$225M	100%	Diversified Post-Trade Processing
Sep.	 ETC	APEX Clearing™	---	100%	Equities Clearing and Custody
Oct.	 SHADOW FINANCIAL SYSTEMS	 Broadridge	\$39M	100%	Diversified Post-Trade Processing
Oct.	 ENSO	 HAZELTREE	---	100%	Prime Brokerage Portfolio Analytics
Oct.	 HAZELTREE	 IHS Markit	---	Min.	Treasury Management Software
Nov.	 CAPITOLIS	 SPARK CAPITAL	\$41M	20%	Trade Compression Software
Dec.	 EuroCCP	 Cboe	\$40M	80%	Traditional Clearing and Settlement

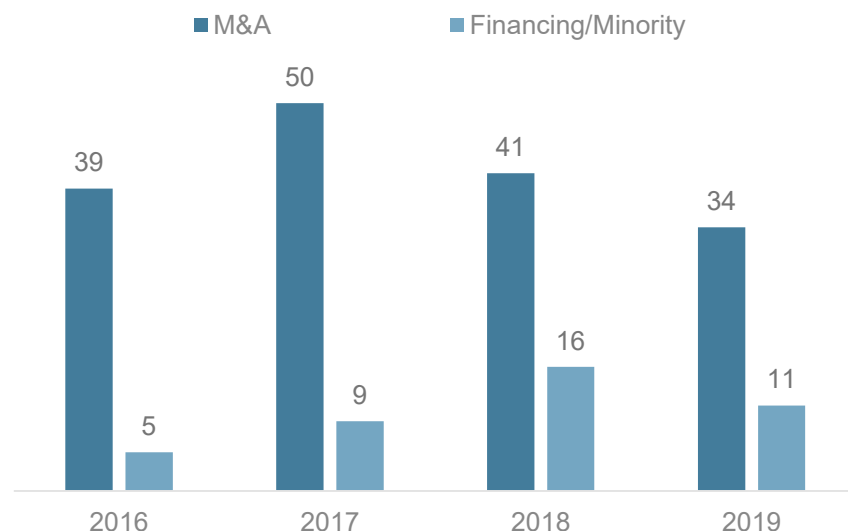
Asset and Fund Servicing



Market Commentary

- Activity has been amplified by the trend toward outsourcing, primarily driven by increasing regulatory costs and complexities within the investment management space
- A vast majority of transactions have been majority acquisitions by strategic buyers, primarily non-bank strategics and PE-backed players, seeking to consolidate smaller players and provide complementary services on a single platform
- Firms focused on servicing the private markets have attracted the most interest from acquirers and premium valuations

Announced Deal Count



Source: Cap IQ, S&P, Pitchbook.com, Public Information, Press Releases

Select 2019 Transactions

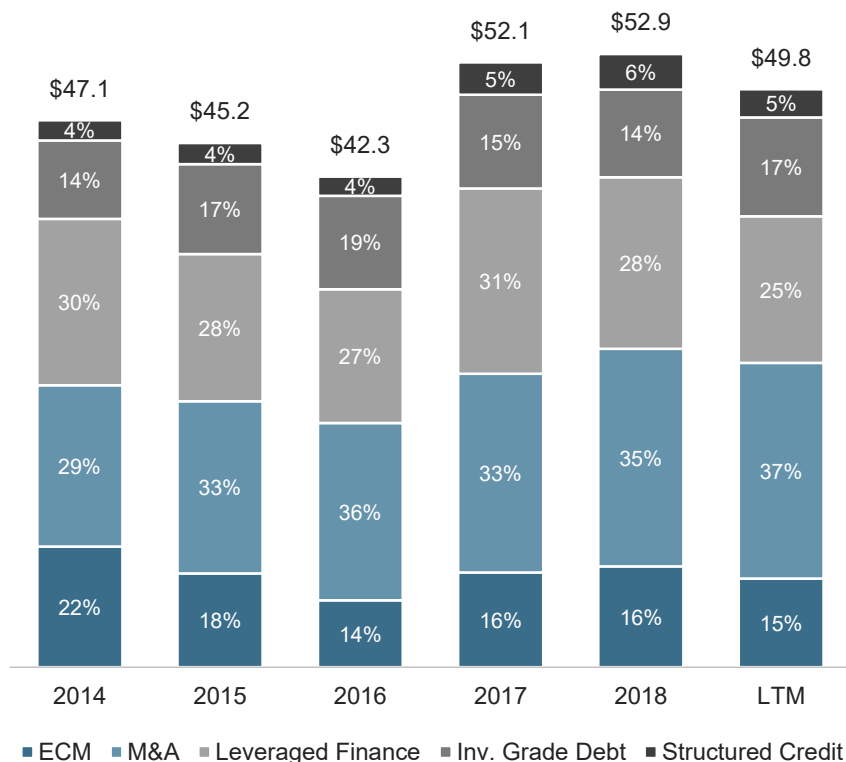
Month	Target	Acquirer/Investor	Deal Value	Percent Acquired	Target Focus
Jan.	MILLENNIUM TRUST COMPANY*	ABRY PARTNERS	\$1.8B	Maj.	Trust Administration and Custody
Jan.	Prime Clerk	DUFF & PHELPS	---	100%	Bankruptcy Administration
Feb.	Solium	Morgan Stanley	\$900M	100%	Cap Table Management
Mar.	CINgroup	STRETTO	\$215M	100%	Bankruptcy Administration
Mar.	IRA SERVICES TRUST COMPANY	Forge	\$55M	100%	Trust Administration and Custody
May	carta	ANDREESSEN HOROWITZ	\$318M	20%	Cap Table Management
June	VITEOS	Intertrust	\$330M	100%	Tech-Enabled Fund Servicing
July	ESTERA	OCORIAN	\$692M	100%	Offshore Fund Administration
Aug.	LEVERPOINT	ULTIMUS	---	100%	Private Fund Administration
Oct.	VIRTUS PARTNERS	FIS	\$575M	100%	Credit Fund Administration
Oct.	all funds BANK	BNP PARIBAS	---	22%	Fund Distribution
Nov.	quasar	FORESIDE	---	100%	ETF and Mutual Fund Distribution

