
CAPITAL MARKETS TECHNOLOGY & SERVICES MONITOR

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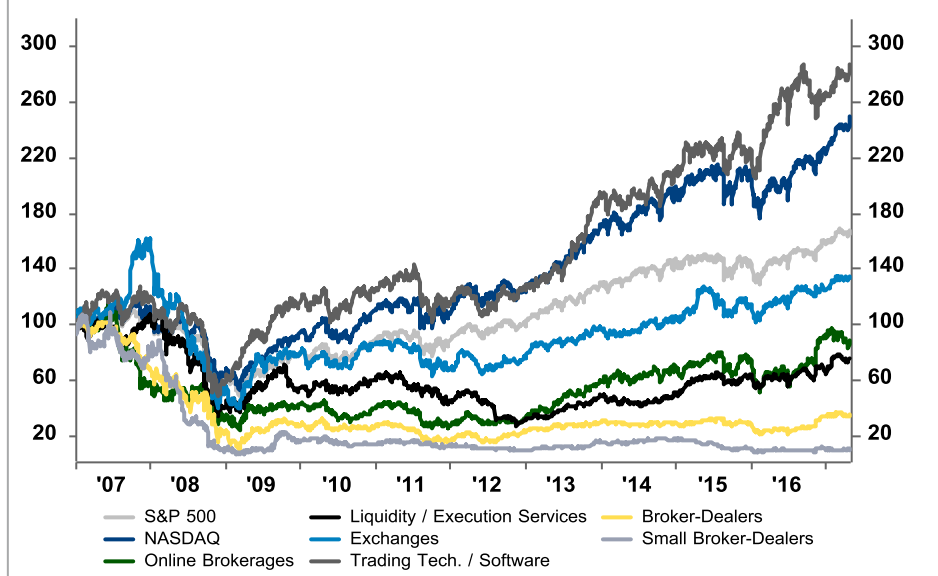
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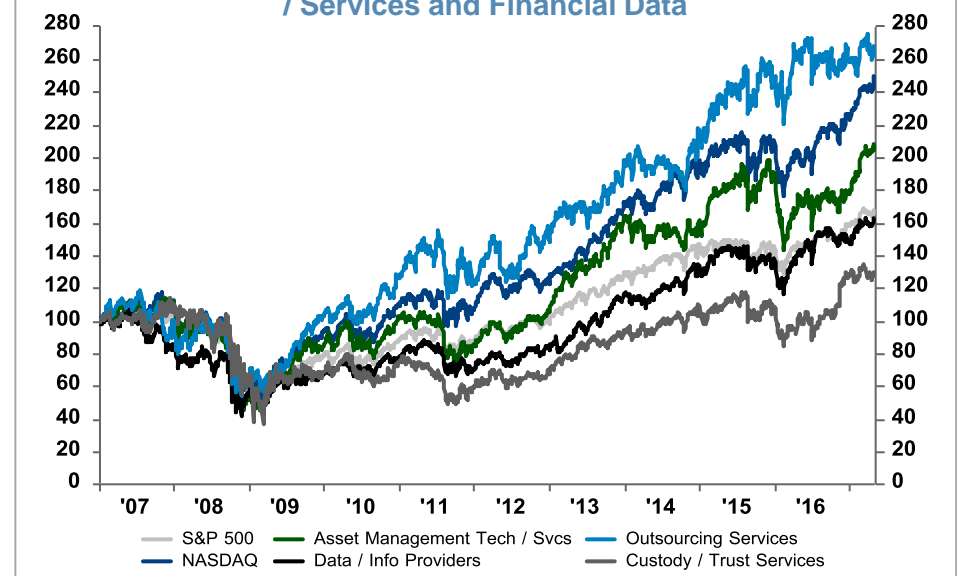
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PUBLIC MARKET ENVIRONMENT – SECTOR PERFORMANCE

