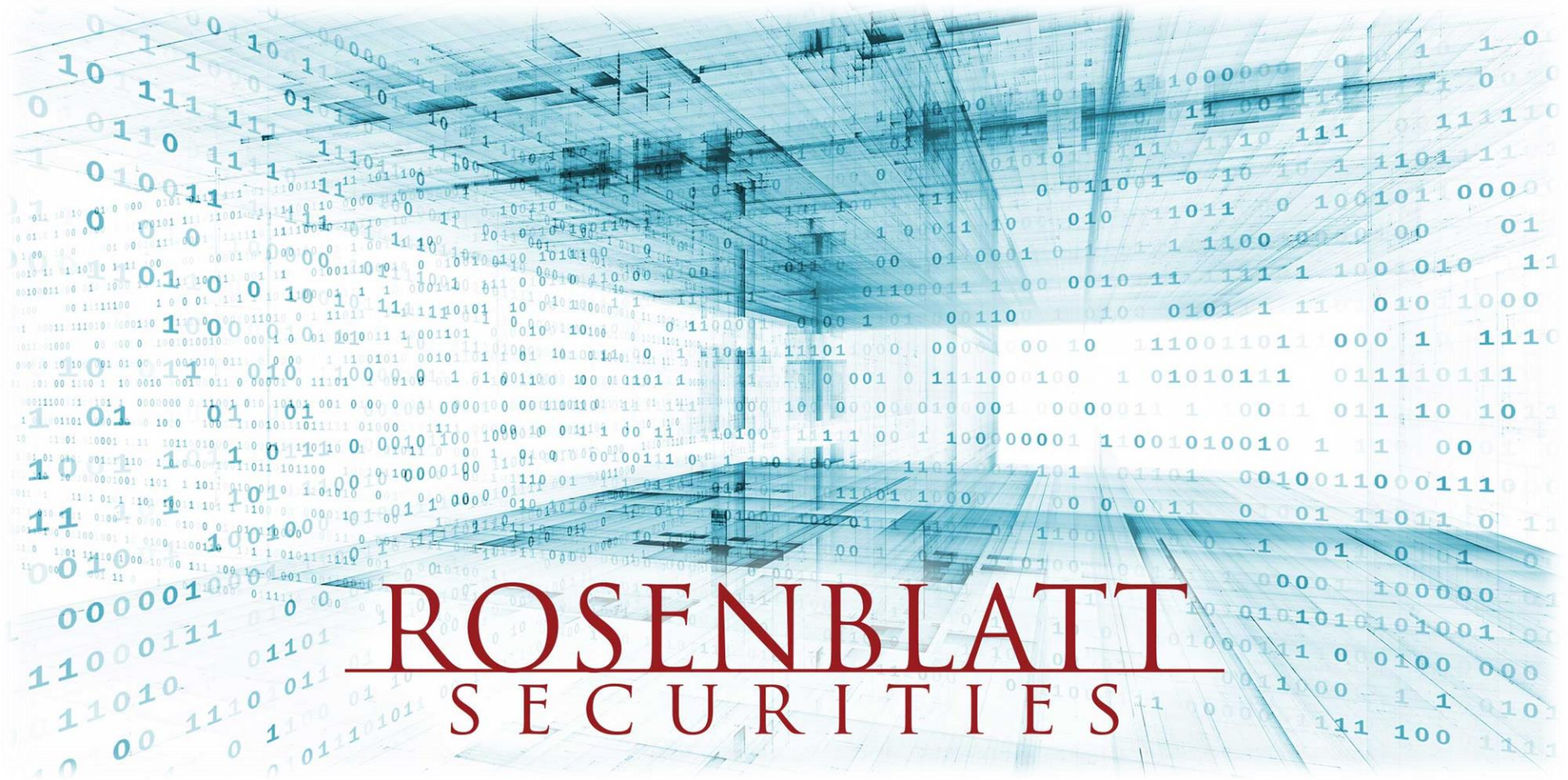

Financial Technologies Monthly Market Update

August 2019

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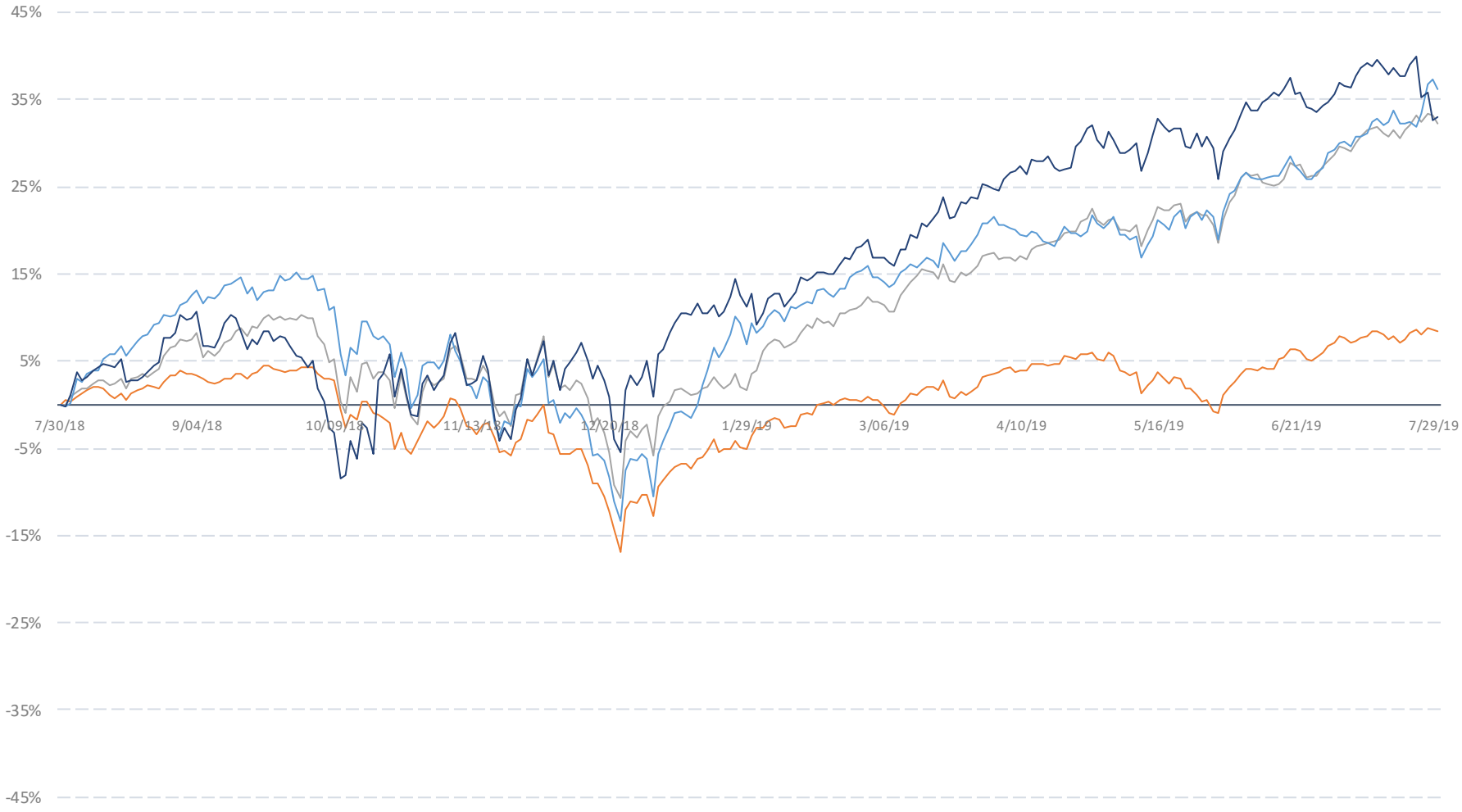
Cap Weighted Price Return Index Performance – Payments (LTM)



	^SPX	Card Networks	Payment Infrastructure	P2P Transfer / Remittances
% Δ YoY	↑ 8.4%	32.2%	36.2%	33.0%
% Δ MoM	↑ 2.4%	4.9%	9.0%	-1.3%

ROSENBLATT SECURITIES

Source: Bloomberg, FactSet Updated on 7/30/2019
Note: The index is made up of companies mentioned under each of the above buckets in subsequent slides except, the index does not adjust for any new companies added and excludes old companies delisted in last twelve months

Cap Weighted Price Return Index Performance – Capital Markets (LTM)

	SPX	BD / Market Maker	Large Exchanges	Regional Exchanges	Retail / E-Brokers
% Δ YoY	↑ 8.4%	-5.2%	19.0%	-5.1%	-9.7%
% Δ MoM	↑ 2.4%	-1.3%	2.3%	2.5%	3.2%

Source: Bloomberg, FactSet Updated on 7/30/2019
Note: The index is made up of companies mentioned under each of the above buckets in subsequent slides except, the index does not adjust for any new companies added and excludes old companies delisted in last twelve months

Cap Weighted Price Return Index Performance – Software and Technology (LTM)

	SPX	Financial Media	Trading Technology	Outsourced / Backend Solutions
% Δ YoY	↑ 8.4%	23.7%	-6.4%	12.7%
% Δ MoM	↑ 2.4%	3.0%	-8.6%	-1.3%

ROSENBLATT SECURITIES

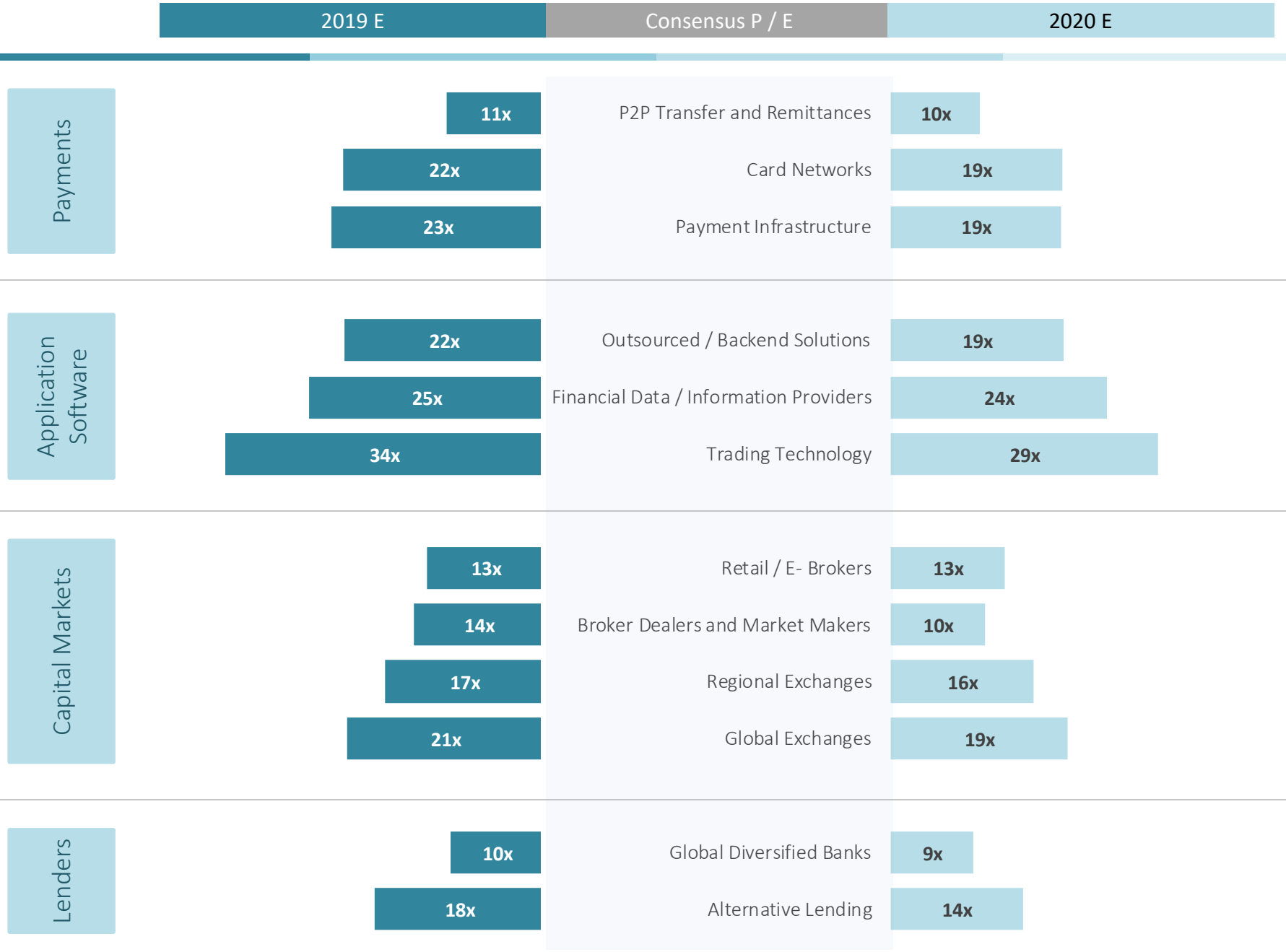
Source: Bloomberg, FactSet Updated on 7/30/2019
Note: The index is made up of companies mentioned under each of the above buckets in subsequent slides except, the index does not adjust for any new companies added and excludes old companies delisted in last twelve months

