

Server & Enterprise Software

Where Are We Trading Now: it's almost Spring

Industry Overview

What clients are talking about

Our software coverage fell 1.6% w/w, underperforming Nasdaq's -0.8% (software coverage -2.1% YTD vs Nasdaq's +7.1%). Last week, client conversations focused on: **1)** what industries and/or jobs will AI disrupt first, **2)** post SNOW and MDB Q4 earnings – if AI expectations have tempered enough for 2024 and whether consumption optimization is the new normal, **3)** any real catalysts in 1H24 for the heavily discounted SMIDs such as ZI and AMPL, and **4)** will cash-rich/low-growth companies such as ZM pursue growth through M&A.

Communication saw the largest multiple expansion w/w

Infrastructure +4.8% YTD remains the best performing software subsector led by Confluent and Palantir, while Communication -13% YTD continues to lag. On an EV/NTM Sales basis, the Communication software group saw the largest multiple expansion w/w (+0.8%) led by RNG, with the Design software group seeing the largest expansion relative to the 5-year median (+6.4%). On an EV/NTM FCF basis, the Front office apps group saw the largest multiple expansion w/w (+2.8%) with the Design software group seeing the largest expansion relative to the 5-year median (+3.1%).

Exhibit 1: Communication software saw the largest EV/NTM Sales expansion w/w, led by RNG

Software multiple expansion/contraction by category

Category	EV/NTM Sales				EV/NTM FCF			
	Multiple		% Change		Multiple		% Change	
	Current	5-yr median	1 wk	5-yr median	Current	5-yr median	1 wk	5-yr median
Collaboration	5.6x	7.2x	-3.2%	-21.9%	26.1x	20.2x	-3.3%	NA
Communication	2.3x	7.7x	0.8%	-70.4%	19.4x	27.6x	1.4%	-29.5%
Front office apps	4.9x	8.6x	-2.7%	-42.3%	37.1x	42.4x	2.8%	-12.5%
Design	10.5x	9.8x	-1.1%	6.4%	37.1x	36.0x	-0.5%	3.1%
Finance apps	4.8x	7.5x	-0.1%	-35.7%	36.6x	38.5x	-0.9%	-4.9%
Human resources apps	6.3x	9.8x	-0.5%	-35.5%	46.2x	45.1x	-1.0%	2.5%
Infrastructure	7.8x	10.6x	-5.2%	-26.7%	39.5x	39.9x	-1.7%	-0.9%
Security	8.0x	8.9x	-0.7%	-10.9%	31.2x	32.4x	-3.1%	-3.8%
Vertical industry apps	6.0x	7.9x	-0.3%	-24.3%	39.5x	40.3x	-1.8%	-2.0%

Source: BofA Global Research estimates for companies under coverage, Bloomberg consensus for companies not under coverage.

Stocks included may not be under BofA software coverage. See appendix.

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Within the report:

- Historical software valuation trends (Exhibit 2 – Exhibit 6)
- Software stock performance overview (Exhibit 7)
- Software coverage comp sheet (Exhibit 8 – Exhibit 12)
- Software valuation by category (Exhibit 14 – Exhibit 15)
- See the Appendix for a mapping of software companies by category, as well as the stock performance of individual companies

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Timestamp: 11 March 2024 08:13PM EDT

11 March 2024

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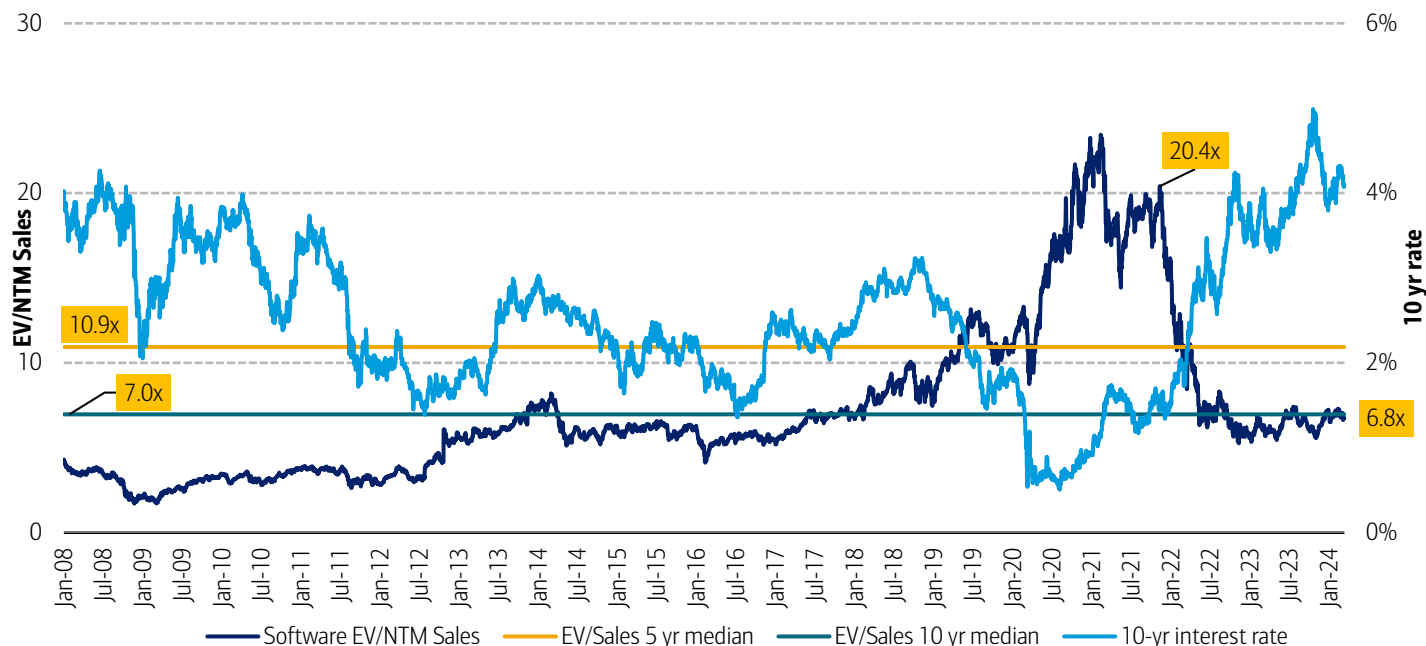
SNOW - Snowflake
MDB - MongoDB
ZI - ZoomInfo
AMPL - Amplitude, Inc.
ZM - Zoom
RNG - RingCentral

