

EQUITY RESEARCH

December 5, 2021

Industry Update

Software Valuation Monthly – November 2021

Earnings Performance Overshadowed By Broad Tech Sell-off

Our Conclusion

While much of our coverage reported solid earnings in November, a combination of uncertainty around the Omicron variant and shifting rhetoric from the U.S. federal reserve on the timing of bond purchases drove a sell-off in software stocks at the end of the month. In keeping with historical norms, SaaS stocks felt more of an impact than more established software names, especially those SaaS names trading at the highest multiples.

Within our coverage universe, November stock price performance declined sequentially, with an average return of -5% versus a +1% return in October. Poor stock price performance was broad based, with 10 out of our 14 covered names posting negative returns. Most notable underperformers included LRWK (-22%), QFOR (-20%) and SFTC (-18%). Positive performers in the month were limited to DND (+10%), KXS (+2) and AIF (+1%). Performance was not dictated by sub-sector, with the positive returns driven by company-specific factors.

We see LifeWorks, Open Text, Enghouse and CGI as attractive at these levels. All have relatively defensive revenue profiles and are currently trading below their historic two-year multiple.

Key Points

Our coverage universe (ex Q4 and Softchoice) is trading at 7.9x EV/sales, which is flat sequentially from October. Valuations remain at a 1.6x premium to two-year historical averages, although the majority of our coverage trades within a 1-multiple turn of the two-year historical average.

SaaS names with negative LTM EBITDA were more impacted by the sell-off, down an average of 10% compared to the positive EBITDA names, which were down 7%. Year-to-date, the positive EBITDA names have returned an average of 11% while the negative names have significantly underperformed, down 15%. We believe that this dynamic is likely to continue into future months as rising rates and slowing central bank bond buying come into effect.

Looking at software names on a Rule-of-40 basis, valuations for the highest Rule-of-40 scores contracted relative to the lowest-scoring names, as the gap between the top-tier and the bottom-tier SaaS names was 1.8x smaller sequentially, while the gap for mature software contracted by 0.8x.

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Sector:
Information Technology

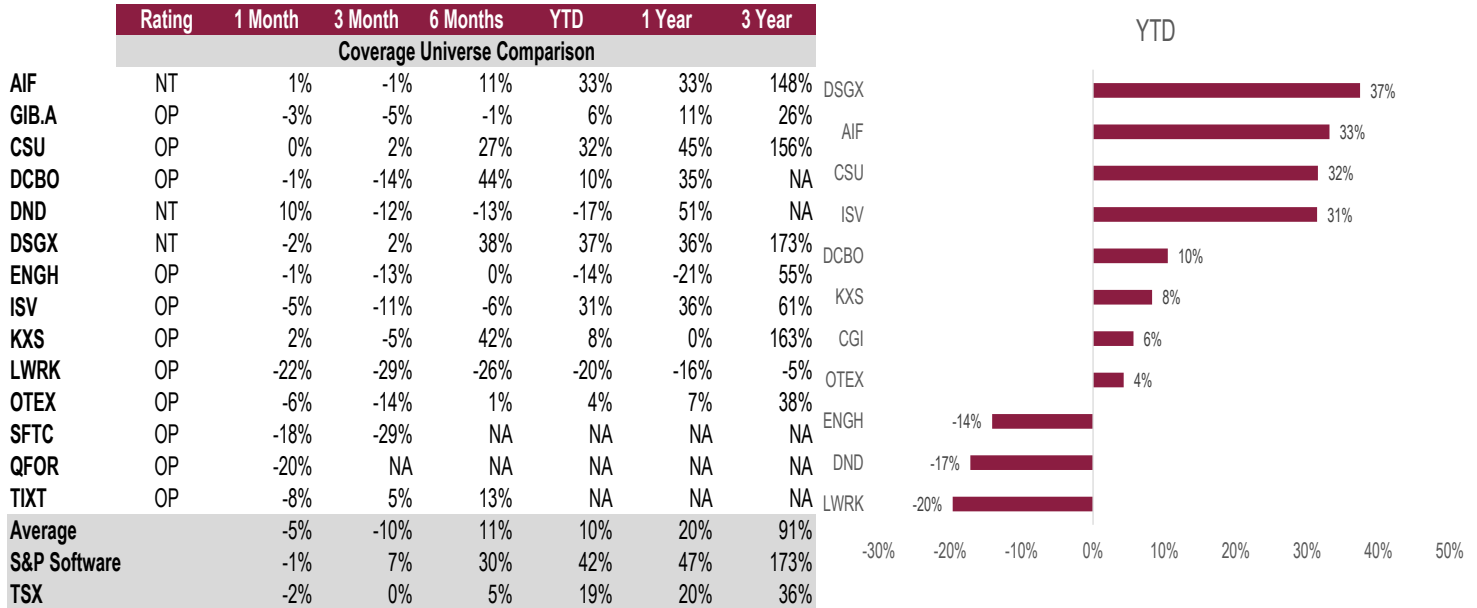
All figures in Canadian dollars unless otherwise stated.

For required regulatory disclosures please refer to "Important Disclosures" beginning on page 20.

Coverage Universe Returns

Average November returns among our coverage universe were well down at -5% as the majority of the names under coverage declined with only three names in the green, led by Dye & Durham with +10% in the month after a weak October. The average coverage return of -5% underperformed the S&P Software Index (-1%) and the TSX (-2%) as market volatility spiked and tech market sold off.

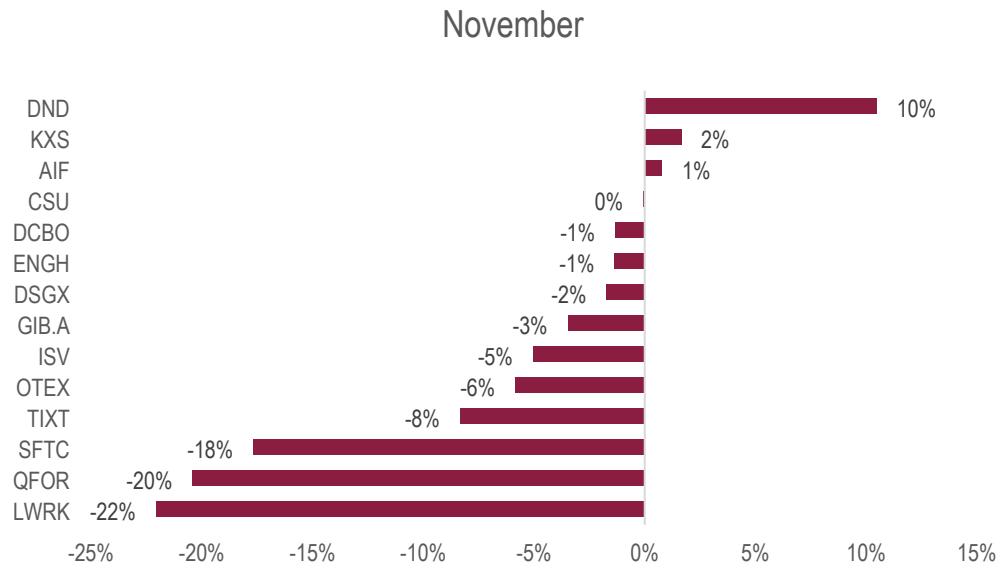
Exhibit 1: CIBC Software/Services Coverage – Share Price Return History, As Of November 30, 2021



Source: FactSet and CIBC World Markets Inc.

LifeWorks saw the worst performance among our coverage, as weaker-than-expected margins in the third quarter are expected to continue into 2022. Recent IPOs QFOR (-20%) and SFTC (-18%) felt the brunt of tech sell-offs in the quarter. Positive share price performance was sparse among our SaaS, mature software and business services names, with DND leading the way at 10% monthly returns after two months of consecutive weak performance, followed by Kinaxis (+2%), Altus (+1%).

Exhibit 2: CIBC Software/Services Coverage – Stock Price Returns, November 2021



Source: FactSet and CIBC World Markets Inc.

The average EV/sales multiple across our coverage was 7.94x in November, unchanged from October as the valuation average excludes Q4 and Softchoice given the timing of Q4's IPO and the nature of Softchoice's business making EV/Sales a less illustrative metric. Valuations are still at a 1.6x premium to the two-year average and a 2.6x premium to the five-year average. Within our coverage, Kinaxis and Descartes continue to trade at the largest premium to their two-year averages, while LifeWorks trade at a 0.5x below its two-year historical average, which is equal to a 17% discount.

An illustration of the EV/sales valuation vs. historical averages for individual names under coverage is included in the line charts in Exhibit 16.

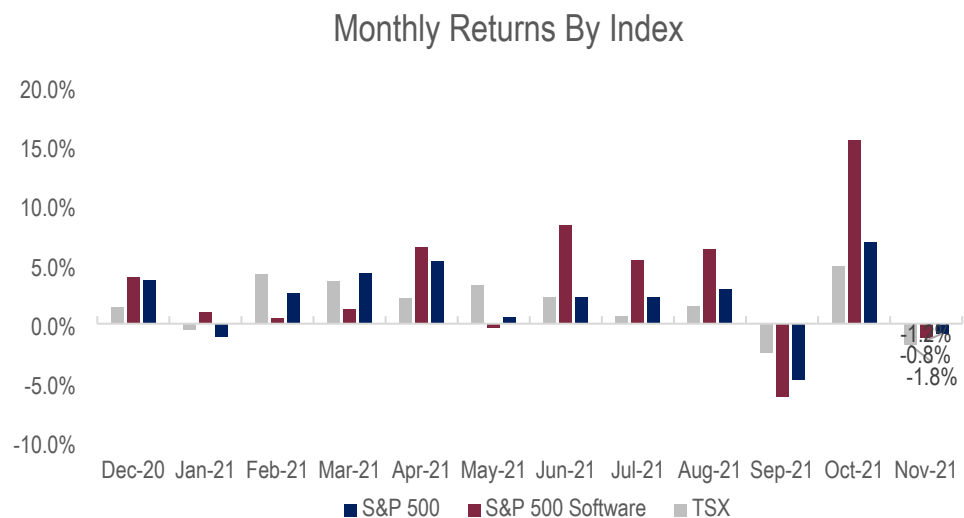
Exhibit 3: CIBC Software/Services Coverage – Historical Valuation, November 30, 2021

Company	EV/NTM Sales	2-year Average	Δ	5-year Average	Δ
Altus	4.70x	3.89x	0.82x	3.10x	1.61x
Constellation	7.27x	6.37x	0.90x	5.57x	1.70x
Docebo	20.11x	NA	NA	NA	NA
Descartes	16.56x	13.22x	3.34x	10.57x	5.99x
Dye & Durham	7.19x	NA	NA	NA	NA
Enghouse	5.96x	6.20x	-0.24x	5.29x	0.67x
CGI Inc.	2.34x	2.39x	-0.05x	2.26x	0.09x
Information Services	3.05x	2.77x	0.29x	2.78x	0.27x
Kinaxis	16.78x	14.47x	2.31x	11.52x	5.26x
LifeWorks	2.32x	2.79x	-0.47x	2.63x	-0.31x
Open Text	4.44x	4.64x	-0.19x	4.36x	0.08x
TELUS International	4.59x	NA	NA	NA	NA
Average	7.94x	6.30x	1.64x	5.34x	2.60x
Median	5.33x	4.64x	0.70x	4.36x	0.98x

Source: FactSet and CIBC World Markets Inc.