Focus Area:
Middle-Market Investment Banking

U.S. Investment Banking Market Dynamics and Opportunity

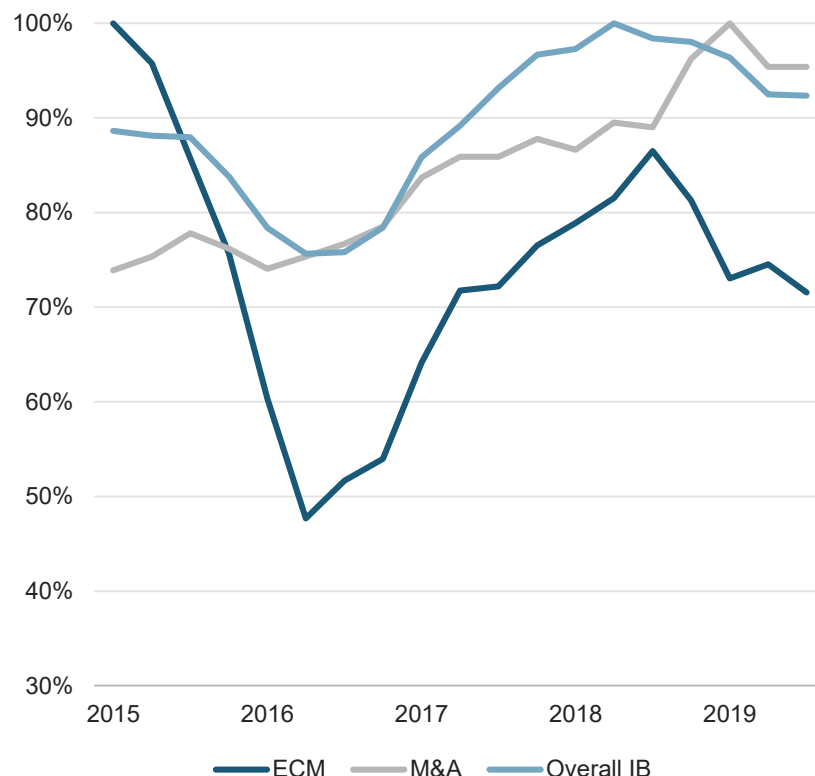
U.S. Investment Banking Fee Pool by Product ⁽¹⁾

\$ in billions



- U.S. IB fee pool reached record levels in 2018 and has since pulled back slightly as leveraged finance fees decelerated
- ECM typically comprises 15–25% of the fee pool and currently sits at the low end despite 2019's buoyant stock markets

ECM and M&A Fee Pool Volatility vs. Overall IB Fee Pool ⁽²⁾



- Compared to other IB lines, ECM tends to be a volatile, open-and-shut market, requiring long-term institutional commitment
- By contrast, M&A fee pools have been relatively stable through business cycles, particularly in the middle market

Source: All IB fee analysis based on estimates from Freeman Consulting Services and transaction information from Refinitiv

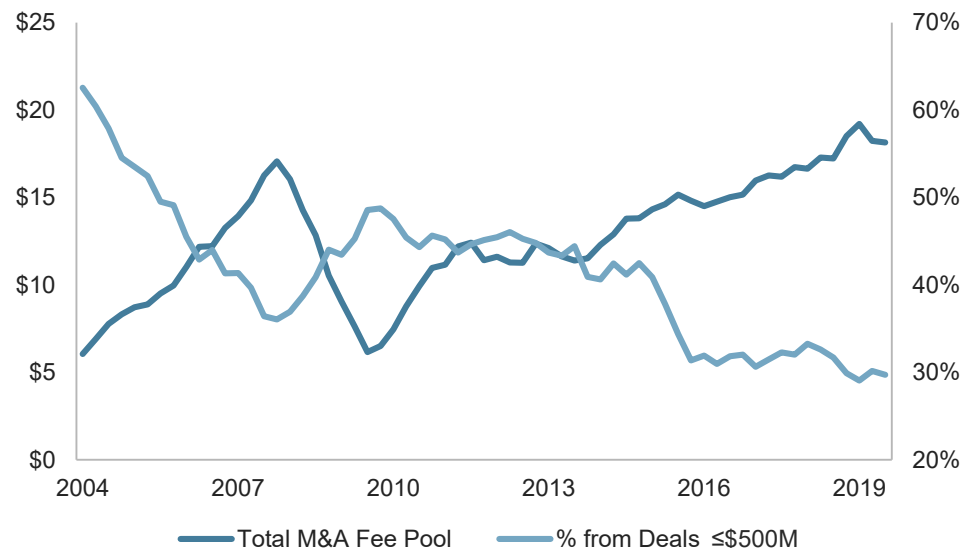
(1) LTM as of 9/30/19

(2) Calculated on a TTM basis and indexed to peak level

M&A Fee Pool Drivers

Long-Term Historical M&A Fee Pool Trend

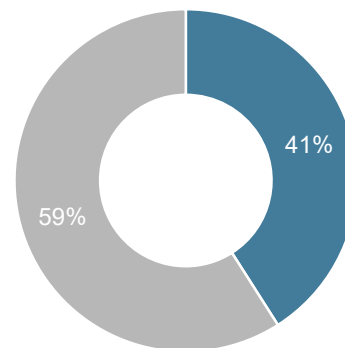
\$ in billions; rolling TTM basis



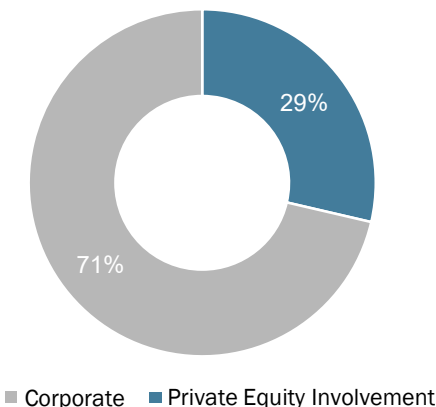
- Strong macroeconomic conditions, record stock markets, inexpensive debt financing, and shareholder support have supported M&A growth
- Inverse relationship between the overall fee pool (now at a record high) and the role of the middle market (now at a record low)
- Recent growth has come almost entirely from large-scale deals, but the middle market is more stable and historically outperforms during bear markets
- The middle market currently represents approximately 30% of LTM fees but 95% of deal count—and middle-market fees are likely understated significantly due to data coverage limitations

Role of Private Equity ⁽¹⁾

Middle-Market (≤\$500M) Fee Pool



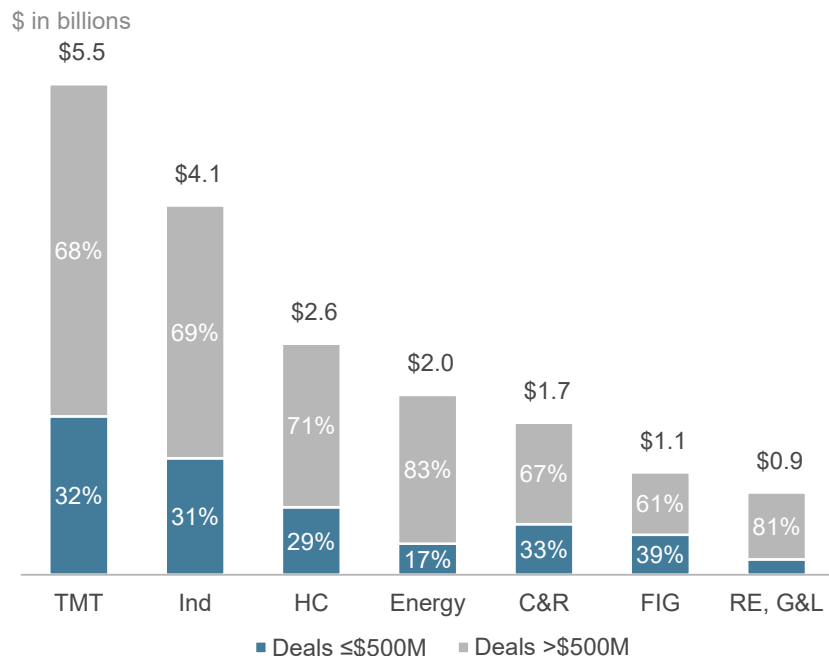
Large Transaction (>\$500M) Fee Pool



PE will remain a key middle-market fee driver, with ample dry powder and less competition from strategics for smaller assets