Historical Software Valuation Trend

On an EV/NTM Sales basis, our coverage group is trading at 6.8x, -67% vs the '21 peak of 20.4x. Our coverage group's current multiple is -38% from the 5-year median of 11.0x and roughly on par with the 10-year median of 7.0x.

Exhibit 2: EV/NTM Sales multiples remain below the 5-yr median though now is roughly on par with the 10-yr median

EV/NTM Sales versus 10-year interest rate - 2008 to date



Source: BofA Global Research estimates, Bloomberg

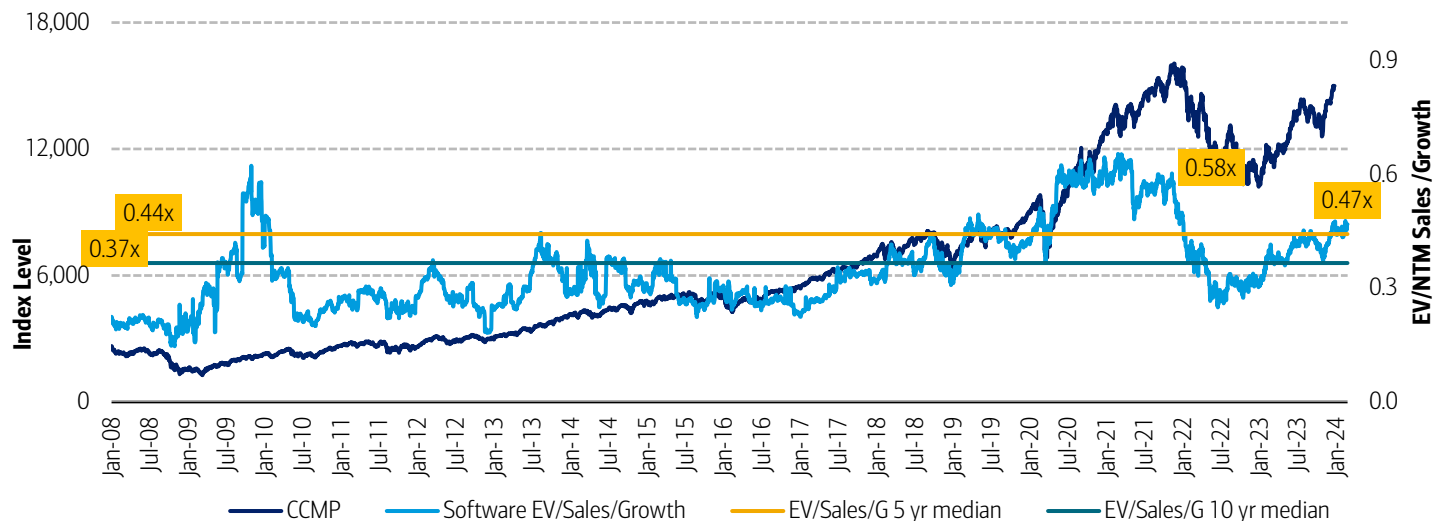
*Constituents: BofA Software coverage

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On an EV/NTM Sales/Growth basis, our software coverage group is trading at 0.47x, -21% from the '21 peak of 0.58x. Our coverage group's current multiple is +7.1% above the 5-year median of 0.44x and +29% from the 10-year median of 0.37x.

Exhibit 3: Software EV/Sales/Growth multiples have expanded above the 5-yr and 10-yr medians, but remain depressed relative to the Nasdaq's