Brokerages and Trading Technology



Asset Management Technology / Services and Financial Data



Sector / Index	Intramonth Performance																Weekly Performance	
	2014	2015	2016	LTM	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	4/24-4/28
Sectors																		
Online Brokerages	46.1%	24.9%	16.8%	16.8%	(1.9%)	8.5%	(16.3%)	11.4%	10.0%	4.6%	(0.9%)	21.8%	0.7%	5.3%	(6.4%)	(5.0%)	(2.8%)	(0.6%)
Liquidity / Execution Services	65.1%	52.2%	19.4%	16.2%	(3.4%)	3.6%	(3.2%)	7.1%	5.5%	(2.0%)	(3.6%)	12.3%	(11.2%)	14.5%	1.9%	(5.0%)	2.6%	2.6%
Exchanges	50.1%	24.7%	9.0%	4.7%	4.3%	(1.8%)	0.8%	3.6%	(0.4%)	2.7%	0.8%	0.5%	(5.2%)	4.3%	1.2%	0.3%	(0.4%)	0.7%
Trading Technology / Software	61.6%	42.0%	30.6%	13.5%	1.7%	6.6%	(2.8%)	4.7%	2.0%	(3.3%)	(3.8%)	0.5%	2.8%	(0.2%)	5.3%	(1.6%)	2.5%	0.2%
Asset Management Technology / Services																		
Asset Management Technology / Services	46.3%	54.4%	10.3%	26.9%	1.2%	8.6%	(7.8%)	1.5%	4.0%	2.2%	(3.3%)	0.0%	3.8%	3.8%	7.0%	2.8%	2.0%	(0.3%)
Data / Information Providers	51.3%	30.9%	19.9%	16.9%	0.3%	6.2%	(3.8%)	8.3%	0.5%	(0.8%)	(4.3%)	3.6%	(1.4%)	4.6%	2.2%	0.3%	3.5%	1.3%
Outsourcing Services	43.0%	30.8%	10.1%	3.5%	(4.3%)	5.3%	(6.0%)	2.4%	0.5%	(1.4%)	(2.5%)	3.3%	1.8%	(3.8%)	7.2%	(1.3%)	1.1%	1.3%
Broker-Dealers	28.2%	22.8%	23.1%	37.3%	6.8%	1.3%	(9.6%)	6.5%	9.4%	(1.6%)	5.7%	19.0%	4.1%	(1.1%)	6.2%	(6.3%)	(0.1%)	0.2%
Small Broker-Dealers	(30.8%)	(38.2%)	2.1%	2.9%	5.4%	0.6%	(8.7%)	5.0%	0.3%	0.3%	(7.7%)	17.1%	(3.9%)	(3.2%)	(0.1%)	1.6%	6.1%	6.0%
Custody / Trust Services	38.7%	22.2%	23.0%	26.8%	6.1%	3.1%	(10.0%)	6.4%	7.2%	(1.8%)	5.8%	12.4%	0.4%	(1.9%)	4.8%	(4.8%)	2.2%	1.3%
Indices																		
S&P 500	29.2%	16.0%	16.9%	14.0%	(0.4%)	1.5%	(0.0%)	3.4%	0.0%	(0.1%)	(1.9%)	4.1%	2.2%	1.8%	3.7%	(1.4%)	0.9%	0.5%
NASDAQ	44.8%	27.7%	20.8%	24.4%	(2.8%)	3.6%	(2.2%)	6.2%	0.6%	1.6%	(2.3%)	3.3%	2.5%	4.3%	3.2%	0.1%	2.3%	1.1%

Sources: CapitalIQ, FactSet.

VALUATION OVERVIEW

Valuation Analysis Summary

Sector	Price / Earnings			EV / Revenue			EV / EBITDA			Revenue Growth		EBITDA Margin		P / BV	P / TBV	Long-Term EPS Growth	PEG Ratio
	LTM	2017	2018	LTM	2017	2018	LTM	2017	2018	2017	2018	2017	2018				
Online Brokerages ⁽¹⁾	14.9x	14.4x	11.5x	1.8x	1.7x	1.7x	9.2x	9.6x	6.7x	8.7%	5.0%	24.1%	29.1%	1.3x	2.2x	15.1%	0.8
Liquidity / Execution Services ⁽¹⁾	23.5x	22.7x	18.9x	6.3x	5.4x	4.8x	15.6x	12.0x	10.1x	11.4%	12.1%	45.6%	47.5%	3.8x	6.5x	16.2%	1.2
Exchanges	22.1x	18.6x	22.1x	1.3x	1.3x	1.3x	11.1x	7.5x	7.7x	3.5%	8.9%	38.3%	22.2%	2.0x	1.9x	13.5%	1.9
Trading Technology / Software	27.7x	21.1x	18.6x	3.8x	3.5x	3.2x	18.1x	14.4x	13.3x	18.4%	7.3%	23.2%	23.3%	5.2x	NA	6.9%	3.2
Asset Management Tech. / Services	26.9x	22.6x	17.6x	3.6x	3.4x	3.4x	18.0x	13.4x	11.8x	14.0%	11.9%	25.9%	25.5%	3.6x	9.7x	14.0%	1.7
Data / Information Providers	30.4x	22.6x	20.6x	3.8x	3.5x	3.4x	15.3x	13.6x	11.8x	4.7%	4.9%	27.7%	29.3%	4.7x	9.9x	10.7%	2.2
Outsourcing Services	17.4x	15.1x	13.9x	1.9x	1.9x	1.9x	10.5x	9.7x	9.0x	5.2%	6.3%	17.3%	17.6%	3.1x	3.3x	11.8%	1.3
Broker-Dealers ⁽¹⁾	24.0x	21.8x	19.1x	1.8x	1.7x	1.7x	9.2x	9.6x	6.7x	8.7%	5.0%	24.1%	29.1%	2.3x	7.9x	11.5%	1.6
Small Broker-Dealers ⁽¹⁾	20.5x	12.3x	9.0x	1.1x	3.3x	3.8x	9.8x	7.1x	NA	38.0%	(7.0%)	13.8%	NA	1.1x	1.4x	15.0%	0.8
Custody / Trust Services ⁽¹⁾	16.3x	14.6x	13.1x	3.6x	3.4x	3.2x	11.9x	9.1x	8.3x	8.1%	4.6%	NA	NA	1.6x	2.8x	13.5%	1.4
Overall Median	22.8x	19.8x	18.1x	2.7x	3.4x	3.2x	11.5x	9.6x	9.0x	8.7%	5.6%	24.1%	27.3%	2.7x	3.3x	13.5%	1.5
Overall Mean	22.4x	18.6x	16.4x	2.9x	2.9x	2.8x	12.9x	10.6x	9.5x	12.1%	5.9%	26.7%	28.0%	2.9x	5.1x	12.8%	1.6

(1) For the purposes of this report, market capitalization is used in lieu of enterprise value and EBT excluding extraordinary items is used in lieu of EBITDA for the valuation metrics.