U.S. software stocks underperformed the S&P 500 during the month, although outperformed the TSX by 60 bps.

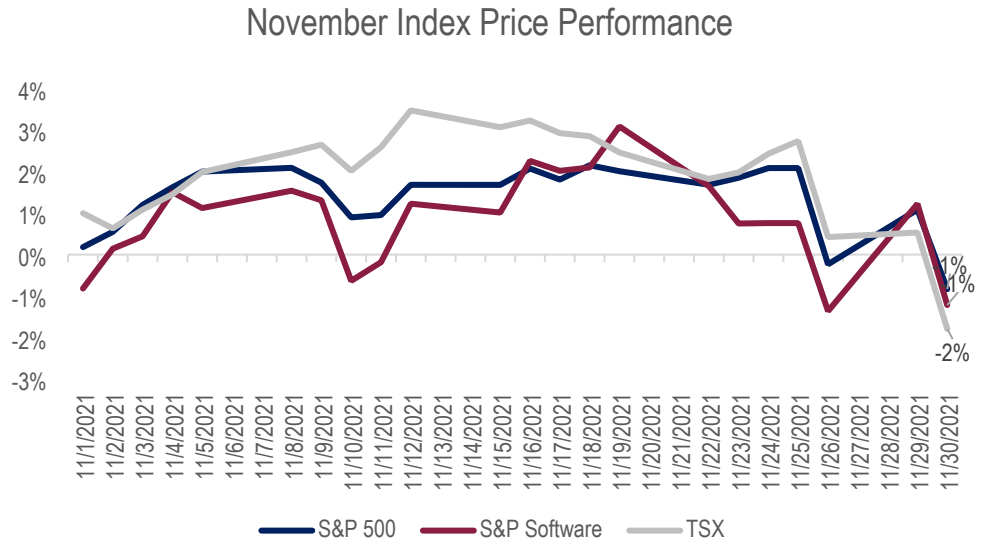
Exhibit 4: Index Returns - December 2020 – November 2021



Source: FactSet and CIBC World Markets Inc.

The TSX, S&P 500 and S&P Software Index all moved generally in line throughout November. A relatively positively earnings season kept returns positive through the first three weeks of the month before new variant concerns and increasingly hawkish commentary from the fed sent markets in the wrong direction.

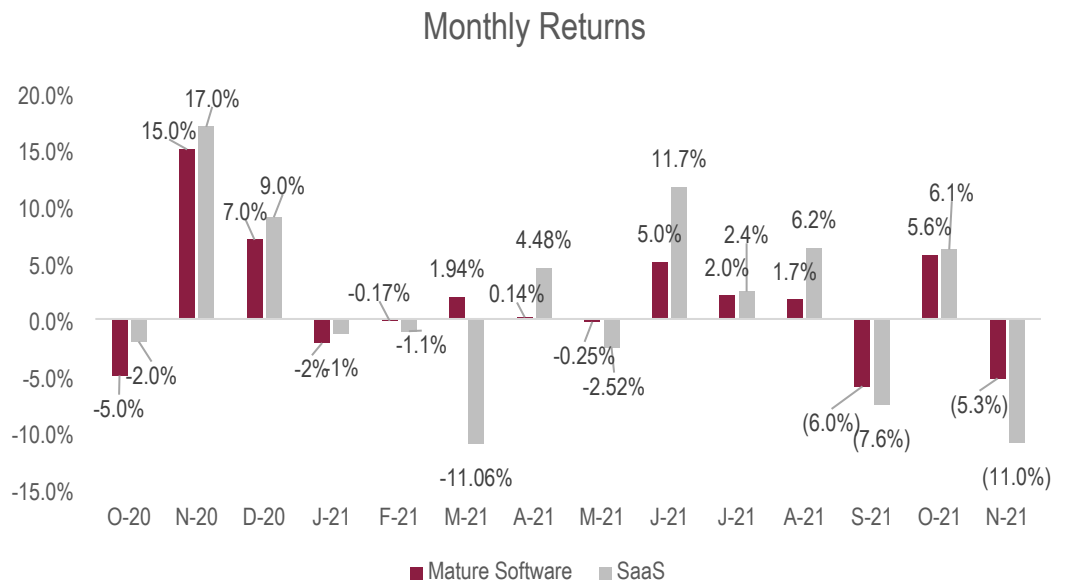
Exhibit 5: S&P 500, S&P Software, TSX Indices – Price Returns, November 2021



Source: FactSet and CIBC World Markets Inc.

SaaS companies felt the brunt of the sell-off at the end of the month, with a median return of -11%, tied with the worst performing months in 2021. Mature software returns were also weak in the month, but were relatively more resilient. The split in the month further emphasizes that the mature software names provide level of relative defense within the software sector.

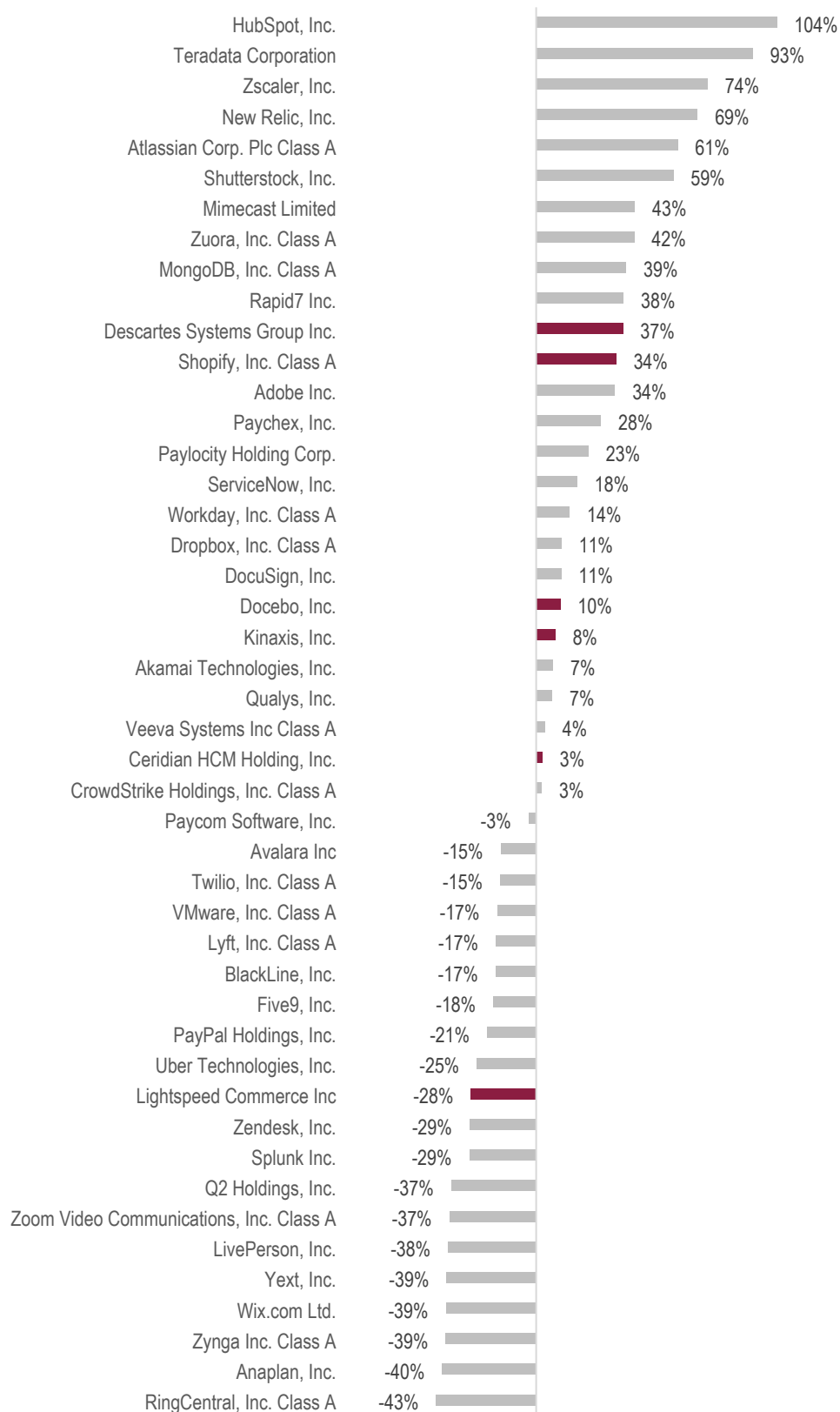
Exhibit 6: SaaS And Mature Software – Returns By Month, October 2020 – November 2021



Source: FactSet and CIBC World Markets Inc.

Exhibit 7: SaaS Stocks – Return Performance, Year To Date As Of November 30, 2021

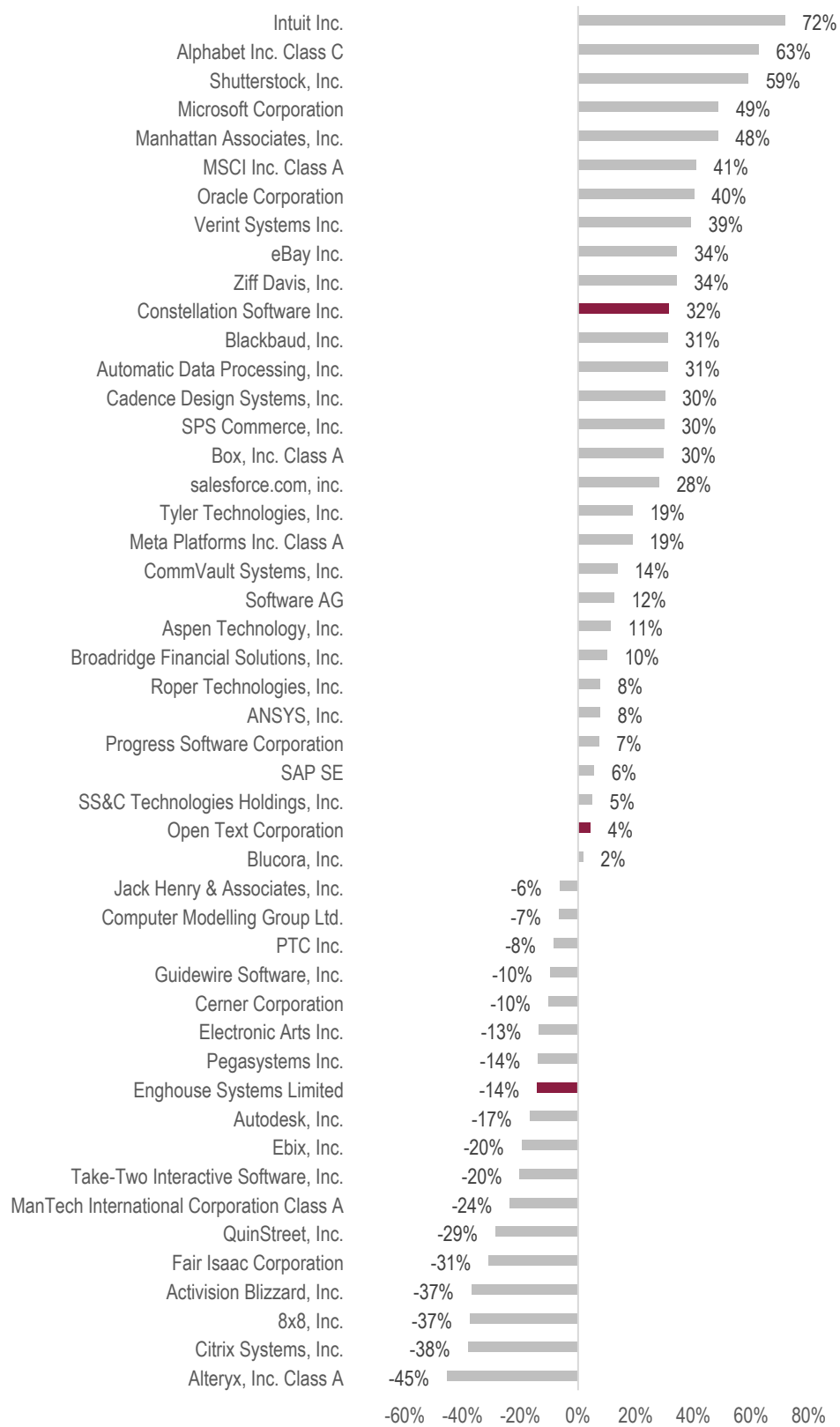
YTD Returns - SaaS



Source: FactSet and CIBC World Markets Inc.