EV/NTM Sales/Growth versus Nasdaq (CCMP) – 2008 to date



Source: BofA Global Research estimates, Bloomberg

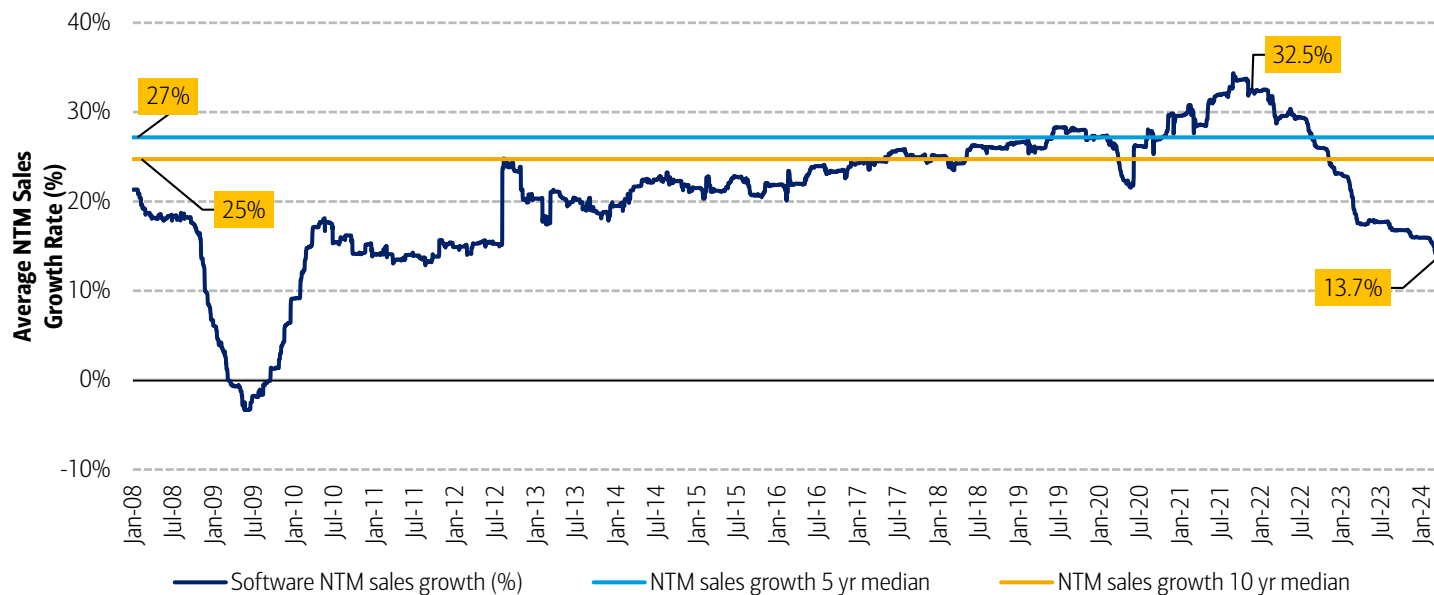
*Constituents: BofA Software coverage

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NTM Sales Growth for our software coverage group is currently 13.7%, -19% from the '21 peak of 32.5%. Our software coverage group's current NTM Sales Growth is -14% from 5-year median of 27.2% and -11% from 10-year median of 24.7%.

Exhibit 4: Growth rates remain muted relative to historical medians on macro-driven budget tightening

NTM growth – 2008 to date



Source: BofA Global Research estimates, Bloomberg

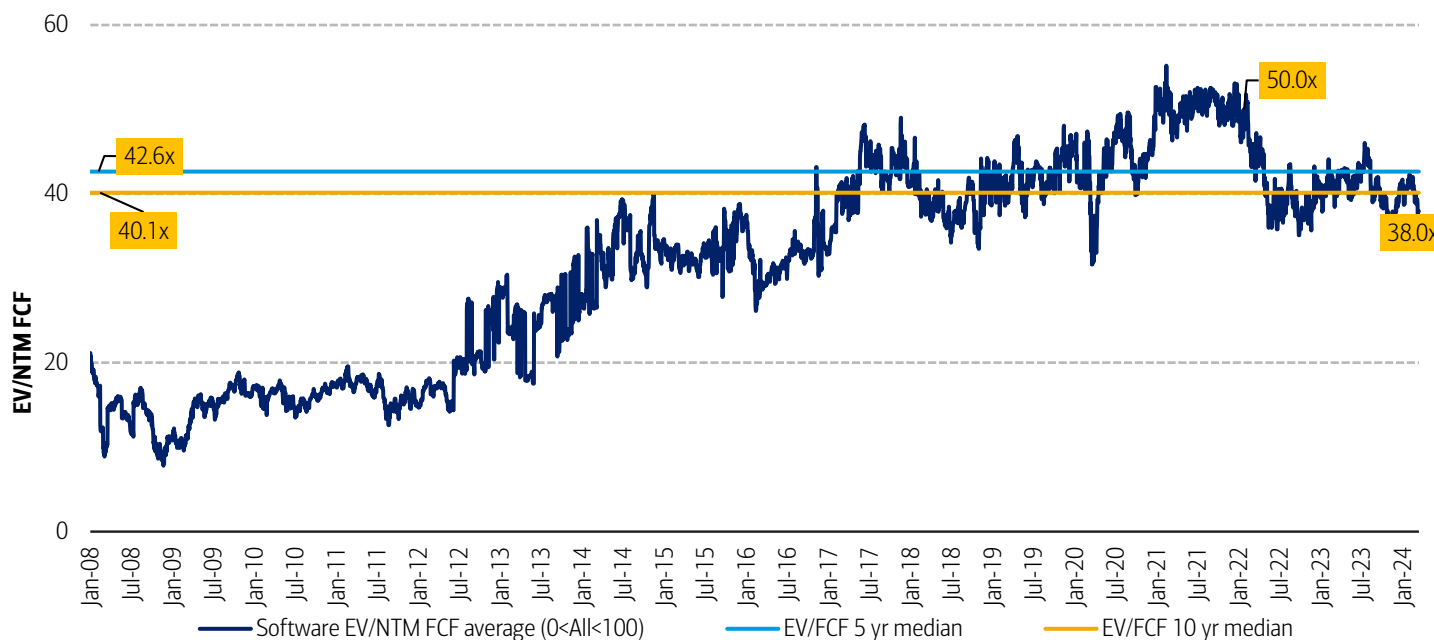
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On an EV/NTM FCF basis, our coverage group is trading at 38x, -24% from the '21 peak of 50.0x. Our coverage group's current multiple is -11% from the 5-year median of 42.6x and -5% from the 10-year median of 40.1x.