Cap Weighted Price Return Index Performance – Banks (LTM)

	SPX	Alternative Lending	Global Diversified Banks
% Δ YoY	↑ 8.4%	23.3%	-6.8%
% Δ MoM	↑ 2.4%	1.9%	1.7%

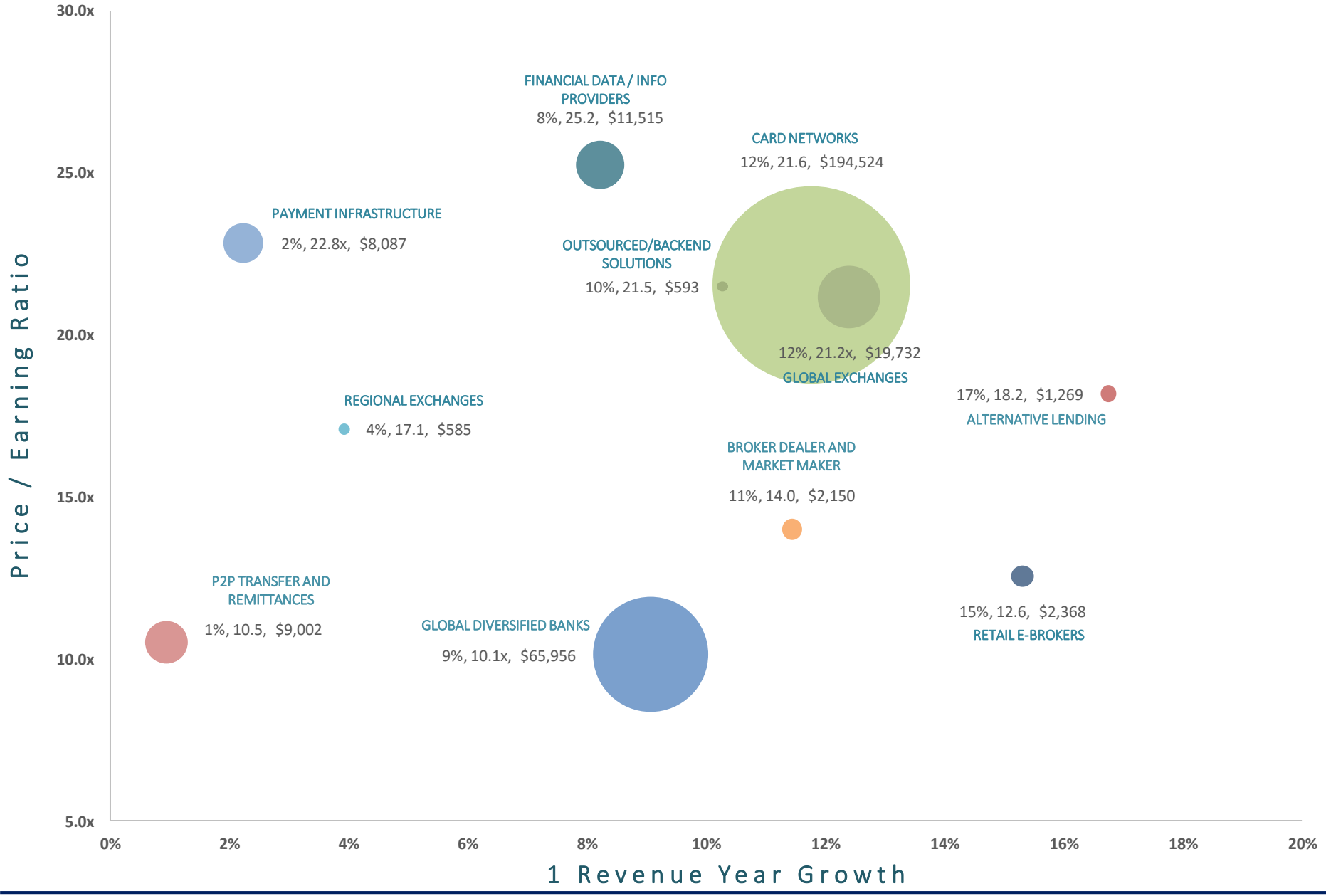
ROSENBLATT SECURITIES

Source: Bloomberg, FactSet Updated on 7/30/2019
Note: The index is made up of companies mentioned under each of the above buckets in subsequent slides except, the index does not adjust for any new companies added and excludes old companies delisted in last twelve months



Source: Bloomberg, FactSet, Updated on 7/30/2019

Revenue Growth vs. Price to Earnings Ratio



ROSENBLATT SECURITIES

Note: Every bubble represents (1 Revenue Year Growth %, 2018 E Median P/E ratios of the universe, Median Market Capitalization of the universe). The size of the bubble represents Median Market Capitalization
Alternative Lending, & P2P Transfer and Remittances, Trading Technology, Global Diversified Banks excluded because of high / low range Source: FactSet, Bloomberg , Updated on 7/30/2019

Market Valuations

Company	Price	Sales	LTM Margins		TEV / Sales			TEV / EBITDA			Price / Earnings		
	Off 52 Wk High	1 YR CAGR	Gross	EBITDA	LTM	2019 E	2020 E	LTM	2019 E	2020 E	LTM	2019 E	2020 E
Banks	-15%	9%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.0x	10.1x	9.1x
CapitalMarkets	-19%	11%	81%	53%	6.0	6.6	6.1	13.1	12.9	12.3	22.4	17.1	16.4
ApplicationSoftware	-18%	12%	53%	26%	5.2	5.1	4.8	19.9	19.5	17.3	28.0	27.1	24.6
Payments	-16%	9%	43%	28%	6.1	5.8	5.3	21.7	19.1	17.4	34.2	21.8	18.2
Banks													
Global Diversified Banks	-15%	9%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.0x	10.1x	9.1x
Alternative Lending	-41%	17%	87%	29%	2.4	2.3	2.1	7.7	9.6	7.8	12.4	18.2	14.4
Capital Markets													
Global Exchanges	-17%	12%	76%	66%	11.3x	10.8x	10.2x	16.8x	17.3x	15.9x	27.1x	21.2x	19.4x
Regional Exchanges	-14%	4%	76%	53%	6.0	4.7	4.6	12.1	13.2	12.1	20.4	17.1	15.7
Broker Dealers and Market Makers	-24%	11%	87%	29%	1.8	4.0	3.2	10.0	9.9	7.6	28.8	14.0	10.3
Retail / E- Brokers	-23%	15%	86%	36%	2.8	3.8	3.6	8.7	9.0	8.7	12.9	12.6	12.5
Application Software													
Trading Technology	-18%	23%	58%	16%	6.6x	6.3x	5.9x	15.6x	21.9x	19.8x	-6.9x	34.3x	29.2x
Outsourced / Backend Solutions	-33%	10%	29%	26%	2.6	2.7	2.4	12.8	15.1	13.4	22.2	21.5	18.9
Financial Data / Information Providers	-17%	8%	56%	32%	6.0	6.5	6.8	23.1	21.7	18.0	31.4	25.2	23.6
Payments													
Payment Infrastructure	-16%	2%	43%	31%	6.2x	5.8x	5.6x	21.7x	18.9x	17.3x	36.7x	22.8x	18.6x
P2P Transfer and Remittances	-13%	1%	43%	20%	2.1	2.2	2.2	8.6	8.9	8.9	10.3	10.5	9.8
Card Networks	-15%	12%	73%	47%	9.8	9.5	8.7	22.4	24.0	20.9	24.8	21.6	18.8

ROSENBLATT SECURITIES

Source: FactSet, Bloomberg , Updated on 7/30/2019
Note: N/A denotes negative multiple or oddly high multiple or the multiple is not available