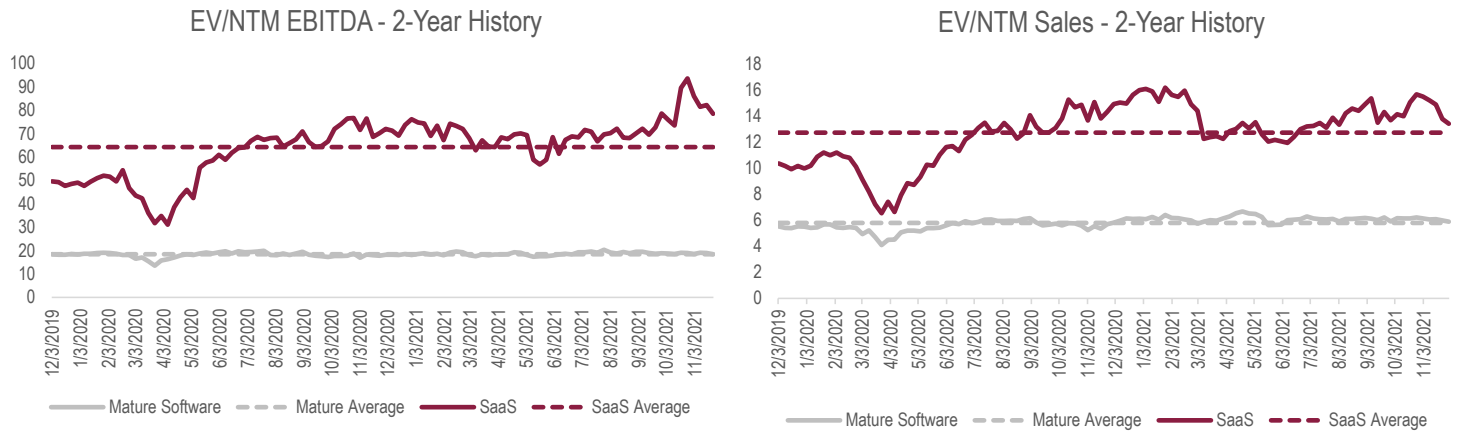
Exhibit 8: Mature Software Stocks – Return Performance, Year To Date As Of November 30, 2021

YTD Returns - Mature Software



Source: FactSet and CIBC World Markets Inc.

Exhibit 9: Mature Software Vs. SaaS – Two-year Valuation History, 2019 - 2021

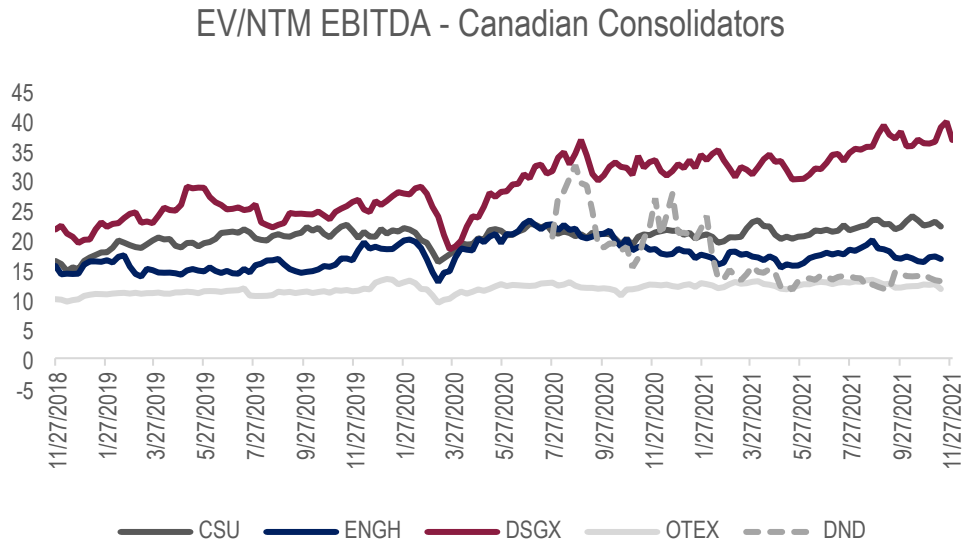


Source: FactSet and CIBC World Markets Inc.

The line charts in Exhibit 9 highlight the impact of the end-of-month sell-off on SaaS stock valuations. The median EV/sales multiple for SaaS stocks is now only 5% above the two-year average, while the median EV/EBITDA multiple for mature software names also declined in the quarter, but is now at a higher premium (18%) to the historical average than the SaaS group.

The valuations of Canadian consolidators were generally down slightly in the quarter, in line with the share price performance. Enhouse’s valuation was flat in the quarter as media reports of a strategic process buoyed the stock in the midst of poor market performance .

Exhibit 10: Canadian Consolidators – EV/NTM EBITDA, 11/30/2018 - 11/30/2021



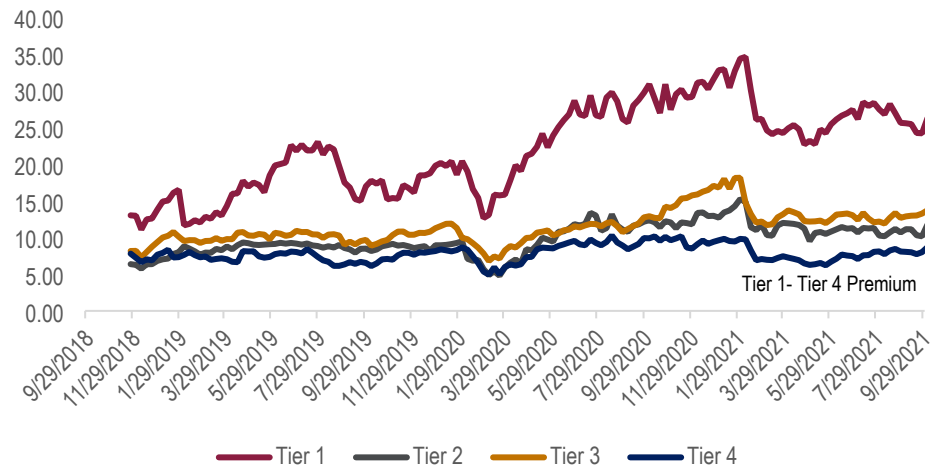
Source: FactSet and CIBC World Markets Inc.

Rule-of-40 Valuation Premiums

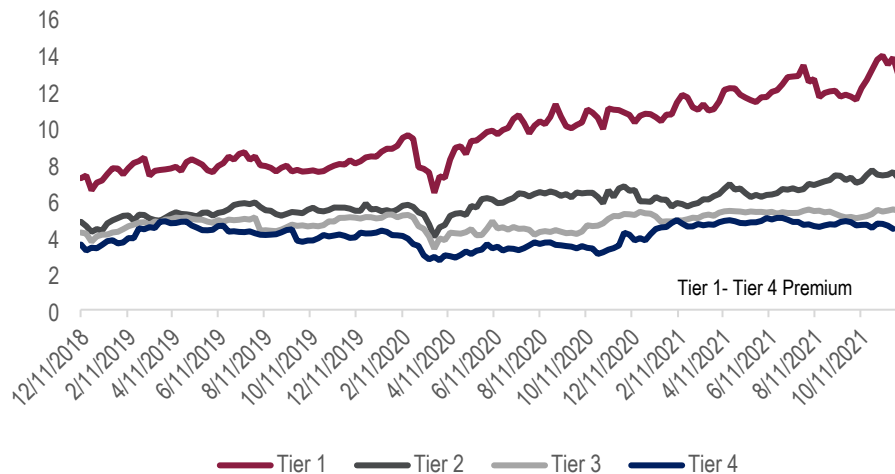
To better understand the link between Rule-of-40 scores and valuation multiples, we have grouped the SaaS and mature software populations into tiers based on their Rule-of-40 and examined the change in multiples over a three-year period (see the tables in Exhibits 13 and 14 for tier groupings). While valuations declined across all tiers, the Tier 1 SaaS names were more heavily impacted in the month. Tier 1 EV/Sales valuations contracted by 2.42x (9%) while the SaaS names with worse Rule-of-40- scores in Tier 4 saw valuations contract by only 0.6x. There was a similar dynamic amongst the Mature software names although it was less pronounced. Tier 1 Mature names contracted by 0.9x (6.5%) and Tier 4 names were down by 0.06x, or 1.2%.

Exhibit 11: Mature Software Vs. SaaS – EV/S Valuation History, 2018 - 2021

3 Year EV/Sales History - SaaS



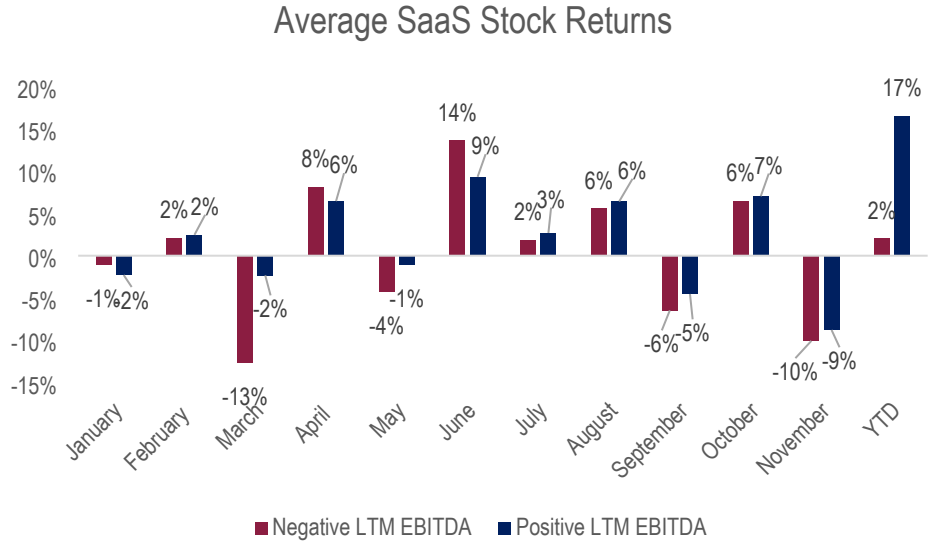
3 Year EV/Sales History - Mature Software



Source: FactSet and CIBC World Markets Inc.

