



EQUITY RESEARCH

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Industry Update

Shooting Their Shot – Bits & Bytes Weekly

Big Tech's Trash Is Late-stage Start-up's Treasure

Our Conclusion

As big tech firms shift into a new phase of generating value by operating more like cash-cow businesses than focusing on growth at all costs, expense management is more in focus than ever before. With GOOG, MSFT and META all missing Q3 EBITDA expectations this week as a result of inflationary pressure and slowing advertising spending, big tech firms are taking a more measured approach to hiring and headcount growth. Tech giants are backing off their previous approach of hiring nearly every qualified engineer in Silicon Valley, leaving start-ups and earlier-stage companies in a good spot to pick up talent that would have previously been inaccessible.

Key Points

Big tech is facing a multitude of challenges in the current environment with companies like Meta, Twitter and SNAP growing user counts, but seeing declining average revenue per user (ARPU). With Apple's IDFA rule notably impacting digital advertising businesses and increasing cost of capital, businesses are keeping a much closer eye on their expenditures, realizing that the unconstrained growth they enjoyed over the last decade has finally started to slow. Meta and Google announced on their Q2 earnings call that a steady reduction of headcount is a priority as the firms look to do more with less.

During technology's recent glory days, it could be challenging for start-ups to acquire high-end talent as the name brand tech giants used their dominant position and cash reserves to pay engineers salaries that they wouldn't be able to find elsewhere. With a consolidation of talent now under way, tech talent that was previously employed by big tech or was looking to be employed by big tech and talent from start-ups that is winding down due to lack of funding are now on the market, and late-stage companies with viable products are reaping the rewards.

We also see the potential for this pool of talent to start their own ventures, following in the footsteps of some of the most valuable companies that were founded during previous downturns (Paypal, Uber, Airbnb, Instagram, etc.) Recently, venture capitalist Bill Gurley was quoted as saying "If you're going to build from scratch, this might be as good a time as you've had in a decade", with more available tech talent, and lower-cost digital advertising and real estate. The prospects look positive for VC investors as well who are struggling with deep markdowns due to lack of IPO exits and macro uncertainties, as start-ups in 2022/2023 may be able to attract VC funding that could lead to outsized venture returns. According to Cambridge Associates, after an initial dip 2008, venture-capitalist returns for early-stage funds in the U.S. bounced back in 2009, and vintage year 2010 recorded one of the best returns on capital invested in early-stage venture history.

Stephanie Price, CFA

+1 416-594-7047 Stephanie.Price@cibc.com

Javeria Gaya, CPA

+1 416-594-7261 Javeria.Gaya@cibc.com Scott Fletcher, CPA, CA

+1 416-956-3229 Scott.Fletcher@cibc.com

Natalie Zhang, CFA

+1 416-581-2120 Natalie.Zhang@cibc.com

Sector:

Information Technology

Quick Look: U.S. Venture Capital Pooled Returns

The table in Exhibit 1 below shows the internal rate of return for early-stage and late-stage funds, grouped by the vintage year when the first influx of investment capital was provided to a company. Early-stage funds showed the strongest returns in the periods coming out of the 2008/2009 recession as VC firms made investments at lower entry points, resulting in outsized returns.

Exhibit 1: U.S. Venture Capital: Since Inception IRR Based On Initial Funding Stage

Vintage Year	All Funds	Early Stage	Late Stage
Vilitage real	F	Pooled Return (%)
2000	0.73	0.37	5
2001	2.8	3.53	5.34
2002	-0.46	-1.29	-0.08
2003	9.16	9.58	11.01
2004	8.35	10.56	3.06
2005	7.12	6.01	20.24
2006	8.95	8.29	9.26
2007	15.61	17.24	11.61
2008	11.55	12.55	3.98
2009	15.49	15.71	na
2010	27.64	32.16	12.06
2011	19.54	23.17	14.66
2012	17.81	18.76	13.22
2013	19.42	19.73	15.13
2014	14.7	17.08	16.56
2015	17.51	13.19	13.77

Source: Cambridge Associates and CIBC World Markets Inc.