Exhibit 5: EV/NTM FCF compressed last week and is now below the 5-yr and 10-yr medians following steady expansion since November 2023

EV/NTM FCF – 2008 to date



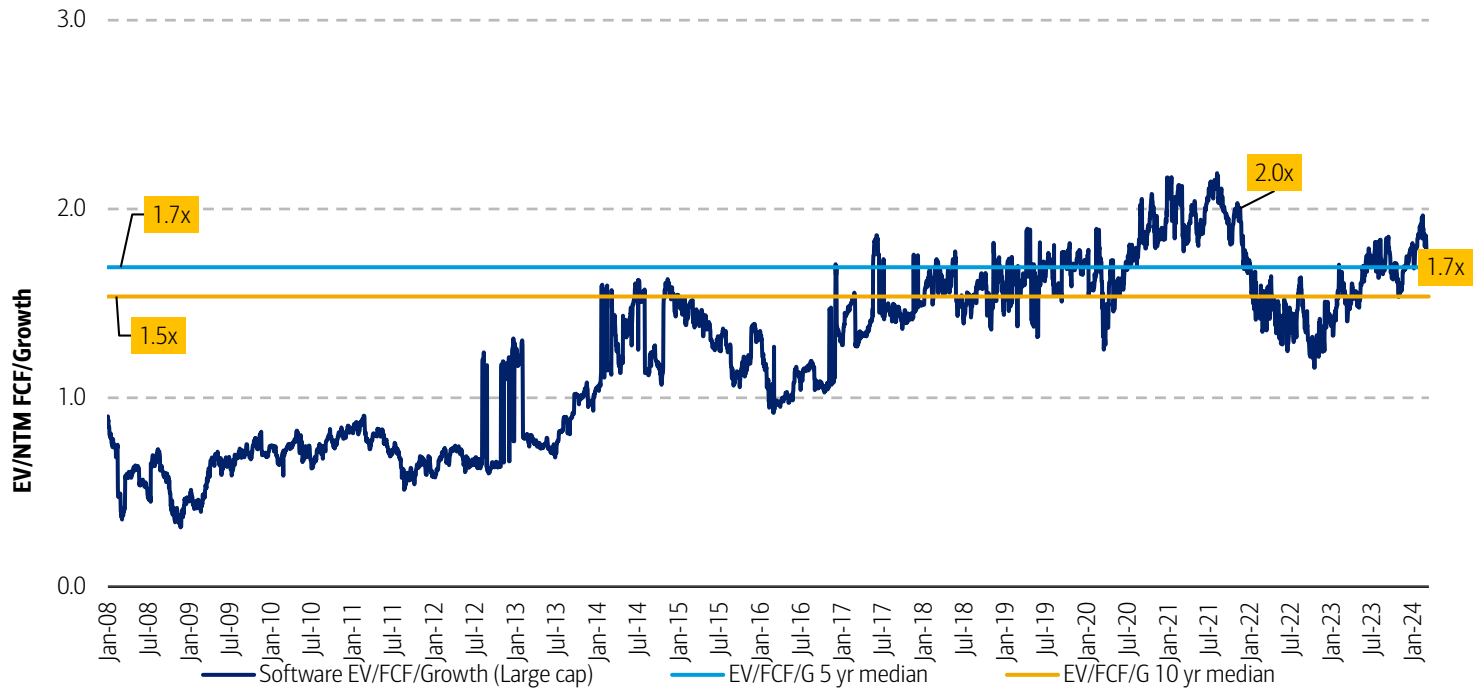
Source: BofA Global Research estimates, Bloomberg

*Constituents: BofA Software coverage

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On an EV/NTM FCF/Growth basis, the large cap software group is trading at 1.7x, -15% below the '21 peak at 2.0x. The current multiple is on par with the 5-year median of 1.7x and +10% from the 10-year median of 1.5x.

Exhibit 6: EV/NTM FCF/Growth multiples have expanded since November 2023 and are now above the 10-yr median and on par with the 5-year median
EV/NTM FCF/Growth – 2008 to date



Source: BofA Global Research estimates, Bloomberg

*Constituents: BofA Software coverage

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Software Stock Performance Overview

As of Mar 11, our software coverage universe was -1.6% from prior week (Nasdaq -0.8%) and -2.1% YTD (Nasdaq +7.1%) which compares to +39.8% in 2023 (Nasdaq +43.4%). The Infrastructure software group outperformed the broader software group on a YTD basis (+6.2%), led by Palantir (covered by Mariana Perez Mora).