Market Valuations – Software & Technology

Company	Market Data			LTM Margins		TEV / Sales			TEV / EBITDA			Price / Earnings			P/B	D/E	Sales
	Off 52 Wk High	Market Cap	Enterprise Value	Gross	EBITDA	LTM	2019 E	2020 E	LTM	2019 E	2020 E	LTM	2019 E	2020 E			1 YR CAGR
TRADING TECHNOLOGY																	
IRESS Market Technolgy	-10%	$ 1,695	$ 1,818	29%	26%	5.2x	5.1x	4.7x	19.8x	19.3x	17.3x	33.7x	29.0x	25.7x	5.8x	8%	5%
First Derviatives	-33%	$ 961	$ 979	36%	17%	3.3	3.3	2.9	19.1	18.4	16.4	51.3	35.0	31.3	5.5	5%	17%
Linedata Services	-32%	$ 225	$ 320	30%	25%	1.6	1.7	1.6	6.2	6.7	6.6	10.8	9.8	9.5	1.6	50%	1%
StatPro	-36%	$ 114	$ 145	11%	30%	2.0	2.0	1.9	6.5	11.7	10.5	-85.3	14.0	12.1	3.4	30%	15%
Median	**-33%**			**29%**	**26%**	**2.6x**	**2.7x**	**2.4x**	**12.8x**	**15.1x**	**13.4x**	**22.2x**	**21.5x**	**18.9x**	**4.4x**	**19%**	**10%**
OUTSOURCED / BACKEND SOLUTIONS																	
Broadridge	-24%	$ 15,242	$ 16,167	30%	22%	3.5x	3.7x	3.5x	16.0x	16.7x	16.3x	25.6x	22.6x	20.4x	12.2x	8%	4%
SEI Investments	-16%	$ 9,123	$ 8,361	82%	31%	5.2	5.1	4.8	16.4	12.8	11.9	18.0	16.7	14.9	5.6	0%	6%
SS&C	-5%	$ 12,635	$ 20,720	43%	33%	5.0	4.5	4.4	15.2	11.5	10.8	131.4	17.6	16.2	3.2	67%	104%
Computershare	-19%	$ 5,920	$ 7,345	25%	27%	3.2	3.1	3.1	12.1	10.7	10.6	16.9	17.0	17.4	4.2	34%	9%
Docusign	-24%	$ 9,411	$ 9,276	74%	-19%	12.2	10.1	8.1	-65.9	123.2	78.4	-30.8	254.2	136.1	15.7	7%	35%
SimCorp	-7%	$ 3,691	$ 3,673	60%	29%	8.1	7.6	7.0	28.0	25.9	23.4	40.2	37.4	33.4	21.2	2%	17%
Guidewire	-9%	$ 8,455	$ 7,764	56%	6%	11.5	10.8	9.7	203.8	59.9	59.8	-1831.9	70.9	77.0	5.6	4%	28%
Envestnet	-10%	$ 3,708	$ 3,494	19%	11%	4.3	3.8	3.3	40.1	18.0	14.6	-156.3	31.3	25.1	5.6	15%	19%
Blackline	-21%	$ 2,510	$ 2,396	78%	-4%	10.0	8.6	7.1	-284.3	115.4	74.5	-85.0	278.5	156.6	7.8	1%	30%
Coupa Software	-39%	$ 8,529	$ 8,158	68%	-13%	28.6	23.6	18.6	-212.8	463.6	167.8	-88.3	936.3	232.0	27.0	2%	39%
Median	**-18%**			**58%**	**16%**	**6.6x**	**6.3x**	**5.9x**	**15.6x**	**21.9x**	**19.8x**	**-6.9x**	**34.3x**	**29.2x**	**6.7x**	**5%**	**23%**
FINANCIAL DATA / INFORMATION PROVIDERS																	
Thomson Reuters	-17%	$ 34,196	$ 33,919	15%	26%	6.0x	5.7x	5.5x	23.2x	23.1x	17.5x	38.4x	50.2x	30.8x	3.8x	10%	4%
S&P Global	-13%	$ 59,534	$ 64,285	69%	48%	10.3	9.8	9.2	21.2	19.4	18.0	28.6	23.5	21.4	183.2	7%	3%
Moody's	-13%	$ 38,345	$ 43,442	68%	47%	9.7	9.3	8.7	20.7	19.5	18.0	27.3	23.3	21.0	310.1	16%	6%
MSCI	-18%	$ 19,297	$ 21,421	74%	53%	14.7	13.9	12.7	27.7	25.6	22.8	31.1	32.3	28.3	n/a	14%	13%
Gartner	-10%	$ 12,456	$ 15,468	58%	16%	3.9	3.6	3.3	24.6	21.7	19.4	87.2	41.7	36.1	17.9	25%	20%
FactSet	-18%	$ 10,575	$ 10,799	69%	34%	7.9	7.5	7.2	23.3	21.7	20.1	34.4	25.3	23.6	16.5	5%	11%
TransUnion	-20%	$ 15,569	$ 19,452	52%	35%	8.1	7.4	6.8	23.0	18.7	17.0	47.3	25.2	22.1	7.8	26%	20%
Morning Star	-18%	$ 6,530	$ 6,265	51%	30%	6.1	n/a	n/a	19.9	n/a	n/a	31.8	n/a	n/a	6.6	3%	12%
Ebix	-43%	$ 1,391	$ 2,092	65%	33%	3.9	3.4	2.8	11.8	9.7	8.8	17.0	11.6	9.8	2.7	55%	37%
Forrester	-4%	$ 908	$ 1,064	55%	9%	2.8	2.2	2.0	29.8	23.4	15.8	233.7	30.7	24.6	6.4	25%	6%
The Value Line	-17%	$ 255	$ 176	37%	11%	4.9	n/a	n/a	43.4	n/a	n/a	30.2	n/a	n/a	5.4	0%	1%
The Street	-6%	$ 33	$ (82)	49%	1%	-1.5	-2.8	n/a	-203.4	23.2	n/a	-12.1	-20.1	n/a	0.3	9%	-3%
Median	**-17%**			**56%**	**32%**	**6.0x**	**6.5x**	**6.8x**	**23.1x**	**21.7x**	**18.0x**	**31.4x**	**25.2x**	**23.6x**	**6.6x**	**12%**	**8%**

Source: FactSet, Bloomberg , Updated on 7/30/2019
Note: N/A denotes negative multiple or oddly high multiple or the multiple is not available

Market Valuations – Payments

Company	Market Data			LTM Margins		TEV / Sales			TEV / EBITDA			Price / Earnings			P/B	D/E	Sales
	Off 52 Wk High	Market Cap	Enterprise Value	Gross	EBITDA	LTM	2019 E	2020 E	LTM	2019 E	2020 E	LTM	2019 E	2020 E			1 YR CAGR
CARD NETWORKS																	
Visa	-15%	$ 322,210	$ 324,749	79%	69%	15.4x	14.2x	12.7x	22.4x	20.3x	17.8x	35.3x	29.1x	25.1x	13.5x	5%	12%
MasterCard	-16%	$ 284,118	$ 282,762	n/a	59%	18.5	16.8	14.9	31.2	27.7	24.0	39.9	31.3	26.6	55.8	2%	20%
American Express	-14%	$ 104,929	$ 134,362	67%	34%	3.0	3.1	2.9	8.9	n/a	n/a	14.2	14.0	12.4	4.6	58%	11%
Discover Financial	-21%	$ 29,476	$ 56,182	n/a	0%	4.3	4.9	4.7	n/a	n/a	n/a	9.1	8.2	7.7	2.5	89%	11%
Median	**-15%**			**73%**	**47%**	**9.8x**	**9.5x**	**8.7x**	**22.4x**	**24.0x**	**20.9x**	**24.8x**	**21.6x**	**18.8x**	**9.0x**	**31%**	**12%**
P2P TRANSFERS AND REMITTANCES																	
PayPal	-13%	$ 131,835	$ 125,985	51%	20%	7.9x	7.1x	6.0x	39.4x	27.8x	23.3x	57.1x	33.5x	29.9x	8.1x	2%	18%
Western Union	-12%	$ 9,002	$ 11,810	36%	25%	2.1	2.2	2.2	8.6	8.9	8.9	10.3	10.5	9.8	n/a	40%	1%
Moneygram International Inc.	-70%	$ 157	$ 1,056	43%	12%	0.8	0.8	0.8	6.3	4.8	4.7	-3.0	10.1	6.8	n/a	605%	-10%
Median	**-13%**			**43%**	**20%**	**2.1x**	**2.2x**	**2.2x**	**8.6x**	**8.9x**	**8.9x**	**10.3x**	**10.5x**	**9.8x**	**8.1x**	**40%**	**1%**
PAYMENT INFRASTRUCTURE																	
Fidelity National Information	-17%	$ 43,294	$ 52,439	34%	37%	6.2x	6.2x	5.9x	16.6x	15.9x	14.9x	46.3x	15.3x	14.1x	4.5x	22%	-3%
Fiserv	-16%	$ 59,005	$ 64,810	46%	35%	11.0	5.7	4.0	31.1	14.9	10.2	36.7	23.4	18.6	16.1	11%	2%
WorldPay	-17%	$ 43,407	$ 50,511	n/a	41%	12.5	11.8	10.8	30.5	23.4	20.7	218.1	24.3	20.8	4.0	18%	-3%
Square, Inc	-25%	$ 34,045	$ 32,869	38%	4%	9.2	14.0	10.4	244.0	78.9	51.1	-609.6	100.9	68.3	30.1	3%	49%
Global Payments	-19%	$ 26,222	$ 31,348	67%	40%	9.1	7.0	6.4	22.8	19.4	17.5	46.5	22.8	19.5	6.8	24%	-15%
First Data	-16%	$ 11,682	$ 30,521	50%	32%	3.2	3.4	3.2	9.9	8.9	8.2	23.8	16.9	14.8	6.4	n/a	-21%
Total System	-31%	$ 23,881	$ 27,626	34%	31%	6.8	6.8	6.4	21.7	18.9	17.3	29.5	19.7	17.3	10.4	19%	-18%
Jack Henry	-14%	$ 10,741	$ 10,740	42%	35%	7.0	6.9	6.5	20.1	21.4	20.1	29.7	40.3	37.7	7.6	0%	7%
Euronet	-15%	$ 8,087	$ 7,915	24%	19%	3.1	2.8	2.5	16.4	12.9	11.1	33.0	20.8	17.8	6.4	14%	13%
ACI Worldwide	-7%	$ 3,760	$ 4,329	48%	22%	4.3	3.3	2.9	19.7	11.8	10.0	62.6	20.4	16.7	3.8	20%	-1%
Bottomline Technologies	-32%	$ 1,914	$ 1,951	52%	13%	4.9	4.6	4.3	36.8	19.5	18.4	176.7	37.9	35.3	4.9	6%	13%
Evo Payments	-8%	$ 2,545	$ 3,373	53%	11%	6.2	5.6	5.1	55.4	21.1	18.7	1670.3	51.0	40.9	n/a	29%	12%
Evertec	-14%	$ 2,269	$ 2,767	43%	42%	6.0	5.8	5.6	14.4	12.7	12.0	23.7	15.0	13.9	10.7	26%	11%
Cardtronics	-4%	$ 1,340	$ 2,115	20%	20%	1.6	1.6	1.5	7.9	7.2	6.8	160.9	18.0	16.4	3.5	67%	-11%
I3 Verticals	-28%	$ 787	$ 935	18%	8%	2.8	6.9	5.9	35.0	24.3	19.6	-145.3	27.2	22.6	6.5	10%	23%
Median	**-16%**			**43%**	**31%**	**6.2x**	**5.8x**	**5.6x**	**21.7x**	**18.9x**	**17.3x**	**36.7x**	**22.8x**	**18.6x**	**6.5x**	**18%**	**2%**

Source: FactSet, Bloomberg , Updated on 7/30/2019
Note: N/A denotes negative multiple or oddly high multiple or the multiple is not available

