

INDUSTRY INSIGHTS

Global Software Sector Update

Winter 2020


Executive Summary

Heading into 2020, software M&A activity and valuations will likely remain strong at least for the first half of 2020, but we anticipate rising uncertainty into the second half of the year with the U.S. presidential election in November 2020. Additionally, in 2020 other technology sectors may continue to soften given continued concerns around global economic uncertainty, supply chain disruptions caused by the Coronavirus and continued trade tensions between the U.S. and China.

2019 saw a bifurcation in the technology M&A market, with a record year for software M&A volumes and the second largest by value, following an outlier 2018 marked by a large number of multibillion-dollar deals. This positive and consistent trend is evident in the increase in multiples for software deals, where median revenue multiples reached 4.5x revenue in 2019, up from 4.4x revenue in 2018 and up from as low as 2.7x revenue in 2013.¹

In terms of deal themes, 2019 marked another year of the “change of the guard”, as the industry’s long-time buyers are no longer acquiring at the same rate, both in terms of volume and value. In parallel, private equity’s participation in technology M&A deals, and in particular software buyouts, has increased steadily over the past several years, and participation has consistently accounted for over 30% of all software buyouts, up from just 11% in 2010.¹ 2019 has also been highlighted by the “verticalization” of software continuing to gain prominence with investors, open source models becoming mainstream, and acquisition of developer-centric capabilities and platforms.

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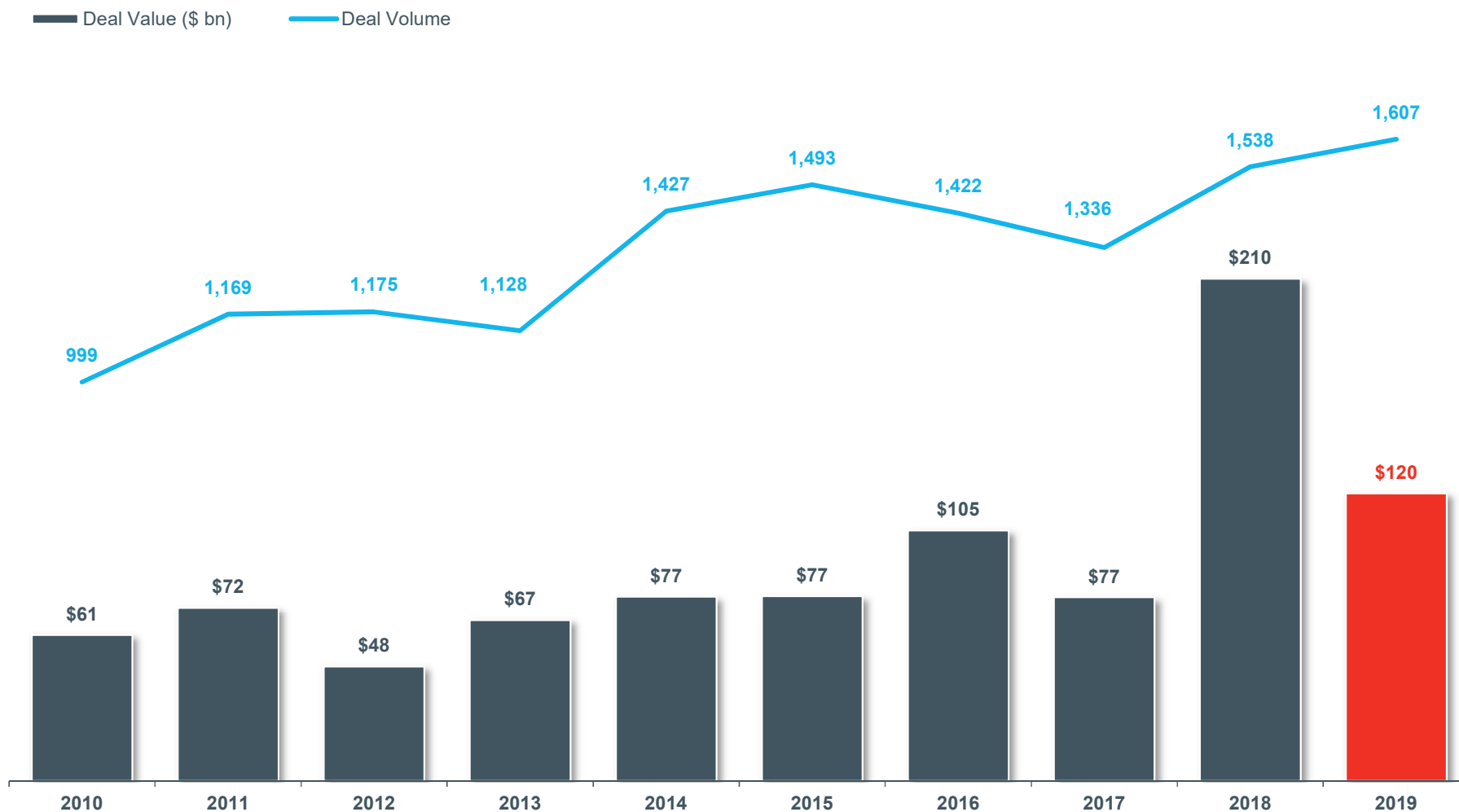


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Global Software M&A Continues Apace