Exhibit 7: Large-cap software outperformed our coverage group in 2023 though lagging Nasdaq and S&P 500 YTD

Software stock performance by size and subcategory

BofA Software Coverage	1 Week	YTD	2023 Return	Buy-rated YTD	Buy-rated 2023 Return
Large-Cap Average	-3.1%	1.7%	62.7%	3.0%	81.1%
Mid-Cap Average	-1.8%	-5.6%	38.0%	-7.6%	53.7%
Small-Cap Average	-0.5%	-2.1%	26.6%	-3.0%	30.3%
Total Group Average	-1.6%	-2.1%	39.8%	-2.8%	51.6%

Software by Category	1 Week	YTD	2023 Return
Collaboration	-1.9%	-0.1%	25.5%
Communication	1.6%	-13.0%	-3.0%
CRM	-2.5%	-1.8%	39.5%
Design	-0.3%	-4.4%	39.1%
ERP & Back office	1.6%	-1.3%	22.2%
HCM	-0.6%	-1.8%	1.4%
Infrastructure	-4.7%	6.2%	53.7%
Security	-1.0%	2.9%	54.0%
Vertical	-0.8%	-4.1%	34.0%
Nasdaq	-0.8%	7.1%	43.4%
S&P 500	-0.3%	7.3%	24.2%

Source: BofA Global Research estimates for companies under coverage, Bloomberg consensus for companies not under coverage. Note that averages are not market-cap weighted. Stocks included in "Software by category" may not be under BofA software coverage.

As of 3/11/2024

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BofA Software Comp Sheet

Exhibit 8: Our large-cap software group is trading at 9.1x CY25e sales and 35.5x CY25e FCF

BofA Software Coverage Comp Sheet – Large Cap

Company	Price	Mkt Cap (\$mn)	EV/2023			2023			2024			2025			2023		
			Sales	Sales	Sales	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/FCF/ Growth	EV/FCF/ Growth	EV/FCF/ Growth
ADBE	ADOBE INC	\$560.42	257,233	13.1x	11.8x	10.6x	1.3x	1.2x	0.9x	36.5x	27.6x	25.0x	...	0.9x	2.4x		
ADSK	AUTODESK INC	\$258.26	55,784	10.2x	9.3x	8.1x	1.0x	1.0x	0.5x	43.8x	38.0x	30.8x	...	2.5x	1.3x		
BSY	BENTLEY SYSTEMS INC-CLASS B	\$48.74	16,251	14.5x	13.1x	11.9x	1.2x	1.3x	1.2x	45.3x	50.0x	42.3x	0.9x	...	2.3x		
CRM	SALESFORCE INC	\$306.00	300,798	8.6x	7.9x	7.1x	0.8x	0.9x	0.6x	31.6x	25.3x	21.4x	0.6x	1.0x	1.2x		
DDOG	DATADOG INC - CLASS A	\$121.45	42,861	19.3x	16.1x	12.9x	0.7x	0.8x	0.5x	65.1x	56.2x	43.2x	1.0x	3.6x	1.4x		
DT	DYNATRACE INC	\$46.22	13,831	9.6x	8.1x	6.8x	0.4x	0.4x	0.4x	38.6x	34.7x	27.4x	3.0x	3.1x	1.0x		
HUBS	HUBSPOT INC	\$612.50	30,838	13.9x	11.8x	9.7x	0.5x	0.7x	0.4x	95.3x	71.1x	53.2x	5.9x	2.1x	1.6x		
INTU	INTUIT INC	\$650.87	184,847	12.6x	11.3x	10.1x	1.2x	1.0x	0.9x	40.3x	37.1x	29.3x	2.4x	4.2x	1.1x		
MDB	MONGODB INC	\$366.99	30,277	17.8x	14.5x	11.5x	0.6x	0.7x	0.4x	...	...	92.4x	...	...	1.7x		
MSFT	MICROSOFT CORP	\$404.52	3,020,955	13.4x	11.7x	10.4x	1.2x	0.8x	0.8x	46.5x	50.8x	35.0x	4.6x	...	0.8x		
NICE	NICE LTD - SPON ADR	\$238.77	15,962	6.5x	5.6x	5.0x	0.7x	0.4x	0.4x	28.8x	25.9x	22.2x	1.5x	2.3x	1.3x		
NOW	SERVICENOW INC	\$756.74	156,645	17.2x	14.1x	11.6x	0.7x	0.6x	0.5x	57.0x	45.5x	35.9x	2.2x	1.8x	1.4x		
ORCL	ORACLE CORP	\$114.13	321,732	7.8x	7.3x	6.7x	0.6x	1.0x	0.8x	39.8x	38.5x	31.8x	2.0x	12.2x	1.5x		
SHOP	SHOPIFY INC - CLASS A	\$74.97	85,691	11.6x	9.3x	7.4x	0.4x	0.4x	0.3x	90.4x	75.0x	40.9x	...	3.7x	0.5x		
SNOW	SNOWFLAKE INC-CLASS A	\$162.29	58,917	19.7x	16.2x	13.2x	0.5x	0.7x	0.6x	68.1x	53.7x	43.8x	1.2x	2.0x	2.0x		
VEEV	VEEVA SYSTEMS INC-CLASS A	\$227.75	37,367	14.1x	12.2x	10.8x	1.5x	0.8x	0.8x	37.7x	32.1x	26.8x	2.4x	1.8x	1.4x		
WDAY	WORKDAY INC-CLASS A	\$266.72	71,706	9.3x	8.0x	6.9x	0.6x	0.5x	0.4x	35.0x	35.2x	27.7x	0.7x	...	1.0x		
ZM	ZOOM VIDEO COMMUNICATIONS-A	\$69.68	21,842	3.3x	3.2x	3.1x	1.1x	1.6x	0.8x	10.2x	10.4x	9.3x	0.4x	...	0.8x		
Average				12.4x	10.7x	9.1x	0.8x	0.8x	0.6x	47.7x	41.6x	35.5x	2.1x	3.2x	1.4x		
Median				12.8x	11.5x	9.9x	0.7x	0.8x	0.6x	40.3x	38.0x	31.3x	1.7x	2.3x	1.3x		