Of the 50 SaaS names we track, the 22 that reported negative EBITDA over the past 12 months underperformed the positive EBITDA group by 1% in the month. Throughout 2021, the group of negative EBITDA companies has shown more volatile price performance, and the overall YTD performance of the positive EBITDA group has significantly outperformed the negative EBITDA group by 15%. We expect this dynamic to continue into 2022 as investors look for more stable SaaS names that are less reliant on the future promise of improving margins.

Exhibit 12: SaaS Returns – Grouped By EBITDA Positivity, January - November 2021



Source: FactSet and CIBC World Markets Inc.

Exhibit 13: SaaS Stocks – Comp Table, 2020 - 2022E

	LTM Revenue Growth	LTM FCF Margin	NTM Revenue Growth	NTM FCF Margin	LTM Rule Of 40	NTM Rule Of 40	Enterprise Value (\$MM)	EV/S		
								C20	C21E	C22E
Tier 1 SaaS (Rule of 40 > 60)										
Zoom Video Communications	100%	43%	16%	34%	143%	50%	47,690	76.6x	12.1x	10.1x
CrowdStrike Holdings, Inc.	74%	33%	62%	26%	107%	88%	42,466	88.2x	30.7x	21.8x
Nuvei	70%	39%	42%	32%	109%	75%	12,881	34.3x	17.9x	13.5x
Shopify, Inc.	71%	11%	33%	15%	82%	48%	175,344	59.9x	38.3x	28.7x
Lightspeed POS, Inc.	142%	-29%	58%	-5%	113%	54%	5,437	45.1x	11.9x	8.1x
Zscaler, Inc.	58%	27%	43%	23%	86%	65%	42,250	98.0x	52.0x	36.9x
Veeva Systems Inc	30%	46%	25%	38%	75%	63%	35,873	32.5x	19.8x	16.7x
DocuSign, Inc.	54%	22%	33%	19%	76%	52%	27,411	28.1x	13.5x	10.5x
Atlassian Corp. Plc	31%	37%	21%	27%	68%	48%	86,039	53.3x	36.6x	29.5x
Twilio, Inc.	65%	-2%	34%	-2%	63%	32%	39,512	22.4x	14.3x	10.8x
HubSpot, Inc.	45%	18%	32%	12%	63%	45%	33,540	38.0x	26.0x	20.2x
ServiceNow, Inc.	31%	29%	26%	31%	60%	57%	117,808	26.1x	20.0x	15.9x
Tier 1 SaaS (Rule of 40 > 60) Average								50.2x	24.4x	18.6x
Tier 2 SaaS (Rule of 40 b/w 41-60)										
Qualys, Inc.	13%	43%	13%	37%	56%	50%	4,586	12.7x	11.2x	9.9x
Docebo, Inc.	55%	4%	46%	-3%	58%	44%	1,844	29.3x	17.6x	12.1x
Descartes Systems	15%	41%	21%	38%	56%	58%	6,309	18.1x	14.9x	13.6x
Avalara Inc	40%	7%	24%	1%	47%	24%	10,613	21.2x	15.4x	12.5x
Five9, Inc.	41%	0%	25%	4%	41%	29%	8,773	20.2x	14.6x	11.7x
Mimecast Limited	20%	28%	14%	23%	47%	37%	4,738	11.1x	8.3x	7.2x
Dropbox, Inc.	13%	34%	10%	32%	47%	42%	9,894	5.2x	4.6x	4.2x
Wix.com Ltd.	34%	6%	18%	4%	40%	22%	7,681	7.8x	6.0x	5.0x
Workday, Inc.	18%	28%	19%	23%	46%	43%	64,392	17.8x	12.7x	10.7x
VMware, Inc.	9%	33%	7%	27%	43%	35%	48,368	4.5x	3.8x	3.5x
Tier 2 SaaS (Rule of 40 b/w 41-60) Average								14.8x	10.9x	9.0x
Tier 3 SaaS (Rule of 40 b/w 25-40)										
BlackLine, Inc.	21%	17%	20%	11%	38%	32%	5,889	16.7x	13.9x	11.5x
Zendesk, Inc.	28%	12%	28%	9%	40%	37%	11,630	11.3x	8.7x	6.9x
MongoDB, Inc.	40%	-5%	32%	-6%	35%	26%	28,548	67.7x	35.9x	27.3x
LivePerson, Inc.	30%	-3%	24%	-15%	27%	9%	2,322	6.3x	4.9x	3.9x
Rapid7 Inc.	27%	8%	24%	2%	35%	27%	6,983	17.0x	13.2x	10.7x
Paylocity Holding Corp.	19%	16%	25%	14%	36%	40%	13,448	24.0x	18.5x	14.8x
Q2 Holdings Inc.	25%	-3%	18%	2%	22%	20%	4,314	10.7x	8.6x	7.4x
Akamai Technologies, Inc.	9%	21%	8%	23%	30%	31%	18,752	5.9x	5.4x	5.0x
Tier 3 SaaS (Rule of 40 b/w 25-40) Average								19.9x	13.6x	10.9x
Tier 4 SaaS (Rule of 40 < 28)										
RingCentral, Inc.	34%	3%	26%	6%	38%	31%	17,823	15.1x	11.3x	9.0x
Teradata Corporation	5%	20%	0%	19%	26%	19%	4,402	2.4x	2.3x	2.3x
Anaplan, Inc.	30%	0%	24%	1%	30%	25%	5,794	16.6x	10.1x	8.1x
Ceridian HCM Holding, Inc.	30%	-9%	19%	5%	21%	23%	16,632	19.7x	16.5x	14.7x
New Relic, Inc.	12%	-3%	18%	4%	8%	22%	6,491	10.8x	8.6x	7.5x
Zuora, Inc.	11%	5%	19%	0%	16%	19%	2,214	8.0x	6.5x	5.6x
Yext, Inc.	12%	-4%	11%	-1%	8%	10%	1,202	4.0x	3.1x	2.7x
Kinaxis, Inc.	-1%	10%	25%	1%	9%	26%	3,681	16.4x	14.8x	11.9x
Splunk Inc.	3%	-3%	19%	6%	0%	25%	19,187	8.1x	7.6x	6.5x
Tier 4 SaaS (Rule of 40 < 28) Average								11.3x	9.0x	7.6x
SaaS Average								25.9x	15.2x	12.0x

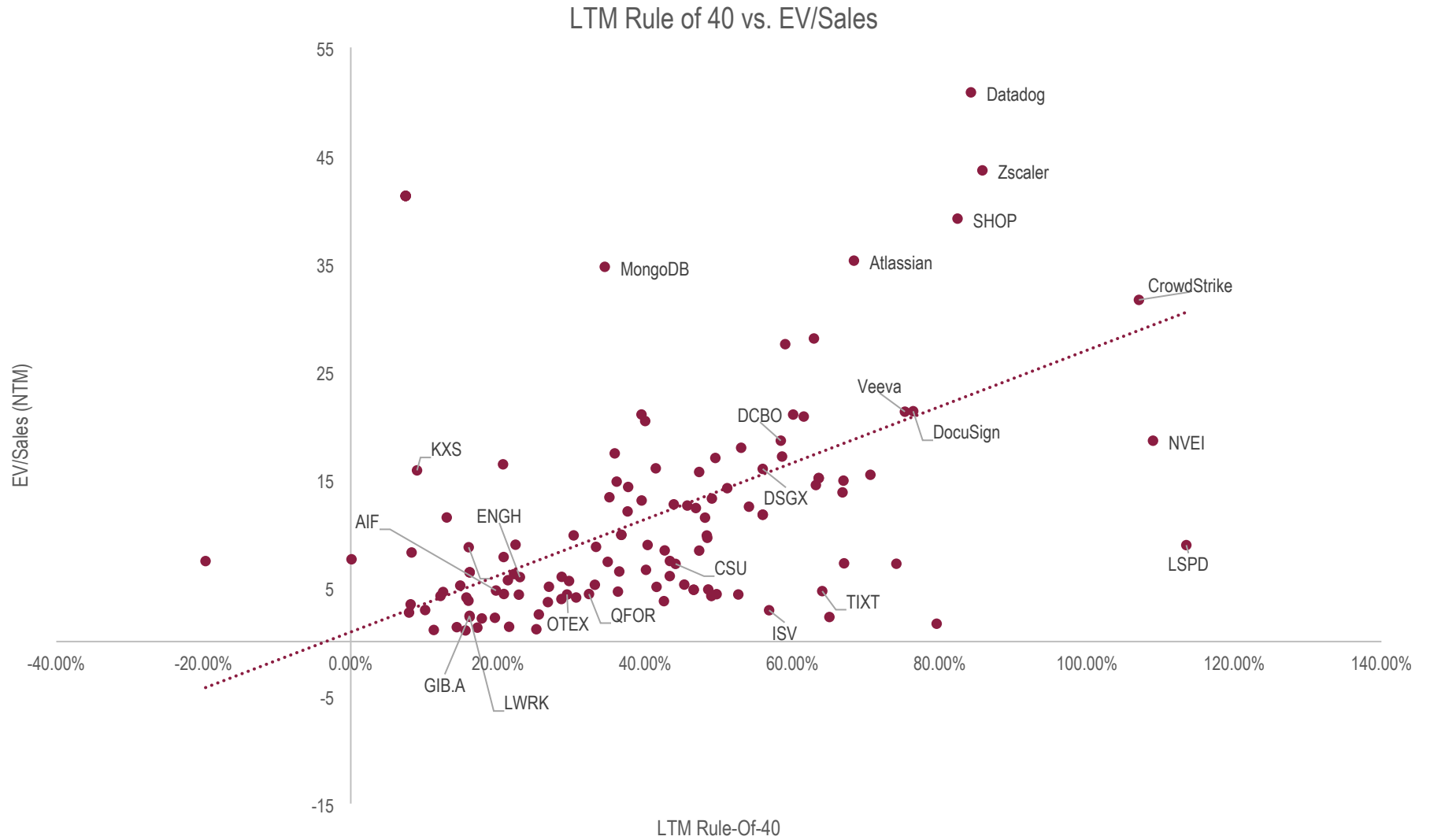
Source: FactSet and CIBC World Markets Inc.