2019 Marked the Highest Deal Volume and Second Highest Deal Value

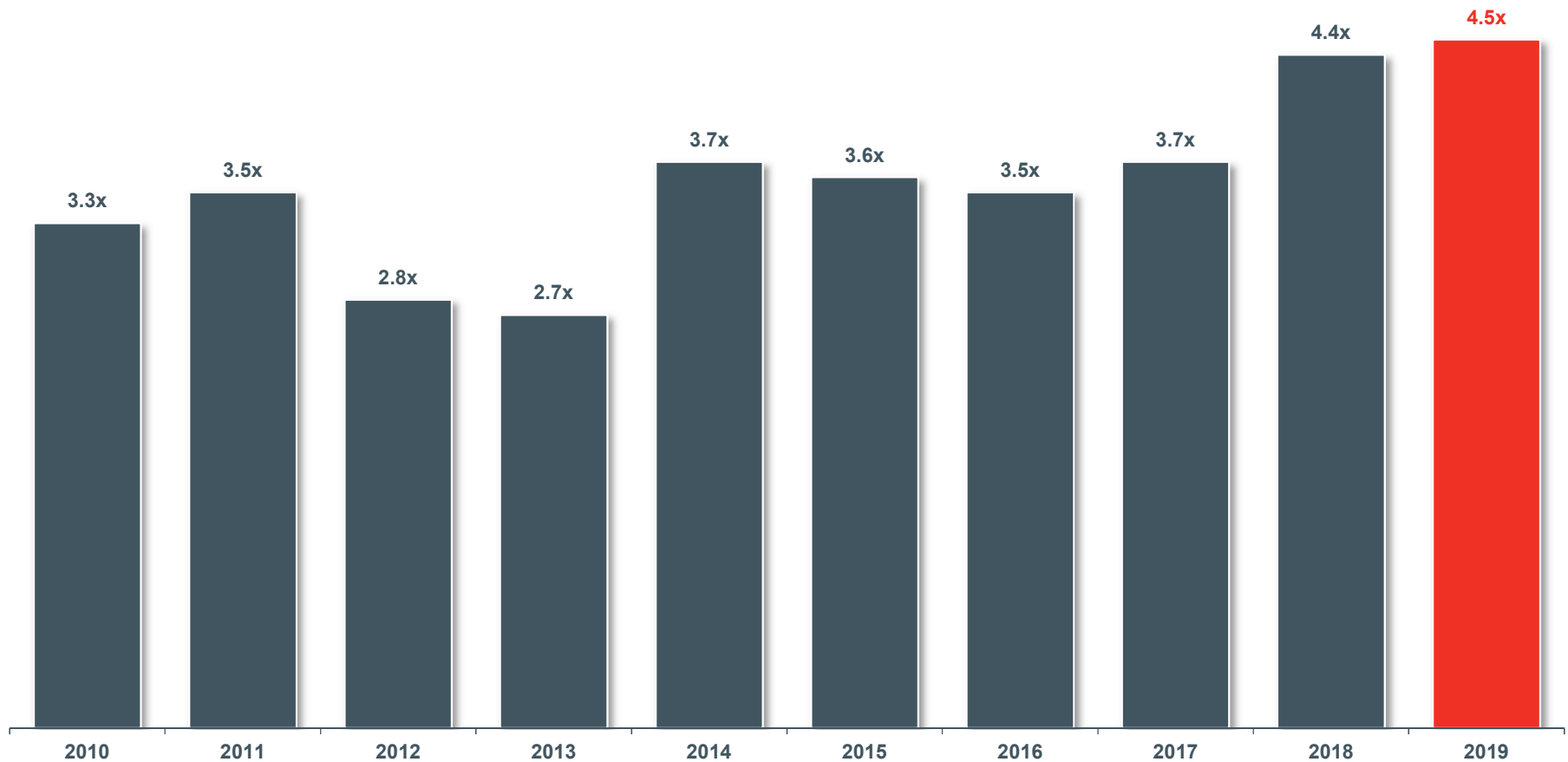
Annual Deal Volumes and Value



A Record Year for Software Valuations

Annual Median Deal Multiple

— EV/LTM Revenue

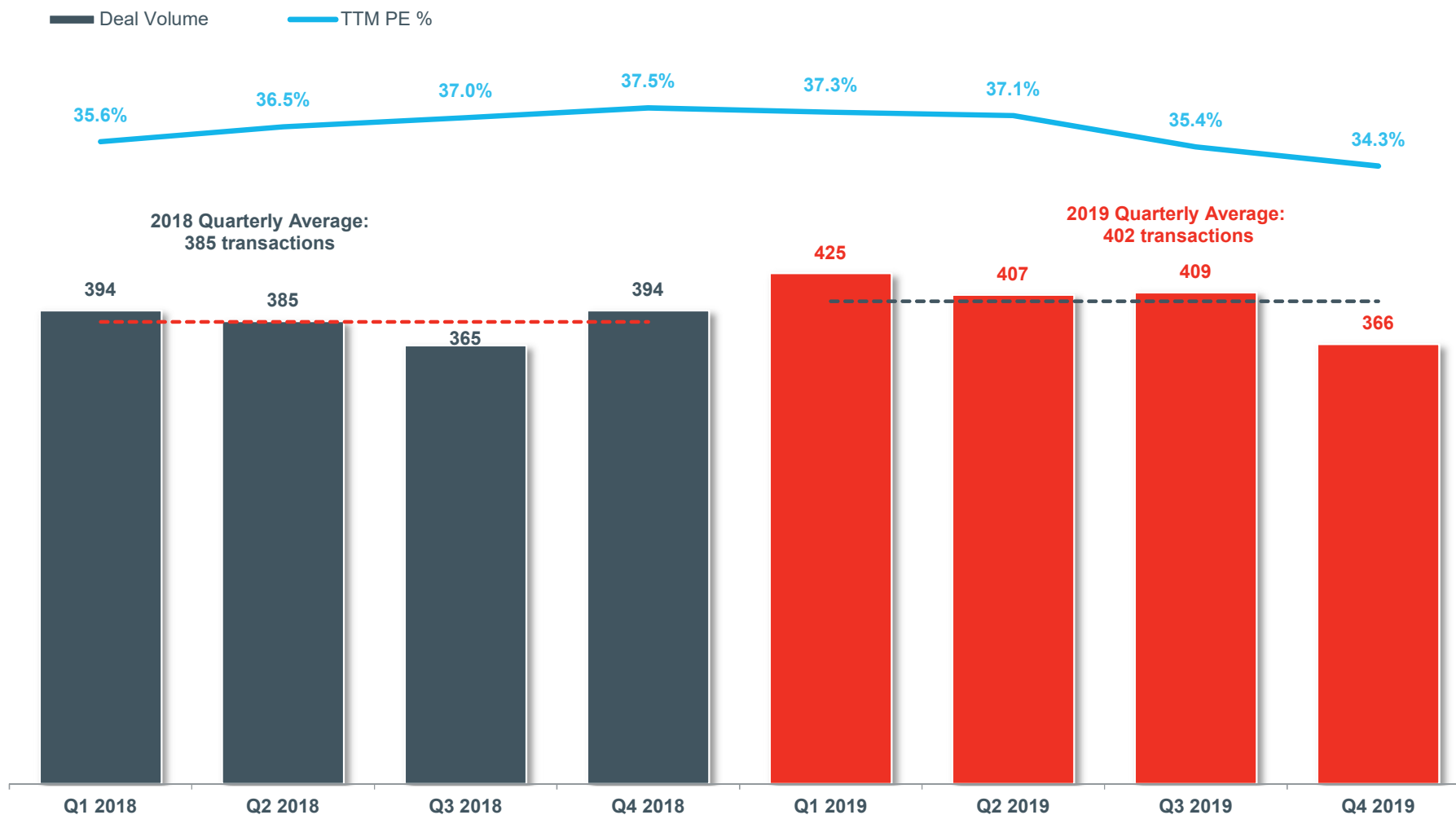


EV = Enterprise Value = Market Capitalisation + Total Debt – Cash
LTM = Last Twelve Months

Source: 451 Research as of December 31, 2019

Volumes and Overall PE Participation Remained Robust with Q4 Results Below Trend

Quarterly Deal Volumes

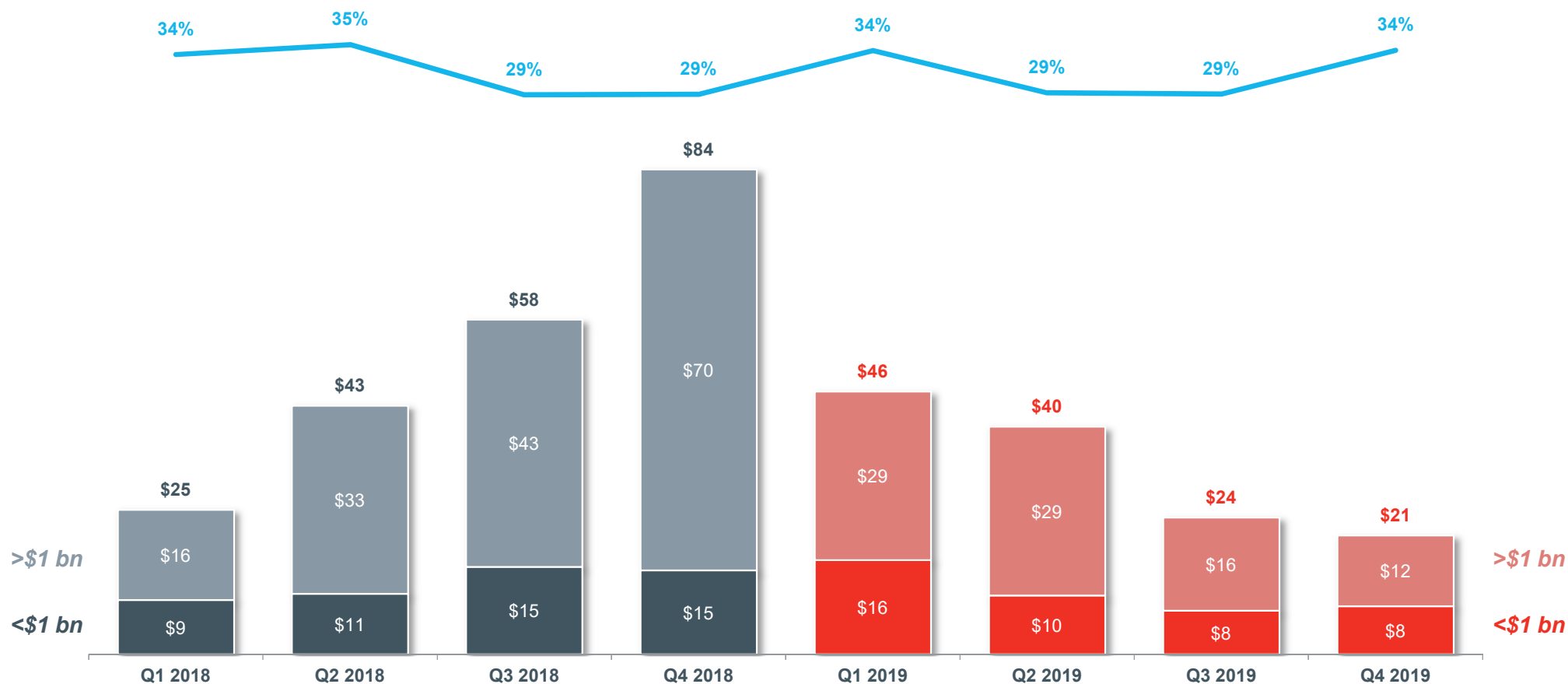


Total Deal Value Decreased Progressively Q/Q, Primarily Driven by a Sharp Drop in Big-Ticket Deals

Quarterly Deal Value

Deals >\$1 bn Deals <\$1 bn TTM PE %

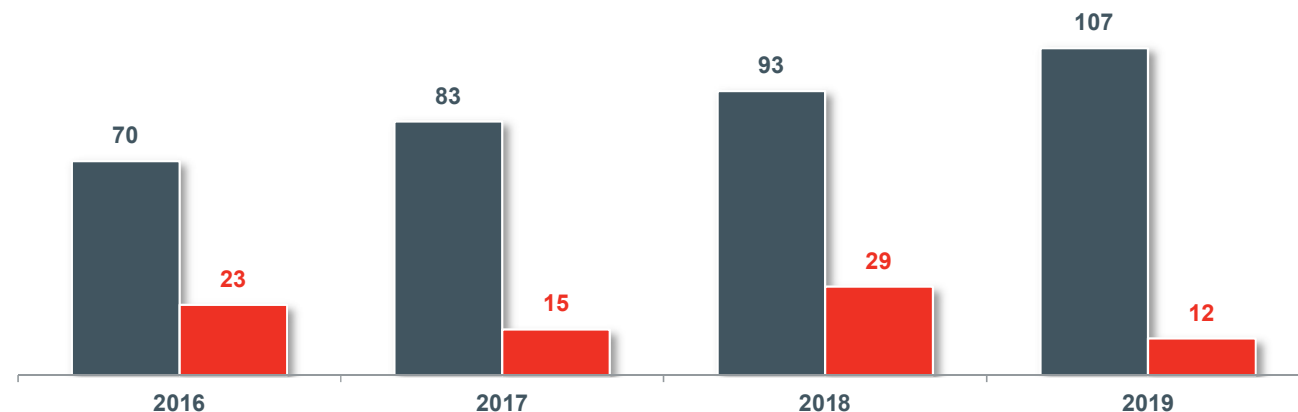
In \$ bn



Consistent Growth in Top Five PE Activity While Large Cap (>\$1 bn) Activity Is More Cyclical

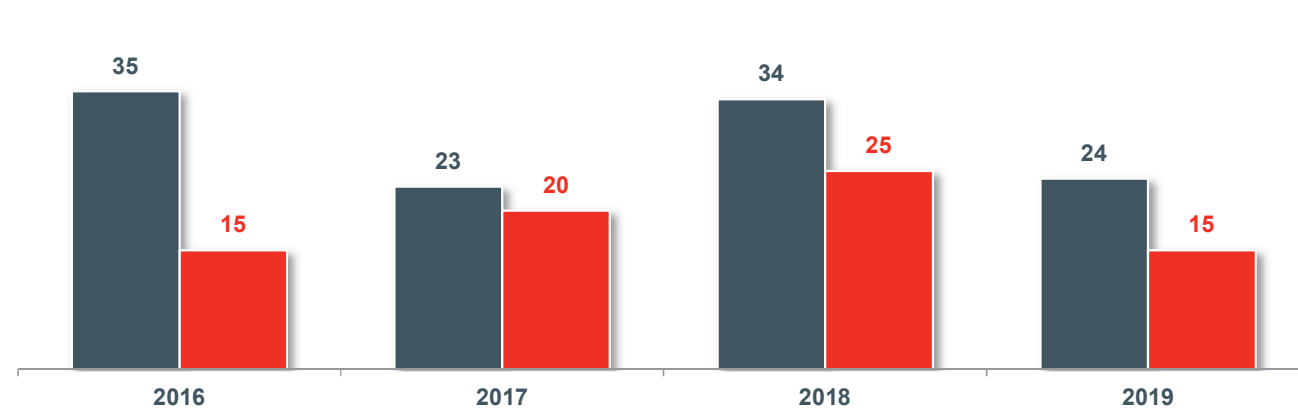
Top PE Acquirers

■ Total ■ Deals > \$1 bn



Top Strategic Acquirers

■ Total ■ Deals > \$1 bn



Top PE Acquirers (Deals Since 2016)



Top Strategic Acquirers (Deals Since 2016)



Select Large-Cap Deals (>\$1 bn)

Q4 2019

December 2019

LogMeIn
Be Limitless.

acquired by

FP
FRANCISCO
PARTNERS

LogMeIn provides remote-access software as a service (SaaS) that enables businesses and consumers to access remote PCs and Mac computers through the internet or mobile devices. It also provides web conferencing and team collaboration SaaS.