The table in Exhibit 2 highlights examples of tech unicorns that were founded during the Great Recession and raised venture funding in the 2009/2010 period.

Exhibit 2: Examples Of Tech Unicorns, 2008 - 2010

Company	Founding Year	Note
Pinterest	2008	Valued at \$5.8MM during the seed round in 2010, the company went public in 2019 at a \$10B valuation.
Airbnb	2009	Founded in the midst of the Great Recession, the company received funding from Sequoia in 2009. Upon going public in 2020, the shares of Sequoia were worth 17x.
WhatsApp	2009	Founded by two ex-big tech employees in 2009, the company used 250k in bootstrapped investments in 2010 and was acquired four years later by Facebook (now Meta) for \$19B.
Slack	2009	Founded in the midst of the Great Recession, the company raised seed funding in 2009.
Square	2009	Founded in the midst of the Great Recession in 2009, with a simple idea of making credit card payments seamless and affordable. The company was valued at \$40MM in the seed round in 2009 and went public in 2015 at a \$3B valuation
Instagram	2010	Launched at the tail end of the Great Recession, the app became a hit overnight and was acquired in 2012 for \$1.1B.

Source: Pitchbook and CIBC World Markets Inc.



News Impacting Our Coverage

Open Text Named A Leader On The 2022 GigaOm Radar Report For E-Discovery Solutions

Open Text was named among the leaders in the 2022 GigaOm Radar Report for E-Discovery Solutions. The industry report recognizes Open Text for having the most comprehensive e-discovery solution, outperforming Relativity, Microsoft, and the other 16 vendors evaluated. Open Text was noted for flexibility, scalability, support and ease of use.

CGI Named A Leader In The 2022 IDC Industrial Internet-of-Things Service Providers For Utilities

CGI was named a "Leader" in the IDC MarketSpace: Worldwide Industrial IoT Service Providers for Utilities 2022 Vendor Assessment. It was also named a "Major Player" in the IDC MarketScape: Worldwide Service Providers for Energy Transition and New Utilities Business Models 2022 Vendor Assessment. CGI has worked with some of the largest European and North American utilities for decades, and has streamlined its IP and solutions offering, including its launch of CGI OpenGrid360 in 2020.

Kinaxis Expands In Asia With New System Integrator And Reseller Partnerships

Kinaxis is adding 12 new system integrators, value-added resellers (CAR) and referral partners in Asia, bringing its total Asia-based partners to 27. The five new system integrators include NTT DATA China Outsourcing, MaSyCoDa, Kobelco Systems, Risposta Software India, Savic Technologies Private Limited. New VARs added include CEL, LG CNS, Active Business Solutions, Metanet Global, NTT DATA Taiwan, and Qualitas.



Exhibit 3: CIBC Software/Services – Coverage Performance, 10/26/2021 - 10/26/2022

Software & Systems	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
Constellation Software Inc	1,940.55	5.5	2.7	(5.6)	(7.4)	(12.6)	(17.3)	2385.80	1783.98
Descartes Systems	67.66	0.7	6.9	3.8	9.1	(16.4)	(18.2)	91.39	56.19
Enghouse Systems Limited	29.76	2.2	3.3	(5.2)	(14.8)	(45.1)	(38.6)	61.45	23.96
Open Text Corp	28.63	4.0	6.4	(26.4)	(27.1)	(42.8)	(39.7)	52.70	24.91
Kinaxis	139.96	(3.6)	0.5	(5.4)	(8.0)	(24.3)	(21.1)	229.98	119.48
Docebo, Inc.	40.40	3.3	12.8	8.8	(28.0)	(59.4)	(52.4)	102.93	32.35
Magnet Forensics	27.49	13.2	34.7	37.7	15.7	(30.0)	(16.4)	42.37	14.89
Q4 Inc.	3.11	(11.7)	(26.7)	(32.2)	(28.5)	NA	(63.4)	12.05	2.88
Average		1.7	5.1	(3.1)	(10.2)	(32.9)	(33.4)		