Source: BofA Global Research estimates

As of 3/11/2024

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Exhibit 9: On a Rule of 40 (FCF) basis, ADBE, ADSK, CRM, and VEEV presented the largest improvement on Rule of 40, while DT, ORCL, and SNOW saw the largest deterioration

Large cap rule of 40 – EBITDA and FCF*

	2023	2024	2025		2023	2024	2025	
	Rule of 40 (EBITDA)	Rule of 40 (EBITDA)	Rule of 40 (EBITDA)	Change (2023 vs 2025)	Rule of 40 (FCF)	Rule of 40 (FCF)	Rule of 40 (FCF)	Change (2023 vs 2025)
Large cap								
ADBE	61%	60%	61%	0.5%	46%	53%	54%	8.2%
ADSK	48%	47%	52%	3.5%	33%	34%	41%	8.3%
BSY	46%	45%	46%	0.3%	44%	36%	38%	(5.4%)
CRM	53%	52%	55%	1.8%	38%	40%	45%	6.2%
DDOG	55%	47%	52%	(2.9%)	57%	49%	55%	(2.0%)
DT	53%	46%	47%	(6.0%)	49%	42%	44%	(5.6%)
HUBS	41%	34%	40%	(1.1%)	40%	34%	40%	0.1%
INTU	51%	50%	53%	2.3%	41%	42%	46%	4.3%
MDB	45%	37%	44%	(0.5%)	36%	32%	39%	2.5%
MSFT	63%	67%	66%	3.0%	40%	38%	42%	2.1%
NICE	46%	52%	48%	2.6%	31%	37%	35%	3.2%
NOW	52%	51%	52%	0.6%	54%	53%	54%	0.2%
ORCL	66%	61%	63%	(3.9%)	32%	26%	30%	(2.1%)
SHOP	38%	40%	44%	5.5%	39%	37%	44%	4.6%
SNOW	48%	31%	34%	(14.0%)	65%	52%	53%	(12.2%)
VEEV	47%	56%	54%	6.8%	47%	54%	53%	6.3%
WDAY	45%	43%	45%	0.5%	43%	38%	41%	(1.8%)
ZM	45%	41%	44%	(0.7%)	36%	33%	37%	1.9%
Average	50%	48%	50%	(0.1%)	43%	41%	44%	1.1%
Median	48%	47%	50%	0.5%	41%	38%	43%	2.0%

Source: BofA Global Research estimates

Rule of 40 is defined as revenue growth + EBITDA (FCF) margin

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Exhibit 10: Our mid-cap software group is trading at 5.5x C25e Sales, or 0.5x on a growth adjusted basis