\$4.2
bn

3.4x
Rev.

This investment builds on the strength of Francisco Partners' infrastructure and security software franchise.

October 2019

SOPHOS

acquired by



THOMABRAVO

Sophos provides cyber security SaaS for consumers, businesses and government agencies globally. Sophos leverages AI to enable anti-virus, endpoint security, anti-spam and encryption. It also provides related managed services.

\$3.8
bn

5.5x
Rev.

Thoma Bravo believes that the acquisition of Sophos represents an attractive opportunity to increase its exposure to the large and growing cyber security market.

December 2019

INSTRUCTURE

acquired by



THOMABRAVO

Instructure provides learning management SaaS for schools and employee training SaaS to businesses. Software provides features for managing school assessments, analytics, registration, video learning, employee training and development.

\$1.8
bn

6.9x
Rev.

Thoma Bravo intend to build on the strong momentum in the business and accelerate growth and product investment both organically and through M&A.

October 2019

CISION

acquired by

Platinum Equity

Cision provides businesses with a PR and marketing campaign management SaaS called C3. It also operates PR Newswire, which distributes press releases globally and provides a database of press releases.

\$1.5
bn

3.6x
Rev.

As a private company, Cision can make strategic investments for sustainable and profitable growth, while remaining agile and focused on operational excellence.

December 2019

SH-PE

acquired by



\$1.0
bn

17.0x
Rev.

Shape Security provides AI-enabled web and mobile application fraud protection software for banks, airlines, retailers and government agencies. Its software solutions include features for analysis of transactions, devices and user behaviors in real time; user credential defense; and imitation attack protection.

Shape's ML- and AI-powered capabilities will scale and extend F5's broad portfolio of application services and expand its ability to optimize and protect customers' applications in a complex multicloud world.

Deal
Size

EV/
LTM
Rev

PR = Public Relations; ML = Machine Learning; AI = Artificial Intelligence
Deals selected represent largest publicly announced transactions in the software sector

Sources: 451 Research, SEC filings, S&P Global Market Intelligence, Mergermarket, company press releases and various news sources (as of December 31, 2019)
All trademarks, trade names, or logos referenced herein are the property of their respective owners.

Select Mid-Market Deals (<\$1 bn)

Q4 2019

December 2019



IAS provides finance and insurance (F&I) management SaaS and vehicle warranties products and services for vehicle dealerships and agents in the U.S. Software includes features for finance and insurance management, marketing and CRM and reporting and analytics in real time.


acquired by



This acquisition expands IA Financial Group's customer offering by introducing an end-to-end product suite and omnichannel distribution, as well as reinforcing its national footprint.


\$720 mn **N/A**

November 2019



Scout provides sourcing and supplier management SaaS for procurement teams globally. Software includes features for sourcing and reverse auction, managing supplier contract, collaboration, spend and policy compliance.


acquired by



Together, Scout and Workday will deliver a modern source-to-pay solution that accelerates our momentum in the spend management market and expands how customers can plan, execute, analyze and extend in one system.


\$540 mn **N/A**

December 2019



Telaria provides video advertising management SaaS for publishers and advertisers globally. Software enables users to manage, analyze and monetize their video advertising inventory across internet-connected devices and platforms, including mobile devices, computers and connected TVs.

acquired by




The combined company will offer a single platform for transacting connected TV (CTV), desktop display, video, audio and mobile inventory across all geographies and auction types.

\$364 mn **4.4x Rev.**

Deal Size


EV/LTM Rev

November 2019



Buildium provides property management SaaS for residential property managers, community associations and landlords. The software enables property managers to market vacancies, track income/expenses, process online payments and coordinate maintenance requests.


acquired by



The SMB market is a growth opportunity for RealPage, as it is an area where technology is underutilized, and is currently served by myriad point products. Buildium enables RealPage to reach deeper into that market, with a best-in-class platform backed by data science.


\$580 mn **12.0x Rev.**

October 2019



Onshape provides product design and development SaaS for enterprises. Features include data management, computer-aided design (CAD), workflow, real-time collaboration, design analytics and integration to business applications.


acquired by



The acquisition of Onshape complements PTC's on-premise business with the industry's only proven, scalable pure SaaS platform, opening new CAD and PLM growth opportunities while positioning PTC to be a leader as the market transitions toward a SaaS model.


\$470 mn **N/A**

November 2019



ObserveIT provides insider threat management software for businesses and governments. Licensed software enables monitoring, detection, prevention and investigation of IT security risks.

acquired by



The integrated DLP platform will deliver real-time detection of the anomalous interactions across people, data, devices and applications, allowing security teams to understand and respond to data being mishandled, whether on a corporate device, in a cloud app like Office 365 or via email.

\$225 mn **7.5x Rev.**

CRM = Customer Relationship Management; PLM = Product Lifecycle Management; DLP = Data Loss Prevention
Deals selected represent largest publicly announced mid-market (<\$1 bn) transactions in the software sector

Sources: 451 Research, SEC filings, S&P Global Market Intelligence, Mergermarket, company press releases and various news sources (as of December 31, 2019)
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Pagemill Partners Tracked Software Universe

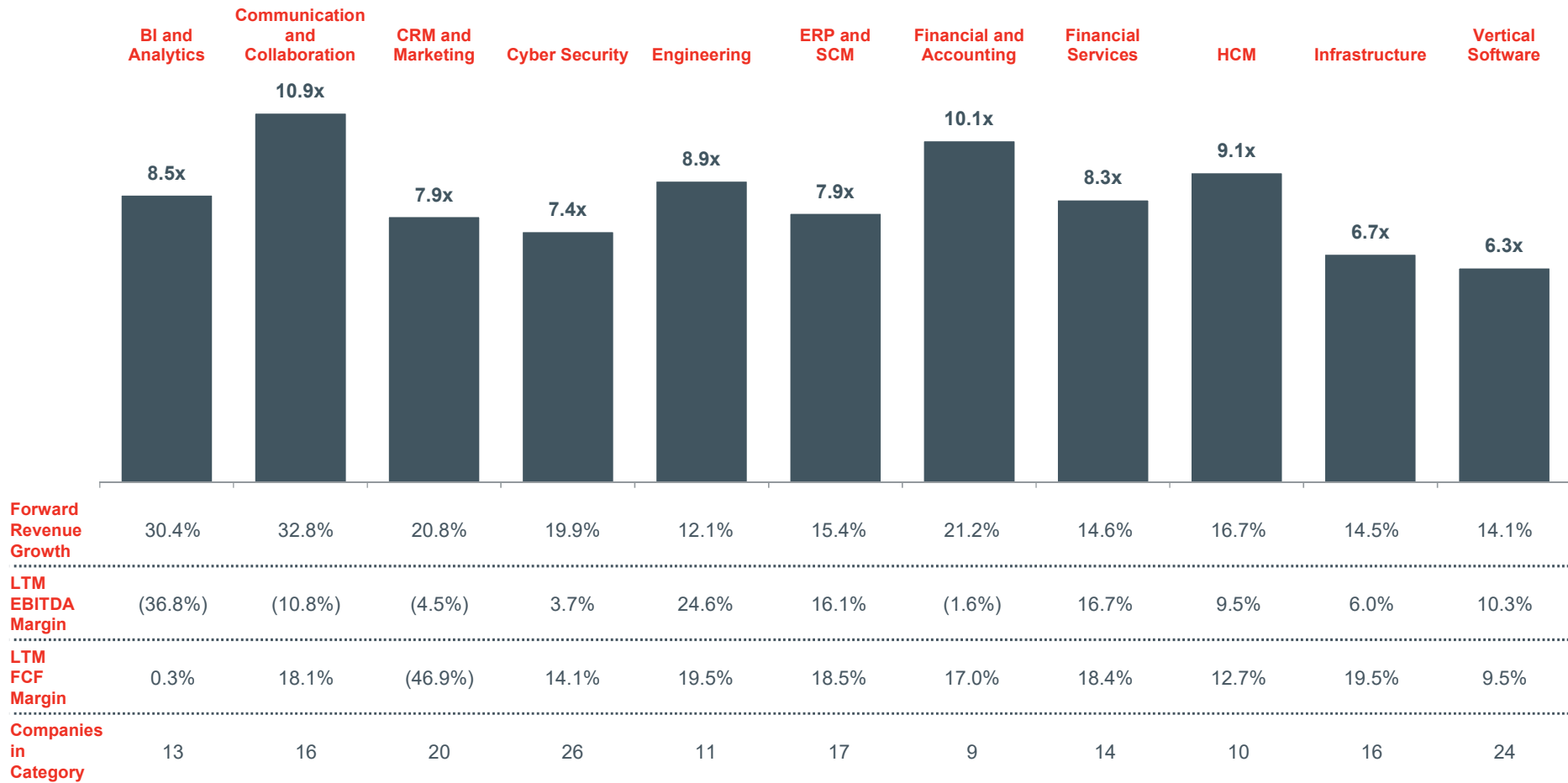


BI = Business Intelligence, CRM = Customer Relationship Management; ERP = Enterprise Resource Planning; SCM = Supply Chain Management; HCM = Human Capital Management

Source: S&P Global Market Intelligence as of December 31, 2019, and includes the most actively traded software companies for respective covered sectors, excluding most microcap companies. All trademarks, trade names, or logos referenced herein are the property of their respective owners.