Business Services	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
CGI Group Inc	109.35	4.1	6.3	2.2	7.2	(3.2)	(2.2)	115.23	95.45
Converge Technologies	7.05	3.1	20.6	30.7	(19.6)	(43.4)	(35.2)	12.80	4.85
Softchoice Corporation	18.90	(4.5)	(2.6)	(16.7)	(15.5)	(34.8)	(11.5)	29.48	17.48
Telus International	35.81	0.5	(4.9)	2.3	28.3	(26.2)	(14.3)	49.29	26.75
Average		0.8	4.9	4.6	0.1	(26.9)	(15.8)		

Indices	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD
S&P/TSX Composite Index	19,288.30	3.3	5.2	1.7	(6.8)	(8.9)	(9.1)
S&P 500 Index	3,845.42	4.1	5.2	(1.9)	(7.9)	(15.9)	(19.3)
S&P/TSX Software Index	129.09	4.9	5.3	(2.1)	(9.8)	(43.0)	(39.2)
S&P500 Software Index	4,034.18	0.9	1.4	(6.8)	(11.4)	(29.2)	(31.0)



Exhibit 4: Software Stocks - Return Performance (%), 10/26/2021 - 10/26/2022

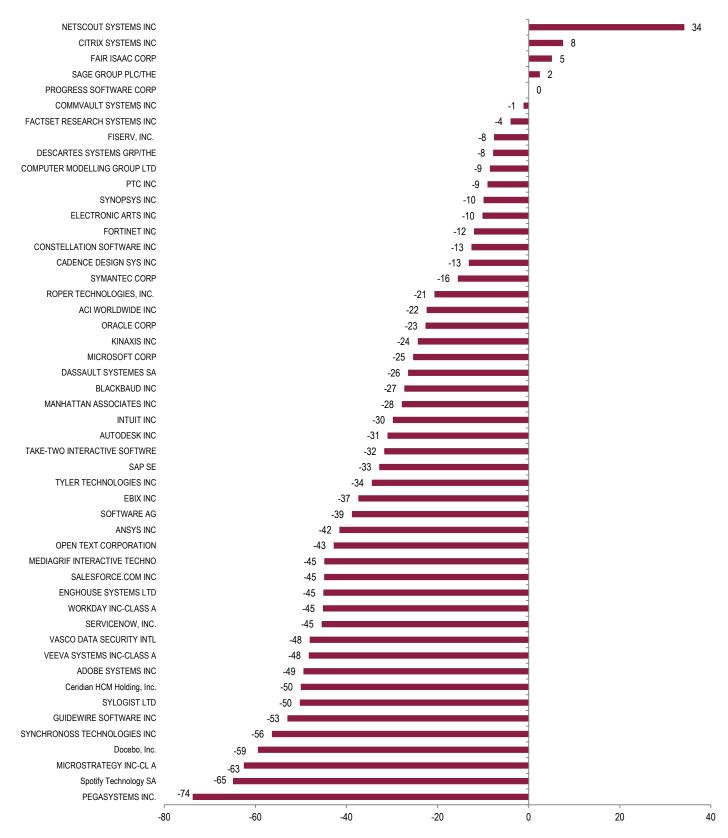




Exhibit 5: Business Services Stocks - Return Performance (%), 10/26/2021 - 10/26/2022