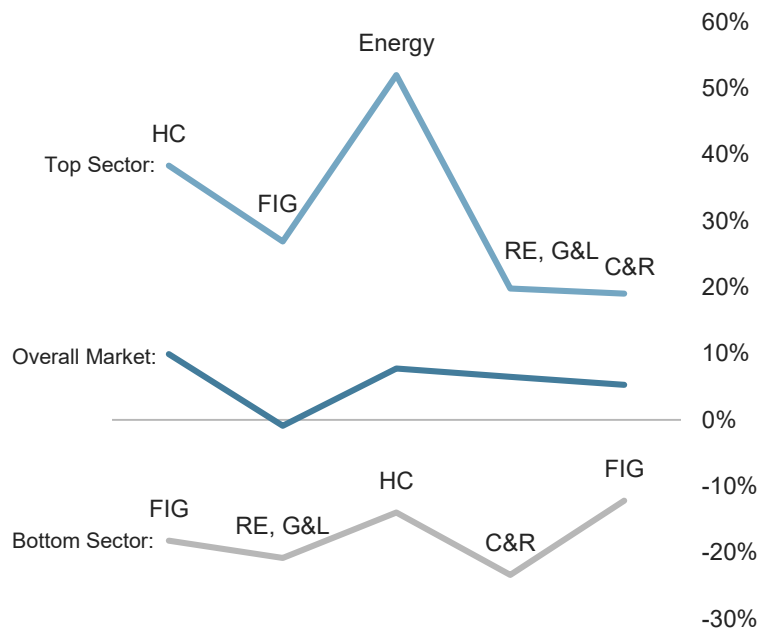
M&A Segment Comparisons

LTM Fee Pools by Sector ⁽¹⁾



- With sanguine market conditions, overall U.S. M&A fees have grown at a 5–10% YoY pace for the last several years
- Each sector has undergone periods of outperformance and underperformance over just the last three years
- Advisory franchises need diverse coverage to avoid being subject to market-driven volatility

YoY Fee Pool Growth by Sector ⁽²⁾



Industry	2015	2016	2017	2018	LTM
TMT	+15%	+19%	+1%	+15%	+12%
Industrials	+5%	-9%	+17%	+19%	-3%
Healthcare	+38%	-16%	-14%	+13%	+6%
Energy	-2%	-8%	+52%	-17%	+8%
Con. and Retail	-3%	+5%	+14%	-23%	+19%
Financials	-18%	+27%	-1%	+4%	-12%
RE, G&L	+22%	-21%	0%	+20%	-10%
Total Market	+10%	-1%	+8%	+6%	+5%

Source: All IB fee analysis based on estimates from Freeman Consulting Services and transaction information from Refinitiv

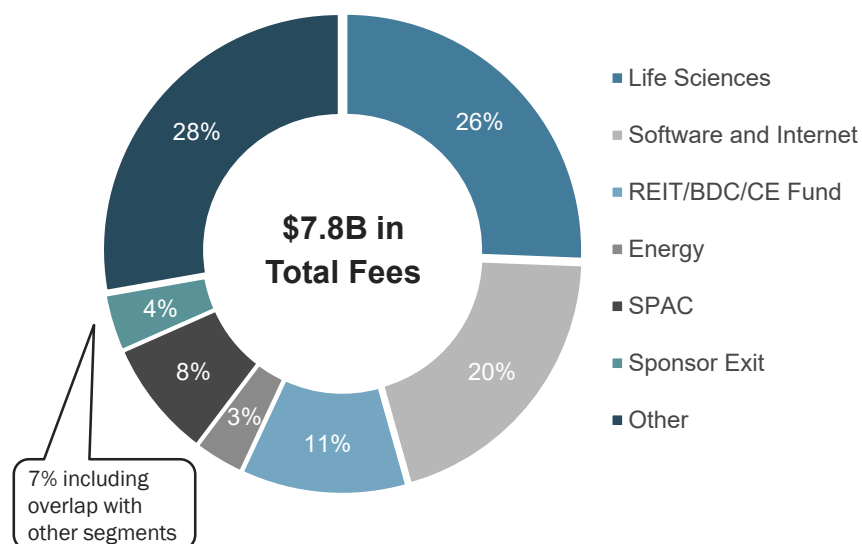
(1) LTM as of 9/30/19

(2) Calculated on a rolling TTM basis

ECM Fee Pool Drivers

U.S. ECM Fee Pool by Segment

Based on LTM Total Fees



- Unlike M&A, ECM fee pools are consistently driven by a relatively concentrated set of market drivers
- Life sciences and software/internet comprise approximately 45% of the fee pool and an even larger share of IPO fees (50%)
- For competitors in the ECM market, there are fewer viable avenues of attack than in the more-diverse M&A market
- “Other” ECM activity above primarily includes M&A financings, corporate asset spinoffs, and foreign company listings

Short- and Long-Term ECM Growth by Segment

Segment	Short-Term Growth (YoY) ⁽¹⁾	Long-Term Growth (vs. 5-Year Average) ⁽²⁾
Life Sciences	-19%	-20%
Software and Internet	-7%	+140%
REIT/BDC/CE Funds	+52%	-24%
Energy	-45%	-80%
SPACs	+28%	+227%
Sponsor Exits	-20%	-73%
Overall ECM Market	-17%	-20%

Source: All IB fee analysis based on estimates from Freeman Consulting Services and transaction information from Refinitiv

(1) Year-over-year growth calculated as change between 12 months ending 9/30/19 and 12 months ending 9/30/2018

(2) 5Y Averages calculated over the period of 2015-2019 using a 9/30 year end

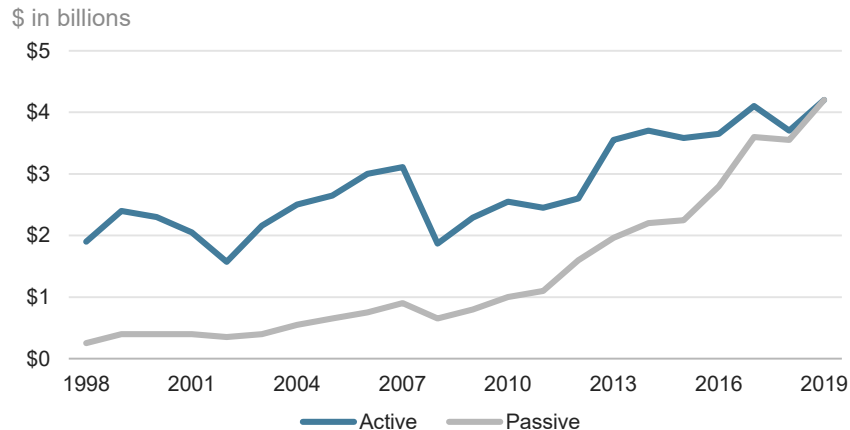
Focus Area:
Research, Sales, and Trading