Exhibit 14: Mature Software Stocks – Comp Table, 2020 - 2022E

	LTM	LTM FCF	NTM Revenue	NTM FCF	LTM	NTM	Enterprise	EV/S			EV/EBITDA		
	Revenue	Margin	Growth	Margin	Rule Of	Rule Of	Value (\$MM)	C20	C21E	C22E	C20	C21E	C22E
Tier 1 Mature Software (Rule of 40 > 45)													
Facebook, Inc. Class A	42%	32%	17%	26%	74%	43%	790,840	9.2x	6.7x	5.7x	20.0x	12.3x	11.8x
Alphabet Inc. Class C	40%	27%	18%	26%	67%	44%	1,768,030	9.7x	7.0x	6.0x	32.3x	16.7x	14.7x
Aspen Technology, Inc.	28%	39%	0%	38%	67%	38%	10,126	16.9x	14.1x	13.2x	36.7x	25.8x	25.9x
Intuit Inc.	32%	32%	24%	30%	64%	54%	180,927	23.6x	16.9x	13.9x	>50	44.1x	36.2x
Microsoft Corporation	20%	34%	15%	30%	54%	46%	2,355,303	16.5x	12.9x	11.2x	36.1x	26.1x	22.4x
Progress Software	18%	35%	12%	33%	53%	NA	2,338	5.3x	4.2x	4.2x	14.6x	10.2x	10.2x
Autodesk, Inc.	16%	33%	16%	37%	49%	54%	57,117	17.5x	13.2x	11.3x	>50	39.8x	28.8x
Tyler Technologies, Inc.	28%	23%	26%	23%	51%	49%	21,549	19.3x	13.5x	11.6x	>50	49.8x	42.7x
Cadence Design Systems, I	18%	32%	6%	32%	50%	38%	48,662	18.1x	16.4x	15.1x	>50	40.7x	36.9x
Tier 1 Mature Software (Rule of 40 > 45) Average								15.1x	11.7x	10.2x	27.9x	29.5x	25.5x
	LTM	LTM FCF	NTM Revenue	NTM FCF	LTM	NTM	Enterprise	EV/S			EV/EBITDA		
	Revenue	Margin	Growth	Margin	Rule Of	Rule Of	Value (\$MM)	C20	C21E	C22E	C20	C21E	C22E
Tier 2 Mature Software (Rule of 40 b/w 31-50)													
eBay Inc.	25%	23%	-3%	26%	49%	23%	45,985	4.5x	4.4x	4.2x	13.9x	11.6x	11.3x
salesforce.com, inc.	23%	25%	22%	18%	48%	39%	253,427	14.8x	9.8x	8.1x	>50	32.6x	26.8x
ANSYS, Inc.	21%	32%	8%	26%	53%	34%	33,018	19.6x	17.3x	15.7x	>50	39.1x	34.3x
J2 Global, Inc.	22%	27%	-14%	21%	49%	7%	6,430	4.3x	4.3x	4.0x	11.1x	11.7x	10.8x
SPS Commerce, Inc.	21%	23%	17%	22%	44%	39%	4,681	15.0x	12.2x	10.6x	>50	44.3x	37.1x
Constellation Software Inc	18%	26%	20%	25%	44%	45%	35,736	9.0x	7.1x	6.3x	29.1x	24.0x	21.3x
PTC Inc.	24%	19%	7%	20%	43%	26%	14,456	9.9x	7.9x	7.3x	43.4x	20.6x	19.4x
Manhattan Associates, Inc.	8%	28%	8%	22%	36%	30%	9,193	15.7x	14.1x	13.0x	>50	>50	>50
Oracle Corporation	4%	31%	5%	27%	35%	32%	284,328	7.3x	6.9x	6.6x	16.5x	13.8x	13.3x
Open Text Corporation	6%	23%	1%	29%	29%	31%	14,642	5.4x	4.5x	4.1x	11.4x	11.5x	10.9x
SS&C Technologies Holdinc	6%	27%	4%	27%	33%	31%	25,142	5.4x	5.0x	4.8x	14.4x	12.3x	11.7x
Tier 2 Mature Software (Rule of 40 b/w 31-50) Average								10.0x	8.5x	7.7x	20.0x	22.1x	19.7x
	LTM	LTM FCF	NTM Revenue	NTM FCF	LTM	NTM	Enterprise	EV/S			EV/EBITDA		
	Revenue	Margin	Growth	Margin	Rule Of	Rule Of	Value (\$MM)	C20	C21E	C22E	C20	C21E	C22E
Tier 3 Mature Software (Rule of 40 b/w 20-30)													
Jack Henry & Associates, In	5%	24%	9%	19%	29%	28%	11,300	6.7x	6.2x	5.7x	16.8x	19.0x	17.5x
Cerner Corporation	3%	26%	6%	16%	29%	22%	22,209	4.0x	3.8x	3.6x	14.0x	11.7x	10.7x
Blucora, Inc.	15%	6%	9%	9%	22%	19%	1,190	1.6x	1.4x	1.3x	16.4x	8.7x	7.4x
CommVault Systems, Inc.	8%	19%	5%	20%	27%	25%	2,578	3.8x	3.5x	3.3x	>50	16.2x	14.7x
QuinStreet, Inc.	19%	6%	12%	10%	25%	22%	737	1.5x	1.2x	1.1x	41.1x	12.5x	10.2x
Alteryx, Inc. Class A	6%	10%	12%	-1%	16%	11%	4,406	8.9x	8.3x	7.1x	>50	NEG	>50
Enghouse Systems Limite	-4%	26%	7%	31%	23%	38%	2,787	5.4x	5.8x	5.6x	14.8x	16.6x	16.3x
Altus Group Limited	7%	12%	17%	12%	20%	29%	3,020	5.4x	4.8x	4.3x	30.5x	28.5x	24.8x
ADP Inc.	6%	17%	7%	25%	22%	32%	98,500	6.8x	6.3x	5.9x	27.2x	24.8x	22.7x
Pegasystems Inc.	20%	1%	18%	7%	21%	26%	9,178	9.0x	7.4x	6.2x	NEG	>50	>50
Tier 3 Mature Software (Rule of 40 b/w 20-30) Average								5.3x	4.9x	4.4x	23.0x	17.3x	15.6x
	LTM	LTM FCF	NTM Revenue	NTM FCF	LTM	NTM	Enterprise	EV/S			EV/EBITDA		
	Revenue	Margin	Growth	Margin	Rule Of	Rule Of	Value (\$MM)	C20	C21E	C22E	C20	C21E	C22E
Tier 4 Mature Software (Rule of 40 <20)													
Blackbaud, Inc.	2%	21%	2%	16%	23%	17%	3,958	4.3x	4.3x	4.2x	29.5x	16.5x	16.2x
Citrix Systems, Inc.	-2%	18%	3%	21%	16%	24%	12,918	4.0x	4.0x	3.8x	15.6x	12.0x	12.0x
Guidewire Software, Inc.	0%	13%	6%	1%	13%	6%	8,603	11.6x	11.3x	10.5x	>50	>50	NEG
ManTech International	3%	8%	4%	5%	11%	9%	2,811	1.1x	1.1x	1.1x	11.0x	10.6x	11.2x
Verint Systems Inc.	4%	9%	-18%	18%	12%	0%	3,250	2.5x	3.6x	3.5x	18.1x	13.1x	12.5x
SAP SE	-2%	16%	5%	19%	15%	23%	150,293	5.5x	5.5x	5.2x	16.7x	16.9x	16.3x
Software AG	-2%	12%	5%	12%	10%	17%	2,688	3.2x	3.2x	3.0x	15.1x	15.9x	13.1x
BlackBerry Limited	-27%	8%	35%	-1%	-20%	34%	5,167	5.0x	5.4x	4.8x	>50	NEG	NEG
Mature Software Average								8.8x	7.5x	6.8x	21.9x	21.5x	19.2x

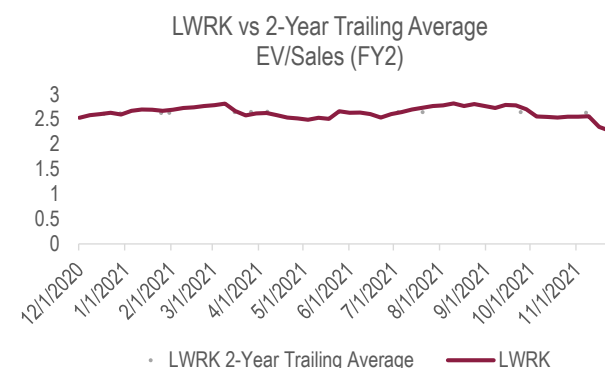
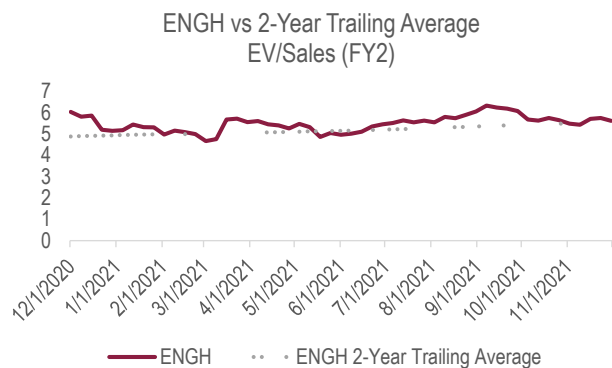
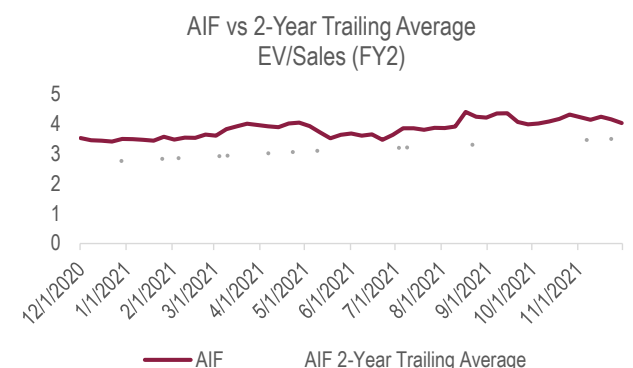
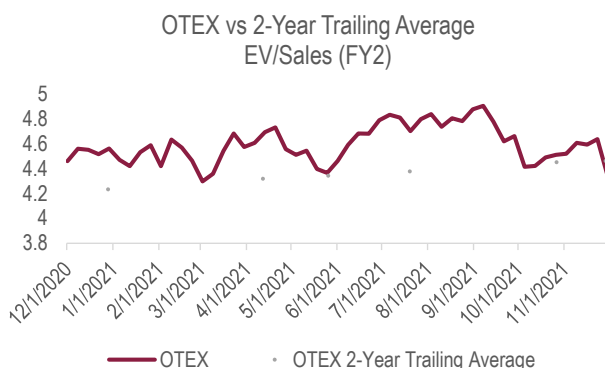
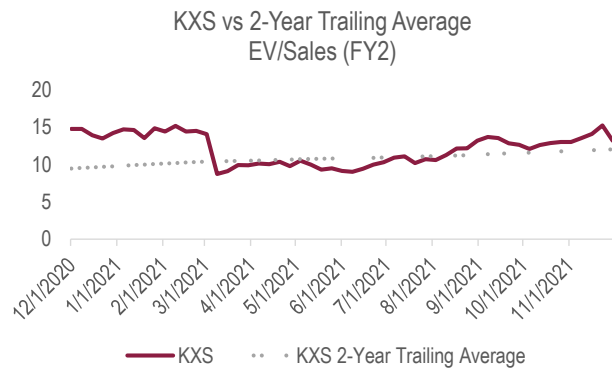
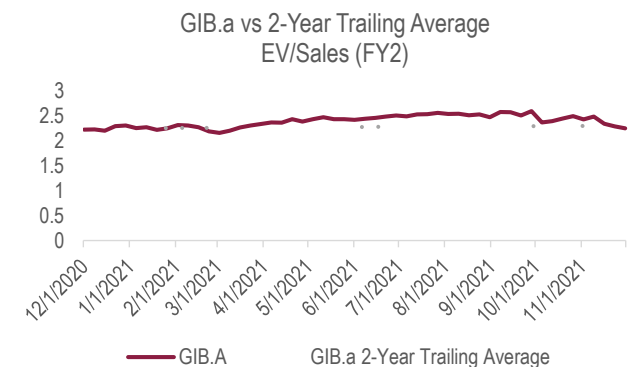
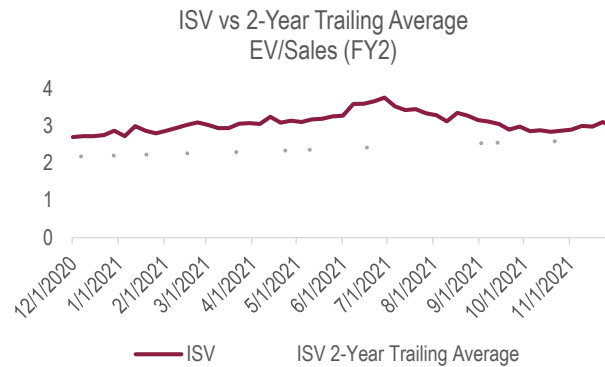
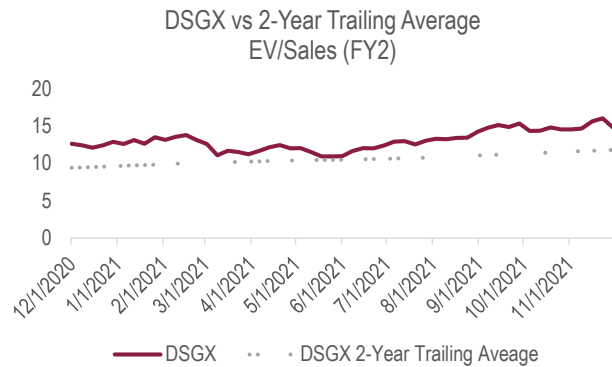
Source: FactSet and CIBC World Markets Inc.