Market Valuations – Capital Markets

Company	Market Data			LTM Margins		TEV / Sales			TEV / EBITDA			Price / Earnings			P/B	D/E	Sales
	Off 52 Wk High	Market Cap	Enterprise Value	Gross	EBITDA	LTM	2019 E	2020 E	LTM	2019 E	2020 E	LTM	2019 E	2020 E			1 YR CAGR
LARGE EXCHANGES																	
CME	-20%	$ 70,632	$ 73,661	83%	64%	16.4x	15.0x	14.1x	25.9x	23.0x	21.0x	31.2x	24.6x	22.4x	2.7x	6%	21%
ICE	-17%	$ 49,547	$ 56,883	70%	66%	11.3	11.0	10.4	17.1	17.3	16.2	22.1	20.4	18.4	2.9	16%	4%
Hong Kong Exch. & Clearing Ltd.	-3%	$ 42,836	$ 40,087	n/a	73%	19.5	18.4	16.5	26.6	24.5	22.1	36.9	34.1	30.5	8.3	1%	28%
Deutsche Boerse	-13%	$ 26,414	$ 28,191	77%	67%	10.0	8.4	7.9	15.0	14.1	13.0	24.1	19.3	17.7	4.7	10%	16%
London Stock Exchange	-23%	$ 27,640	$ 28,845	76%	61%	11.9	10.7	10.0	19.5	19.2	17.2	45.8	27.3	23.5	6.8	10%	13%
Nasdaq	-16%	$ 16,040	$ 19,142	56%	54%	7.6	7.5	7.2	13.9	14.5	13.6	28.0	17.9	16.6	2.9	24%	11%
BM&F Bovespa SA	-27%	$ 23,423	$ 22,523	n/a	70%	16.7	14.9	13.4	23.8	20.6	18.3	27.1	20.8	18.5	3.5	5%	15%
CBOE	-16%	$ 12,351	$ 13,227	37%	68%	11.3	11.6	10.7	16.6	17.2	15.6	27.1	21.6	19.0	3.8	10%	24%
Japan Exchange Group	-7%	$ 8,205	$ 8,063	78%	65%	7.6	7.3	7.0	11.8	12.4	11.7	22.8	22.3	21.3	3.1	6%	0%
Australian Stock Exchange	-20%	$ 11,758	$ 10,923	96%	76%	19.0	18.3	17.3	24.9	24.2	23.0	27.9	28.0	27.5	4.4	0%	12%
Singapore Exchange	-9%	$ 6,213	$ 5,664	76%	69%	10.0	8.7	8.3	14.5	15.2	14.3	21.6	20.7	19.7	8.7	0%	10%
Euronext	-20%	$ 5,306	$ 5,352	n/a	56%	7.5	7.1	6.4	13.4	12.5	11.1	18.1	15.5	13.9	5.6	11%	11%
Median	**-17%**			**76%**	**66%**	**11.3x**	**10.8x**	**10.2x**	**16.8x**	**17.3x**	**15.9x**	**27.1x**	**21.2x**	**19.4x**	**4.1x**	**8%**	**12%**
REGIONAL EXCHANGES																	
Dubai Financial Market	-22%	$ 2,069	$ 1,991	76%	56%	23.3x	n/a	n/a	41.5x	n/a	n/a	56.3x	n/a	n/a	0.9x	0%	-22%
Bolsa Y Mercados Espanoles	-17%	$ 1,911	$ 1,565	95%	59%	4.5	4.7	4.6	7.6	7.9	7.7	15.4	16.1	15.6	4.1	0%	0%
TMX	-14%	$ 4,165	$ 4,775	66%	42%	6.0	7.7	7.2	14.2	13.2	12.1	16.6	15.5	14.2	1.6	21%	34%
Bursa Malaysia	-13%	$ 1,327	$ 1,252	n/a	58%	9.7	9.7	9.2	16.8	16.4	15.7	26.9	26.3	25.0	6.9	0%	5%
JSE	-24%	$ 787	$ 587	n/a	43%	3.7	3.9	3.4	8.5	9.0	7.2	13.6	15.0	12.4	2.8	0%	1%
Bolsa Mexicana	-6%	$ 993	$ 860	n/a	55%	4.7	4.5	4.1	8.5	7.5	6.9	17.4	17.1	15.7	3.1	1%	4%
Multi Commodity Exchange of India	-13%	$ 585	$ 422	87%	53%	7.3	7.5	7.1	13.7	17.3	13.7	24.3	24.9	20.7	3.4	n/a	14%
Bombay Stock Exchange	-26%	$ 393	$ 262	66%	35%	2.8	3.0	2.8	8.1	15.8	13.3	17.8	15.5	13.8	0.9	n/a	-8%
Philippine Stock Exchange	-3%	$ 320	$ 231	76%	64%	7.7	n/a	n/a	12.1	n/a	n/a	20.4	n/a	n/a	3.3	0%	25%
Hellenic Exchange	-14%	$ 331	$ 247	82%	30%	8.6	7.5	6.5	28.2	21.2	15.2	111.0	53.2	34.8	2.7	0%	-1%
Warsaw Stock Exchange	-10%	$ 417	$ 261	n/a	60%	2.5	3.0	3.0	4.1	5.4	5.6	9.4	13.5	14.1	1.7	17%	17%
OTC Markets Group	-19%	$ 383	$ 378	45%	35%	6.6	6.2	5.8	18.8	16.9	15.1	23.9	23.7	21.5	21.8	5%	8%
New Zealand Exchange	-16%	$ 214	$ 210	86%	42%	4.7	4.7	4.5	11.2	10.7	9.9	23.2	19.6	17.6	5.1	12%	-2%
Median	**-14%**			**76%**	**53%**	**6.0x**	**4.7x**	**4.6x**	**12.1x**	**13.2x**	**12.1x**	**20.4x**	**17.1x**	**15.7x**	**3.1x**	**0%**	**4%**

ROSENBLATT SECURITIES

Source: FactSet, Bloomberg , Updated on 7/30/2019
Note: N/A denotes negative multiple or oddly high multiple or the multiple is not available

Market Valuations – Capital Markets

Company	Market Data			LTM Margins		TEV / Sales			TEV / EBITDA			Price / Earnings			P/B	D/E	Sales
	Off 52 Wk High	Market Cap	Enterprise Value	Gross	EBITDA	LTM	2019 E	2020 E	LTM	2019 E	2020 E	LTM	2019 E	2020 E			1 YR CAGR
RETAIL / e-BROKERS																	
Charles Schwab	-16%	$ 57,432	$ 34,764	84%	47%	3.0x	3.2x	3.2x	6.5x	6.5x	6.6x	17.0x	16.5x	16.3x	3.1x	12%	23%
TD Ameritrade	-14%	$ 28,429	$ 29,050	92%	44%	5.3	4.9	4.9	12.1	9.1	9.2	17.2	12.8	12.9	3.4	13%	48%
Interactive Brokers	-15%	$ 21,094	$ 24,026	89%	72%	9.5	12.3	11.5	13.1	12.7	12.4	23.5	23.7	21.9	2.9	0%	31%
E*Trade	-22%	$ 11,751	$ 13,211	89%	52%	4.2	4.5	4.5	8.1	8.3	8.7	11.7	11.5	10.8	1.9	12%	24%
MarketAxess	-34%	$ 12,688	$ 12,492	87%	54%	28.1	25.3	22.5	52.3	46.1	39.8	52.7	48.0	41.4	19.2	1%	10%
IG Group	-45%	$ 2,568	$ 2,178	93%	48%	2.8	3.6	3.4	5.9	9.1	8.1	9.0	14.0	12.3	2.5	5%	-20%
LPL Financial	-20%	$ 7,052	$ 9,264	36%	18%	1.7	1.6	1.5	9.7	9.0	8.8	12.7	10.0	9.6	6.9	37%	21%
Matsui Securities	-20%	$ 2,169	$ 2,711	87%	49%	12.5	9.3	9.3	25.4	14.3	14.1	35.8	20.6	20.6	2.9	36%	-15%
Comdirect Bank	-24%	$ 1,430	n/a	n/a	0%	n/a	n/a	n/a	n/a	n/a	n/a	32.8	10.4	20.8	2.0	0%	-31%
Monex	-32%	$ 792	$ 2,383	81%	24%	5.3	4.1	3.9	22.3	24.9	23.6	-42.3	14.4	11.8	1.2	222%	-3%
Swissquote Group	-51%	$ 612	$ 641	78%	28%	2.4	n/a	n/a	8.7	n/a	n/a	13.2	n/a	n/a	1.7	3%	20%
Gain	-19%	$ 158	$ 85	71%	13%	0.3	0.3	0.3	2.2	7.1	1.2	-10.9	-10.7	12.7	0.6	86%	29%
Viel & Cie	-12%	$ 416	$ 374	n/a	8%	0.4	n/a	n/a	4.8	n/a	n/a	6.3	11.7	11.3	1.0	111%	11%
Bourse Direct	-29%	$ 70	$ 50	83%	10%	1.4	n/a	n/a	13.4	n/a	n/a	43.9	n/a	n/a	1.0	161%	-1%
CMC Markets	-59%	$ 346	$ 272	74%	-13%	1.5	1.4	1.4	-12.0	6.5	5.4	-11.1	12.3	9.7	1.4	1%	-22%
Plus500	-63%	$ 861	$ 546	98%	72%	0.8	1.5	1.3	1.0	3.0	2.4	2.9	8.3	6.5	3.2	0%	65%
Median	**-23%**			**86%**	**36%**	**2.8x**	**3.8x**	**3.6x**	**8.7x**	**9.0x**	**8.7x**	**12.9x**	**12.6x**	**12.5x**	**2.3x**	**12%**	**15%**
BROKER DEALERS & MARKET MAKERS																	
MarketAxess	-34%	$ 12,688	$ 12,426	87%	54%	28.0x	25.1x	22.4x	52.1x	45.9x	39.6x	52.7x	48.0x	41.4x	19.2x	0%	10%
Virtu Financial	-15%	$ 4,111	$ 5,233	45%	29%	3.7	4.9	4.2	12.8	10.8	8.3	28.8	17.2	12.1	2.2	69%	83%
BGC Partners	-31%	$ 1,873	$ 2,675	91%	14%	1.4	1.3	1.2	10.0	5.0	4.6	8.5	8.7	7.9	2.5	67%	11%
Flow Traders	-24%	$ 1,250	$ 1,244	n/a	43%	1.8	4.0	3.2	4.2	9.9	7.6	5.9	14.0	10.3	3.4	0%	136%
TP ICAP	-10%	$ 2,150	$ 1,799	n/a	15%	0.8	0.8	0.8	4.9	5.2	4.4	80.3	10.5	8.9	1.0	38%	4%
Median	**-24%**			**87%**	**29%**	**1.8x**	**4.0x**	**3.2x**	**10.0x**	**9.9x**	**7.6x**	**28.8x**	**14.0x**	**10.3x**	**2.5x**	**38%**	**11%**

ROSENBLATT SECURITIES

Source: FactSet, Bloomberg , Updated on 7/30/2019
Note: N/A denotes negative multiple or oddly high multiple or the multiple is not available