Pagemill Tracked Software Verticals KPIs

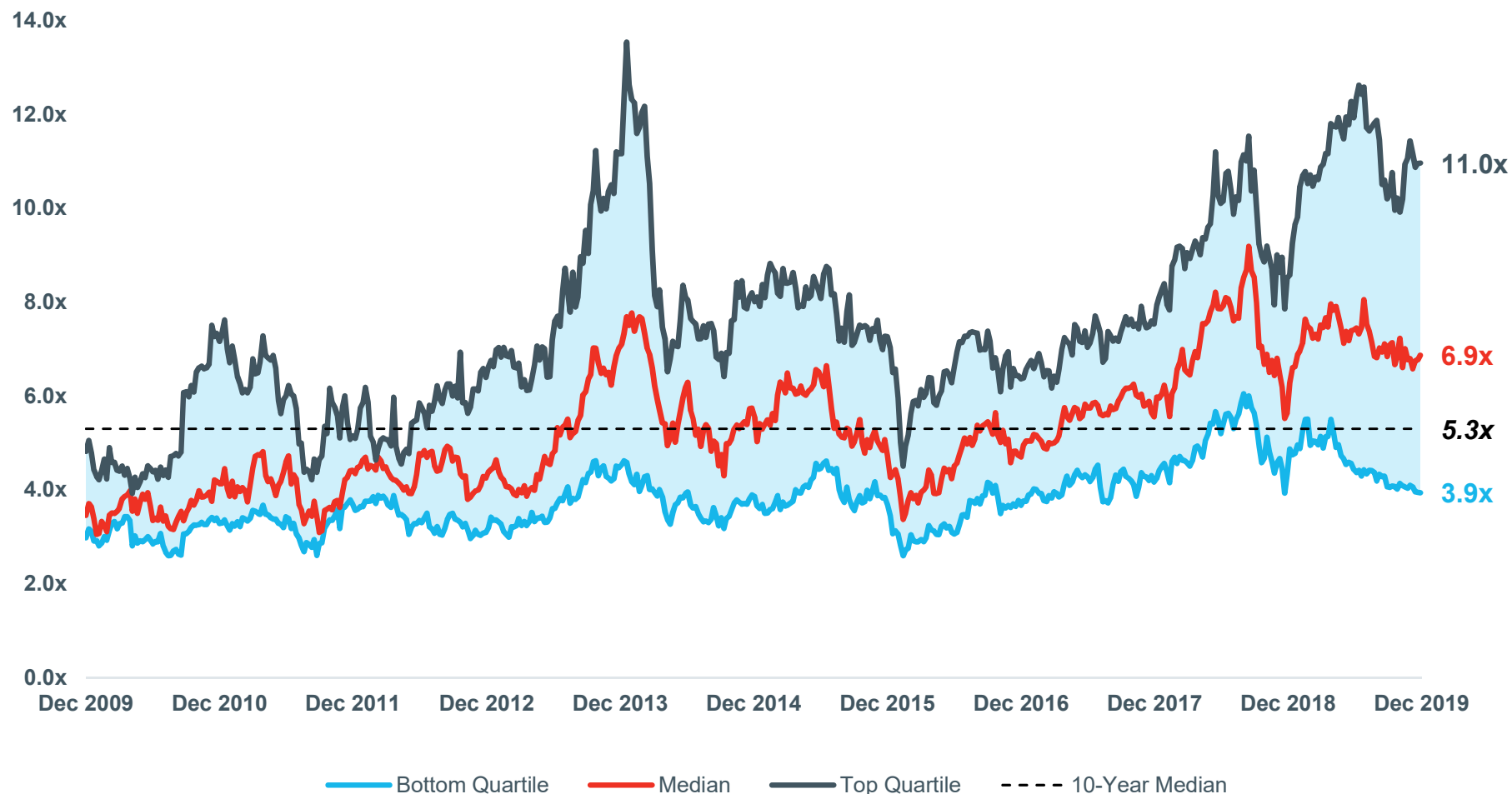
EV/CY20 Revenue Multiples



Pagemill SaaS Index

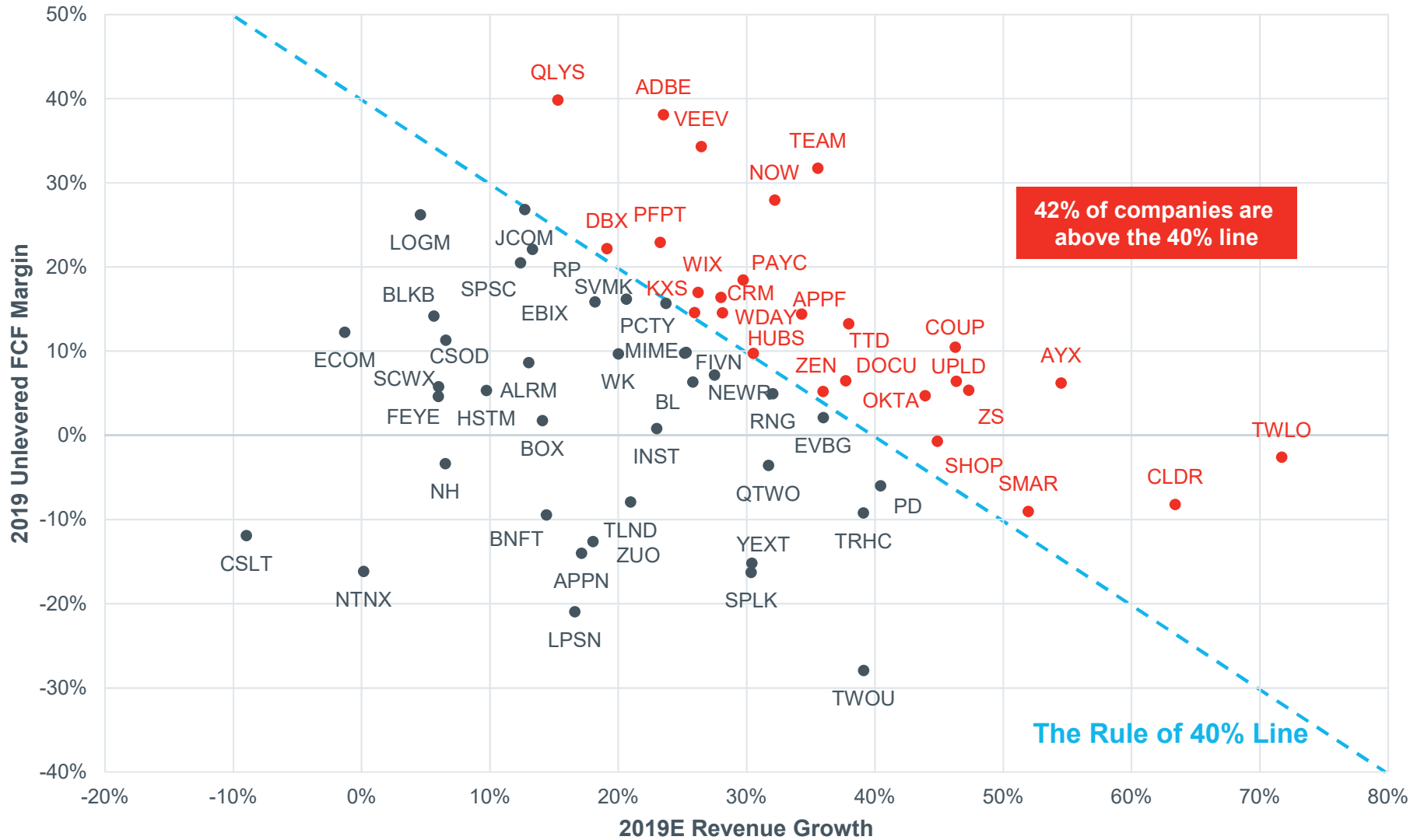
Performance of Market Indices for the Latest 10 Years

EV/NTM Revenue



Pagemill SaaS Index includes: TWOU, BNFT, BOX, CSLT, CSOD, FIVN, HUBS, LPSN, LOGM, NEWR, PFPT, QLYS, RP, RNG, CRM, NOW, SPLK, SPSC, VEEV, WIX, WDAY, ZEN, SCWX, APPF, TEAM, TWLO, INST, SHOP, NTNX, BL, COUP, OKTA, ALRM, AYX, APPN, BLKB, ECOM, CLDR, EBIX, EVBG, FEYE, HSTM, JCOM, KXS, MIME, NH, PAYC, PCTY, QTWO, TRHC, TLND, TTD, UPLD, WK, YEXT, ZIXI, ADBE, DBX, ZUO, DOCU, SMAR, ZS, SVMK and PD.
NTM = Next 12 Months

SaaS Universe and the Rule of 40



Rule of 40: Unlevered Free Cash Flow Margin + Revenue Growth ≥ 40%
Excludes outliers and uses FY 2019E EBITDA as a proxy if FY 2019E unlevered free cash flow is unavailable.

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Select M&A Transactions by Vertical



BI and Analytics

Communications and Collaboration

Date	Target	Buyer	Value	Abstract
Aug-19	pitney bowes Software solutions business	syncsort	\$700 mn 2.2x Rev.	Data management software assets
Jun-19	looker	Alphabet	\$2.6 bn 28.9x Rev.	Big data analytics SaaS
Jun-19	tableau	salesforce	\$16.3 bn 13.7x Rev.	BI analytics SaaS

Date	Target	Buyer	Value	Abstract
Jul-19	HighQ	THOMSON REUTERS	NA	Collaboration & project management SaaS
May-19	GitPrime	PLURALSIGHT	\$170 mn	Software engineering management SaaS
Apr-19	ASTUTE SOLUTIONS	Audax Group	NA	CRM and contact center SaaS

CRM and Marketing

Cyber Security

Date	Target	Buyer	Value	Abstract
Oct-19	CISION	Platinum Equity	\$2.8 bn 3.7x Rev. 12.5x EBITDA	Marketing campaign management software
Apr-19	IBM Marketing and commerce software	Centerbridge	\$215 mn 5.4x Rev.	Marketing & commerce software and SaaS
Apr-19	EPSILON	PUBLICIS GROUPE	\$4.4 bn 2.3x Rev. 8.2x EBITDA	Online marketing SaaS

Date	Target	Buyer	Value	Abstract
Oct-19	SOPHOS	THOMABRAVO	\$3.7 bn 5.4x Rev.	Security SaaS
Aug-19	Symantec Enterprise security	BROADCOM	\$10.7 bn 4.6x Rev. 30.6x EBITDA	Security software & services
Aug-19	Carbon Black.	vmware	\$2.1 bn 9.0x Rev.	Endpoint & server security software

Select M&A Transactions by Vertical



Engineering

ERP and SCM

Date	Target	Buyer	Value	Abstract
Oct-19	Onshape	ptc	\$470 mn	Product design and development SaaS
Sep-19	PSE	SIEMENS	NA	Process modelling software and services
Sep-19	LSTC Livermore Software Technology Corp.	ANSYS	\$775 mn	Engineering simulation SaaS

Date	Target	Buyer	Value	Abstract
Nov-19	scout	workday	\$540 mn	Sourcing and supplier management SaaS
May-19	Amber Road POWERING GLOBAL TRADE	E2OPEN Demand Supply Delivered	\$415 mn 4.8x Rev.	Global trade management SaaS
Feb-19	aptean	TA VISTA PRIVATE EQUITY	\$950 mn 10.6x EBITDA	Enterprise software and SaaS