Challenging Conditions for the Buyside

Market Commentary

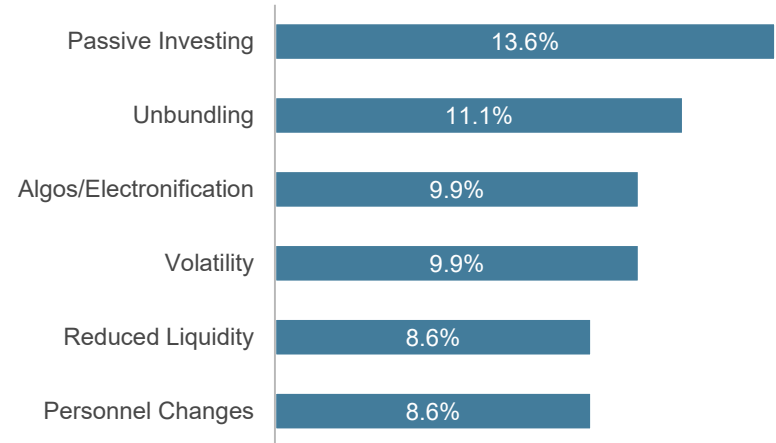
- Asset and wealth managers are facing fee and revenue pressures due to these factors:
 - Investor preference for passive strategies shifting assets into funds with lower fee structures
 - Within passive funds, management fees are also trending downward
- Passive investing is seen as the greatest challenge to buyside, with passive AUM matching active AUM for the first time ever
- Fee compression eventually hits the intermediary portions of the chain, creating reluctance to pay for sellside services like research

Active vs. Passive U.S. Equity Fund AUM

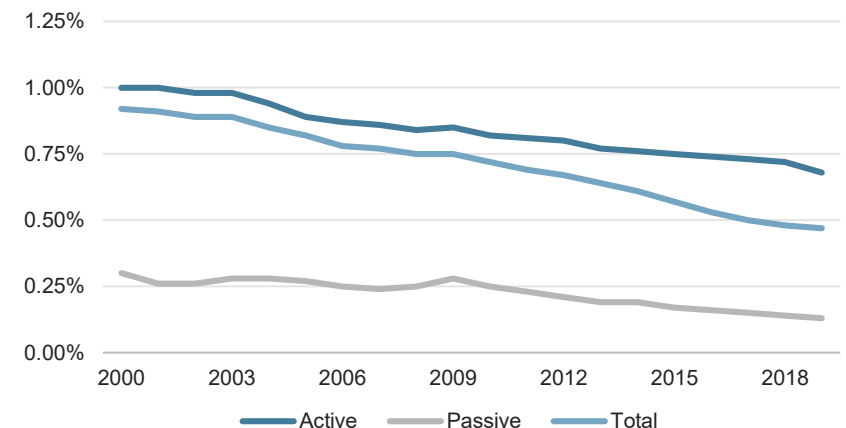


Biggest Challenges Facing the Buyside

Based on a survey of buyside professionals



Asset-Weighted Average Fees



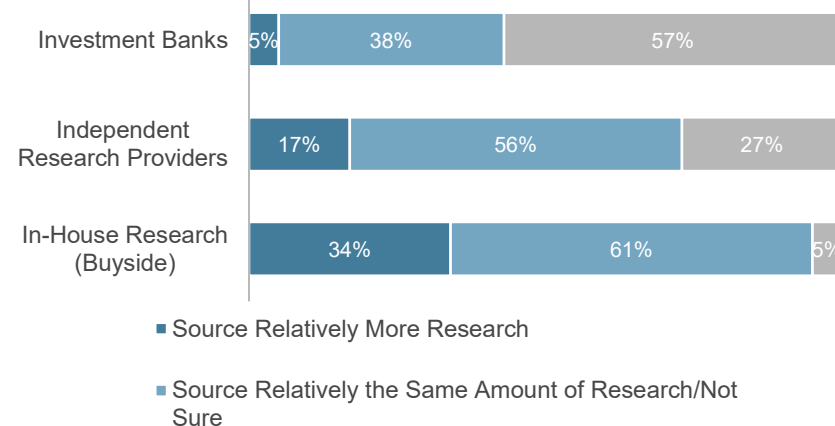
Impact on the Sellside

Market Commentary

- Equity commission pool in long-term decline, down to \$6.3 billion in 2019 versus approximately \$11 billion in 2015
- Global sellside equity analyst headcount down 14% over the last four years
 - Top talent leaving for the buyside or exiting research space altogether
- Equities headcount down 7% between 2014 and 2018 across top 12 global banks
 - Additional exits in 2019 include Deutsche Bank (cutting half its 1,000 non-research equities employees) and Macquarie (exiting equities in the U.S. and Europe)

Research Sourcing Before and After MiFID II

Based on a survey of European buyside professionals

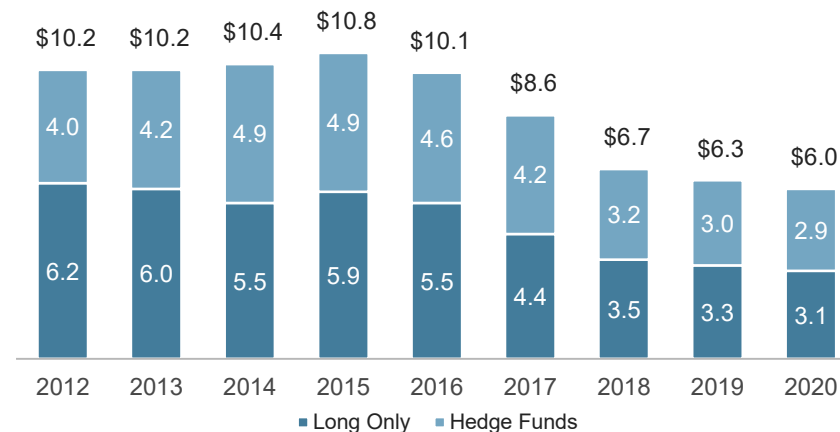


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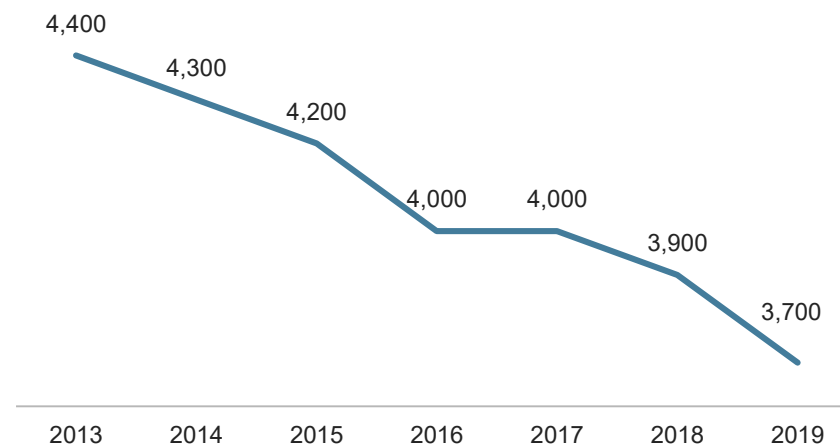
(1) Greenwich Associates, Coalition Development, CFA Institute, TABB Group