Exhibit 15: Software Stocks – Rule-of-40 Vs. EV/Sales, Last 12 Months



Source: FactSet and CIBC World Markets Inc.

Exhibit 16: CIBC Software/Services Coverage – EV/Sales Valuation Vs. Two-year Trailing Average, November 2019 - October 2021



Source: FactSet and CIBC World Markets Inc.

Exhibit 17: SaaS Stocks Grouped By Rule-of-40 – Price Returns, Three-year History

	Rule Of 40	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Zoom	143%	14.5x	-23.0%	-27.0%	-36.2%	-37.3%	-55.8%	NA
Lightspeed	113%	9.8x	-46.4%	-53.9%	-26.3%	-28.1%	-4.3%	NA
CrowdStrike	107%	33.8x	-22.9%	-22.7%	-2.3%	2.5%	41.7%	NA
Zscaler	86%	49.3x	8.8%	24.7%	78.7%	73.7%	122.8%	783.8%
Shopify	82%	40.7x	3.8%	-0.2%	22.4%	34.4%	39.6%	896.8%
DocuSign	76%	22.6x	-11.5%	-16.8%	22.2%	10.8%	8.1%	489.9%
Veeva	75%	23.8x	-10.9%	-14.9%	-3.0%	3.8%	2.1%	193.9%
Atlassian	68%	36.3x	-17.9%	2.5%	61.3%	60.9%	67.2%	337.9%
Twilio	63%	16.0x	-1.8%	-19.8%	-14.8%	-15.5%	-10.6%	202.8%
HubSpot	63%	28.8x	-0.4%	17.9%	60.0%	103.5%	104.6%	480.4%
ServiceNow	60%	22.2x	-7.2%	0.6%	36.7%	17.7%	21.2%	249.6%
Average	85%	27.1x	-12%	-10%	18%	21%	31%	454%
Median	76%	23.8x	-11%	-15%	22%	11%	21%	409%

	Rule Of 40	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Docebo	58%	20.2x	-1.3%	-13.8%	43.9%	10.5%	35.0%	NA
Qualys	56%	12.1x	4.7%	11.0%	34.8%	6.9%	37.1%	65.4%
Descartes	56%	16.1x	-1.7%	2.5%	37.5%	37.4%	35.5%	173.1%
Cornersone Ondemand	54%	NA	NA	NA	NA	NA	NA	NA
Avalara	47%	16.6x	-22.2%	-22.3%	5.7%	-15.3%	-18.7%	336.6%
Mimecast	47%	8.9x	7.4%	16.0%	62.0%	42.5%	80.1%	117.6%
Dropbox	47%	4.9x	-19.3%	-22.4%	-10.0%	10.9%	23.2%	5.2%
Workday	46%	13.1x	-5.4%	0.4%	19.9%	14.4%	22.0%	67.2%
Five9	41%	16.5x	-9.9%	-10.0%	-19.6%	-18.4%	-8.3%	231.9%
Vmware	43%	3.8x	-23.0%	-21.6%	-26.1%	-16.8%	-16.5%	-30.2%
Wix.com	40%	7.0x	-17.8%	-31.2%	-41.2%	-38.9%	-40.2%	62.2%
Average	49%	11.9x	-9%	-9%	11%	3%	15%	114%
Median	47%	12.6x	-8%	-12%	13%	9%	23%	67%

	Rule Of 40	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Zendesk	40%	9.3x	0.3%	-17.4%	-25.3%	-28.7%	-23.5%	71.8%
RingCentral	38%	13.1x	-11.4%	-14.4%	-17.7%	-43.0%	-27.3%	160.5%
BlackLine	38%	14.9x	-13.3%	0.9%	5.8%	-17.5%	-10.5%	156.7%
Paylocity	36%	17.4x	-17.3%	-6.3%	48.6%	22.5%	28.4%	276.2%
MongoDB	35%	36.7x	-4.4%	27.1%	70.6%	38.7%	73.4%	500.8%
Rapid7	35%	13.9x	-3.6%	2.1%	48.3%	37.6%	65.5%	290.1%
Akamai	30%	5.7x	6.9%	-0.5%	-1.3%	7.3%	8.9%	63.9%
Anaplan	30%	10.1x	-34.4%	-28.6%	-16.9%	-40.4%	-38.8%	52.9%
LivePerson	27%	5.5x	-24.9%	-39.7%	-29.6%	-37.9%	-33.8%	104.9%
Average	34%	14.1x	-11%	-9%	9%	-7%	5%	186%
Median	35%	13.1x	-11%	-6%	-1%	-17%	-10%	157%

	Rule Of 40	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Teradata	26%	2.5x	-23.2%	-20.6%	-9.3%	93.2%	98.0%	15.4%
Q2 Holdings	22%	9.4x	2.3%	-8.8%	-15.4%	-36.5%	-29.2%	47.9%
Ceridian	21%	16.8x	-12.7%	-2.6%	22.3%	2.7%	13.5%	172.7%
Zuora	16%	6.6x	-9.4%	16.7%	28.1%	42.2%	73.9%	4.1%
Kinaxis	9%	16.2x	1.7%	-4.6%	42.4%	8.3%	-0.3%	162.8%
New Relic	8%	8.7x	36.6%	38.6%	76.8%	69.5%	85.6%	27.1%
Yext	8%	2.8x	-23.3%	-28.6%	-33.2%	-38.5%	-49.2%	-33.5%
Splunk	0%	7.9x	-26.6%	-20.8%	-0.2%	-28.8%	-40.7%	8.3%
Average	14%	8.9x	-7%	-4%	14%	14%	19%	51%
Median	13%	8.3x	-11%	-7%	11%	5%	7%	21%

Source: FactSet and CIBC World Markets Inc.

Exhibit 18: Mature Software Stocks Grouped By Rule-of-40 – Price Returns, Three-year History

	Rule Of 40	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Meta Platforms Inc. Class A	74%	13.8x	0.3%	-14.5%	-1.3%	18.8%	17.1%	130.8%
Alphabet Inc.	67%	17.2x	-3.9%	-2.1%	18.1%	62.6%	61.8%	160.3%
Aspen Technology	67%	26.1x	-7.4%	12.0%	6.3%	11.3%	7.9%	68.1%
Intuit Inc.	64%	38.5x	4.2%	15.2%	48.6%	71.7%	85.3%	204.1%
Microsoft	54%	25.2x	-0.3%	9.5%	32.4%	48.6%	54.4%	198.1%
Progress Software	53%	10.5x	-5.8%	4.1%	8.7%	7.2%	20.8%	37.8%
ANSYS	53%	40.5x	3.1%	7.1%	15.8%	7.6%	15.8%	141.6%
Tyler Technologies	51%	53.2x	-4.5%	6.9%	28.7%	18.9%	21.4%	169.2%
Cadence Design	50%	40.9x	2.5%	8.6%	39.7%	30.1%	52.6%	294.0%
Autodesk	49%	39.6x	-20.0%	-18.0%	-11.1%	-16.8%	-9.3%	75.9%
Average	57%	28.7x	-4%	2%	18%	27%	32%	146%
Median	53%	26.1x	-4%	5%	16%	24%	28%	146%

	Rule Of 40	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
eBay	49%	12.7x	-12.1%	-12.1%	10.8%	34.2%	33.8%	126.0%
J2 Global	49%	12.1x	-11.2%	-4.9%	5.2%	34.1%	46.2%	77.5%
Salesforce.com	48%	36.4x	-4.9%	7.4%	19.7%	28.1%	15.9%	99.6%
SPS Commerce	44%	46.8x	-7.7%	4.0%	50.2%	29.8%	36.8%	230.8%
Constellation Software	44%	24.2x	-0.1%	1.7%	26.6%	31.5%	45.2%	156.3%
PTC Inc.	43%	19.5x	-14.0%	-16.8%	-18.3%	-8.4%	1.6%	26.7%
Manhattan Associates	36%	56.4x	-14.0%	-4.2%	14.8%	48.5%	52.7%	215.3%
Oracle	35%	15.0x	-5.4%	1.8%	15.2%	40.3%	57.2%	86.1%
SS&C Technologies	33%	12.9x	-4.0%	0.9%	3.3%	4.9%	10.8%	58.5%
Open Text	29%	11.5x	-5.8%	-13.5%	0.9%	4.3%	7.3%	38.2%
Average	41%	24.8x	-8%	-4%	13%	25%	31%	111%
Median	44%	17.3x	-7%	-2%	13%	31%	35%	93%

	Rule Of 40	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Cerner	29%	11.8x	-5.2%	-7.7%	-10.0%	-10.2%	-5.9%	21.7%
Jack Henry & Associates	29%	18.6x	-8.9%	-14.0%	-1.6%	-6.4%	-5.7%	8.5%
CommVault Systems	27%	17.1x	2.2%	-22.3%	-17.4%	13.6%	31.7%	6.7%
QuinStreet	25%	11.6x	9.4%	-14.5%	-15.5%	-28.6%	-14.2%	-5.1%
Blackbaud	23%	17.2x	6.3%	8.3%	6.7%	31.1%	37.0%	3.0%
Enghouse	23%	16.8x	-1.4%	-13.3%	-0.5%	-14.1%	-21.0%	55.1%
Blucora	22%	8.7x	-2.0%	-1.3%	-6.6%	1.8%	24.2%	-47.7%
Automatic Data Processing	22%	24.1x	2.9%	10.5%	17.8%	31.0%	32.8%	56.6%
Pegasystems	21%	112.9x	-3.3%	-16.6%	-2.8%	-13.8%	-12.3%	112.7%
Average	24%	26.5x	0%	-8%	-3%	0%	7%	23%
Median	23%	17.1x	-1%	-13%	-3%	-6%	-6%	9%

	Rule Of 40	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Altus Group	20%	27.6x	0.8%	-1.4%	10.8%	33.1%	32.9%	148.4%
Alteryx	16%	NA	-9.2%	-10.1%	-14.5%	-45.4%	-44.5%	10.5%
Citrix	16%	12.2x	-15.1%	-21.8%	-30.0%	-38.2%	-35.1%	-26.2%
SAP SE	15%	15.9x	-9.7%	-11.2%	-0.3%	5.6%	11.0%	24.5%
Guidewire Software	13%	NA	-7.5%	-1.8%	19.0%	-9.6%	-5.0%	25.2%
Verint Systems	12%	15.8x	2.1%	6.6%	3.2%	39.1%	64.0%	105.7%
ManTech International	11%	10.3x	-21.2%	-14.2%	-21.9%	-23.6%	-11.7%	20.7%
Software AG	10%	14.9x	5.5%	-12.6%	2.6%	12.5%	4.0%	4.1%
BlackBerry Limited	-20%	NA	-9.0%	-15.4%	-1.9%	44.2%	59.1%	4.2%
Average	10%	24.6x	-4%	-7%	-2%	3%	9%	33%
Median	13%	16.8x	-2%	-11%	-1%	1%	6%	22%

Source: FactSet and CIBC World Markets Inc.