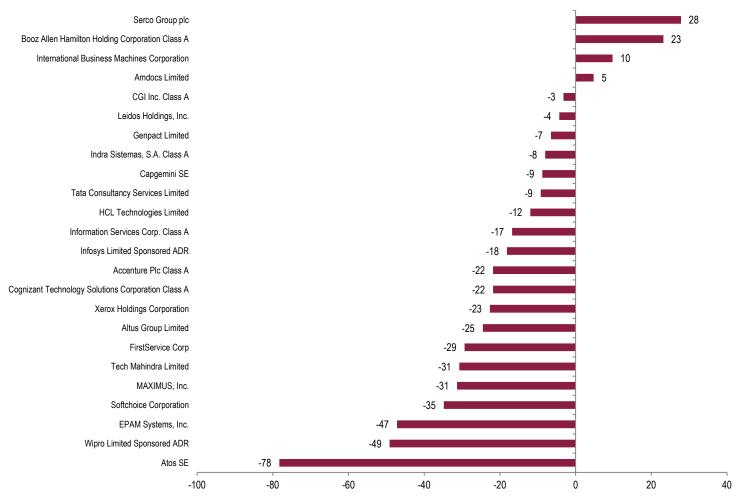




Exhibit 6: Software Stocks - Comp Table, 2021 - 2023E

	Enterprise		EV/S			EV/EBITD/	Α		P/E		
	Value (\$mlns.)	C21	C22E	C23E	C21	C22E	C23E	C21	C22E	C23E	
Enterprise Application Software											
Constellation Software Inc.*	31,607	6.2x	4.8x	4.3x	20.9x	18.6x	16.0x	45.8x	25.7x	23.2x	
BlackBerry Limited*	2,522	2.8x	3.7x	2.6x	>50	NEG	NEG	NEG	NEG	NEG	
Sage Group plc	7,782	4.2x	3.9x	3.6x	18.8x	16.6x	15.0x	28.2x	26.8x	23.7x	
Tyler Technologies, Inc.	15,468	9.7x	8.3x	7.6x	44.0x	32.7x	30.0x	>50	46.5x	43.1x	
Roper Technologies, Inc.	48,895	8.5x	9.3x	8.6x	22.1x	22.7x	20.8x	37.6x	28.3x	25.7x	
Enghouse Systems Limited	1,438	3.1x	3.4x	3.47x	8.8x	10.6x	10.5x	17.8x	22.6x	22.4x	
Oracle Corporation	259,758	6.4x	5.6x	5.1x	13.9x	11.2x	10.2x	16.5x	15.3x	14.2x	
SAP SE	123,529	4.4x	4.0x	3.7x	17.2x	14.5x	12.9x	21.9x	21.6x	18.0x	
Enterprise Application Software Av	/erage	5.7x	5.4x	4.9x	20.8x	18.1x	16.5x	28.0x	26.7x	24.3x	
- / J. J. J. J. S. D. S.											
Extended ERP	140.070	0 Ev	0.4%	7.64	22.45	47 Ov	4.F. 7x:	20.45	00.65	20.0::	
Adobe Incorporated	149,879	9.5x 3.1x	8.4x 2.9x	7.6x 2.9x	22.4x 8.2x	17.2x 8.4x	15.7x 7.8x	32.4x 9.0x	23.6x 9.1x	20.9x 8.5x	
Open Text Corporation Manhattan Associates, Inc.	10,506	_		9.2x						46.8x	
,	7,478	11.3x	10.0x		>50 NEG	38.1x >50	34.3x 27.9x	>50 NEG	>50 >50	46.8X >50	
Pegasystems Inc. Software AG	3,075 1,382	2.5x 1.7x	2.4x 1.4x	2.2x 1.3x	8.9x	>50 6.9x	27.9x 5.9x	20.0x	>50 15.1x	250 12.2x	
Fisery, Inc.	86,018	5.3x	5.1x	4.8x	0.9X 15.5X	12.0x	5.9x 11.1x	>50	15.1x 15.7x	12.2x 13.9x	
Extended ERP Average	00,010	5.6x	5.1x	4.0X 4.7x	13.8x	12.0x	17.1x	20.5x	15.7x	20.5x	
Extended ERF Average		J.0X	J. 1A	4.78	13.01	10.58	17.18	20.38	10.5%	20.58	
Software As A Service											
Descartes Systems Group Inc.	5,557	13.1x	11.3x	10.2x	30.0x	25.9x	22.9x	>50	>50	>50	
Kinaxis, Inc.*	2,666	10.6x	7.4x	6.6x	>50	41.0x	36.5x	>50	>50	>50	
Docebo, Inc.*	765	7.3x	5.3x	3.9x	NEG	NEG	>50	NEG	NEG	NEG	
Lightspeed Commerce Inc*	1,945	4.2x	2.8x	2.1x	NEG	NEG	NEG	NEG	NEG	NEG	
Veeva Systems Inc Class A	23,620	16.1x	11.1x	9.6x	>50	28.1x	24.3x	>50	40.6x	36.1x	
Shopify, Inc. Class A	26,317	5.7x	4.8x	3.9x	>50	NEG	>50	13.0x	NEG	>50	
Q4 Inc*	48	0.9x	0.9x	0.8x	NEG	NEG	NEG	NEG	NEG	NEG	
Magnet Forensics, Inc.*	715	10.2x	7.6x	5.9x	38.4x	46.6x	26.2x	>50	>50	>50	
Ceridian HCM Holding, Inc.	10,565	10.3x	8.6x	7.4x	>50	48.3x	38.7x	NEG	>50	>50	
ServiceNow, Inc.	73,444	12.5x	10.1x	8.2x	>50	32.3x	26.0x	>50	>50	40.2x	
Workday, Inc. Class A	38,199	8.9x	6.2x	5.2x	>50	24.5x	20.0x	NEG	45.2x	35.8x	
Software As A Service Average		9.1x	6.9x	5.8x	34.2x	35.2x	27.8x	13.0x	42.9x	37.4x	
Infrastructure Vendors											
Microsoft Corporation	1,700,294	10.1x	8.2x	7.4x	21.0x	16.6x	14.8x	28.7x	24.4x	21.9x	
Infrastructure Vendors Average		10.1x	8.2x	7.4x	21.0x	16.6x	14.8x	28.7x	24.4x	21.9x	
Software Average		7.3x	6.1x	5.3x	20.7x	23.6x	20.4x	24.6x	25.8x	25.4x	
Software Average		7.38	0.18	J.JX	20.7X	23.08	20. 4 X	24.0%	25.08	23.48	