BofA Software Coverage Comp Sheet – Mid Cap

							2023	2024	2025				2023	2024	2025
Company		Price	Mkt Cap (\$mn)	EV/2023 Sales	EV/2024 Sales	EV/2025 Sales	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	EV/2023 FCF	EV/2024 FCF	EV/2025 FCF	EV/FCF/ Growth	EV/FCF/ Growth	EV/FCF/ Growth
BILL	BILL HOLDINGS INC	\$67.62	7,162	5.5x	5.0x	4.2x	0.1x	0.6x	0.2x	29.8x	36.6x	24.9x	0.1x	...	0.5x
CFLT	CONFLUENT INC-CLASS A	\$31.60	10,298	12.2x	10.0x	8.0x	0.4x	0.4x	0.3x	...	...	...	...	...	...
DBX	DROPBOX INC-CLASS A	\$23.50	8,082	3.5x	3.5x	3.4x	0.5x	2.5x	2.6x	11.5x	9.5x	8.8x	...	0.4x	1.1x
DOCU	DOCUSIGN INC	\$57.98	12,152	4.1x	3.9x	3.6x	0.4x	0.6x	0.5x	15.5x	14.6x	13.4x	0.2x	2.3x	1.5x
ESTC	ELASTIC NV	\$103.86	10,645	7.9x	6.8x	5.8x	0.4x	0.4x	0.3x	86.7x	75.5x	48.4x	0.0x	5.1x	0.9x
FIVN	FIVE9 INC	\$60.62	4,284	4.8x	4.1x	3.5x	0.3x	0.3x	0.2x	49.4x	44.3x	24.2x	0.3x	3.9x	0.3x
FRSH	FRESHWORKS INC-CL A	\$19.09	6,166	8.4x	7.1x	6.0x	0.4x	0.4x	0.3x	59.0x	42.9x	32.4x	...	1.1x	1.0x
GLBE	GLOBAL-E ONLINE LTD	\$33.49	5,994	10.0x	7.6x	5.9x	0.3x	0.2x	0.2x	53.4x	40.9x	30.1x	2.0x	1.3x	0.8x
GTLB	GITLAB INC-CL A	\$56.44	9,307	14.3x	11.4x	9.2x	0.4x	0.4x	0.4x	...	...	...	...	...	...
GWRE	GUIDEWIRE SOFTWARE INC	\$115.01	9,581	10.0x	8.9x	7.9x	1.5x	0.8x	0.6x	...	56.9x	43.6x	...	0.5x	1.4x
INFA	INFORMATICA	\$31.91	9,727	6.7x	6.3x	5.9x	1.1x	1.0x	1.0x	39.9x	26.5x	24.4x	1.2x	0.5x	2.8x
MNDY	MONDAY.COM LTD	\$217.10	14,082	17.9x	13.6x	10.5x	0.4x	0.4x	0.4x	62.8x	54.4x	43.9x	...	3.5x	1.8x
PATH	UIPATH INC - CLASS A	\$24.10	13,666	9.3x	7.5x	6.1x	0.4x	0.3x	0.3x	46.5x	41.5x	30.3x	...	3.5x	0.8x
PAYC	PAYCOM SOFTWARE INC	\$184.50	10,559	6.1x	5.5x	4.9x	0.3x	0.5x	0.4x	35.4x	35.6x	27.7x	1.4x	...	1.0x
PCTY	PAYLOCITY HOLDING CORP	\$169.00	9,608	7.2x	6.3x	5.5x	0.2x	0.4x	0.4x	35.1x	32.7x	27.2x	0.5x	4.5x	1.3x
SMAR	SMARTSHEET INC-CLASS A	\$41.85	4,027	3.7x	3.1x	2.6x	0.1x	0.2x	0.1x	24.5x	19.2x	12.8x	...	0.7x	0.3x
TWLO	TWILIO INC - A	\$61.92	11,591	2.0x	1.9x	1.8x	0.2x	0.5x	0.2x	23.2x	19.3x	16.1x	...	1.0x	0.8x
U	UNITY SOFTWARE INC	\$27.10	8,885	4.6x	5.6x	4.9x	0.1x	...	0.3x	56.8x	26.2x	14.2x	...	0.2x	0.2x
ZI	ZOOMINFO TECHNOLOGIES INC	\$16.70	6,857	6.1x	6.0x	5.7x	0.5x	2.4x	1.1x	18.5x	19.0x	18.0x	3.5x	...	3.4x
Average				7.6x	6.5x	5.5x	0.4x	0.7x	0.5x	40.5x	35.0x	25.9x	1.0x	2.0x	1.2x
Median				6.7x	6.3x	5.7x	0.4x	0.4x	0.3x	37.6x	35.6x	24.9x	0.5x	1.2x	1.0x

Source: BofA Global Research estimates

As of 3/11/2024

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Exhibit 11: On a Rule of 40 (FCF) basis, GWRE, CFLT, FIVN and INFA presented the largest improvement on Rule of 40, while BILL, MNDY, PCTY, and U saw the largest deterioration

Mid cap rule of 40 – EBITDA and FCF*

	2023 Rule of 40 (EBITDA)	2024 Rule of 40 (EBITDA)	2025 Rule of 40 (EBITDA)	Change (2023 vs 2025)	2023 Rule of 40 (FCF)	2024 Rule of 40 (FCF)	2025 Rule of 40 (FCF)	Change (2023 vs 2025)
Mid cap								
BILL	53%	24%	38%	(14.9%)	57%	23%	37%	(20.1%)
CFLT	27%	23%	32%	4.8%	17%	22%	28%	11.7%
DBX	47%	41%	42%	(5.4%)	38%	38%	40%	2.1%
DOCU	38%	32%	34%	(3.8%)	36%	33%	34%	(1.5%)
ESTC	31%	28%	30%	(0.7%)	27%	26%	29%	2.0%
FIVN	35%	34%	38%	3.0%	27%	25%	32%	5.9%
FRSH	29%	29%	31%	2.0%	34%	35%	37%	3.0%
GLBE	56%	48%	48%	(7.8%)	58%	50%	49%	(8.6%)
GTLB	36%	27%	28%	(8.3%)	43%	30%	29%	(13.2%)
GWRE	15%	25%	30%	15.0%	14%	27%	31%	16.7%
INFA	36%	39%	40%	3.8%	23%	30%	30%	7.6%
MNDY	50%	42%	40%	(10.7%)	69%	56%	53%	(15.7%)
PATH	39%	40%	41%	2.1%	41%	41%	43%	1.7%
PAYC	66%	49%	52%	(13.7%)	40%	26%	30%	(10.3%)
PCTY	64%	48%	48%	(15.5%)	50%	33%	34%	(15.4%)
SMAR	35%	30%	34%	(1.4%)	40%	34%	39%	(0.9%)
TWLO	24%	20%	25%	1.3%	17%	14%	20%	3.2%
U	78%	5%	51%	(27.1%)	65%	4%	49%	(16.0%)
ZI	54%	43%	46%	(8.6%)	46%	34%	36%	(9.1%)
Average	43%	33%	38%	(4.5%)	39%	31%	36%	(3.0%)
Median	38%	32%	38%	(3.8%)	40%	30%	34%	(0.9%)

Source: BofA Global Research estimates

Rule of 40 is defined as revenue growth + EBITDA (FCF) margin

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Exhibit 12: Our small-cap coverage group is trading at 4.2x C25e Sales, or 0.4x on a growth adjusted basis