Historical Valuation Comparison

Sector	Price / LTM Earnings Median					EV / LTM EBITDA Multiples Median				
	Q1 2013	Q1 2014	Q1 2015	Q1 2016	Now	Q1 2013	Q1 2014	Q1 2015	Q1 2016	Now
Online Brokerages ⁽¹⁾										
	28.2x	24.3x	31.7x	27.2x	14.9x	9.9x	12.4x	19.9x	15.8x	15.6x
Liquidity / Execution Services ⁽¹⁾	24.3x	28.2x	13.0x	28.6x	23.5x	7.9x	8.2x	17.8x	11.0x	11.1x
Exchanges	22.6x	25.8x	22.7x	23.6x	22.1x	9.3x	8.6x	13.6x	17.8x	16.7x
Trading Technology / Software	22.7x	22.4x	25.8x	26.4x	27.7x	7.2x	7.5x	10.7x	14.6x	18.1x
Asset Management Tech. / Services	26.3x	24.4x	29.0x	29.0x	26.9x	8.8x	12.1x	12.8x	14.4x	17.9x
Data / Information Providers	22.5x	20.4x	27.2x	43.2x	30.4x	11.6x	13.2x	15.2x	14.4x	14.8x
Outsourcing Services	16.8x	18.7x	18.1x	16.0x	17.4x	9.8x	11.3x	11.4x	10.1x	10.5x
Broker-Dealers ⁽¹⁾	18.3x	18.3x	12.3x	14.5x	24.0x	6.4x	10.4x	12.0x	10.5x	9.2x
Small Broker-Dealers ⁽¹⁾	9.1x	26.5x	7.6x	17.0x	20.5x	4.4x	4.8x	14.7x	13.8x	9.8x
Custody / Trust Services ⁽¹⁾	18.2x	17.9x	14.9x	15.6x	16.3x	6.2x	7.7x	10.0x	11.4x	11.9x
Overall Median	22.5x	23.4x	20.4x	25.0x	22.8x	8.4x	9.5x	13.2x	14.1x	13.3x
Overall Mean	20.9x	22.7x	20.2x	24.1x	22.4x	8.2x	9.6x	13.8x	13.4x	13.6x

(1) For the purposes of this report, market capitalization compared to EBT excluding extraordinary items is used as a valuation metric in place of EV / LTM EBITDA.