Market Valuations – Banks

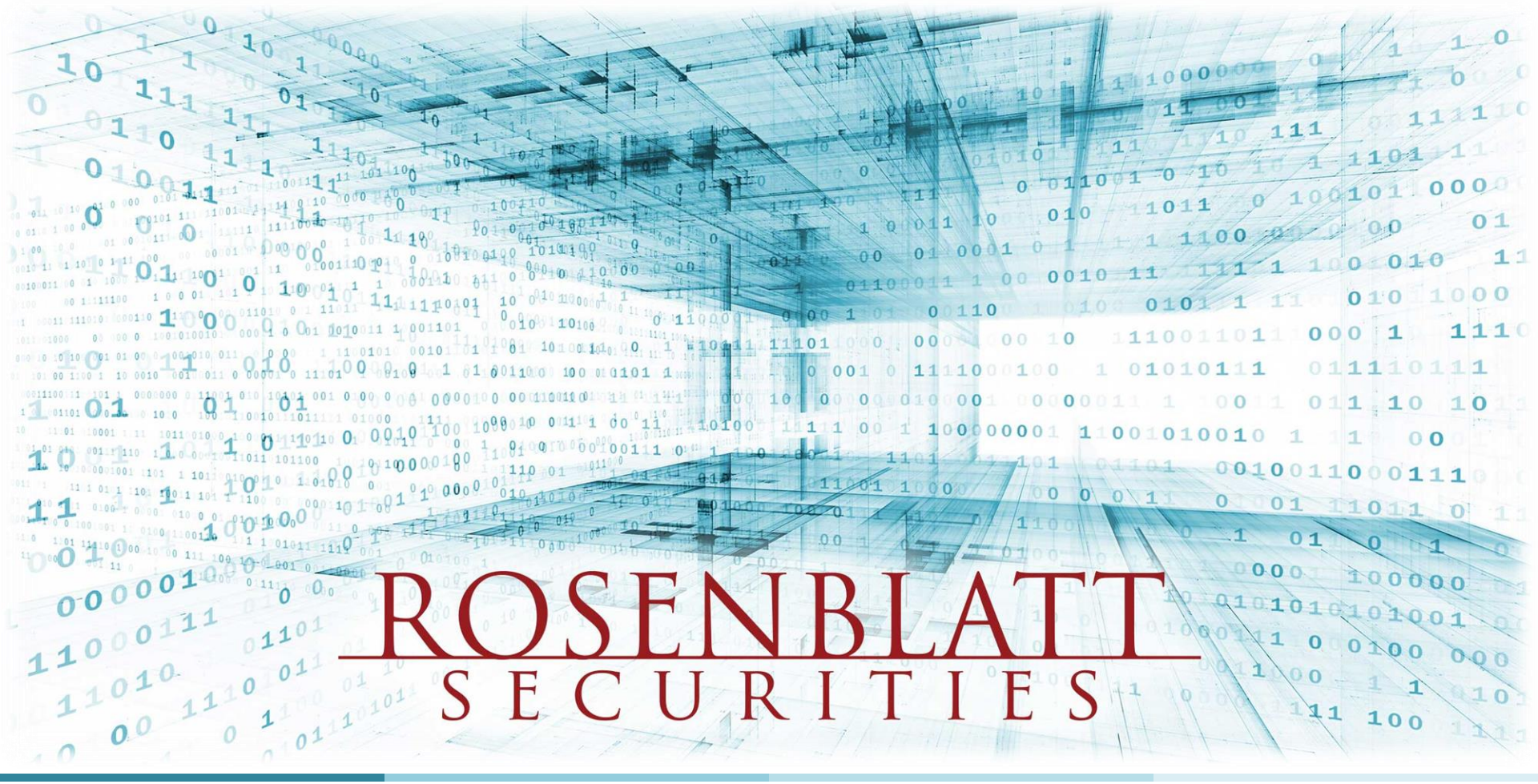
Company	Market Data			LTM Margins		TEV / Sales			TEV / EBITDA			Price / Earnings			P/B	D/E	Sales
	Off 52 Wk High	Market Cap	Enterprise Value	Gross	EBITDA	LTM	2019 E	2020 E	LTM	2019 E	2020 E	LTM	2019 E	2020 E			1 YR CAGR
GLOBAL DIVERSIFIED BANKS																	
JP Morgan Chase	-12%	$ 374,971	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.3x	10.3x	10.0x	1.6x	165%	7%
Wells Fargo	-18%	$ 214,572	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10.8	10.2	10.4	1.2	162%	3%
Bank of America	-11%	$ 287,533	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10.6	10.0	9.3	1.2	155%	10%
Citigroup	-14%	$ 162,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9.4	8.4	7.6	0.9	292%	11%
Goldman Sachs	-20%	$ 80,997	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	8.2	8.6	7.8	0.9	463%	14%
U.S. Bancorp	-15%	$ 90,510	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.7	11.4	11.0	1.9	63%	9%
Morgan Stanley	-15%	$ 74,108	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9.3	8.9	8.2	1.1	356%	15%
Capital One	-17%	$ 42,896	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.0	7.4	7.1	0.8	122%	8%
Median	**-15%**											**10.0x**	**9.5x**	**8.8x**	**1.1x**	**164%**	**10%**
HSBC	-13%	$ 163,860	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	12.1x	11.7x	11.4x	0.9x	202%	9%
Commonwealth Bank of Australia	-14%	$ 101,494	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	13.3	15.2	14.5	2.2	145%	7%
Royal Bank of Canada	-6%	$ 113,452	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.7	11.2	10.6	2.0	174%	16%
Lloyds	-6%	$ 47,174	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10.8	8.8	8.8	0.9	401%	-33%
BNP Paribas	-27%	$ 57,805	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.3	7.7	7.0	0.6	852%	-10%
Royal Bank of Scotland	-27%	$ 57,805	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.3	7.7	7.0	0.6	852%	-10%
UBS	-23%	$ 43,441	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.2	10.5	9.1	0.8	495%	9%
Barclays	-19%	$ 33,054	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	7.9	7.9	7.1	0.5	550%	11%
Deutsche Bank	-36%	$ 15,879	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	48.6	32.1	14.4	0.2	n/a	-4%
Bank of Montreal	-10%	$ 48,282	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11.5	10.4	9.9	1.4	191%	18%
Credit Suisse	-27%	$ 30,294	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	14.7	9.4	7.8	0.7	914%	7%
Standard Chartered	-15%	$ 26,809	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	291.3	10.7	9.1	0.7	386%	14%
Median	**-17%**											**11.6x**	**10.5x**	**9.1x**	**0.7x**	**401%**	**8%**

Source: FactSet, Bloomberg , Updated on 7/30/2019
Note: N/A denotes negative multiple or oddly high multiple or the multiple is not available

Market Valuations – Alternative Lending

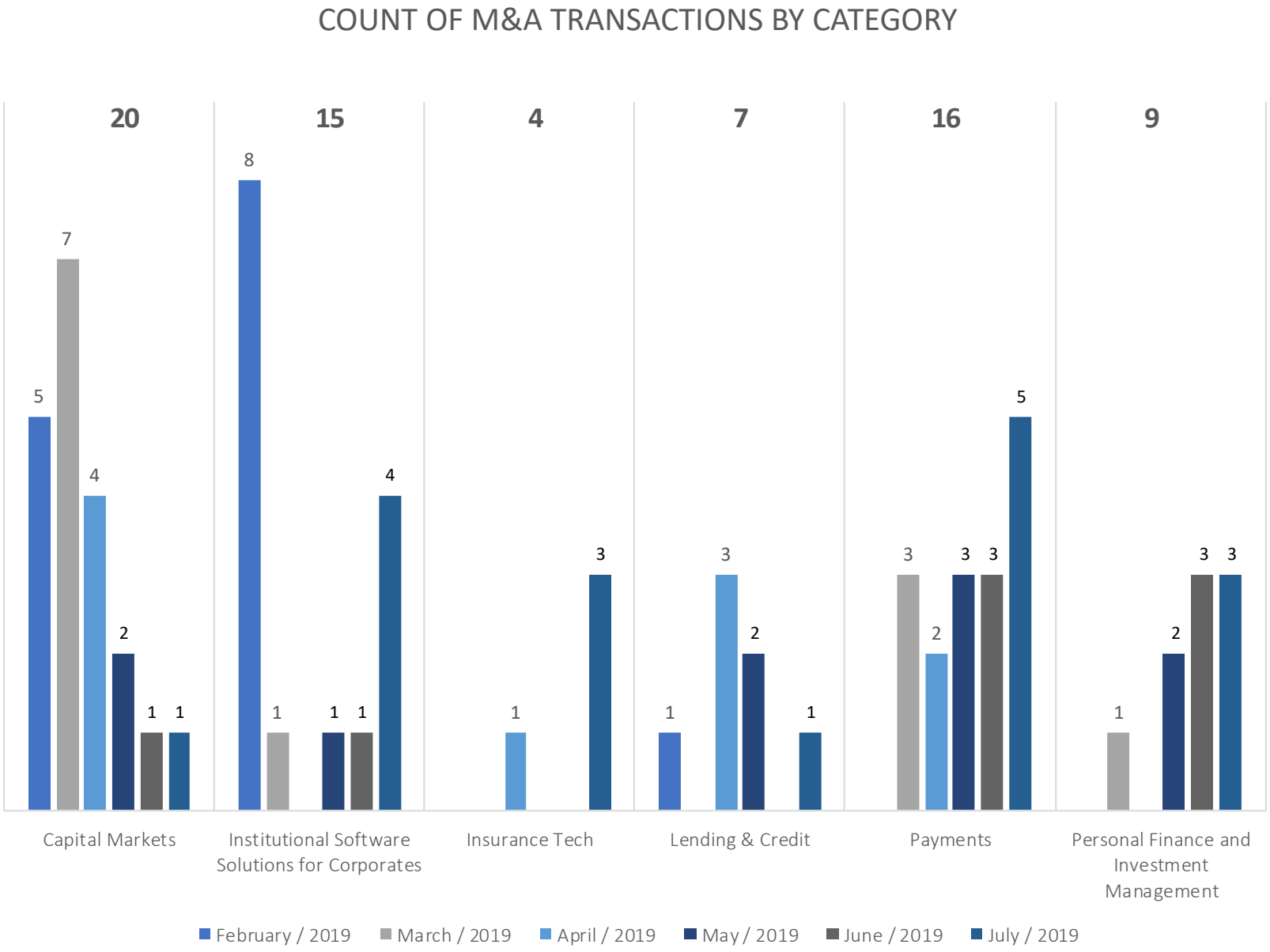
Company	Market Data			LTM Margins		TEV / Sales			TEV / EBITDA			Price / Earnings			P/B	D/E	Sales
	Off 52 Wk High	Market Cap	Enterprise Value	Gross	EBITDA	LTM	2019 E	2020 E	LTM	2019 E	2020 E	LTM	2019 E	2020 E			1 YR CAGR
Greensky, Inc	-41%	$ 2,149	$ 2,019	83%	61%	4.7x	3.7x	2.9x	7.7x	9.6x	7.8x	57.7x	18.2x	14.4x	53.7x	19%	27%
Lending Tree	-17%	$ 4,246	$ 4,333	88%	14%	5.1	4.0	3.3	37.4	21.6	16.6	77.3	99.4	45.6	11.4	11%	24%
Lending Club	-25%	$ 1,269	$ 909	87%	29%	0.8	1.2	1.0	2.6	7.0	5.3	-55.6	554.6	34.7	1.5	21%	3%
On Deck	-41%	$ 273	$ 1,015	81%	23%	2.4	2.3	2.1	10.4	26.9	25.8	12.4	15.4	12.1	0.7	308%	14%
Elevate Credit	-58%	$ 181	$ 624	87%	67%	0.8	0.8	0.8	1.2	4.7	4.6	11.8	7.2	5.5	1.4	300%	17%
Median	**-41%**			**87%**	**29%**	**2.4x**	**2.3x**	**2.1x**	**7.7x**	**9.6x**	**7.8x**	**12.4x**	**18.2x**	**14.4x**	**1.5x**	**21%**	**17%**

Source: FactSet, Bloomberg , Updated on 7/30/2019
Note: N/A denotes negative multiple or oddly high multiple or the multiple is not available