*Share Price Converted to USD



Exhibit 7: Business Services Stocks - Comp Table, 2021 - 2023E

	Enterprise		EV/EBITD/	4		P/E			EV/S	
	Value (\$mins.)	C21	C22E	C23E	C21	C22E	C23E	C21	C22E	C23E
Business & IT Services	· · ·									
CGI Inc. Class A	29,161	11.8x	11.4x	10.9x	19.5x	17.7x	16.7x	2.4x	2.2x	2.2x
TELUS International (CDA), Inc.	7,898	14.6x	12.7x	10.8x	25.9x	21.8x	17.3x	3.6x	3.1x	2.7x
Accenture Plc Class A	180,634	18.8x	15.6x	14.8x	30.4x	25.5x	23.6x	3.6x	2.9x	2.7x
Booz Allen Hamilton	15,882	17.8x	16.4x	15.5x	23.3x	23.5x	21.5x	2.0x	1.8x	1.7x
CACI International Inc Class A	8,495	11.4x	12.7x	11.8x	15.1x	15.4x	14.5x	1.4x	1.3x	1.3x
DXC Technology Co.	10,154	5.0x	4.2x	4.2x	NEG	8.2x	6.7x	0.6x	0.7x	0.7x
Genpact Limited	9,820	15.2x	12.5x	11.2x	24.8x	17.5x	15.6x	2.4x	2.3x	2.1x
International Business Machines	168,004	12.5x	11.3x	10.8x	21.0x	14.6x	13.9x	2.9x	2.8x	2.8x
Atos SE	2,877	2.7x	3.0x	2.7x	NEG	>50	6.9x	0.3x	0.3x	0.3x
Capgemini SE	35,185	12.2x	10.0x	9.3x	26.0x	16.1x	14.7x	1.9x	1.6x	1.5x
Sopra Steria Group SA	4,016	7.6x	6.7x	6.3x	14.7x	9.9x	9.3x	0.9x	0.8x	0.8x
Converge Technology Solutions Corp	1,519	16.2x	10.2x	8.2x	>50	42.9x	23.5x	1.0x	0.6x	0.5x
Business & IT Services Average		11.8x	10.6x	9.8x	22.3x	17.0x	14.6x	2.0x	1.8x	1.7x
HR Outsourcing			EV/EBITD/	Δ.		P/E			EV/S	
Ceridian HCM Holding, Inc.	10,565	>50	48.3x	38.7x	NEG	>50	>50	10.3x	8.6x	7.4x
Willis Towers Watson	24,074	10.8x	10.2x	9.4x	6.5x	15.7x	13.7x	2.7x	2.7x	2.6x
Aon Plc Class A	68,127	17.8x	17.0x	15.9x	>50	21.1x	19.1x	5.6x	5.4x	5.1x
Automatic Data Processing, Inc.	99,954	26.1x	21.9x	19.7x	38.8x	31.3x	27.8x	6.7x	5.8x	5.4x
Paychex, Inc.	41,114	24.9x	19.1x	17.8x	38.0x	28.7x	26.5x	10.1x	8.5x	8.0x
HR Outsourcing Average		19.9x	23.3x	20.3x	27.8x	24.2x	21.8x	7.1x	6.2x	5.7x
			EV/EDITE						E) ((0	
Information Services			EV/EBITD/			P/E			EV/S	
Broadridge Financial Solutions, Inc.	20,689	17.8x	15.8x	14.8x	30.8x	21.3x	19.7x	4.0x	3.5x	3.3x
Dye & Durham Ltd.	2,064	13.0x	13.0x	9.1x	>50	>50	25.9x	5.5x	3.6x	3.1x
Deluxe Corporation	2,198	6.0x	5.4x	5.2x	11.8x	4.2x	4.1x	1.1x	1.0x	1.0x