Financial and Accounting Software

Financial Services

Date	Target	Buyer	Value	Abstract
Apr-19	myob	KKR	\$1.1 bn 4.5x Rev. 10.5x EBITDA	Accounting software/SaaS
Mar-19	kyriba	Bridgepoint	\$1.2 bn 10.9x Rev.	Enterprise treasury management SaaS
Jan-19	First BILLING	paya	NA	Billing and payment SaaS

Date	Target	Buyer	Value	Abstract
Aug-19	kony	TEMENOS	\$509 mn	Mobile application development SaaS
Apr-19	axioma	Deutsche Börse	\$850 mn 8.5x Rev.	Risk and investment portfolio software
Mar-19	eFront	BLACKROCK	\$1.3 bn 9.3x Rev.	Investment portfolio management software

Select M&A Transactions by Vertical







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HCM

Infrastructure

Date	Target	Buyer	Value	Abstract	Date	Target	Buyer	Value	Abstract
Aug-19	 ASURE SOFTWARE	 fm:systems	\$140 mn 4.3x Rev.	Workplace management SaaS and systems	Aug-19	SignalFx	 splunk	\$1.1 bn 21.0x Rev.	Cloud performance monitoring SaaS
Jun-19	 INSTRUCTURE	 THOMABRAVO	\$1.8 bn 6.9x Rev.	Learning mgmt and employee training SaaS	Mar-19	 ATTUNITY	 Qlik	\$405 mn	Big data integration and replication software
Feb-19	 Ultimate SOFTWARE	 H&F	\$10.9 bn 9.9x Rev.	HR management software	Jan-19	 ROGUE WAVE SOFTWARE	PERFORCE	\$480 mn 4.0x Rev. 9.6x EBITDA	Application development software

Vertical Software

Date	Target	Buyer	Value	Abstract
Dec-19	 IAS	 IAA Financial Group	\$720 mn	Vehicle dealership finance and insurance mgmt. SaaS
Nov-19	 Buildium	 REALPAGE Outperform	\$580 mn 11.6x Rev.	Property management SaaS
Jun-19	 medidata	 DASSAULT SYSTEMES	\$5.8 bn 8.8x Rev 72.1x EBITDA	Clinical development SaaS

Public Trading Data for Software Companies ●○○○○○

\$ in millions (except for share price)

Company Name	Share Price 12/31/2019	52-Week		% of 52- Week High	Market Cap	Enterprise Value	Revenue		Revenue Growth	EBITDA LTM	EBITDA Margin LTM	EV/Revenue	
		Low	High				LTM	FY 2020				LTM	FY 2020
BI and Analytics													
Alteryx, Inc.	\$100.07	\$56.24	\$147.79	-32%	\$6,512.2	\$6,364.7	\$350.6	\$520.2	33%	\$26.3	7%	18.2x	12.2x
Datadog, Inc.	37.78	27.55	44.09	-14%	11,176.5	10,477.4	310.7	502.9	43%	(14.0)	-4%	33.7x	20.8x
Domo, Inc.	21.72	14.80	47.08	-54%	605.2	589.4	166.6	198.4	15%	(112.4)	-65%	3.5x	3.0x
Dynatrace, Inc.	25.30	17.05	27.48	-8%	7,097.7	7,455.7	482.8	625.1	23%	(163.7)	-32%	15.4x	11.9x
Expert System S.p.A.	3.43	1.26	4.26	-19%	137.1	138.1	37.9	40.9	11%	(2.3)	-6%	3.6x	3.4x
Gridsum Holding Inc.	1.22	1.19	4.69	-74%	42.1	117.3	40.6	NA	NA	(76.1)	NA	2.9x	NA
MicroStrategy Incorporated	142.63	120.50	158.90	-10%	1,464.4	1,000.7	484.7	521.0	8%	(1.0)	0%	2.1x	1.9x
New Relic, Inc.	65.71	50.00	109.00	-40%	3,862.9	3,579.9	542.9	665.0	17%	(25.9)	-5%	6.6x	5.4x
PagerDuty, Inc.	23.39	20.53	59.82	-61%	1,806.4	1,460.3	154.3	210.7	27%	(53.3)	-32%	9.5x	6.9x
Splunk Inc.	149.77	99.49	153.66	-3%	23,359.5	23,529.6	2,189.8	2,881.9	23%	(187.1)	-8%	10.7x	8.2x
Talend S.A.	39.11	31.14	53.09	-26%	1,204.6	1,187.1	236.7	297.0	20%	(53.1)	-21%	5.0x	4.0x
Teradata Corporation	26.77	23.71	49.42	-46%	3,011.6	3,158.6	1,993.0	1,889.4	1%	157.0	8%	1.6x	1.7x
Veritone, Inc.	2.49	2.31	9.98	-75%	61.3	12.1	48.1	56.1	14%	(59.6)	-121%	0.3x	0.2x
Communications and Collaboration													
8x8, Inc.	\$18.30	\$16.50	\$26.67	-31%	\$1,834.1	\$1,945.5	\$389.9	\$508.7	23%	(\$105.7)	-26%	5.0x	3.8x
Atlassian Corporation Plc	120.34	84.18	149.80	-20%	29,383.0	28,752.9	1,416.0	1,792.4	27%	10.6	1%	20.3x	16.0x
Box, Inc.	16.78	12.46	24.93	-33%	2,510.7	2,735.5	676.4	773.3	11%	(78.8)	-11%	4.0x	3.5x
DocuSign, Inc.	74.11	38.80	76.28	-3%	13,299.4	13,273.3	898.8	1,215.2	26%	(167.7)	-17%	14.8x	10.9x
Dropbox, Inc.	17.91	16.08	26.49	-32%	7,438.4	7,308.6	1,591.2	1,901.5	15%	92.8	6%	4.6x	3.8x
Everbridge, Inc.	78.08	51.79	104.22	-25%	2,638.4	2,557.6	185.6	257.6	29%	(36.7)	-18%	13.8x	9.9x
Extreme Networks, Inc.	7.37	5.37	8.59	-14%	895.9	1,184.1	1,011.4	1,115.3	8%	43.6	4%	1.2x	1.1x
Five9, Inc.	65.58	40.82	69.86	-6%	4,005.5	3,906.4	308.1	372.5	15%	19.6	6%	12.7x	10.5x
Open Text Corporation	44.07	31.43	44.67	-1%	11,875.0	13,728.7	2,898.5	2,988.0	2%	903.4	31%	4.7x	4.6x
RingCentral, Inc.	168.67	77.40	177.99	-5%	14,522.8	14,366.6	838.6	1,096.0	23%	8.6	1%	17.1x	13.1x
Slack Technologies, Inc.	22.48	19.53	42.00	-46%	12,372.5	11,613.6	570.5	855.8	37%	(512.8)	-82%	20.4x	13.6x
Smartsheet Inc.	44.92	22.26	55.79	-19%	5,277.1	4,778.6	244.5	375.7	39%	(74.3)	-27%	19.5x	12.7x
CooTek (Cayman) Inc.	4.95	4.55	13.30	-63%	314.7	263.6	155.9	257.8	59%	(24.4)	-15%	1.7x	1.0x
Twilio Inc.	98.28	80.13	151.00	-35%	13,479.4	12,221.4	1,007.5	1,465.0	31%	(226.2)	-20%	12.1x	8.3x
Vonage Holdings Corp.	7.41	7.01	13.75	-46%	1,797.9	2,349.0	1,153.5	1,289.9	9%	105.3	9%	2.0x	1.8x
Zoom Communications, Inc.	68.04	59.94	107.34	-37%	18,806.4	18,050.8	540.2	866.8	42%	21.8	4%	33.4x	20.8x

Source: S&P Global Market Intelligence and Capital IQ as of December 31, 2019, and includes the most actively traded software companies for respective covered sectors, excluding most microcap companies.

Public Trading Data for Software Companies ●○○○○○

\$ in millions (except for share price)

Company Name	Share Price 12/31/2019	52-Week		% of 52- Week High	Market Cap	Enterprise Value	Revenue		Revenue Growth	EBITDA LTM	EBITDA Margin LTM	EV/Revenue	
		Low	High				LTM	FY 2020				LTM	FY 2020
CRM and Marketing													
Adobe Inc.	\$329.81	\$215.15	\$332.88	-1%	\$159,080.2	\$159,041.5	\$11,171.3	\$13,170.9	18%	\$3,833.9	34%	14.2x	12.1x
Aimia Inc.	2.78	2.31	3.32	-16%	301.3	96.3	102.6	89.7	-10%	(42.9)	-43%	0.9x	1.1x
Brightcove Inc.	8.69	6.90	12.88	-33%	337.2	331.0	177.7	202.3	10%	(2.3)	-1%	1.9x	1.6x
Cardlytics, Inc.	62.86	10.30	65.43	-4%	1,616.2	1,521.1	189.0	275.0	34%	(25.4)	-12%	8.1x	5.5x
ChannelAdvisor Corporation	9.04	8.01	13.83	-35%	253.7	221.9	130.0	136.0	5%	7.1	5%	1.7x	1.6x
Hottolink, Inc.	3.33	2.52	4.74	-30%	51.2	50.8	32.5	NA	NA	(9.1)	NA	1.6x	NA
HubSpot, Inc.	158.50	117.77	207.98	-24%	6,787.2	6,415.0	632.7	829.3	24%	(32.0)	-5%	10.1x	7.7x
LivePerson, Inc.	37.00	17.78	42.85	-14%	2,349.3	2,338.8	278.3	351.9	21%	(43.3)	-15%	8.4x	6.6x
Medallia, Inc.	31.11	23.76	44.72	-30%	3,992.4	3,673.1	378.7	479.8	21%	(77.8)	-20%	9.7x	7.7x
NICE Ltd.	155.06	109.32	163.57	-5%	9,634.6	9,781.7	1,554.5	1,704.2	8%	400.1	25%	6.3x	5.7x
Pegasystems Inc.	79.65	45.25	79.82	0%	6,318.8	6,278.9	891.2	1,038.8	12%	(73.5)	-8%	7.0x	6.0x
salesforce.com, inc.	162.64	130.10	167.56	-3%	144,261.7	144,225.7	15,850.0	20,922.2	23%	2,293.0	13%	9.1x	6.9x
Shopify Inc.	397.58	129.48	416.60	-5%	46,086.4	43,530.2	1,416.9	2,129.1	37%	(95.6)	-6%	30.7x	20.4x
Sprout Social, Inc.	16.05	15.60	18.75	-14%	768.5	880.1	96.8	131.4	29%	(21.0)	-21%	9.1x	6.7x
SVMK Inc.	17.87	11.29	19.82	-10%	2,405.6	2,598.3	291.0	372.3	21%	(38.6)	-13%	8.9x	7.0x
TechTarget, Inc.	26.10	11.60	30.00	-13%	730.9	732.6	129.9	146.6	10%	26.4	20%	5.6x	5.0x
Upland Software, Inc.	35.71	26.09	54.87	-35%	902.1	1,136.6	201.8	261.4	19%	48.3	22%	5.6x	4.3x
Verint Systems Inc.	55.36	40.63	63.94	-13%	3,699.4	4,211.9	1,294.7	1,460.7	7%	178.0	13%	3.3x	2.9x
Yext, Inc.	14.42	12.83	23.32	-38%	1,655.6	1,529.3	281.2	380.7	28%	(97.4)	-33%	5.4x	4.0x
Zendesk, Inc.	76.63	55.33	94.89	-19%	8,596.0	8,747.6	758.8	1,058.3	30%	(129.2)	-16%	11.5x	8.3x