VALUATION ANALYSIS DETAIL

<i>(USD millions, except per share amounts)</i>																					
Company	Trading Performance		Capitalization		Price / Earnings			EV / Revenue			EV / EBITDA			Revenue Growth		EBITDA Margin		P / BV	P / TBV	Long-Term EPS Growth	PEG Ratio
	Stock Price	52-Week Relative Price	Equity Value	Enterprise Value	LTM	2017	2018	LTM	2017	2018	LTM	2017	2018	2017	2018	2017	2018				
	4/28/17	Price	Value	Value																	
Broker-Dealers⁽¹⁾																					
Ameriprise Financial	\$128.48	86.6%	\$19,657.4	\$19,657.4	15.4x	11.8x	10.6x	1.7x	1.7x	1.6x	12.1x	NA	NA	(0.7%)	3.9%	NA	NA	3.2x	3.2x	16.4%	0.7
Cowen Group	15.45	77.7%	421.9	421.9	NM	16.4x	8.8x	1.0x	0.7x	0.6x	NA	NA	NA	53.6%	7.1%	NA	NA	0.5x	0.6x	NA	NA
Evercore Partners	74.05	78.5%	3,044.2	3,044.2	16.0x	14.4x	13.9x	1.9x	1.9x	1.8x	8.2x	7.4x	6.6x	8.7%	5.5%	26.4%	28.1%	5.5x	8.6x	19.3%	0.7
FBR	18.05	75.5%	127.8	127.8	NM	15.7x	10.9x	1.3x	0.9x	0.9x	NA	NA	NA	40.1%	6.0%	NA	NA	1.1x	1.1x	NA	NA
Gleacher & Co.	1.11	11.3%	6.9	6.9	NM	NA	NA	2.9x	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1x	NM	NA	NA
Greenhill	25.80	60.5%	763.0	763.0	14.9x	20.2x	15.9x	2.4x	2.5x	2.4x	9.0x	11.6x	NA	(9.1%)	4.6%	21.9%	NA	2.8x	9.9x	NA	NA
Goldman Sachs	226.65	75.6%	92,767.8	92,767.8	11.9x	12.0x	10.8x	2.9x	2.9x	2.8x	7.9x	NA	NA	4.2%	4.1%	NA	NA	1.2x	1.3x	15.1%	0.8
Lazard	42.99	80.4%	5,578.6	5,578.6	12.4x	12.5x	11.8x	2.3x	2.2x	2.1x	9.2x	7.6x	6.9x	9.9%	4.4%	28.7%	30.2%	4.6x	6.9x	6.1%	2.0
Ladenburg Thalmann	2.76	91.1%	540.2	540.2	NM	NM	NA	0.5x	0.5x	NA	NA	12.0x	NA	3.5%	NA	4.0%	NA	1.4x	4.6x	15.0%	NA
Morgan Stanley	43.68	84.9%	80,895.4	80,895.4	12.7x	12.7x	11.2x	2.2x	2.2x	2.1x	7.9x	NA	NA	8.4%	3.6%	NA	NA	1.2x	1.4x	12.1%	1.0
Piper Jaffray	63.15	59.8%	807.4	807.4	NM	NA	NA	1.0x	NA	NA	10.7x	NA	NA	NA	NA	NA	NA	1.0x	1.5x	NA	NA
Raymond James	74.47	79.1%	10,342.6	10,342.6	19.0x	14.4x	13.5x	1.8x	1.6x	1.5x	12.5x	NA	NA	15.5%	6.9%	NA	NA	2.1x	2.3x	17.0%	0.8
Stifel Financial	48.88	72.5%	3,345.1	3,345.1	NM	14.6x	12.7x	1.3x	1.2x	1.1x	14.7x	NA	NA	10.3%	6.9%	NA	NA	1.3x	2.2x	NA	NA
Broker-Dealers Median		77.7%			14.9x	14.4x	11.5x	1.8x	1.7x	1.7x	9.2x	9.6x	6.7x	8.7%	5.0%	24.1%	29.1%	1.3x	2.2x	15.1%	0.8
Broker-Dealers Mean		71.8%			14.6x	14.5x	12.0x	1.8x	1.7x	1.7x	10.3x	9.6x	6.7x	13.1%	5.3%	20.2%	29.1%	2.0x	3.6x	14.4%	1.0
Online Brokerages⁽¹⁾																					
Charles Schwab	\$39.02	76.6%	52,154.9	52,154.9	27.6x	24.4x	20.2x	6.7x	6.0x	5.4x	16.5x	NA	NA	16.1%	12.1%	NA	NA	3.8x	4.3x	20.0%	1.2
E*Trade	34.61	76.6%	9,505.2	9,505.2	17.9x	17.7x	15.3x	4.4x	4.3x	3.9x	10.5x	NA	NA	7.1%	8.7%	NA	NA	1.6x	2.8x	16.2%	1.1
Siebert Financial	4.10	103.3%	90.5	90.5	NM	NM	NA	9.2x	NA	NA	NA	NA	NA	NA	NA	NA	NA	39.2x	39.2x	NA	NA
TD Ameritrade	38.16	56.0%	20,131.0	20,131.0	23.5x	22.7x	18.9x	6.0x	5.4x	4.8x	15.6x	12.0x	10.1x	11.4%	13.3%	45.6%	47.5%	3.8x	8.7x	15.1%	1.5
Online Brokerages Median		76.6%			23.5x	22.7x	18.9x	6.3x	5.4x	4.8x	15.6x	12.0x	10.1x	11.4%	12.1%	45.6%	47.5%	3.8x	6.5x	16.2%	1.2
Online Brokerages Mean		78.1%			23.0x	21.6x	18.1x	6.6x	5.2x	4.7x	14.2x	12.0x	10.1x	11.5%	11.4%	45.6%	47.5%	12.1x	13.8x	17.1%	1.3
Liquidity / Execution Services⁽¹⁾																					
BGC Partners	\$11.39	87.5%	3,231.1	3,231.1	30.8x	11.4x	9.9x	1.3x	1.1x	1.1x	34.6x	5.5x	4.8x	13.1%	6.1%	20.3%	22.2%	3.8x	NM	NA	NA
Interactive Brokers Group	34.92	35.1%	2,374.0	2,374.0	31.2x	25.8x	22.1x	1.7x	1.7x	1.5x	3.7x	2.6x	2.3x	(0.2%)	12.0%	64.4%	63.7%	2.4x	2.4x	13.5%	1.9
International Assets Holdings	37.55	63.5%	699.8	699.8	13.4x	10.3x	NA	0.0x	0.9x	NA	11.1x	NA	NA	(95.6%)	(100.0%)	NA	NA	1.6x	1.8x	NA	NA
ITG	20.07	80.6%	665.2	665.2	NM	36.9x	14.7x	1.4x	1.3x	1.2x	NA	NA	28.9x	7.3%	11.8%	NA	4.1%	1.6x	1.9x	NA	NA
KCG Holdings, Inc.	19.87	100.3%	1,324.9	1,324.9	7.1x	NM	37.5x	1.0x	1.3x	1.3x	4.0x	9.6x	7.7x	(22.9%)	(0.9%)	13.1%	16.5%	1.0x	1.1x	10.0%	NA
MarketAxess	193.51	91.1%	7,273.9	7,273.9	NM	NM	39.1x	18.9x	17.6x	15.0x	35.9x	31.2x	25.5x	11.9%	17.1%	56.3%	58.8%	15.0x	15.0x	20.0%	NA
Tullett Prebon	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Liquidity / Execution Services Median		84.0%			22.1x	18.6x	22.1x	1.3x	1.3x	1.3x	11.1x	7.5x	7.7x	3.5%	8.9%	38.3%	22.2%	2.0x	1.9x	13.5%	1.9
Liquidity / Execution Services Mean		76.3%			20.6x	21.1x	24.7x	4.1x	4.0x	4.0x	17.9x	12.2x	13.8x	(14.4%)	(9.0%)	38.5%	33.1%	4.2x	4.4x	14.5%	1.9

(1) For the purposes of this report enterprise value is equal to market capitalization and EBT excl. extraordinary items is used instead of EBITDA.