(2) Based on TTM statistics as of 3/31/19

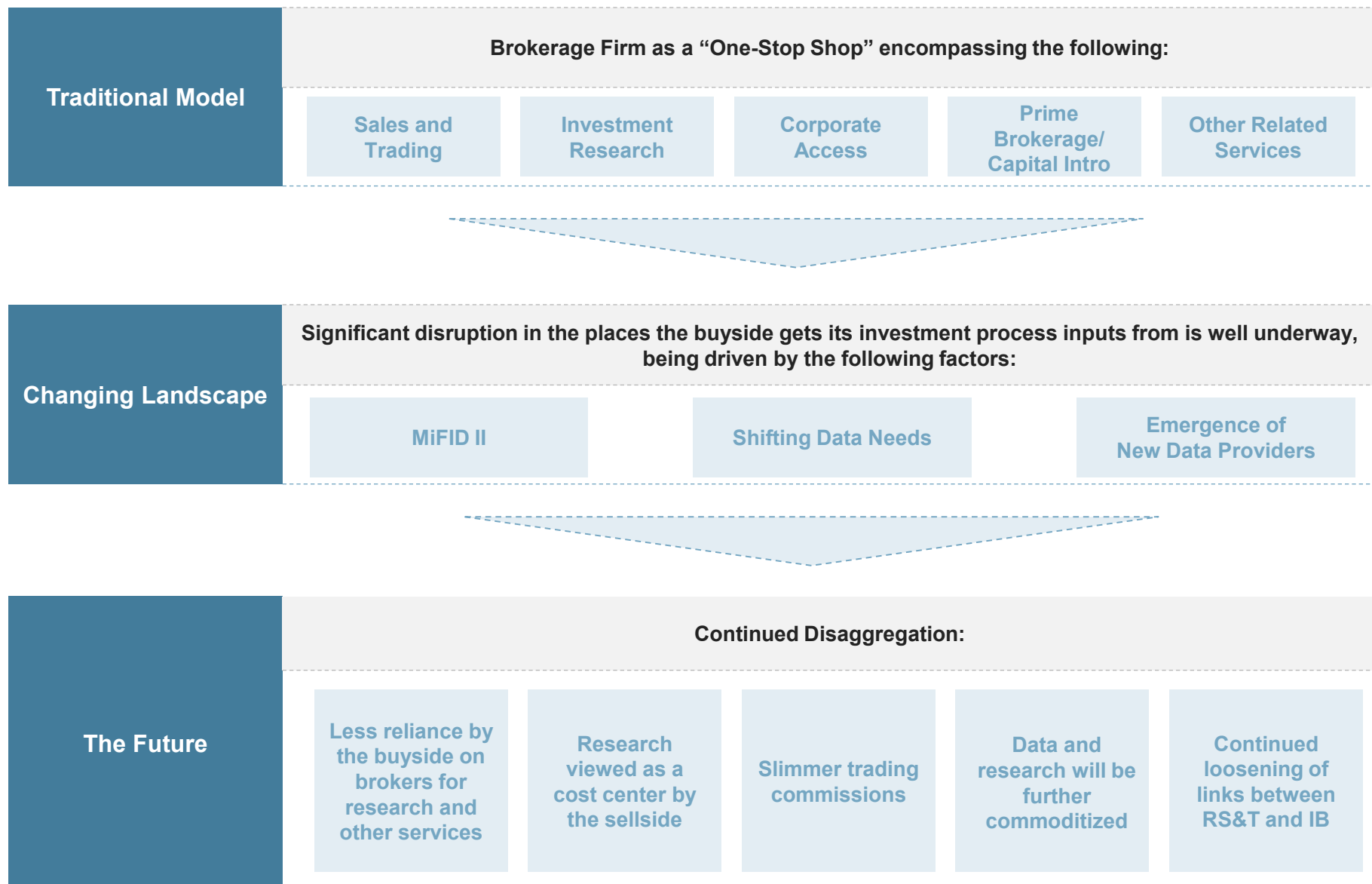
Total U.S. Equity Commission Pool (1)



Global Cash Equities Research Analyst Count



Disaggregation of the Sellside Research Function



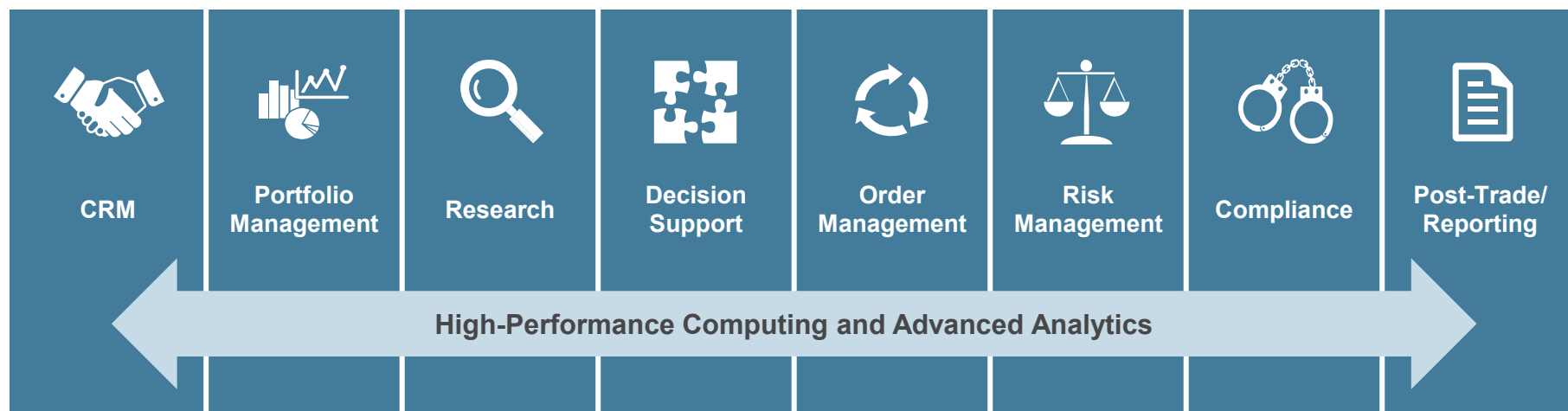
Evolving Competitive Landscape

Traditional Sellside Winners and Losers








- Renewed buy-side focus on measuring the value of research
 - Winners are providing differentiated content and/or insight into an under-covered investment niche
- Traditional mid-tier sellside providers losing ground
 - Market for traditional research content has evaporated for analysts ranked outside the top
- Non-brokerage, subscription-based business models winning out
 - Have been able to operate as-is post-MiFID II and make for uncomplicated acquisition targets