Public Trading Data for Software Companies

\$ in millions (except for share price)

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		Low	High				LTM	FY 2020				LTM	FY 2020
Cyber Security													
Absolute Software Corp.	\$6.71	\$5.61	\$7.15	-6%	\$280.6	\$250.3	\$100.3	\$108.8	7%	\$16.4	16%	2.5x	2.3x
Avast Plc	6.00	3.60	6.28	-4%	6,038.4	7,181.1	845.1	937.0	7%	368.3	42%	8.5x	7.7x
Check Point Software Ltd.	110.96	100.63	132.76	-16%	16,892.5	15,208.0	1,976.4	2,051.6	3%	900.1	45%	7.7x	7.4x
CrowdStrike Holdings, Inc.	49.87	44.58	101.88	-51%	10,250.5	9,416.8	409.8	680.6	46%	(126.1)	-27%	23.0x	13.8x
CyberArk Software Ltd.	116.58	69.15	148.74	-22%	4,415.9	3,909.3	413.3	510.9	19%	77.7	18%	9.5x	7.7x
FireEye, Inc.	16.53	12.66	18.66	-11%	3,527.7	3,620.7	871.6	950.4	8%	(120.3)	-14%	4.2x	3.8x
Forescout Technologies, Inc.	32.80	23.95	46.43	-29%	1,547.3	1,502.3	330.2	386.7	14%	(85.2)	-25%	4.5x	3.9x
Fortinet, Inc.	106.76	65.06	110.28	-3%	18,259.6	16,360.9	2,048.8	2,475.9	15%	371.5	17%	8.0x	6.6x
F-Secure Oyj	3.42	2.46	3.82	-10%	539.2	561.8	234.4	264.2	7%	12.4	5%	2.4x	2.1x
Mimecast Limited	43.38	31.84	54.57	-21%	2,689.2	2,733.2	382.4	487.6	21%	28.7	7%	7.1x	5.6x
MobileIron, Inc.	4.86	4.39	7.79	-38%	544.5	463.7	205.3	218.9	6%	(41.1)	-20%	2.3x	2.1x
Okta, Inc.	115.37	59.28	141.85	-19%	13,983.3	13,713.3	534.2	757.1	32%	(159.2)	-28%	25.7x	18.1x
Palo Alto Networks, Inc.	231.25	178.80	260.63	-11%	22,652.7	21,670.4	3,015.5	3,790.3	20%	91.4	3%	7.2x	5.7x
Ping Identity Holding Corp.	24.30	15.22	25.45	-5%	1,935.1	1,928.7	234.2	265.8	11%	49.7	21%	8.2x	7.3x
Proofpoint, Inc.	114.78	81.07	133.58	-14%	6,479.8	6,227.0	843.2	1,061.1	20%	(24.6)	-3%	7.4x	5.9x
Qualys, Inc.	83.37	69.35	97.12	-14%	3,231.6	2,971.8	311.1	366.8	14%	95.4	30%	9.6x	8.1x
Radware Ltd	25.78	21.99	26.98	-4%	1,208.9	1,006.7	248.5	275.6	9%	29.4	12%	4.1x	3.7x
Rapid7, Inc.	56.02	29.48	66.01	-15%	2,766.5	2,782.0	304.1	397.6	23%	(27.9)	-9%	9.1x	7.0x
SecureWorks Corp.	16.66	10.37	24.91	-33%	1,353.3	1,244.6	541.5	580.3	6%	(7.7)	-1%	2.3x	2.1x
NortonLifeLock Inc.	25.52	17.50	26.71	-4%	15,905.3	18,711.3	4,765.0	2,464.9	-42%	1,061.0	25%	3.9x	7.6x
Tenable Holdings, Inc.	23.96	20.29	36.26	-34%	2,352.6	2,097.7	332.8	435.5	24%	(77.2)	-22%	6.3x	4.8x
Trend Micro Incorporated	51.53	40.90	59.63	-14%	7,165.0	5,576.3	1,511.4	1,574.1	4%	493.1	33%	3.7x	3.5x
Tufin Software Tech Ltd.	17.59	14.85	31.04	-43%	613.0	515.1	102.4	121.4	18%	(15.0)	-15%	5.0x	4.2x
Varonis Systems, Inc.	77.71	48.67	80.00	-3%	2,368.9	2,303.5	269.1	286.4	13%	(51.5)	-20%	8.6x	8.0x
Zix Corporation	6.78	5.34	11.15	-39%	364.4	650.8	141.5	212.7	23%	22.5	13%	4.6x	3.1x
Zscaler, Inc.	46.50	38.03	89.54	-48%	5,950.0	5,606.6	333.1	468.7	31%	(21.2)	-6%	16.8x	12.0x

Public Trading Data for Software Companies ○○○●○○○

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Engineering													
Altair Engineering Inc.	\$35.91	\$25.54	\$43.28	-17%	\$2,577.4	\$2,534.2	\$438.0	\$500.6	12%	\$25.9	6%	5.8x	5.1x
ANSYS, Inc.	257.41	137.14	260.10	-1%	22,029.5	21,404.4	1,445.1	1,675.1	11%	570.1	38%	14.8x	12.8x
Aspen Technology, Inc.	120.93	78.76	142.15	-15%	8,248.4	8,545.7	618.3	624.0	2%	301.7	49%	13.8x	13.7x
Autodesk, Inc.	183.46	121.12	185.75	-1%	40,367.3	41,386.3	3,112.3	3,975.2	22%	382.9	12%	13.3x	10.4x
AVEVA Group plc	61.66	29.98	62.96	-2%	9,937.4	9,952.8	1,011.0	1,140.4	7%	196.4	19%	9.8x	8.7x
Cadence Design Systems	69.36	41.43	77.08	-10%	19,461.9	19,270.8	2,306.6	2,497.7	7%	630.2	27%	8.4x	7.7x
Dassault Systèmes SE	164.46	107.75	167.15	-2%	42,738.1	40,316.2	4,210.7	5,474.4	20%	1,235.6	27%	9.6x	7.4x
PTC Inc.	74.89	62.05	102.47	-27%	8,649.3	9,020.9	1,277.1	1,525.4	19%	168.0	13%	7.1x	5.9x
Roper Technologies, Inc.	354.23	257.89	385.51	-8%	36,860.4	43,021.5	5,348.3	5,762.3	7%	1,857.6	35%	8.0x	7.5x
Synopsys, Inc.	139.20	81.03	146.66	-5%	20,954.5	20,369.4	3,360.7	3,751.0	12%	691.8	21%	6.1x	5.4x
Trimble Inc.	41.69	30.85	46.25	-10%	10,386.4	12,091.5	3,225.8	3,355.3	3%	640.9	20%	3.7x	3.6x
ERP and SCM													
American Software, Inc.	\$14.88	\$9.78	\$17.11	-13%	\$475.5	\$383.8	\$108.9	\$115.3	5%	\$7.6	7%	3.5x	3.3x
The Descartes Systems Inc	42.79	26.18	44.80	-4%	3,600.8	3,594.9	312.6	360.1	10%	110.7	34%	11.5x	10.0x
Kinaxis Inc.	77.11	48.39	84.04	-8%	2,022.5	1,826.6	173.5	210.6	11%	29.8	16%	10.5x	8.7x
Manhattan Associates, Inc.	79.75	39.85	89.53	-11%	5,096.1	5,022.9	609.4	649.5	6%	132.8	22%	8.2x	7.7x
Microsoft Corporation	157.70	97.20	159.55	-1%	1,203,062.6	1,152,023.6	129,814.0	148,122.9	11%	57,424.0	43%	8.9x	7.8x
Oracle Corporation	52.98	44.41	60.50	-12%	169,941.2	197,041.2	39,583.0	40,446.8	2%	16,190.0	41%	5.0x	4.9x
Sansan, Inc.	50.98	32.57	57.60	-12%	1,583.3	1,467.2	93.9	150.0	36%	(3.6)	-3%	15.6x	9.8x
SAP SE	135.02	94.21	140.28	-4%	161,171.5	173,129.8	29,374.1	32,710.0	6%	7,694.9	25%	5.9x	5.3x
ServiceNow, Inc.	282.32	168.47	303.17	-7%	53,234.0	52,887.3	3,224.1	4,410.3	28%	237.8	7%	16.4x	12.0x
Serviceware SE	14.98	13.44	26.93	-44%	157.3	101.8	70.9	87.3	19%	1.9	3%	1.4x	1.2x
SPS Commerce, Inc.	55.42	39.91	59.14	-6%	1,930.8	1,749.1	271.6	306.9	10%	51.2	18%	6.4x	5.7x
Technology One Limited	5.82	4.18	6.60	-12%	1,855.1	1,781.3	192.2	215.9	5%	53.2	26%	9.3x	8.3x
Tecsys Inc.	16.48	7.94	17.41	-5%	215.5	222.4	68.5	82.7	10%	3.5	5%	3.2x	2.7x
TOTVS S.A.	16.06	6.73	17.32	-7%	3,062.1	2,808.8	588.2	613.0	8%	62.8	11%	4.8x	4.6x
WiseTech Global Limited	16.42	11.44	27.26	-40%	5,224.2	5,041.5	244.2	361.3	25%	71.4	25%	20.6x	14.0x
Yonyou Network Tech., Ltd.	4.08	2.34	5.22	-22%	10,212.8	10,169.8	1,142.2	1,562.7	21%	135.2	10%	8.9x	6.5x
Zuora, Inc.	14.33	13.04	24.65	-42%	1,621.6	1,462.8	269.2	326.0	17%	(77.1)	-28%	5.4x	4.5x