Information Services Corp	406	6.0x	6.3x	6.2x	10.9x	10.8x	11.4x	2.4x	2.2x	2.0x
Information Services Average		10.7x	10.1x	8.8x	17.9x	12.1x	15.2x	3.3x	2.6x	2.4x
Financial Services Technology			EV/EBITD/	4		P/E			EV/S	
Fidelity National Information Services	68,283	11.2x	10.5x	9.8x	>50	11.6x	10.7x	4.9x	4.7x	4.4x
Fisery, Inc.	86,018	15.5x	12.0x	11.1x	>50	15.7x	13.9x	5.3x	5.1x	4.8x
Jack Henry & Associates, Inc.	14,180	20.4x	22.5x	20.7x	46.7x	38.4x	35.9x	8.1x	7.0x	6.6x
ACI Worldwide, Inc.	3,709	10.1x	9.2x	8.6x	22.0x	17.8x	15.2x	2.7x	2.6x	2.5x
Temenos AG	5,194	9.5x	13.6x	12.3x	24.4x	19.1x	17.0x	5.4x	5.3x	5.0x
Global Payments Inc.	44,037	12.1x	11.3x	10.3x	36.8x	12.9x	11.4x	5.2x	5.5x	5.1x
Financial Services Technology Average		13.1x	13.2x	12.1x	32.5x	19.2x	17.4x	5.3x	5.0x	4.7x
Diversified Peal Estate Commisse			CV/EDITO		<u> </u>	חור			EVIIO	
Diversified Real Estate Services	F 440		EV/EBITD/		40.0	12 2v	40.25	4 2	EV/S	4 4
Colliers International Group Inc.	5,119	9.3x	8.0x	7.1x	-10.8x	13.2x	12.3x	1.3x	1.1x	1.1x
Altus Group Limited	2,367	22.9x	21.6x	17.9x	25.9x	25.9x	28.4x	3.8x	3.8x	3.2x
CBRE Group, Inc. Class A	24,970	11.7x	8.0x	8.1x	13.4x	11.8x	12.0x	0.9x	0.8x	0.8x
Jones Lang LaSalle Incorporated Diversified Real Estate Services Average	9,695	6.6x 12.6x	6.8x 11.1x	6.9x 10.0 x	8.8x 9.3x	8.6x 14.9x	8.5x 15.3 x	0.5x 1.6x	0.5x 1.5 x	0.4x 1.4x
Diversified Real Estate Services Avera	age	12.0X	TI.IX	10.0X	9.3X	14.9X	10.3X	1.0X	1.3X	1.4X
Software Focused IT Solutions/VARs			EV/EBITD/	A		P/E			EV/S*	
Softchoice Corporation* USD	901	36.9x	10.9x	8.9x	NEG	19.6x	14.9x	3.4x	2.8x	2.6x
Softcat Plc*	2,248	13.3x	14.0x	13.3x	17.9x	18.7x	18.8x	6.0x	5.8x	5.3x
Crayon Group Holding ASA*	8,549	>50	>50	>50	>50	>50	>50	>50	21.0x	17.9x
Bytes Technology Group Plc*	820	16.9x	13.2x	11.7x	33.8x	18.2x	17.2x	NA	NA	NA
SoftwareONE Holding Ltd.*	1,336	8.1x	5.8x	5.0x	13.8x	14.2x	12.8x	6.4x	1.4x	1.2x
Bytes Technology Group Pic* Average		18.8x	11.0x	9.7x	21.8x	17.7x	15.9x	5.3x	7.7x	6.7x
Business Services Average	E) ''2=	13.8x	13.0x	11.7x	21.9x	17.7x	16.3x	3.8x	3.8x	3.4x
*Software Focused IT Solutions/VARs us	ses EV/GP metric	Э.								