Exhibit 19: SaaS Stocks Grouped By LTM Revenue Growth – Price Returns, Three-year History

	LTM Rev Growth	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Lightspeed	142%	9.8x	-46.4%	-53.9%	-26.3%	-28.1%	-4.3%	NA
Zoom	100%	14.5x	-23.0%	-27.0%	-36.2%	-37.3%	-55.8%	NA
CrowdStrike	74%	33.8x	-22.9%	-22.7%	-2.3%	2.5%	41.7%	NA
Shopify	71%	40.7x	3.8%	-0.2%	22.4%	34.4%	39.6%	896.8%
Twilio	65%	16.0x	-1.8%	-19.8%	-14.8%	-15.5%	-10.6%	202.8%
Zscaler	58%	49.3x	8.8%	24.7%	78.7%	73.7%	122.8%	783.8%
Docebo	55%	20.2x	-1.3%	-13.8%	43.9%	10.5%	35.0%	NA
DocuSign	54%	22.6x	-11.5%	-16.8%	22.2%	10.8%	8.1%	489.9%
Five9	41%	16.5x	-9.9%	-10.0%	-19.6%	-18.4%	-8.3%	231.9%
HubSpot	45%	28.8x	-0.4%	17.9%	60.0%	103.5%	104.6%	480.4%
Average	63%	26.9x	-6%	-8%	17%	18%	31%	514%
Median	58%	22.6x	-2%	-14%	22%	10%	35%	485%

	LTM Rev Growth	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
MongoDB	40%	36.7x	-4.4%	27.1%	70.6%	38.7%	73.4%	500.8%
Avalara	40%	16.6x	-22.2%	-22.3%	5.7%	-15.3%	-18.7%	336.6%
Wix.com	34%	7.0x	-17.8%	-31.2%	-41.2%	-38.9%	-40.2%	62.2%
RingCentral	34%	13.1x	-11.4%	-14.4%	-17.7%	-43.0%	-27.3%	160.5%
Cornersone Ondemand	32%	NA	NA	NA	NA	NA	NA	NA
ServiceNow	31%	22.2x	-7.2%	0.6%	36.7%	17.7%	21.2%	249.6%
Atlassian	31%	36.3x	-17.9%	2.5%	61.3%	60.9%	67.2%	337.9%
LivePerson	30%	5.5x	-24.9%	-39.7%	-29.6%	-37.9%	-33.8%	104.9%
Veeva	30%	23.8x	-10.9%	-14.9%	-3.0%	3.8%	2.1%	193.9%
Ceridian	30%	16.8x	-12.7%	-2.6%	22.3%	2.7%	13.5%	172.7%
Average	33%	19.8x	-14%	-11%	12%	-1%	6%	235%
Median	32%	16.8x	-13%	-14%	6%	3%	2%	194%

	LTM Rev Growth	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Anaplan	30%	10.1x	-34.4%	-28.6%	-16.9%	-40.4%	-38.8%	52.9%
Zendesk	28%	9.3x	0.3%	-17.4%	-25.3%	-28.7%	-23.5%	71.8%
Rapid7	27%	13.9x	-3.6%	2.1%	48.3%	37.6%	65.5%	290.1%
Q2 Holdings	25%	9.4x	2.3%	-8.8%	-15.4%	-36.5%	-29.2%	47.9%
BlackLine	21%	14.9x	-13.3%	0.9%	5.8%	-17.5%	-10.5%	156.7%
Mimecast	20%	8.9x	7.4%	16.0%	62.0%	42.5%	80.1%	117.6%
Paylocity	19%	17.4x	-17.3%	-6.3%	48.6%	22.5%	28.4%	276.2%
Workday	18%	13.1x	-5.4%	0.4%	19.9%	14.4%	22.0%	67.2%
Descartes	15%	16.1x	-1.7%	2.5%	37.5%	37.4%	35.5%	173.1%
Dropbox	13%	4.9x	-19.3%	-22.4%	-10.0%	10.9%	23.2%	5.2%
Average	21%	11.8x	-8%	-6%	15%	4%	15%	126%
Median	20%	11.6x	-5%	-3%	13%	13%	23%	95%

	LTM Rev Growth	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Qualys	13%	12.1x	4.7%	11.0%	34.8%	6.9%	37.1%	65.4%
Yext	12%	2.8x	-23.3%	-28.6%	-33.2%	-38.5%	-49.2%	-33.5%
Zuora	11%	6.6x	-9.4%	16.7%	28.1%	42.2%	73.9%	4.1%
New Relic	12%	8.7x	36.6%	38.6%	76.8%	69.5%	85.6%	27.1%
Akamai	9%	5.7x	6.9%	-0.5%	-1.3%	7.3%	8.9%	63.9%
Vmware	9%	3.8x	-23.0%	-21.6%	-26.1%	-16.8%	-16.5%	-30.2%
Teradata	5%	2.5x	-23.2%	-20.6%	-9.3%	93.2%	98.0%	15.4%
Splunk	3%	7.9x	-26.6%	-20.8%	-0.2%	-28.8%	-40.7%	8.3%
Kinaxis	-1%	16.2x	1.7%	-4.6%	42.4%	8.3%	-0.3%	162.8%
Average	8.0%	7.4x	-6%	-3%	12%	16%	22%	31%
Median	9.2%	6.6x	-9%	-5%	0%	7%	9%	15%

Source: FactSet and CIBC World Markets Inc.

Exhibit 20: Mature Software Stocks Grouped By LTM Revenue Growth – Price Returns, Three-year History

	LTM Revenue Growth	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Meta Platforms Inc. Class /	42%	13.8x	0.3%	-14.5%	-1.3%	18.8%	17.1%	130.8%
Alphabet Inc.	40%	17.2x	-3.9%	-2.1%	18.1%	62.6%	61.8%	160.3%
Intuit Inc.	32%	38.5x	4.2%	15.2%	48.6%	71.7%	85.3%	204.1%
Aspen Technology	28%	26.1x	-7.4%	12.0%	6.3%	11.3%	7.9%	68.1%
Tyler Technologies	28%	53.2x	-4.5%	6.9%	28.7%	18.9%	21.4%	169.2%
eBay	25%	12.7x	-12.1%	-12.1%	10.8%	34.2%	33.8%	126.0%
PTC Inc.	24%	19.5x	-14.0%	-16.8%	-18.3%	-8.4%	1.6%	26.7%
Salesforce.com	23%	36.4x	-4.9%	7.4%	19.7%	28.1%	15.9%	99.6%
J2 Global	22%	12.1x	-11.2%	-4.9%	5.2%	34.1%	46.2%	77.5%
SPS Commerce	21%	46.8x	-7.7%	4.0%	50.2%	29.8%	36.8%	230.8%
Average	28%	28.6x	-5%	1%	17%	28%	30%	130%
Median	25%	26.1x	-5%	4%	17%	28%	21%	131%

	LTM Revenue Growth	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
ANSYS	21%	40.5x	3.1%	7.1%	15.8%	7.6%	15.8%	141.6%
Pegasystems	20%	112.9x	-3.3%	-16.6%	-2.8%	-13.8%	-12.3%	112.7%
Microsoft	20%	25.2x	-0.3%	9.5%	32.4%	48.6%	54.4%	198.1%
QuinStreet	19%	11.6x	9.4%	-14.5%	-15.5%	-28.6%	-14.2%	-5.1%
Cadence Design	18%	40.9x	2.5%	8.6%	39.7%	30.1%	52.6%	294.0%
Progress Software	18%	10.5x	-5.8%	4.1%	8.7%	7.2%	20.8%	37.8%
Constellation Software	18%	24.2x	-0.1%	1.7%	26.6%	31.5%	45.2%	156.3%
Autodesk	16%	39.6x	-20.0%	-18.0%	-11.1%	-16.8%	-9.3%	75.9%
Blucora	15%	8.7x	-2.0%	-1.3%	-6.6%	1.8%	24.2%	-47.7%
Average	18%	34.9x	-2%	-2%	10%	8%	20%	107%
Median	18%	25.2x	0%	2%	9%	7%	21%	113%

	LTM Revenue Growth	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Open Text	6%	11.5x	-5.8%	-13.5%	0.9%	4.3%	7.3%	38.2%
Manhattan Associates	8%	56.4x	-14.0%	-4.2%	14.8%	48.5%	52.7%	215.3%
CommVault Systems	8%	17.1x	2.2%	-22.3%	-17.4%	13.6%	31.7%	6.7%
Altus Group	7%	27.6x	0.8%	-1.4%	10.8%	33.1%	32.9%	148.4%
Alteryx	6%	NA	-9.2%	-10.1%	-14.5%	-45.4%	-44.5%	10.5%
SS&C Technologies	6%	12.9x	-4.0%	0.9%	3.3%	4.9%	10.8%	58.5%
Automatic Data Processing	6%	24.1x	2.9%	10.5%	17.8%	31.0%	32.8%	56.6%
Jack Henry & Associates	5%	18.6x	-8.9%	-14.0%	-1.6%	-6.4%	-5.7%	8.5%
Oracle	4%	15.0x	-5.4%	1.8%	15.2%	40.3%	57.2%	86.1%
Verint Systems	4%	15.8x	2.1%	6.6%	3.2%	39.1%	64.0%	105.7%
Average	6%	22.1x	-4%	-5%	3%	16%	24%	73%
Median	6%	17.1x	-5%	-3%	3%	22%	32%	58%

	LTM Revenue Growth	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Cerner	3%	11.8x	-5.2%	-7.7%	-10.0%	-10.2%	-5.9%	21.7%
ManTech International	3%	10.3x	-21.2%	-14.2%	-21.9%	-23.6%	-11.7%	20.7%
Guidewire Software	0%	NA	-7.5%	-1.8%	19.0%	-9.6%	-5.0%	25.2%
Blackbaud	2%	17.2x	6.3%	8.3%	6.7%	31.1%	37.0%	3.0%
Citrix	-2%	12.2x	-15.1%	-21.8%	-30.0%	-38.2%	-35.1%	-26.2%
SAP SE	-2%	15.9x	-9.7%	-11.2%	-0.3%	5.6%	11.0%	24.5%
Software AG	-2%	14.9x	5.5%	-12.6%	2.6%	12.5%	4.0%	4.1%
Enghouse	-4%	16.8x	-1.4%	-13.3%	-0.5%	-14.1%	-21.0%	55.1%
Average	0%	14.2x	-6%	-9%	-4%	-6%	-3%	16%
Median	-1%	14.9x	-6%	-12%	0%	-10%	-5%	21%

Source: FactSet and CIBC World Markets Inc.