Public Trading Data for Software Companies ○○○○●○○

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Financial & Accounting Software													
Anaplan, Inc.	\$52.40	\$23.78	\$60.36	-13%	\$7,001.2	\$6,744.9	\$319.0	\$460.3	33%	(\$125.6)	-36%	21.1x	14.7x
Avalara, Inc.	73.25	30.67	94.31	-22%	5,636.0	5,189.1	351.7	469.5	25%	(41.7)	-11%	14.8x	11.1x
Basware Oyj	26.65	18.81	46.12	-42%	383.7	433.6	158.7	175.7	6%	(9.2)	-6%	2.7x	2.5x
BlackLine, Inc.	51.56	38.40	56.29	-8%	2,868.8	2,672.0	271.0	346.7	21%	(13.0)	-5%	9.9x	7.7x
Coupa Software Incorporated	146.25	58.28	159.97	-9%	9,330.5	9,258.8	353.2	486.8	28%	(47.9)	-13%	26.2x	19.0x
Intuit Inc.	261.93	188.21	295.78	-11%	68,182.1	66,702.1	6,933.0	7,831.5	10%	2,078.0	29%	9.6x	8.5x
The Sage Group plc	9.92	7.58	10.94	-9%	10,823.7	11,345.5	2,381.2	2,572.5	0%	594.1	23%	4.8x	4.4x
Workiva Inc.	42.05	34.43	64.12	-34%	1,953.7	1,787.0	282.1	341.2	16%	(25.7)	-9%	6.3x	5.2x
Xerox Holdings Corporation	36.87	19.33	39.47	-7%	7,970.9	12,448.9	9,228.0	8,708.6	-4%	1,388.0	15%	1.3x	1.4x
Anaplan, Inc.	52.40	23.78	60.36	-13%	7,001.2	6,744.9	319.0	460.3	33%	(125.6)	-36%	21.1x	14.7x
Financial Services													
Bill.com Holdings, Inc.	\$38.05	\$34.60	\$41.75	-9%	\$2,684.6	\$2,804.1	\$121.1	\$153.0	23%	(\$11.5)	-9%	23.2x	18.3x
Bottomline Technologies, Inc.	53.60	37.04	54.24	-1%	2,356.6	2,401.7	427.7	471.4	9%	38.1	9%	5.6x	5.1x
Broadridge Financial, Inc.	123.54	92.44	136.99	-10%	14,163.4	15,817.8	4,338.0	4,682.9	7%	892.5	20%	3.6x	3.4x
EVO Payments, Inc.	26.41	21.81	31.93	-17%	1,089.3	2,128.6	507.2	632.0	8%	121.8	21%	4.2x	3.4x
FINEOS Corp. Holdings plc	1.86	1.63	2.35	-21%	492.2	509.5	71.5	95.7	NA	1.6	NA	7.1x	5.3x
Fidelity National Info, Inc.	139.09	98.10	141.35	-2%	85,484.8	104,943.8	9,158.0	13,557.0	31%	2,830.0	27%	11.5x	7.7x
GreenSky, Inc.	8.90	5.74	16.42	-46%	564.1	674.6	505.5	617.6	16%	146.4	28%	1.3x	1.1x
Guidewire Software, Inc.	109.77	76.31	123.60	-11%	9,064.8	8,476.2	696.3	820.3	19%	14.5	2%	12.2x	10.3x
i3 Verticals, Inc.	28.25	18.65	31.45	-10%	409.1	609.7	376.3	165.9	13%	25.0	17%	1.6x	3.7x
Jack Henry & Associates, Inc.	145.67	120.99	152.93	-5%	11,207.4	11,184.9	1,598.2	1,723.1	6%	443.7	27%	7.0x	6.5x
Q2 Holdings, Inc.	81.08	46.12	93.63	-13%	3,904.5	3,725.0	295.8	414.2	30%	(30.5)	-10%	12.6x	9.0x
SimCorp A/S	113.76	65.96	116.31	-2%	4,504.9	4,550.6	497.0	539.9	6%	168.8	33%	9.2x	8.4x
SS&C Tech. Holdings, Inc.	61.40	42.51	67.73	-9%	15,516.4	23,394.7	4,540.4	4,775.1	3%	1,680.2	36%	5.2x	4.9x
Temenos AG	158.18	110.38	190.55	-17%	11,223.7	12,399.0	921.9	1,181.1	21%	286.6	29%	13.4x	10.5x

Public Trading Data for Software Companies ○○○○○●○

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		Low	High				LTM	FY 2020				LTM	FY 2020
HCM													
Automatic Data Processing	\$170.50	\$126.06	\$174.50	-2%	\$73,775.0	\$75,254.7	\$14,360.6	\$15,476.3	7%	\$3,567.7	25%	5.2x	4.9x
Benefitfocus, Inc.	21.94	19.25	60.66	-64%	718.3	869.1	283.3	338.5	14%	(19.6)	-7%	3.1x	2.6x
Ceridian HCM Holding Inc.	67.88	33.17	68.63	-1%	9,773.2	10,213.5	802.8	927.6	13%	148.7	18%	12.7x	11.0x
Cornerstone OnDemand, Inc.	58.55	48.24	62.66	-7%	3,555.0	3,553.5	565.2	654.3	14%	17.1	3%	6.3x	5.4x
Paychex, Inc.	85.06	63.33	88.43	-4%	30,484.4	30,835.5	4,033.5	4,260.7	6%	1,656.6	41%	7.6x	7.2x
Paycom Software, Inc.	264.76	115.03	279.95	-5%	15,265.4	15,217.1	694.6	907.6	24%	236.2	32%	21.9x	16.8x
PayGroup Limited	0.48	0.40	0.62	-22%	33.4	30.9	4.3	NA	NA	(1.6)	NA	7.3x	NA
Paylocity Holding Corp., Inc.	120.82	56.70	122.65	-1%	6,465.4	6,419.8	493.8	617.7	20%	75.5	15%	13.0x	10.4x
TriNet Group, Inc.	56.61	39.52	76.92	-26%	3,953.6	4,136.6	3,755.0	1,002.0	8%	274.0	29%	1.1x	4.1x
Workday, Inc.	164.45	151.06	226.83	-28%	37,823.5	37,271.3	3,439.5	4,352.4	20%	(190.6)	-5%	10.8x	8.6x
Infrastructure													
Akamai Technologies, Inc.	\$86.38	\$57.18	\$93.12	-7%	\$13,959.1	\$14,596.1	\$2,834.9	\$3,074.2	7%	\$805.2	28%	5.1x	4.7x
Appian Corporation	38.21	25.22	62.94	-39%	2,565.9	2,404.6	256.1	308.9	16%	(46.5)	-18%	9.4x	7.8x
Cisco Systems, Inc.	47.96	40.96	58.26	-18%	203,458.9	195,066.9	51,991.0	51,365.7	0%	16,207.0	31%	3.8x	3.8x
Citrix Systems, Inc.	110.90	90.28	114.73	-3%	14,441.4	14,903.2	3,010.6	3,117.6	4%	802.9	27%	5.0x	4.8x
Cloudera, Inc.	11.63	4.89	15.43	-25%	3,339.6	3,160.2	727.0	868.7	11%	(226.8)	-29%	4.3x	3.6x
Cloudflare, Inc.	17.06	14.50	22.08	-23%	5,121.2	4,484.3	258.6	376.2	33%	(74.7)	-26%	17.3x	11.9x
Commvault Systems, Inc.	44.64	40.73	69.20	-35%	2,040.6	1,583.6	695.5	695.6	2%	50.0	7%	2.3x	2.3x
Elastic N.V.	64.30	60.10	104.10	-38%	5,189.7	4,925.0	342.3	528.9	40%	(127.3)	-34%	14.4x	9.3x
F5 Networks, Inc.	139.65	121.36	173.44	-19%	8,489.9	7,517.6	2,242.4	2,363.8	4%	594.2	26%	3.4x	3.2x
Fastly, Inc.	20.07	14.12	35.25	-43%	1,879.6	1,700.9	182.3	256.5	31%	(26.4)	-13%	9.3x	6.6x
Juniper Networks, Inc.	24.63	22.42	28.77	-14%	8,243.8	7,883.0	4,418.3	4,496.8	2%	712.3	16%	1.8x	1.8x
NetApp, Inc.	62.25	44.55	78.35	-21%	14,207.1	13,005.1	5,762.0	5,838.3	3%	1,165.0	21%	2.3x	2.2x
Nutanix, Inc.	31.26	17.74	54.68	-43%	6,009.7	5,735.2	1,237.6	1,579.9	27%	(654.5)	-53%	4.6x	3.6x
Software Aktiengesellschaft	34.90	25.59	39.52	-12%	2,581.9	2,373.7	981.5	982.9	-2%	290.8	29%	2.4x	2.4x
SolarWinds Corporation	18.55	12.66	21.22	-13%	5,695.4	7,390.3	906.2	1,050.5	12%	219.0	23%	8.2x	7.0x
VeriSign, Inc.	192.68	142.37	221.78	-13%	22,622.4	23,189.6	1,228.6	1,292.2	5%	847.8	69%	18.9x	17.9x