Exhibit 8: SaaS Stocks - Comp Table, 2021 - 2023E

	LTM Revenue	LTM FCF	NTM Revenue	NTM FCF	LTM Rule	NTM Rule	Enterprise		EV/S	
	Growth	Margin	Growth	Margin	Of 40	Of 40	Value (\$MM)	C21	C22E	C23E
Tier 1 SaaS (Rule of 40 > 60)										
Zoom Video Communications	18%	31%	5%	27%	49%	32%	19,705	7.4x	4.5x	4.5x
CrowdStrike Holdings, Inc.	61%	30%	44%	29%	91%	73%	36,611	41.9x	16.9x	16.9x
Shopify, Inc.	30%	1%	21%	-10%	31%	11%	25,598	5.6x	4.7x	4.7x
Zscaler, Inc.	62%	24%	38%	22%	86%	60%	21,786	32.4x	17.3x	17.3x
Lightspeed POS, Inc.	101%	-19%	33%	-5%	82%	28%	1,873	8.4x	2.7x	2.7x
DocuSign, Inc.	30%	20%	11%	15%	51%	27%	10,164	7.0x	4.2x	4.2x
Veeva Systems Inc	20%	38%	15%	37%	58%	52%	23,561	16.1x	11.1x	11.1x
Atlassian Corp. Plc	34%	27%	29%	22%	61%	50%	52,384	25.1x	16.4x	16.4x
Twilio, Inc.	51%	-6%	28%	-2%	45%	26%	9,957	3.5x	2.6x	2.6x
ServiceNow, Inc.	28%	31%	22%	30%	58%	52%	74,991	12.7x	10.3x	10.3x
HubSpot, Inc.	42%	16%	22%	12%	58%	34%	13,468	10.4x	8.0x	8.0x
Tier 1 SaaS (Rule of 40 > 60)	Average							15.5x	8.9x	8.9x
	LTM Revenue	LTM FCF	NTM Revenue	NTM FCF	LTM Rule	NTM Rule	Enterprise		EV/S	
	Growth	Margin	Growth	Margin	Of 40	Of 40	Value (\$MM)	C21E	C22E	C23E