Exhibit 21: SaaS Stocks Grouped By Market Cap – Price Returns, Three-year History

	Market Cap	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Shopify	172,925	40.7x	3.8%	-0.2%	22.4%	34.4%	39.6%	896.8%
ServiceNow	128,892	22.2x	-7.2%	0.6%	36.7%	17.7%	21.2%	249.6%
Workday	52,926	13.1x	-5.4%	0.4%	19.9%	14.4%	22.0%	67.2%
Atlassian	52,843	36.3x	-17.9%	2.5%	61.3%	60.9%	67.2%	337.9%
Zoom	51,212	14.5x	-23.0%	-27.0%	-36.2%	-37.3%	-55.8%	NA
DocuSign	48,464	22.6x	-11.5%	-16.8%	22.2%	10.8%	8.1%	489.9%
Zscaler	48,594	49.3x	8.8%	24.7%	78.7%	73.7%	122.8%	783.8%
Twilio	48,202	16.0x	-1.8%	-19.8%	-14.8%	-15.5%	-10.6%	202.8%
Vmware	48,991	3.8x	-23.0%	-21.6%	-26.1%	-16.8%	-16.5%	-30.2%
CrowdStrike	44,695	33.8x	-22.9%	-22.7%	-2.3%	2.5%	41.7%	NA
Average	69,774	25.2x	-10%	-8%	16%	14%	24%	375%
Median	50,102	22.4x	-9%	-9%	21%	13%	22%	294%

	Market Cap	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Veeva	39,182	23.8x	-10.9%	-14.9%	-3.0%	3.8%	2.1%	193.9%
HubSpot	38,126	28.8x	-0.4%	17.9%	60.0%	103.5%	104.6%	480.4%
MongoDB	32,963	36.7x	-4.4%	27.1%	70.6%	38.7%	73.4%	500.8%
Splunk	19,547	7.9x	-26.6%	-20.8%	-0.2%	-28.8%	-40.7%	8.3%
Akamai	18,311	5.7x	6.9%	-0.5%	-1.3%	7.3%	8.9%	63.9%
RingCentral	17,735	13.1x	-11.4%	-14.4%	-17.7%	-43.0%	-27.3%	160.5%
Ceridian	16,556	16.8x	-12.7%	-2.6%	22.3%	2.7%	13.5%	172.7%
Paylocity	13,885	17.4x	-17.3%	-6.3%	48.6%	22.5%	28.4%	276.2%
Zendesk	12,344	9.3x	0.3%	-17.4%	-25.3%	-28.7%	-23.5%	71.8%
Avalara	12,140	16.6x	-22.2%	-22.3%	5.7%	-15.3%	-18.7%	336.6%
Average	22,079	17.6x	-10%	-5%	16%	6%	12%	227%
Median	18,023	16.7x	-11%	-10%	3%	3%	5%	183%

	Market Cap	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Five9	9,685	16.5x	-9.9%	-10.0%	-19.6%	-18.4%	-8.3%	231.9%
Wix.com	8,703	7.0x	-17.8%	-31.2%	-41.2%	-38.9%	-40.2%	62.2%
Dropbox	7,627	4.9x	-19.3%	-22.4%	-10.0%	10.9%	23.2%	5.2%
Lightspeed	7,461	9.8x	-46.4%	-53.9%	-26.3%	-28.1%	-4.3%	NA
New Relic	7,250	8.7x	36.6%	38.6%	76.8%	69.5%	85.6%	27.1%
Rapid7	7,005	13.9x	-3.6%	2.1%	48.3%	37.6%	65.5%	290.1%
Descartes	6,776	16.1x	-1.7%	2.5%	37.5%	37.4%	35.5%	173.1%
BlackLine	6,455	14.9x	-13.3%	0.9%	5.8%	-17.5%	-10.5%	156.7%
Anaplan	6,258	10.1x	-34.4%	-28.6%	-16.9%	-40.4%	-38.8%	52.9%
Mimecast	5,378	8.9x	7.4%	16.0%	62.0%	42.5%	80.1%	117.6%
Average	7,260	11.1x	-10%	-9%	12%	5%	19%	124%
Median	7,127	10.0x	-12%	-5%	-2%	-3%	9%	118%

	Market Cap	EV/NTM Sales	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Qualys	5,058	12.1x	4.7%	11.0%	34.8%	6.9%	37.1%	65.4%
Teradata	4,711	2.5x	-23.2%	-20.6%	-9.3%	93.2%	98.0%	15.4%
Q2 Holdings	4,562	9.4x	2.3%	-8.8%	-15.4%	-36.5%	-29.2%	47.9%
Kinaxis	4,160	16.2x	1.7%	-4.6%	42.4%	8.3%	-0.3%	162.8%
LivePerson	2,736	5.5x	-24.9%	-39.7%	-29.6%	-37.9%	-33.8%	104.9%
Docebo	2,336	20.2x	-1.3%	-13.8%	43.9%	10.5%	35.0%	NA
Zuora	2,288	6.6x	-9.4%	16.7%	28.1%	42.2%	73.9%	4.1%
Yext	1,235	2.8x	-23.3%	-28.6%	-33.2%	-38.5%	-49.2%	-33.5%
Average	3,386	9.4x	-9%	-11%	8%	6%	16%	52%
Median	3,448	8.0x	-5%	-11%	9%	8%	17%	48%

Source: FactSet and CIBC World Markets Inc.

Exhibit 22: Mature Software Stocks Grouped By Market Cap – Price Returns, Three-year History

	Market Cap	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Microsoft	2,482,063	25.2x	-0.3%	9.5%	32.4%	48.6%	54.4%	198.1%
Alphabet Inc.	1,758,931	17.2x	-3.9%	-2.1%	18.1%	62.6%	61.8%	160.3%
Meta Platforms Inc. Class A	767,762	13.8x	0.3%	-14.5%	-1.3%	18.8%	17.1%	130.8%
Salesforce.com	278,976	36.4x	-4.9%	7.4%	19.7%	28.1%	15.9%	99.6%
Oracle	248,055	15.0x	-5.4%	1.8%	15.2%	40.3%	57.2%	86.1%
Intuit Inc.	184,711	38.5x	4.2%	15.2%	48.6%	71.7%	85.3%	204.1%
SAP SE	156,506	15.9x	-9.7%	-11.2%	-0.3%	5.6%	11.0%	24.5%
Automatic Data Processing	97,293	24.1x	2.9%	10.5%	17.8%	31.0%	32.8%	56.6%
Autodesk	55,884	39.6x	-20.0%	-18.0%	-11.1%	-16.8%	-9.3%	75.9%
Cadence Design	49,181	40.9x	2.5%	8.6%	39.7%	30.1%	52.6%	294.0%
Average	607,936	26.7x	-3%	1%	18%	32%	38%	133%
Median	216,383	24.6x	-2%	5%	18%	31%	43%	115%

	Market Cap	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
eBay	42,230	12.7x	-12.1%	-12.1%	10.8%	34.2%	33.8%	126.0%
Constellation Software	35,909	24.2x	-0.1%	1.7%	26.6%	31.5%	45.2%	156.3%
ANSYS	34,158	40.5x	3.1%	7.1%	15.8%	7.6%	15.8%	141.6%
Tyler Technologies	21,266	53.2x	-4.5%	6.9%	28.7%	18.9%	21.4%	169.2%
Cerner	20,728	11.8x	-5.2%	-7.7%	-10.0%	-10.2%	-5.9%	21.7%
SS&C Technologies	19,408	12.9x	-4.0%	0.9%	3.3%	4.9%	10.8%	58.5%
PTC Inc.	12,916	19.5x	-14.0%	-16.8%	-18.3%	-8.4%	1.6%	26.7%
Open Text	12,877	11.5x	-5.8%	-13.5%	0.9%	4.3%	7.3%	38.2%
Jack Henry & Associates	11,227	18.6x	-8.9%	-14.0%	-1.6%	-6.4%	-5.7%	8.5%
Citrix	10,031	12.2x	-15.1%	-21.8%	-30.0%	-38.2%	-35.1%	-26.2%
Average	84,173	24.8x	-5%	-3%	11%	14%	21%	107%
Median	21,266	21.9x	-4%	1%	13%	13%	19%	121%

	Market Cap	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Manhattan Associates	9,882	56.4x	-14.0%	-4.2%	14.8%	48.5%	52.7%	215.3%
Aspen Technology	9,705	26.1x	-7.4%	12.0%	6.3%	11.3%	7.9%	68.1%
Guidewire Software	9,692	NA	-7.5%	-1.8%	19.0%	-9.6%	-5.0%	25.2%
Pegasystems	9,378	112.9x	-3.3%	-16.6%	-2.8%	-13.8%	-12.3%	112.7%
J2 Global	5,491	12.1x	-11.2%	-4.9%	5.2%	34.1%	46.2%	77.5%
SPS Commerce	5,071	46.8x	-7.7%	4.0%	50.2%	29.8%	36.8%	230.8%
Alteryx	3,968	NA	-9.2%	-10.1%	-14.5%	-45.4%	-44.5%	10.5%
Blackbaud	3,689	17.2x	6.3%	8.3%	6.7%	31.1%	37.0%	3.0%
Verint Systems	3,113	15.8x	2.1%	6.6%	3.2%	39.1%	64.0%	105.7%
Average	6,665	41.1x	-6%	-1%	10%	14%	20%	94%
Median	5,491	26.1x	-7%	-2%	6%	30%	37%	77%

	Market Cap	EV/NTM EBITDA	1 Month	3 Month	6 Month	YTD	1 Year	3 Year
Software AG	3,124	14.9x	5.5%	-12.6%	2.6%	12.5%	4.0%	4.1%
CommVault Systems	2,862	17.1x	2.2%	-22.3%	-17.4%	13.6%	31.7%	6.7%
Enghouse	2,291	16.8x	-1.4%	-13.3%	-0.5%	-14.1%	-21.0%	55.1%
Altus Group	2,212	27.6x	0.8%	-1.4%	10.8%	33.1%	32.9%	148.4%
Progress Software	2,124	10.5x	-5.8%	4.1%	8.7%	7.2%	20.8%	37.8%
ManTech International	1,873	10.3x	-21.2%	-14.2%	-21.9%	-23.6%	-11.7%	20.7%
QuinStreet	830	11.6x	9.4%	-14.5%	-15.5%	-28.6%	-14.2%	-5.1%
Blucora	789	8.7x	-2.0%	-1.3%	-6.6%	1.8%	24.2%	-47.7%
Average	2,013	14.7x	-2%	-9%	-5%	0%	8%	27%
Median	2,168	13.3x	0%	-13%	-4%	4%	12%	14%

Source: FactSet and CIBC World Markets Inc.

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