VALUATION ANALYSIS DETAIL (CONTINUED)

Company	Trading Performance		Capitalization		Price / Earnings			EV / Revenue			EV / EBITDA			Revenue Growth		EBITDA Margin		P / BV	P / TBV	Long-Term EPS Growth	PEG Ratio
	Stock Price	52-Week Relative Price	Equity Value	Enterprise Value	LTM	2017	2018	LTM	2017	2018	LTM	2017	2018	2017	2018	2017	2018				
	4/28/17																				
Exchanges⁽¹⁾																					
Australian Stock Exchange	\$37.79	81.2%	\$7,309.4	\$7,309.4	23.4x	22.1x	21.2x	10.7x	12.3x	11.7x	16.0x	16.1x	15.2x	(13.3%)	5.4%	76.6%	76.9%	2.5x	6.8x	4.7%	4.7
BM&F Bovespa	5.95	68.7%	12,083.3	12,083.3	23.9x	15.9x	16.7x	16.6x	15.3x	11.1x	17.2x	18.0x	16.1x	8.4%	38.2%	84.8%	68.6%	1.8x	9.0x	15.8%	1.0
CME	116.13	68.9%	39,460.2	39,460.2	25.1x	23.8x	22.1x	11.0x	10.5x	10.0x	16.2x	14.6x	13.6x	4.0%	5.7%	72.2%	73.1%	1.9x	NM	12.1%	2.0
Deutsche Boerse	97.85	95.4%	18,278.6	18,278.6	24.0x	18.5x	16.4x	6.0x	6.6x	6.2x	16.0x	11.3x	10.5x	(10.1%)	7.3%	58.8%	58.6%	3.8x	NM	11.5%	1.6
Hong Kong Exchange	24.62	43.5%	30,068.1	30,068.1	NM	33.8x	30.6x	NM	NM	NM	34.6x	26.1x	23.8x	14.4%	9.0%	70.9%	71.2%	NM	NM	2.3%	14.8
ICE	60.40	89.0%	35,841.6	35,841.6	25.3x	20.0x	17.8x	8.0x	7.7x	7.3x	16.7x	11.9x	11.0x	3.7%	5.4%	64.4%	66.1%	2.3x	NM	16.2%	1.2
London Stock Exchange	43.72	98.8%	15,261.2	15,261.2	NM	23.0x	20.4x	7.1x	6.7x	6.3x	24.9x	13.2x	11.8x	5.8%	6.7%	51.1%	53.3%	3.8x	NM	15.5%	1.5
NASDAQ OMX	68.49	64.4%	11,420.5	11,420.5	NM	16.6x	15.3x	3.0x	4.8x	4.6x	13.6x	9.4x	8.9x	(35.4%)	4.2%	50.7%	51.6%	2.1x	NM	10.4%	1.6
Singapore Exchange	5.30	50.0%	5,667.5	5,667.5	NM	21.8x	19.1x	10.0x	9.5x	8.9x	19.5x	16.2x	14.5x	5.4%	6.9%	58.4%	61.1%	NM	NM	3.1%	7.1
Exchanges Median		68.9%			24.0x	21.8x	19.1x	9.0x	8.6x	8.1x	16.7x	14.6x	13.6x	4.0%	6.7%	64.4%	66.1%	2.3x	7.9x	11.5%	1.6
Exchanges Mean		73.3%			24.3x	21.7x	20.0x	9.0x	9.2x	8.2x	19.4x	15.2x	14.0x	(1.9%)	9.9%	65.3%	64.5%	2.6x	7.9x	10.2%	3.9
Small Broker-Dealers⁽¹⁾																					
Arlington Asset Investment	\$14.73	53.3%	348.0	348.0	NM	6.1x	6.4x	6.5x	4.3x	4.6x	9.8x	NA	NA	#####	(7.0%)	NA	NA	0.9x	0.9x	NA	NA
JMP	5.89	45.3%	127.7	127.7	NM	13.2x	NA	1.1x	1.0x	NA	NA	7.1x	NA	(3.0%)	(100.0%)	13.8%	NA	1.1x	1.1x	NA	NA
Merriman Curhan Ford	0.02	4.9%	0.1	0.1	NM	NA	NA	0.0x	NA	NA	NA	NA	NA	NA	NA	NA	NA	NM	NM	NA	NA
National Holdings	2.69	32.6%	33.4	33.4	NM	NA	NA	0.2x	NA	NA	3.3x	NA	NA	NA	NA	NA	NA	1.1x	1.8x	NA	NA
Summit Financial	22.22	48.3%	276.1	276.1	20.5x	12.3x	11.7x	4.5x	3.3x	3.0x	10.2x	NA	NA	38.0%	11.9%	NA	NA	1.6x	1.7x	15.0%	0.8