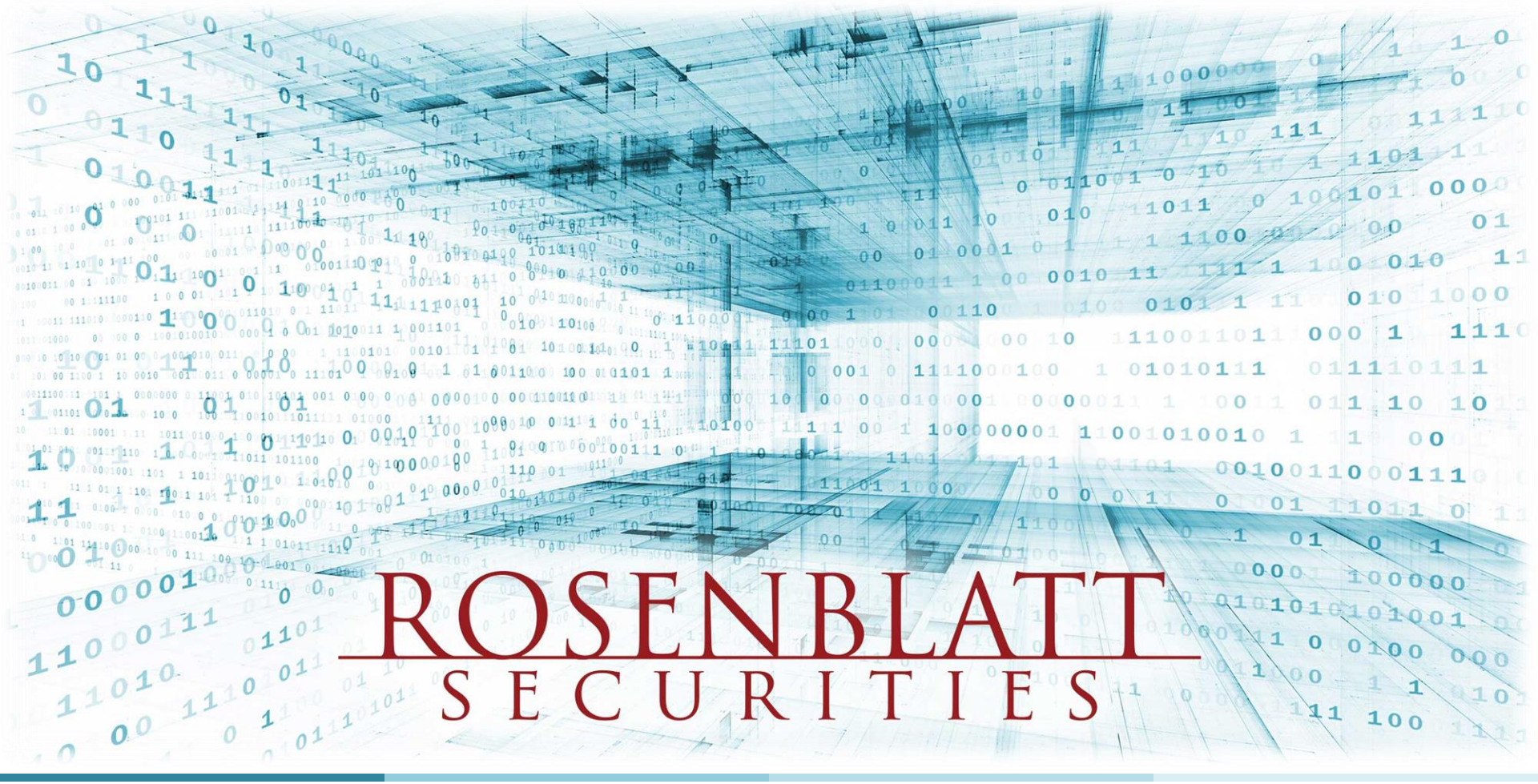
M&A Trends

Select Last 6 Months - M&A Transactions Trend



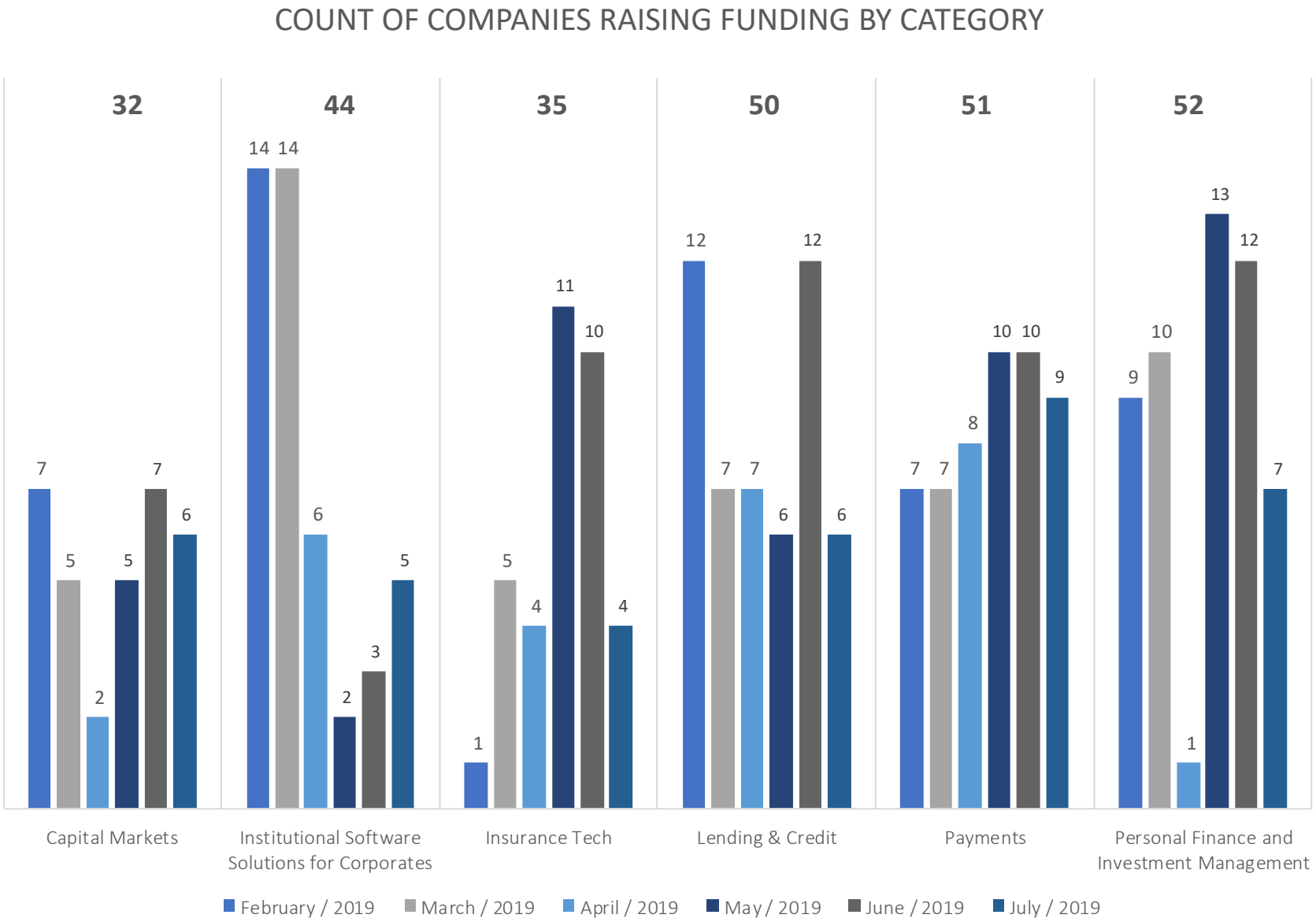
Source: Capital IQ, Bloomberg, Crunchbase, Waters Technology, Nasdaq, Finextra Research, FinSME, Pitchbook

All M&A transactions in this report are U.S. target companies and any foreign target companies with U.S. buyer(s)



Capital Raising Trends

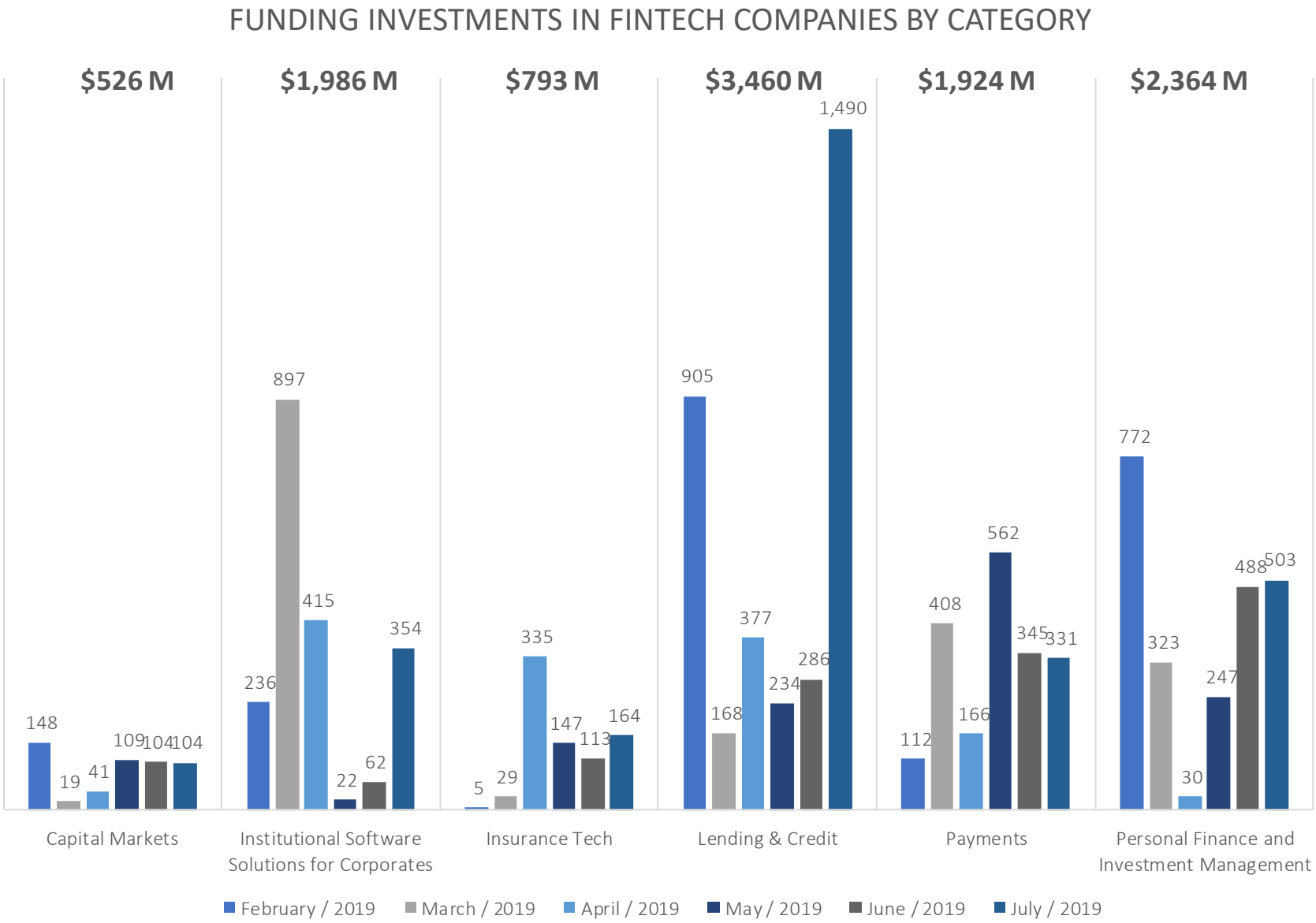
Select Last 6 Months Capital Raise Trends



Source: Capital IQ, Bloomberg, Crunchbase, Waters Technology, Nasdaq, Finextra Research, FinSMEs, Pitchbook

All capital raises in this report are U.S. companies and any foreign companies with U.S. investor(s)