Emerging Niche Tech-Based Solutions

- Alternative data: AI/ML/NLP technologies continue expanding into investment research space
 - Buy-side views predictive analytics as a complement to traditional stock picking (which is moving in-house)
- Private markets: As the line between public and private companies blurs, there is increasing demand for transparency into private companies, transactions, and funds
- Regulation: Growing opportunity to use quantitative screening and surveillance to navigate the ever-increasing compliance burden (KYC, AML, ESG, etc.)



Adding Value in the New Environment

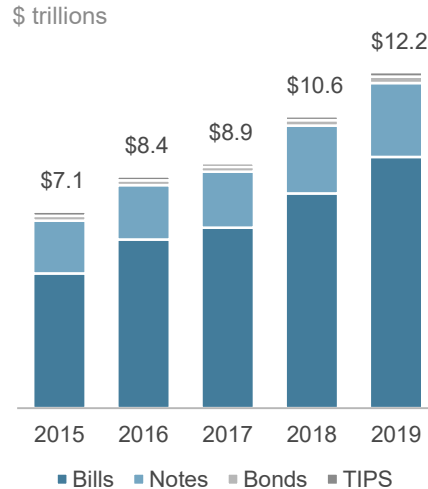
 Content	<ul style="list-style-type: none">▪ Differentiated research content more critical than ever▪ Buyside is measuring and scrutinizing the value of research, while bulge bracket's pullback creates coverage opportunities in niche verticals
 Execution	<ul style="list-style-type: none">▪ Despite weak commissions, race continues in delivering best execution as TCA and measurement tools proliferate▪ Continued innovations in algos/algo wheels, routing, connectivity/colocation
 Capital	<ul style="list-style-type: none">▪ Buyside will always value a counterparty that is willing and able to commit capital for liquidity in large trades
 IB Synergies	<ul style="list-style-type: none">▪ With commissions and research budgets down, IB origination becomes a critical avenue for leveraging RS&T▪ Full-service players must ensure tight integration between primary and secondary markets
 Consolidation	<ul style="list-style-type: none">▪ M&A wave likely to remove excess capacity from the market and recalibrate cost structures for new environment
 Relationships	<ul style="list-style-type: none">▪ Sellside needs to become a service partner to the buyside rather than a trading counterparty▪ Trend toward holistic outsourced trading solutions and low-touch offerings like TCA becoming consultative
 Product	<ul style="list-style-type: none">▪ Given proliferation of new information vendors, buyside will need assistance in selecting and evaluating streams▪ Similarly, given the shift away from the one-stop-shop model, buyside will need assistance consolidating and integrating disparate data sources into their workstreams

Focus Area: **Fixed Income**

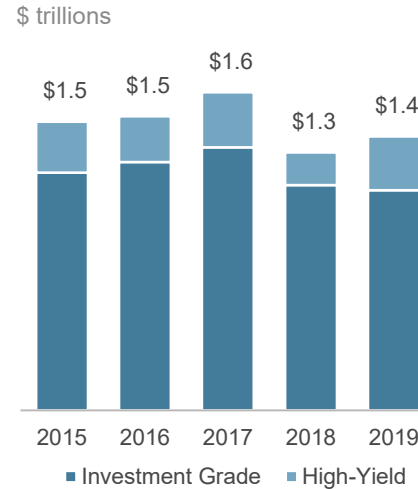
Fixed Income: Bond Market

- Treasury, corporate bond, and MBS issuance rebounded from 2018 levels as interest rates declined through 2019, with further refinancing-driven upside potential in 2020 as rates plunge to historic lows
- Bonds have been further buoyed by strong growth among foreign investors as European and Asian funds seek positive interest rates in the U.S.
- Agency issuance has been supported by elevated mortgage origination levels across the purchase and refi segments, driven by rising employment levels and falling mortgage rates
- Uptick in Q1 corporate bond and MBS trading primarily due to increased market volatility weighing on equity investor portfolios