Small Broker-Dealers Median		45.3%			20.5x	12.3x	9.0x	1.1x	3.3x	3.8x	9.8x	7.1x	NA	38%	(7.0%)	13.8%	NA	1.1x	1.4x	15.0%	0.8
Small Broker-Dealers Mean		36.9%			20.5x	10.6x	9.0x	2.5x	2.9x	3.8x	7.8x	7.1x	NA	375%	(31.7%)	13.8%	NA	1.2x	1.4x	15.0%	0.8
Trading Technology / Software																					
Broadridge	\$69.62	84.7%	8,234.4	9,204.6	27.7x	21.1x	18.6x	2.7x	2.2x	2.1x	14.5x	11.9x	11.4x	20.5%	5.2%	18.6%	18.5%	8.4x	NM	NA	NA
First Derivatives	33.85	89.1%	842.2	863.2	NM	NM	NM	4.9x	4.9x	4.3x	39.0x	25.9x	23.0x	26.9%	13.5%	18.8%	18.6%	5.2x	NM	NA	NA
IRESS	9.28	94.9%	1,559.2	1,674.5	34.7x	25.1x	22.5x	5.8x	5.1x	4.7x	21.8x	16.9x	15.2x	13.1%	9.4%	30.1%	30.7%	5.2x	NM	10.5%	2.4
Linedata	52.05	78.9%	375.9	419.1	15.1x	13.5x	12.8x	2.3x	2.0x	1.9x	8.9x	7.2x	6.9x	16.2%	2.4%	27.6%	28.0%	3.0x	NM	3.3%	4.1
Trading Technology / Software Median		86.9%			27.7x	21.1x	18.6x	3.8x	3.5x	3.2x	18.1x	14.4x	13.3x	18.4%	7.3%	23.2%	23.3%	5.2x	NA	6.9%	3.2
Trading Technology / Software Mean		86.9%			25.8x	19.9x	18.0x	3.9x	3.5x	3.2x	21.1x	15.5x	14.1x	19.2%	7.6%	23.8%	24.0%	5.5x	NA	6.9%	3.2
Asset Management Technology / Services																					
ComputerShare	10.98	99.3%	6,000.2	7,226.1	26.9x	19.3x	17.5x	3.6x	3.4x	3.4x	16.6x	13.1x	13.2x	4.5%	0.8%	25.9%	25.5%	5.1x	NM	8.1%	2.4
DST Systems	122.19	81.0%	3,849.0	4,319.3	10.3x	18.4x	16.3x	2.7x	2.1x	1.9x	13.3x	11.3x	9.5x	29.2%	13.6%	19.0%	19.9%	3.1x	NM	9.0%	2.0
Envestnet	34.93	52.8%	1,516.9	1,755.6	NM	27.3x	21.6x	3.0x	2.7x	2.3x	41.4x	14.0x	11.3x	14.0%	14.4%	19.0%	20.7%	3.7x	NM	20.0%	1.4
Financial Engines	43.40	89.4%	2,725.7	2,591.7	92.6x	32.4x	27.9x	6.1x	5.3x	4.8x	34.3x	16.2x	14.0x	14.4%	11.9%	33.0%	34.0%	3.6x	11.7x	19.3%	1.7
SEI Investments	50.72	82.1%	8,049.8	7,388.4	23.6x	22.6x	19.6x	5.2x	5.0x	4.6x	18.0x	13.4x	11.8x	5.8%	7.6%	37.1%	39.4%	5.9x	7.6x	13.5%	1.7
SS&C Technologies	36.87	90.7%	7,518.3	9,854.0	43.2x	19.0x	17.0x	6.3x	5.9x	5.6x	17.7x	14.3x	13.0x	13.1%	5.5%	41.2%	42.8%	3.3x	NM	14.5%	1.3
StatPro	1.60	91.5%	103.6	117.0	NM	25.1x	17.6x	2.4x	1.9x	1.6x	21.0x	13.0x	10.2x	30.2%	17.7%	14.2%	15.4%	2.5x	NM	NA	NA
Asset Management Technology / Services Median		89.4%			26.9x	22.6x	17.6x	3.6x	3.4x	3.4x	18.0x	13.4x	11.8x	14.0%	11.9%	25.9%	25.5%	3.6x	9.7x	14.0%	1.7
Asset Management Technology / Services Mean		83.8%			39.3x	23.5x	19.6x	4.2x	3.8x	3.4x	23.2x	13.6x	11.9x	15.9%	10.2%	27.1%	28.2%	3.9x	9.7x	14.0%	1.7