	LTM Revenue	LTM FCF	NTM Revenue	NTM FCF	LTM Rule	NTM Rule	Enterprise		EV/S	
	Growth	Margin	Growth	Margin	Of 40	Of 40	Value (\$MM)	C21E	C22E	C23E
Tier 2 SaaS (Rule of 40 b/v	v 40-60)									
Docebo, Inc.	50%	-2%	35%	-4%	48%	31%	766	7.3x	5.3x	3.9x
Qualys, Inc.	17%	40%	18%	37%	56%	55%	4,978	12.1x	10.2x	10.2x
Descartes Systems	20%	37%	10%	37%	57%	47%	5,526	13.0x	11.3x	10.1x
Five9, Inc.	34%	-4%	23%	7%	30%	30%	4,547	7.5x	5.8x	5.8x
Dropbox, Inc.	11%	33%	6%	34%	44%	40%	8,567	4.0x	3.7x	3.7x
Wix.com Ltd.	16%	-1%	8%	3%	15%	11%	4,630	3.6x	3.3x	3.3x
Workday, Inc.	22%	21%	19%	19%	43%	38%	38,434	8.9x	6.3x	6.3x
VMware, Inc.	7%	24%	6%	29%	31%	35%	57,410	4.9x	4.3x	4.3x
Tier 2 SaaS (Rule of 40 b/v	v 40-60) Average							7.7x	6.3x	6.0x

	LTM Revenue	LTM FCF	NTM Revenue	NTM FCF	LTM Rule	NTM Rule	Enterprise		EV/S	
	Growth	Margin	Growth	Margin	Of 40	Of 40	Value (\$MM)	C21E	C22E	C23E
Tier 3 SaaS (Rule of 40 b/w 2	28-40)									
BlackLine, Inc.	22%	8%	21%	6%	30%	27%	3,312	7.8x	6.3x	6.3x
Zendesk, Inc.	30%	12%	20%	15%	42%	34%	9,613	7.2x	5.7x	5.7x
MongoDB, Inc.	54%	-2%	25%	2%	52%	27%	13,200	22.4x	11.2x	11.2x
LivePerson, Inc.	19%	-27%	5%	-4%	-8%	1%	808	1.7x	1.6x	1.6x
Rapid7 Inc.	33%	5%	23%	11%	38%	34%	3,332	6.2x	4.8x	4.8x
Paylocity Holding Corp.	34%	16%	28%	15%	50%	43%	12,483	19.6x	12.8x	12.8x
Q2 Holdings, Inc.	18%	0%	18%	3%	18%	21%	1,954	3.9x	3.4x	3.4x
Akamai Technologies, Inc.	7%	24%	2%	21%	31%	24%	15,841	4.6x	4.4x	4.4x
Tier 3 SaaS (Rule of 40 b/w 2	28-40) Average							9.2x	6.3x	6.3x

	LTM Revenue	LTM FCF	NTM Revenue	NTM FCF	LTM Rule	NTM Rule	Enterprise		EV/S	
	Growth	Margin	Growth	Margin	Of 40	Of 40	Value (\$MM)	C21E	C22E	C23E
Tier 4 SaaS (Rule of 40 <28	3)									
RingCentral, Inc.	33%	8%	21%	9%	40%	30%	4,539	2.8x	2.3x	2.3x
Teradata Corporation	-3%	19%	-3%	23%	16%	20%	3,234	1.7x	1.8x	1.8x
Zuora, Inc.	15%	4%	14%	0%	19%	14%	805	2.6x	2.1x	2.1x
New Relic, Inc.	20%	3%	17%	1%	23%	18%	3,840	5.8x	4.3x	4.3x
Kinaxis, Inc.	35%	7%	22%	9%	42%	31%	2,709	10.8x	7.5x	6.7x
Yext, Inc.	8%	3%	3%	-1%	11%	2%	518	1.5x	1.3x	1.3x
Splunk Inc.	26%	7%	21%	14%	33%	35%	15,175	6.8x	4.6x	4.6x
Tier 4 SaaS (Rule of 40 <28	3) Average							4.6x	3.4x	3.3x
SaaS Average								9.9x	6.5x	6.4x

Source: Company reports and CIBC World Markets Inc.



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	OP NT UN TR NR R Abbreviation O M U

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