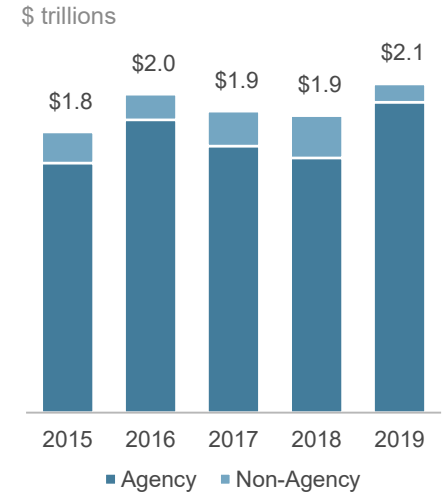
Treasury Issuance



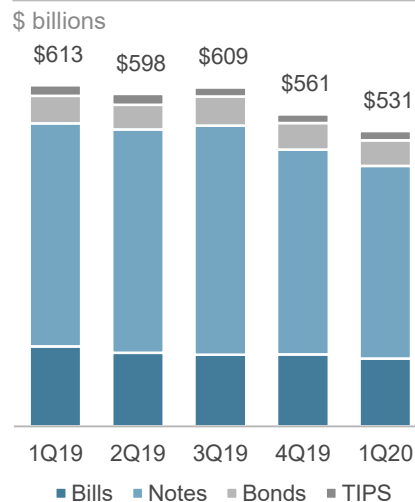
Corp. Bond Issuance



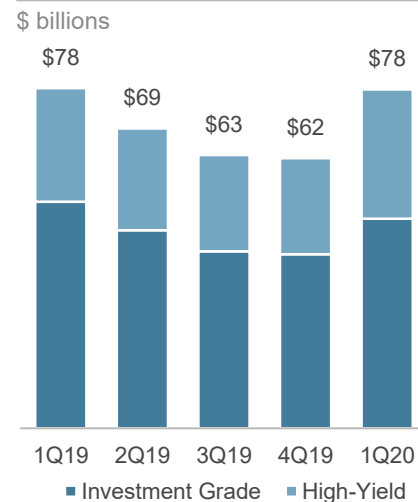
MBS Issuance



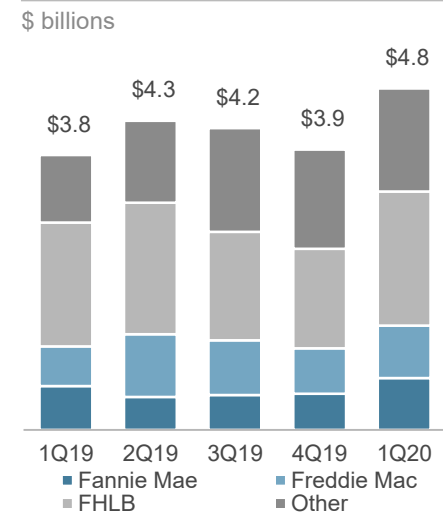
Treasury ADTV



Corp. Bond ADTV



Agency MBS ADTV

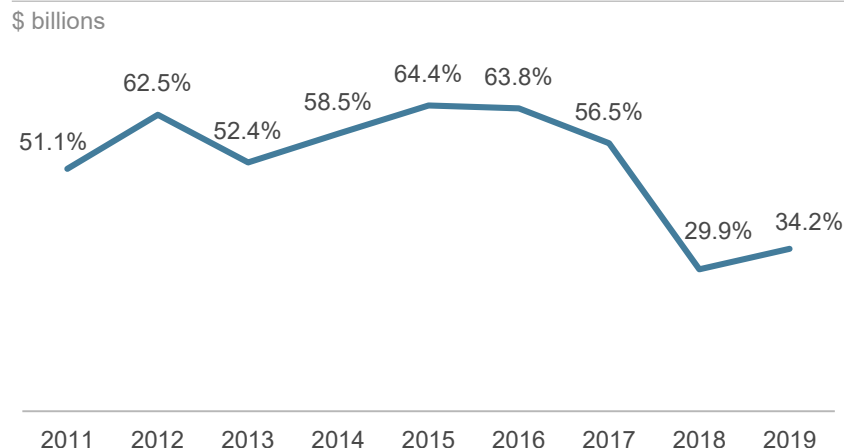


Fixed Income: Municipal Market

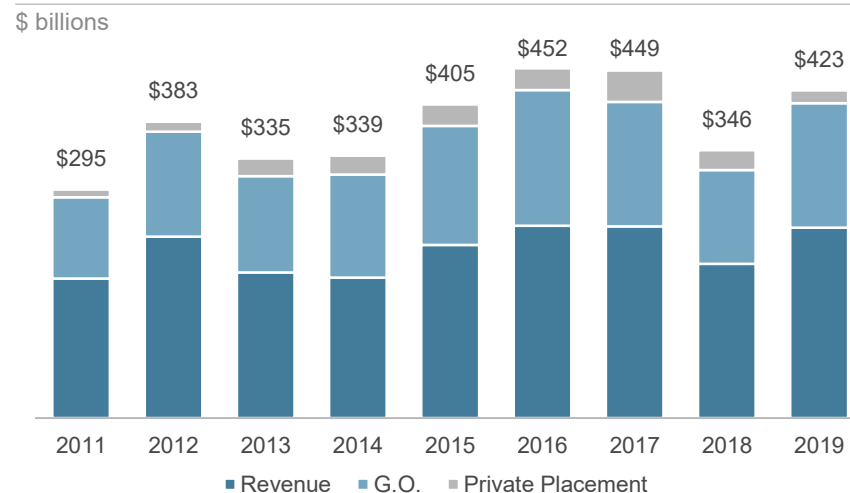
Market Commentary

- Municipal bond issuance rebounded from a quiet 2018 to \$423 billion in 2019, representing a steep 22% YoY increase
- Refundings remained near all-time lows since the Tax Cuts and Jobs Act of 2017 ended the tax break for tax-exempt advance refunding bonds
- However, new-money and taxable muni offerings surged during 2019, with a strong macroeconomy improving muni credit quality, an influx of international capital, and investors bracing for potential change in tax law post-elections
- ADTV has been very consistent over the last nine quarters

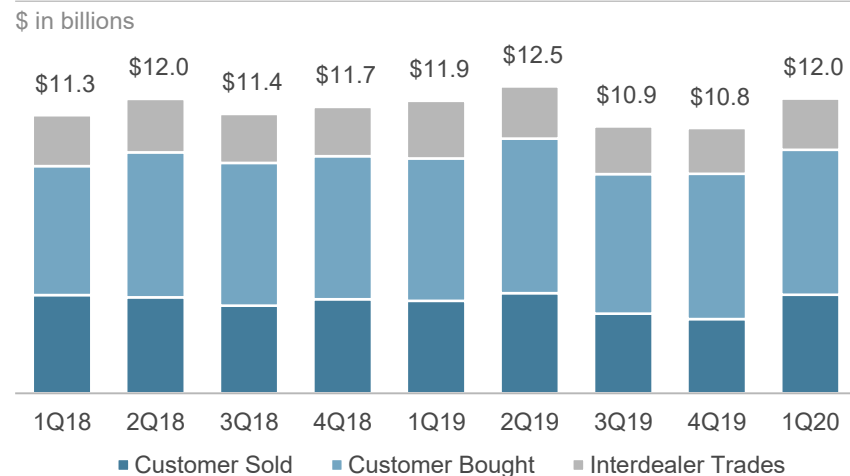
Refundings as a Percentage of Long-Term Issuance