(1) For the purposes of this report enterprise value is equal to market capitalization and EBT excl. extraordinary items is used instead of EBITDA.

VALUATION ANALYSIS DETAIL (CONTINUED)

Company	Trading Performance		Capitalization		Price / Earnings			EV / Revenue			EV / EBITDA			Revenue Growth		EBITDA Margin		P / BV	P / TBV	Long-Term EPS Growth	PEG Ratio
	Stock Price	52-Week Relative Price	Equity Value	Enterprise Value	LTM	2017	2018	LTM	2017	2018	LTM	2017	2018	2017	2018	2017	2018				
	4/28/17	Price	Value	Value																	
Data / Information Providers																					
Dun & Bradstreet	\$109.34	21.6%	\$4,034.4	\$5,313.0	39.3x	15.6x	14.9x	3.1x	3.0x	2.9x	11.8x	10.6x	10.1x	3.6%	3.8%	28.3%	28.8%	NM	NM	8.0%	2.0
FactSet	163.07	43.3%	6,434.5	6,614.1	19.0x	21.7x	19.9x	5.7x	5.2x	4.8x	16.2x	15.3x	14.1x	10.1%	8.6%	34.4%	34.4%	13.1x	NM	10.7%	2.0
Fimalac	115.71	52.7%	2,893.6	2,998.4	NM	NA	NA	NM	NM	NM	1314.1x	NM	NM	(62.7%)	(100.0%)	13.5%	NA	1.3x	1.9x	NA	NA
Forrester	39.80	60.4%	726.2	588.1	37.2x	33.9x	24.0x	1.8x	1.8x	1.7x	14.8x	15.6x	12.6x	1.0%	6.6%	11.4%	13.3%	5.0x	9.9x	13.0%	2.6
Gartner	113.57	96.2%	10,273.1	10,493.3	NM	32.4x	25.9x	4.3x	3.0x	2.6x	26.2x	14.8x	11.8x	40.8%	16.5%	20.6%	22.1%	154.8x	NM	16.1%	2.0
Moody's	118.71	97.0%	22,676.0	24,011.8	NM	22.6x	20.6x	6.7x	6.3x	6.0x	14.6x	13.6x	12.9x	5.7%	5.5%	46.2%	46.3%	NM	NM	10.2%	2.2
Morningstar	73.42	32.0%	3,149.7	3,067.2	21.0x	31.2x	25.9x	3.8x	3.6x	3.4x	13.8x	13.2x	11.7x	7.5%	4.3%	27.1%	29.3%	4.4x	69.2x	12.0%	2.6
Thomson Reuters	45.38	118.6%	32,846.9	39,511.9	30.4x	19.4x	17.9x	3.5x	3.5x	3.4x	15.7x	11.9x	11.4x	1.3%	2.8%	29.5%	29.9%	2.6x	NM	8.0%	2.4
Data / Information Providers Median		56.5%			30.4x	22.6x	20.6x	3.8x	3.5x	3.4x	15.3x	13.6x	11.8x	4.7%	4.9%	27.7%	29.3%	4.7x	9.9x	10.7%	2.2
Data / Information Providers Mean		65.2%			29.4x	25.3x	21.3x	4.1x	3.8x	3.5x	178.4x	13.6x	12.1x	0.9%	(6.5%)	26.4%	29.1%	30.2x	27.0x	11.1%	2.3
Outsourcing Services																					
3i Infotech	\$0.09	51.6%	\$99.6	\$227.3	NM	NA	NA	1.4x	NA	NA	9.8x	NA	NA	NA	NA	NA	NA	3.7x	NM	NA	NA
Accenture	120.33	65.3%	74,614.6	72,051.6	19.7x	20.3x	18.3x	2.1x	2.1x	1.9x	12.6x	12.1x	11.3x	5.2%	6.6%	16.9%	17.1%	9.4x	20.0x	10.7%	1.9
Cap Gemini	99.82	91.5%	16,356.2	18,076.1	17.4x	15.6x	14.3x	1.3x	1.3x	1.2x	10.5x	9.3x	8.7x	3.5%	4.2%	13.8%	14.1%	2.2x	NM	9.7%	1.6
CGI	47.85	87.0%	14,001.9	15,118.2	17.6x	17.3x	16.4x	1.9x	1.9x	1.8x	11.4x	10.1x	9.7x	2.3%	3.1%	18.7%	19.0%	3.1x	NM	17.5%	1.0
Cognizant	59.61	79.7%	35,110.0	30,819.0	23.3x	16.4x	14.0x	2.3x	2.1x	1.9x	11.6x	10.3x	8.9x	9.0%	9.1%	20.4%	21.5%	3.4x	5.0x	13.6%	1.2
Genpact	24.31	29.4%	4,837.6	5,318.0	18.6x	15.6x	14.0x	2.1x	2.0x	1.9x	12.6x	11.6x	10.8x	3.1%	5.6%	17.3%	17.6%	3.8x	NM	11.8%	1.3
HCL Technologies	12.69	58.6%	18,113.0	16,562.0	14.9x	13.5x	12.8x	2.4x	2.1x	2.0x	11.0x	9.7x	9.2x	15.1%	8.3%	21.9%	21.2%	3.7x	4.7x	10.7%	1.3
Hexaware Technologies	3.59	75.5%	0.0	NM	15.7x	15.1x	13.7x	NA	NA	NA	NA	NA	NA	10.9%	10.5%	16.4%	16.5%	0.0x	0.0x	11.9%	1.3
Infosys	14.33	4.7%	32,749.7	27,722.7	15.3x	14.8x	13.9x	2.7x	2.6x	2.4x	10.0x	9.6x	9.1x	7.8%	6.3%	26.5%	26.3%	3.0x	3.3x	10.2%	1.4
mPhasiS	8.34	55.8%	1,754.4	1,287.7	NM	12.8x	11.8x	1.4x	1.3x	1.2x	8.6x	8.0x	7.3x	5.5%	7.9%	16.0%	16.2%	1.7x	2.8x	12.7%	1.0
Unisys	11.48	47.6%	578.3	577.7	NM	6.3x	5.7x	0.2x	0.2x	0.2x	3.0x	1.6x	1.5x	(2.8%)	2.1%	13.6%	13.6%	NM	NM	12.0%	0.5
Wipro	7.70	50.2%	18,632.3	15,514.9	14.3x	14.0x	13.5x	1.8x	1.8x	1.7x	9.1x	8.2x	8.3x	2.8%	5.5%	21.6%	20.2%	2.3x	3.2x	7.2%	2.0
Outsourcing Services Median		57.2%			17.4x	15.1x	13.9x	1.9x	1.9x	1.9x	10.5x	9.7x	9.0x	5.2%	6.3%	17.3%	17.6%	3.1x	3.3x	11.8%	1.3
Outsourcing Services Mean		58.1%			17.4x	14.7x	13.5x	1.8x	1.7x	1.6x	10.0x	9.0x	8.5x	5.7%	6.3%	18.5%	18.5%	3.3x	5.6x	11.6%	1.3
Custody / Trust Services⁽¹⁾																					
Bank of New York Mellon	\$47.23	83.3%	\$49,113.4	\$49,113.4	14.5x	13.4x	12.1x	3.2x	3.1x	3.0x	10.1x	NA	NA	3.9%	3.9%	NA	NA	1.4x	3.3x	15.6%	0.9
Northern Trust	90.81	95.2%	20,848.7	20,848.7	20.6x	18.8x	16.7x	4.1x	3.9x	3.7x	12.9x	NA	NA	7.2%	6.1%	NA	NA	2.3x	2.4x	13.5%	1.4
PNC	120.94	80.0%	58,655.9	58,655.9	15.7x	14.8x	13.3x	3.9x	3.7x	3.5x	10.8x	9.1x	8.3x	9.0%	5.0%	40.1%	42.1%	1.3x	1.6x	8.1%	1.8
State Street	84.72	99.7%	32,334.0	32,334.0	16.9x	14.4x	12.8x	3.2x	2.8x	2.7x	13.6x	NA	NA	11.6%	4.1%	NA	NA	1.8x	3.1x	NA	NA
Custody / Trust Services Median		89.3%			16.3x	14.6x	13.1x	3.6x	3.4x	3.2x	11.9x	9.1x	8.3x	8.1%	4.6%	NA	NA	1.6x	2.8x	13.5%	1.4
Custody / Trust Services Mean		89.5%			16.9x	15.3x	13.7x	3.6x	3.4x	3.2x	11.9x	9.1x	8.3x	7.9%	4.8%	NA	NA	1.7x	2.6x	12.4%	1.4