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Vertical Software													
2U, Inc.	\$23.99	\$11.37	\$80.49	-70%	\$1,522.8	\$1,680.9	\$526.6	\$728.6	27%	(\$61.6)	-11%	3.2x	2.3x
Allscripts Healthcare, Inc.	9.82	8.75	12.40	-21%	1,593.6	2,502.6	1,763.0	1,856.2	4%	129.6	7%	1.4x	1.3x
Amdocs Limited	72.19	52.60	72.89	-1%	9,726.7	9,297.6	4,086.7	4,255.0	4%	775.5	19%	2.3x	2.2x
AppFolio, Inc.	109.95	55.00	116.98	-6%	3,745.1	3,777.0	239.0	324.4	27%	17.8	7%	15.8x	11.6x
ArcSoft Corporation Limited	6.79	5.00	12.54	-46%	2,755.1	2,395.8	74.9	116.7	33%	30.5	35%	32.0x	20.5x
AssetMark Financial, Inc.	29.02	22.87	29.81	-3%	2,101.0	2,139.1	403.4	327.2	15%	51.1	18%	5.3x	6.5x
Black Knight, Inc.	64.48	43.94	64.80	0%	9,521.9	11,198.8	1,162.5	1,210.8	3%	378.5	32%	9.6x	9.2x
Blackbaud, Inc.	79.60	60.00	97.35	-18%	3,814.7	4,410.5	883.8	938.1	5%	113.9	13%	5.0x	4.7x
Boxlight Corporation	1.11	1.03	4.56	-76%	12.2	20.3	39.7	44.3	14%	(4.7)	-12%	0.5x	0.5x
Castlight Health, Inc.	1.33	1.21	4.15	-68%	194.4	158.6	149.0	136.1	-5%	(30.0)	-21%	1.1x	1.2x
CDK Global, Inc.	54.68	41.50	63.90	-14%	6,638.1	9,327.5	1,963.1	2,062.4	-1%	696.8	34%	4.8x	4.5x
Cerner Corporation	73.39	50.51	76.47	-4%	23,051.6	23,590.8	5,616.0	5,918.0	4%	1,109.7	20%	4.2x	4.0x
CoreLogic, Inc.	43.71	32.42	49.49	-12%	3,475.8	5,251.8	1,739.5	1,719.5	-2%	357.4	20%	3.0x	3.1x
Ebix, Inc.	33.41	31.06	63.89	-48%	1,018.9	1,710.7	570.8	712.6	21%	158.8	27%	3.0x	2.4x
Envestnet, Inc.	69.63	46.83	73.94	-6%	3,653.7	4,250.8	870.3	1,034.0	14%	89.7	10%	4.9x	4.1x
HealthStream, Inc.	27.20	23.61	30.00	-9%	880.7	741.9	251.2	249.5	-2%	31.4	12%	3.0x	3.0x
Inovalon Holdings, Inc.	18.82	11.50	18.86	0%	2,916.7	3,844.4	605.2	706.2	10%	164.9	26%	6.4x	5.4x
Instructure, Inc.	48.21	36.49	54.31	-11%	1,841.1	1,763.0	258.5	303.5	17%	(65.8)	-25%	6.8x	5.8x
K12 Inc.	20.35	18.90	37.43	-46%	797.3	682.3	1,021.6	1,054.3	3%	60.2	6%	0.7x	0.6x
Pluralsight, Inc.	17.21	14.84	35.70	-52%	1,751.8	1,872.9	295.4	395.3	25%	(131.6)	-42%	6.3x	4.7x
RealPage, Inc.	53.75	44.17	65.92	-18%	4,974.0	5,441.2	960.3	1,151.0	17%	163.0	17%	5.7x	4.7x
Tabula Rasa HealthCare, Inc.	48.68	37.41	68.99	-29%	1,016.2	1,217.9	268.8	345.2	21%	10.6	4%	4.5x	3.5x
Tyler Technologies, Inc.	300.02	176.27	301.39	0%	11,696.7	11,526.9	1,039.6	1,210.1	11%	195.7	18%	11.1x	9.5x
Veeva Systems Inc.	140.66	82.41	176.90	-20%	20,900.2	19,432.5	1,024.9	1,388.0	27%	309.1	28%	19.0x	14.0x

Firm Overview

Pagemill
Partners | A Division of
DUFF & PHELPS

Pagemill Partners, a division of Duff & Phelps, is a technology advisory firm located in the heart of Silicon Valley with representation in London and Paris.

DUFF & PHELPS

Global advisory focused firm ranked #4 middle market M&A advisor for the past 10 years¹ with 350+ corporate finance professionals and 3,500+ advisory focused professionals

Significant Transaction Experience

- 300+ transactions completed
- Strong track record of execution, running bespoke and competitive processes



- Advised on over 80 M&A transactions in 2019
- 450 transactions for over 100 PE firms in 2019

Deep Domain Expertise

- Fluency in key trends in the technology sector
- Thought leaders and strategic advisors to entrepreneurs and the PE community



- Five dedicated industry practices, each with deep sector expertise
- Established Tech, Industrials, Services, Healthcare and Consumer practices

Unparalleled Access to Buyers

- Unmatched access to technology-focused financial sponsors and strategics
- Regular dialogue with key players in the ecosystem



- Provides advisory services to 70% of Fortune 100 companies
- Global relationships across relevant industry sectors and geographies

Unconflicted and Focused Approach

- Singular focus on technology as a sector
- Purely focused on M&A advisory services for emerging growth and middle market clients



- Across products, the firm is focused on providing advisory services
- Unconflicted as firm does not provide lending or audit services

1. Source: Thomson Reuters Securities Data (U.S. deals \$15 mn < \$170 mn, including deals without disclosed value). Full years 2010 through 2019.

Relevant Software Credentials

Application Software

 **TechValidate**
has been
acquired by


 **CAMILION**
has been
acquired by


 **EntropySoft**
has been
acquired by



 **SeeControl**
has been
acquired by


Infrastructure Software

 **NOLIO**
has been
acquired by


 **TierData**
has been
acquired by


 **DataMirror**
has been
acquired by


 **ClearApp**
has been
acquired by


Security

 **Mu Dynamics**
has been
acquired by


 **POSTX**
has been
acquired by


 **eurekify**
has been
acquired by


 **Reconnex**
has been
acquired by


Internet/Digital Media

 **SK planet**
has been
acquired by


 **avangate**
has been
acquired by


 **LIVINGLY media**
has been
acquired by


 **Officite**
has been
acquired by


Consumer Technologies

 **Livio**
has been
acquired by


 **beatport**
has been
acquired by


 **SVOX**
has been
acquired by


 **pushpins**
has been
acquired by


Mobile/Wireless

 **Scintera**
has been
acquired by


 **dust networks**
has been
acquired by


 **JAVELIN semiconductor**
has been
acquired by




 **ozmo**
has been
acquired by


Networking/Communications

 **TROPUS networks**
has been
acquired by


 **sensity**
has been
acquired by


 **Liquid Stream**
has been
acquired by


 **T|PACK**
has been
acquired by


Semiconductors

 **VIA Telecom**
has been
acquired by

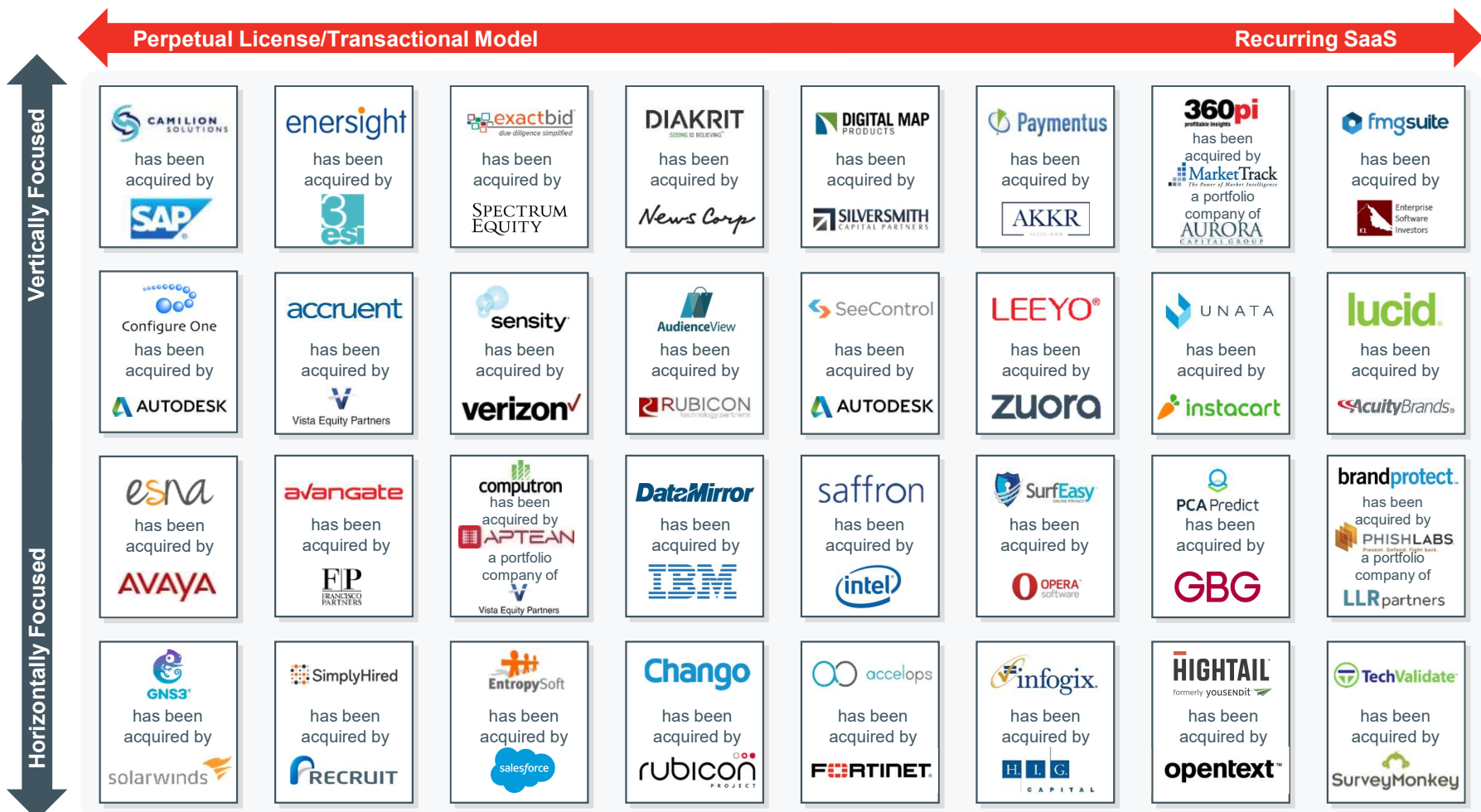

 **FRONTIER SILICON**
has been
acquired by


 **S-BEAM**
has been
acquired by


 **Coresonic**
The baseband DSP company™
has been
acquired by


Distinguished Enterprise Software Franchise

- Pagemill has completed over 300 transactions, 80% of which are in enterprise software
 - Industry leaders leveraging both SaaS and perpetual models, including companies with hybrid delivery models
 - Underlying technology architecture, reliance on third-party technologies and strategic partnerships, product roadmaps, and vertical go-to-market strategies are all important attributes that we have demonstrated experience in articulating and positioning



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