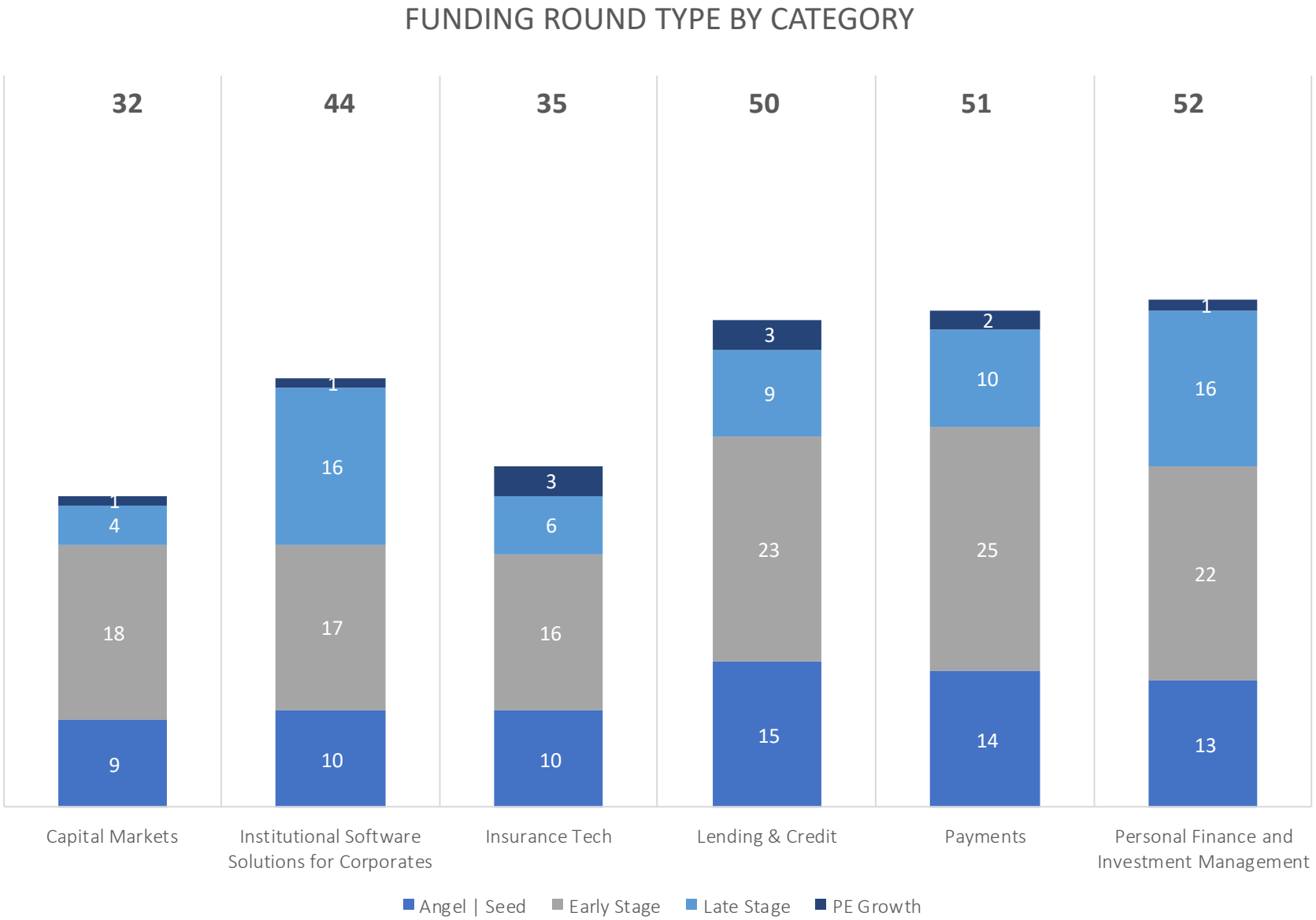
Select Last 6 Months Capital Raise Trends



Source: Capital IQ, Bloomberg, Crunchbase, Waters Technology, Nasdaq, Finextra Research, FinSMEs, Pitchbook

All capital raises in this report are U.S. companies and any foreign companies with U.S. investor(s)

Select Last 6 Months Capital Raise Trends



Source: Capital IQ, Bloomberg, Crunchbase, Waters Technology, Nasdaq, Finextra Research, FinSMEs, Pitchbook

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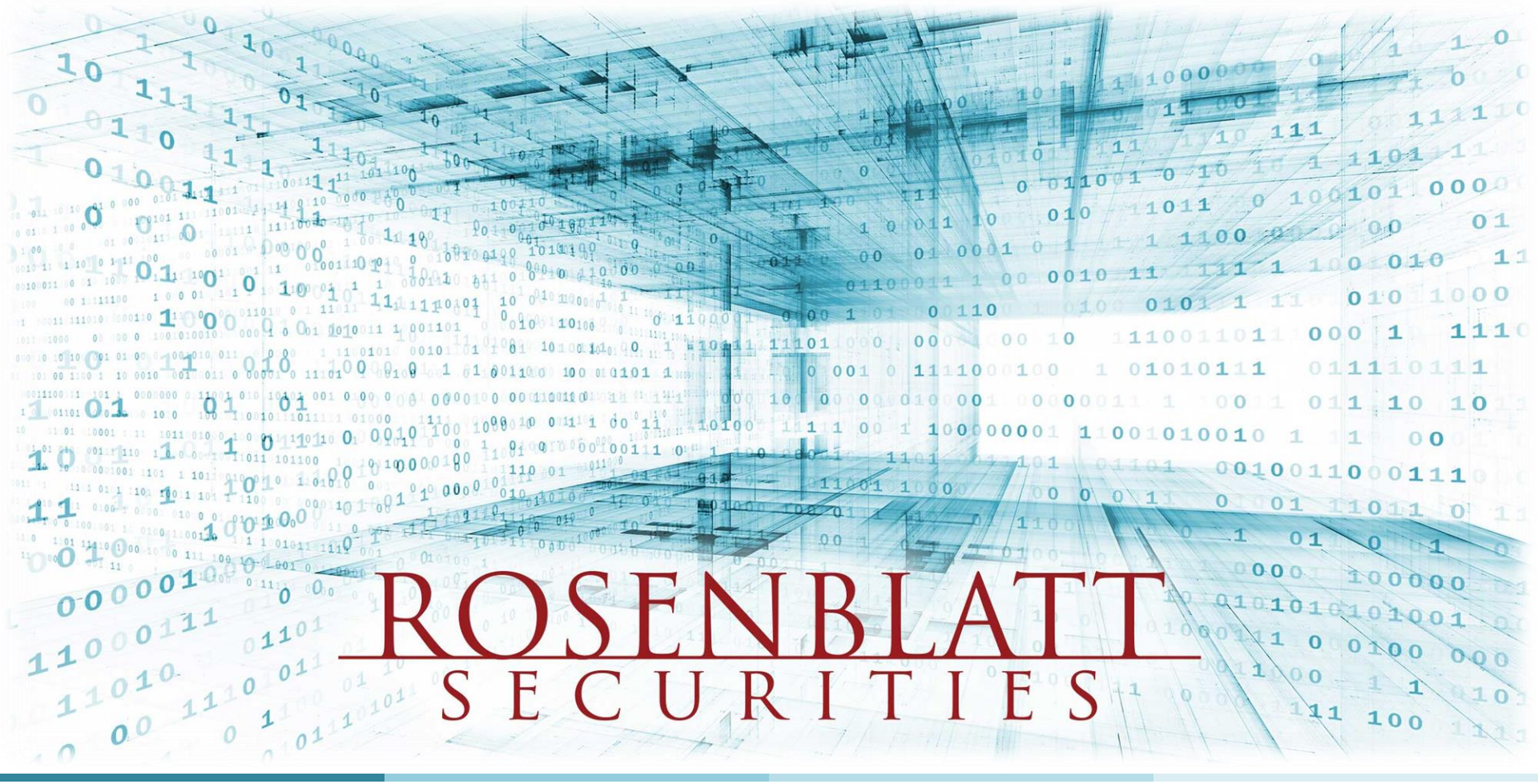
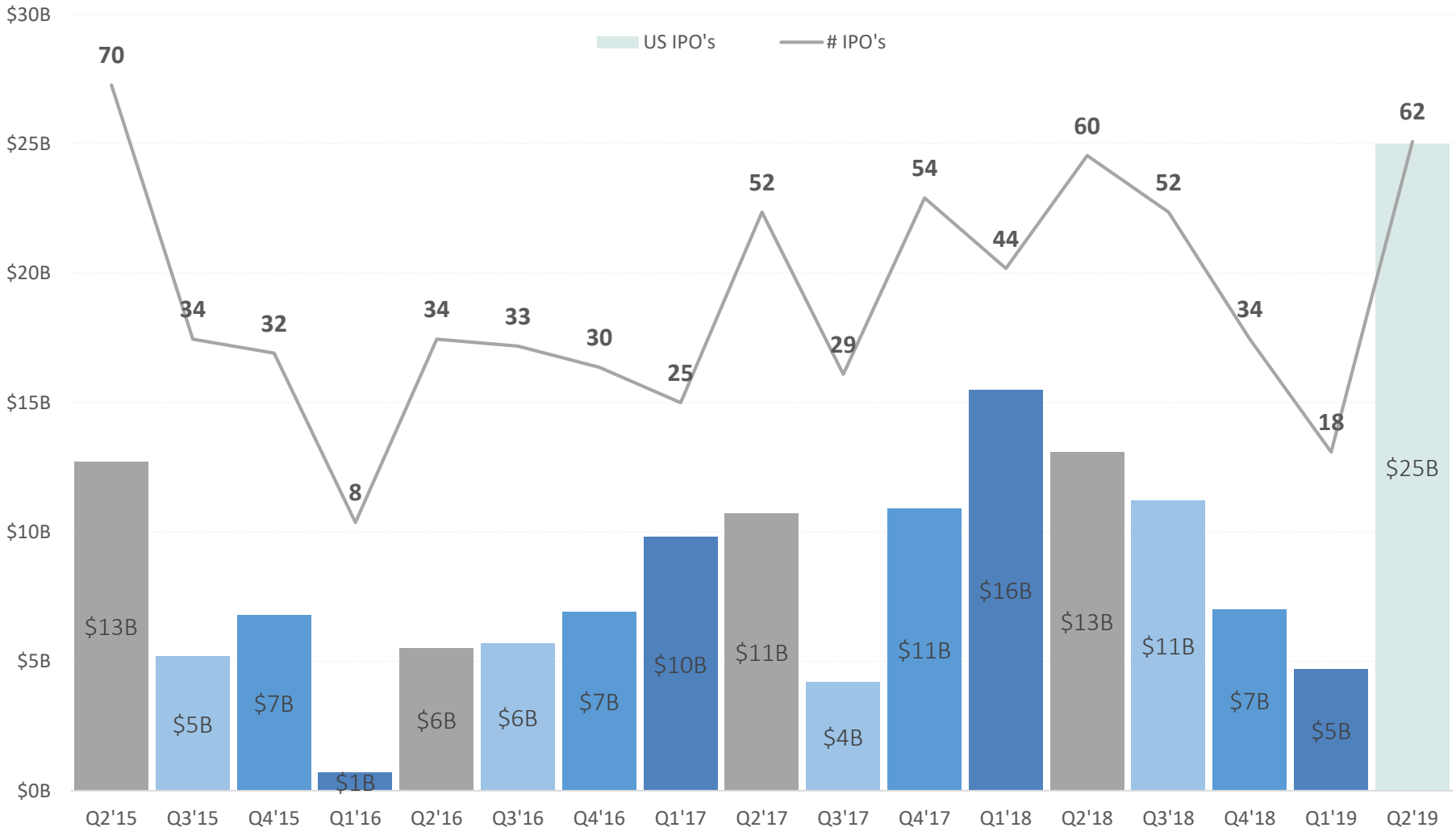


US IPO Dynamics

State of Capital Markets – US IPO Market Update



Proceeds ($M)	CY2015	CY2016	CY2017	CY2018	YTD-2019
US IPO's	$ 30,200	$ 18,800	$ 35,600	$ 46,800	$29,700