Municipal Bond Issuance



Quarterly Average Daily Trading Volume

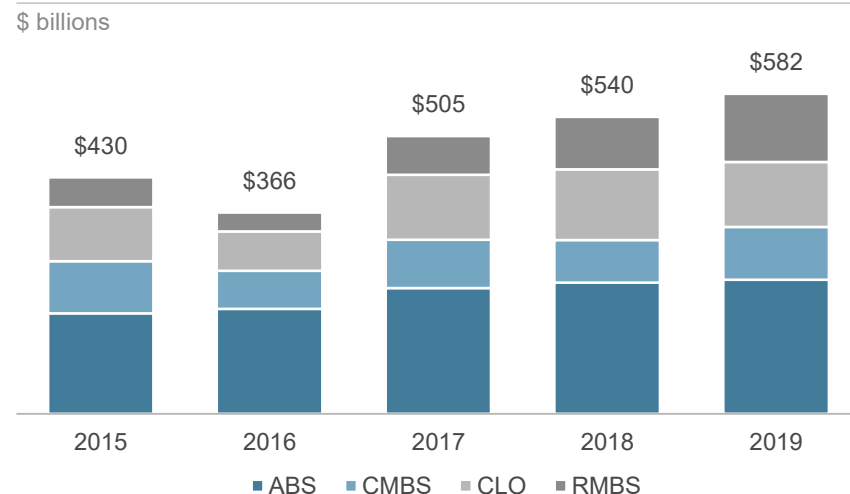


Fixed Income: Structured Finance Market

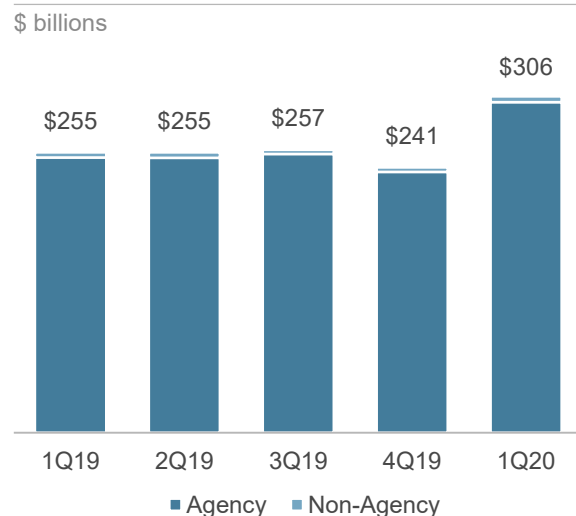
Market Commentary

- Non-agency MBS markets reached a post-crisis high as investors search for yield in the late stages of the credit cycle
- ABS issuance climbed with a strong macro environment supporting consumer credit expansion and the rise of structures like whole-business securitizations
- With a volatile start to 2019, CLO spreads widened, resulting in a sharp decline in resets/refinancings, even as new issues remained close to the record levels of 2018
- Recent increases in non-agency RMBS issuance and the creation of TBA UMBS have helped to drive higher ADTV

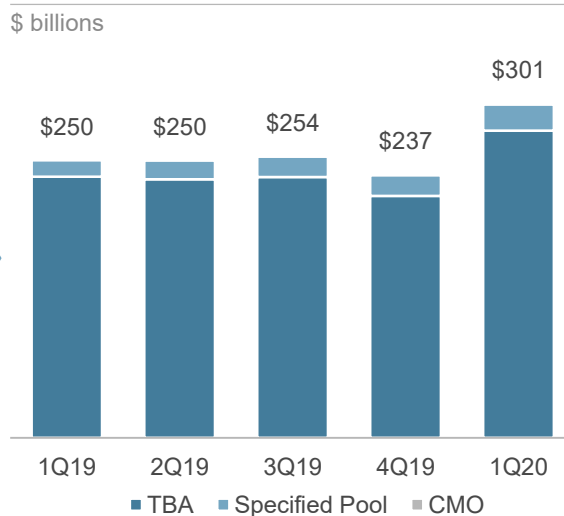
U.S. ABS Issuance



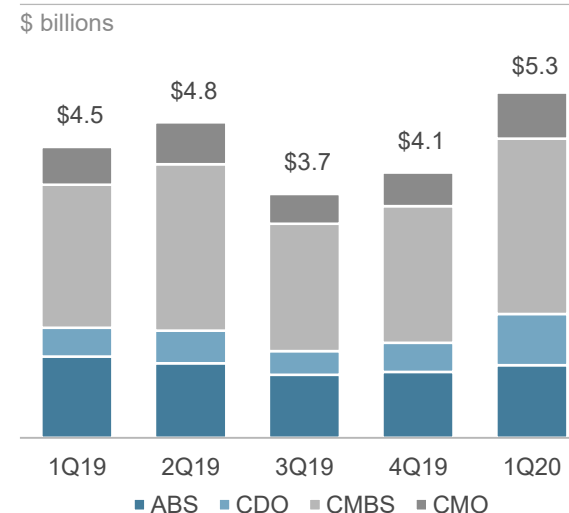
U.S. Agency and Non-Agency ADTV



U.S. Agency Specific ADTV



U.S. Non-Agency Specific ADTV



Fixed Income Trading: Electronification and Shifts in Liquidity

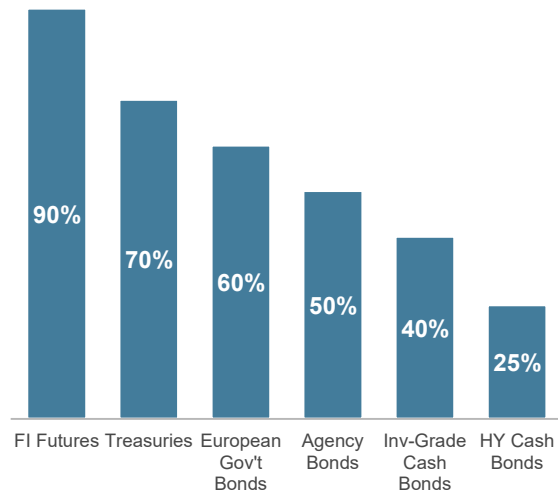
Changes in Market Structure

- Higher demand for liquidity from market participants has led to an increased focus on electronification within fixed-income markets
- Electronic trading platforms have allowed for granular-level insights into transactional data, allowing for robust analytics compared to that of the legacy request-for-quote (RFQ) model
- The buy-side is increasingly looking for new ways to generate alpha, in doing so, seeking greater access to liquidity, improved price discovery, and subsequently more automation and more low-touch electronic trading, to streamline their workflow

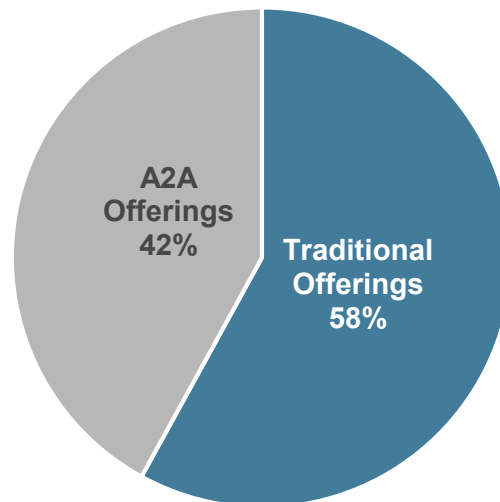
Shifting Landscape of Market Participants

- Stark blurring of the lines between providers and takers due to the increased number of venues allowing for A2A trading
- Sellside banks are under increased competitive pressure from non-bank liquidity providers, some of which are able to provide streaming prices directly to their clients
- The market has 30+ operationally active electronic execution platforms providing greater liquidity for both the buy-side and sellside

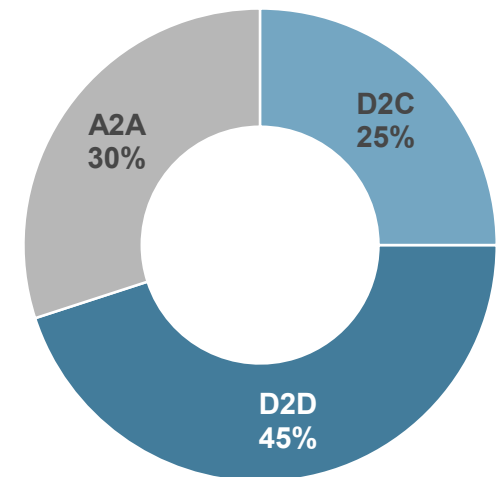
Percentage of Liquid Fixed-Income Securities Electronically Traded



Electronic Trading Volume Breakdown



Percentage of Platforms Offering A2A Trading



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