(1) For the purposes of this report enterprise value is equal to market capitalization.

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Full Service Investment Banking Capabilities

CAPITAL MARKETS TECHNOLOGY AND SERVICES TRANSACTION EXPERIENCE

 <p>Has been acquired by</p>  <p>September 2013</p>	 <p>Has been acquired by</p>  <p>July 2013</p>	 <p>\$52,697,524 Initial Public Offering</p> <p>June 2013</p>	 <p>\$108,000,000 acquisition of</p>  <p>April 2013</p>	 <p>Strategic advisory regarding \$210,000,000 unsolicited offer from</p>  <p>Apria 2013</p>	 <p>Shareholders' Rights Plan Adoption</p> <p>April 2013</p>	 <p>Has merged with</p>  <p>May 2012</p>
 <p>\$71,760,000 Initial Public Offering</p> <p>February 2012</p>	 <p>Has been acquired by</p>  <p>February 2012</p>	 <p>Private Placement</p> <p>January 2012</p>	 <p>Has been acquired by</p>  <p>December 2011</p>	 <p>Private Placement</p> <p>October 2011</p>	 <p>Has been acquired</p>  <p>September 2011</p>	 <p>Has been acquired by</p>  <p>September 2011</p>
 <p>Has been acquired by</p>  <p>August 2011</p>	 <p>Has been acquired by</p>  <p>June 2011</p>	 <p>Has been acquired by</p>  <p>June 2011</p>	 <p>\$222,000,000 Follow-On Offering</p> <p>February 2011</p>	 <p>\$1 Billion Multicurrency Revolving Credit Agreement</p> <p>January 2011</p>	 <p>\$81,000,000 Initial Public Offering</p> <p>December 2010</p>	 <p>\$370,000,000 Senior Unsecured Notes</p> <p>December 2010</p>
 <p>Retail Forex Business Sale to</p>  <p>November 2010</p>	 <p>\$201,000,000 Sale to</p>  <p>November 2010</p>	 <p>Has been acquired by</p>  <p>October 2010</p>	 <p>\$80,000,000 Sale to</p>  <p>August 2010</p>	 <p>\$27,600,000 Acquisition of</p>  <p>June 2010</p>	 <p>Acquisition of Assent Professional Trading Business of</p>  <p>June 2010</p>	 <p>\$30,000,000 Investment by</p>  <p>June 2010</p>

CAPITAL MARKETS RESEARCH COVERAGE

Raymond James provides extensive research coverage of the Capital Markets sector and has one of the highest ranked analysts on the Street.

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Research Coverage



CAPITAL MARKETS TECHNOLOGY AND SERVICES INDUSTRY SECTOR COVERAGE

Broker-Dealers

- Agency brokerages/outsourced trading
- Online brokerages
- Interdealer brokers
- Prime brokerage
- Clearing/ settlement
- Futures commission merchants

Liquidity Venues

- ATs
- Exchanges
- ECNs
- Dark pools
- Crossing networks
- MTFs

Trading Firms

- Proprietary trading groups
- High-frequency trading
- Algorithmic trading
- Market makers
- Specialists
- Floor traders

Trading Services/Solutions

- Post-trade services
- Fund administration
- Hedge fund services
- Analytics
- Risk management
- TCA
- Compliance
- Collateral management
- Securities lending
- Securities processing

Trading Platforms/Software

- EMS
- OMS
- DMA
- Algorithmic
- Connectivity
- FIX
- ETRM
- Capital markets/treasury
- Order routing
- Online trading systems

Investment Management Software/Services

- Portfolio management/construction
- Data aggregation
- Reporting
- Performance attribution
- Administrative services
- Investor communications/proxy services
- Commissions management
- Research management
- Accounting solutions
- Financial planning software

Financial Data/Information

- Market data
- CEP
- Data management
- Research
- Educational services
- Technical analysis/charting
- Financial news
- Content management
- Pricing
- Social networking

IT Services

- Managed services
- Hosting/co-location
- Infrastructure
- Network/communications
- Professional services
- Latency measurement
- Messaging/middleware
- Document management
- Systems integration
- Consulting services

Asset/Wealth Management

- Closed-end funds
- Mutual funds
- Wealth management
- ETFs/ETNs
- Computer generated strategies
- Hedge funds
- Private equity
- RIAs Distressed debt funds
- SMAs/UMSs

DEFINITIONS

- EBITDA: Earnings Before Interest, Taxes, Depreciation and Amortization
- EBT: Earnings Before Taxes
- EPS: Earnings Per Share
- EV: Enterprise Value
- LTM: Last Twelve Months
- P / BV: Price / Book Value
- P / TBV: Price / Tangible Book Value
- PEG Ratio: Price / Earnings to Growth