Source: PWC, EY, Renaissance Capital

Select FinTech US Public Offerings – 2017 - 2018

Offering Date	Company	Sector	Ticker Name	Amount Raised* ($ millions)	Offering Price Range ($)	Offering Price ($)	1 Week Return
3/3/2019	Tradeweb	Capital Markets	NASDAQ:TW	$ 1,240	24.0 - 26.0	$ 27.00	17.0%
3/19/2019	Tiger Brokers	Capital Markets	NASDAQ:TIGR	$ 104	5.0 - 7.0	$ 8.00	18.0%
3/8/2019	FUTU	Capital Markets	NASDAQ:FHL	$ 90	12.0 - 12.0	$ 12.00	17.5%
12/13/2018	360 Finance, Inc	Lending & Credit	NASDAQ: QFIN	$ 51	16.50 - 18.50	$ 16.50	0.0%
10/25/2018	StoneCo Ltd	Payments	NASDAQ: STNE	$ 1,400	21.00 - 23.00	$ 24.00	-4.1%
6/15/2018	Avalara	Institutional Software & Solutions	NYSE: AVLR	$ 180	21.00 – 23.00	$ 35.00	10.4%
10/25/2018	Pintec Technology	Lending & Credit	NASDAQ: PT	$ 44	10.00 - 12.00	$ 11.88	-6.7%
10/12/2018	Anaplan, Inc	Institutional Software & Solutions	NYSE: PLAN	$ 264	15.00 - 17.00	$ 17.00	0.0%
6/24/2018	I3 Vertical.	Payments	NASDAQ: IIIV	$ 87	11.00 - 13.00	$ 18.00	-17.8%
5/24/2018	Greensky, Inc	Lending & Credit	NASDAQ: GSKY	$ 874	22.00 - 23.00	$ 23.00	14.7%
5/23/2018	EVO Payments	Payments	NASDAQ: EVOP	$ 224	16.00 - 19.00	$ 16.00	11.2%
3/26/2018	Ceridian HCM	Institutional Software & Solutions	NYSE: CDAY	$ 462	19.00 - 21.00	$ 22.00	8.9%
4/27/2018	Docusign Inc	Institutional Software & Solutions	NYSE: DOCU	$ 629	26.00 - 28.00	$ 29.00	3.4%
3/16/2018	Zuora, Inc	Institutional Software & Solutions	NYSE: ZUO	$ 154	9.00 - 11.00	$ 14.00	-5.0%
2/9/2018	Cardlytics	Payments	NASDAQ: CDLX	$ 70	13.00 - 15.00	$ 13.00	37.0%
11/10/2017	PPDAI Group Inc.	Alternative lending	NYSE: PPDF	$ 221	16.00 - 19.00	$ 13.00	0.0%
12/26/2017	PagSeguro Digital Ltd	Payments	NYSE: PAGS	$ 2,300	17.50 - 20.50	$ 21.50	-4.3%
10/28/2016	Blackline, Inc.	Institutional Software & Solutions	NASDAQ: BL	$ 14	16.00 - 17.00	$ 17.00	41.0%
10/6/2016	Coupa Software	Institutional Software & Solutions	NASDAQ: COUP	$ 133	16.00 - 18.00	$ 18.00	70.0%
4/15/2016	Bats Global Markets	Global Exchanges	BZX: BATS	$ 291	17.00 - 19.00	$ 19.00	20.3%

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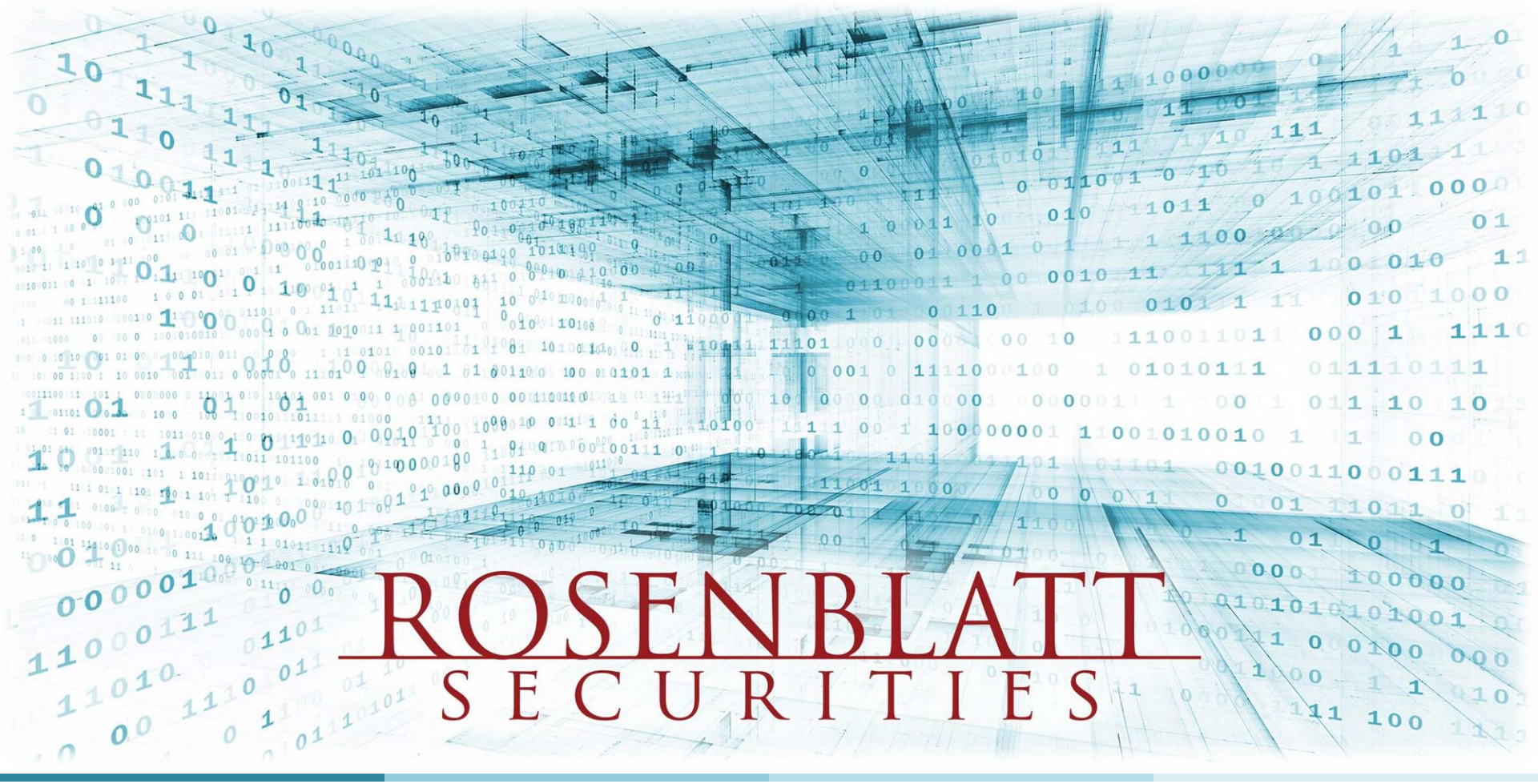
Source: Capital IQ, Bloomberg, Crunchbase, Waters Technology, Nasdaq, Finextra Research

*Amount raised excludes greenshoe option



The Rosenblatt Difference

Vikas Shah – Institutional Investor's Fintech Finance 40 (2018 & 2019)

Institutional Investor

The Fintech Finance 40: Vikas Shah

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Investment Banking

Rosenblatt launched **FinTech-focused investment banking** more than 10 years ago. Since then, we have come to be known as FinTech sector specialists

Featured in Institutional Investor's FinTech Finance 40 rankings, our team brings unequaled domain expertise and a laser focus on financial technology

As trusted advisers, we help private and public companies with **capital raising, M&A and business development**. We get past the industry hype by fostering education and networking within the FinTech community

As part of our practice, every year, we host **annual FinTech Summit** showcasing some of the most exciting FinTech companies

Fundamental Research

Our team of veteran equity research analysts **provide expert insights and corporate-access opportunities for investors in the TMT and FinTech sectors**

In addition to our inhouse research capabilities, we also have **exclusive relationships with brokers from over a dozen emerging- and frontier-markets**

Technology Solutions

Our analytics team, led by a veteran former buy-side quant, **approaches execution with a practitioner's perspective and applies world-class data science**. Our visualization expert has earned the designation of Alteryx ACE and was the first-ever Tableau Zen Master

Our team has developed tools that are **used for pre-trade, trade and post-trade analysis** by our internal trading team as well as by the largest investment banks and asset managers

We started as an independent NYSE floor broker in 1979 with a simple goal: deliver **conflict-free advice** and execution. Since then, we have adapted, expanded and diversified to become a leading **agency brokerage, investment-banking and research** boutique. But we remain committed to our founding principles in everything we do

Our services

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Full Service Advisory Offering

Advisory Services
- M&A
- Due Diligence
- Divestitures
- Valuations
- Restructuring
- Transaction Structuring
- Fairness Opinions
- Negotiations

Capital Raising
- Equity Capital Markets
- Buybacks
- Private Equity
- Private Debt
- Follow-On Offerings

Strategic Management Consulting
- Market Entry
- Exit Strategies
- Peer Group Benchmarking
- Industry / Competitive Analysis

Business Development
- Product Validation
- Channel Partner Development
- Customer Introduction

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Strong value proposition

Unparalleled Domain Expertise

- Focused coverage of capital markets and financial technology firms across asset classes to address their corporate finance needs
- Trusted advisers on dozens of deals and we go beyond just executing – with our annual Financial Technologies Summit (FTS) and Global Exchange Leader Conference /(GELC) we're committed to advising and educating our clients
- Our deep domain expertise and attention to details uncovers often overlooked complexities and nuances

Deep Strategic & Financial Relationships

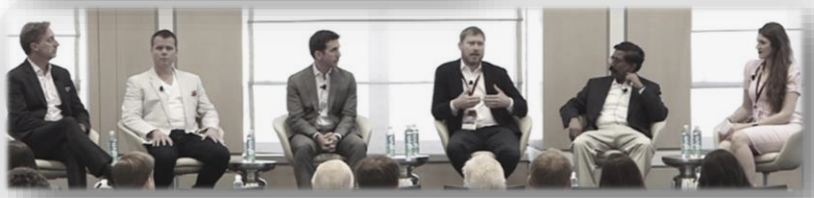
- Our investment banking, research, and consulting efforts have fostered deep ties with many of the largest financial services and private equity firms across North America, EMEA, and Asia-Pacific
- Our brokerage operations have allowed us to develop extensive relationships with leading institutional investors and portfolio managers
- Strong relationships with a roster of global bank partners for offerings that require balance sheet commitment and institutional underwriting

Tailored Execution Experience

- We pride ourselves in creating solutions that address individual client's needs; always shying away from cookie-cutter solutions

Institutional Investor

Rosenblatt's, Vikas Shah named to FinTech Finance 40 list



Our FinTech Summit on panel with R3, Ripple, Noble, Symbiont, and PeerNova

Our Market Structure Summit in conversation with SEC Chairman Jay Clayton

Our Market Structure Summit on panel with Virtu Financial, XTX Markets, Jane Street, and DRW Holdings

Clients call on us for deep-domain expertise in FinTech, close dialogues with an extensive roster of institutional investors and proven execution experience. We have the track record of working on exclusive engagements as well co-managers with other well-respected industry underwriters

ROSENBLATT SECURITIES

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