BofA Software Coverage Comp Sheet – Small Cap

		Mkt Cap		EV/2023	EV/2024	EV/2025	2023	2024	2025	EV/2023	EV/2024	EV/2025	2023	2024	2025
Company		Price	(\$mn)	Sales	Sales	Sales	EV/Rev/ Growth	EV/Rev/ Growth	EV/Rev/ Growth	FCF	FCF	FCF	EV/FCF/ Growth	EV/FCF/ Growth	EV/FCF/ Growth
AI	C3.AI INC-A	\$30.87	3,719	10.3x	8.9x	7.8x	0.9x	0.6x	0.5x	...	...	...	...	...	...
ALRM	ALARM.COM HOLDINGS INC	\$74.27	4,063	4.4x	4.2x	4.0x	1.0x	0.9x	0.6x	30.3x	62.0x	25.2x	0.1x	...	0.2x
AMPL	AMPLITUDE INC-CLASS A	\$11.15	1,627	4.8x	4.5x	4.2x	0.3x	0.8x	0.7x	53.9x	64.3x	47.0x	...	...	1.3x
ASAN	ASANA INC - CL A	\$18.79	4,215	6.1x	5.4x	4.4x	0.3x	0.4x	0.2x	...	...	46.8x	...	...	0.3x
AVDX	AVIDXCHANGE	\$12.93	2,586	6.0x	5.1x	4.5x	0.3x	0.3x	0.3x	...	52.8x	37.5x	...	0.1x	0.9x
AYX	ALTERYX INC - CLASS A	\$48.23	3,707	4.5x	4.0x	3.6x	0.4x	0.4x	0.3x	...	80.5x	39.9x	...	0.7x	0.4x
BIGC	BIGCOMMERCE HOLDINGS	\$7.50	570	2.1x	2.0x	1.8x	0.2x	0.3x	0.3x	...	...	43.5x	...	...	0.3x
BL	BLACKLINE INC	\$67.14	5,006	8.4x	7.7x	7.1x	0.7x	0.9x	0.8x	41.1x	36.1x	31.6x	0.2x	2.6x	2.2x
BLKB	BLACKBAUD INC	\$74.08	3,939	4.3x	4.0x	3.7x	1.0x	0.6x	0.5x	34.9x	17.9x	16.0x	17.3x	0.2x	1.4x
EGHT	8X8 INC	\$3.15	386	1.0x	1.0x	1.0x	...	...	0.2x	7.0x	4.7x	3.7x	0.0x	0.1x	0.1x
ENFN	ENFUSION	\$8.52	1,089	6.2x	5.3x	4.6x	0.4x	0.3x	0.3x	56.0x	51.7x	34.8x	0.3x	6.1x	0.7x
EVBG	EVERBRIDGE INC	\$34.85	1,534	4.0x	3.8x	3.6x	1.1x	0.7x	0.6x	66.3x	42.2x	29.8x	0.0x	0.7x	0.7x
FROG	JFROG LTD	\$41.72	4,597	11.6x	9.5x	7.8x	0.5x	0.4x	0.4x	56.5x	55.0x	42.5x	0.2x	21.3x	1.4x
HCP	HASHICORP INC-CL A	\$26.09	5,145	6.7x	6.0x	5.2x	0.3x	0.6x	0.3x	...	57.1x	43.7x	...	...	1.4x
INTA	INTAPP INC	\$34.56	2,750	6.6x	5.7x	4.9x	0.2x	0.3x	0.3x	72.4x	46.5x	33.9x	0.8x	0.8x	0.9x
JAMF	JAMF HOLDING CORP	\$17.84	2,425	4.6x	4.2x	3.8x	0.3x	0.4x	0.4x	77.8x	46.5x	36.4x	...	0.7x	1.3x
LAW	CS DISCO INC	\$6.85	444	2.1x	2.0x	1.8x	1.0x	0.3x	0.2x	...	...	...	...	...	...
LSPD	LIGHTSPEED COMMERCE INC	\$13.42	2,060	1.5x	1.3x	1.1x	0.1x	0.1x	0.1x	...	34.3x	36.8x	...	...	...
MLNK	MERIDIANLINK INC	\$18.33	1,444	5.9x	5.6x	5.4x	1.1x	1.2x	1.1x	26.7x	21.7x	19.9x	...	0.9x	2.2x
NCNO	NCINO INC	\$29.35	3,315	6.9x	6.0x	5.2x	0.4x	0.4x	0.3x	45.0x	40.3x	40.5x	...	3.5x	...
PD	PAGERDUTY INC	\$23.85	2,295	5.1x	4.6x	4.1x	0.3x	0.4x	0.3x	31.0x	23.2x	18.6x	0.1x	0.7x	0.8x
PWSC	POWERSCHOOL HOLDINGS	\$20.62	4,192	7.2x	6.3x	5.8x	0.7x	0.5x	0.6x	29.6x	25.3x	22.2x	1.9x	1.5x	1.6x
RNG	RINGCENTRAL INC-CLASS A	\$35.90	3,375	2.2x	2.0x	1.8x	0.2x	0.2x	0.2x	14.6x	12.9x	9.1x	0.1x	1.0x	0.2x
VERX	VERTEX INC - CLASS A	\$29.17	4,736	8.3x	7.2x	6.3x	0.5x	0.5x	0.5x	...	80.1x	70.3x	...	0.6x	5.1x
WEAV	WEAVE COMMUNICATIONS	\$11.79	761	4.2x	3.6x	3.1x	0.2x	0.2x	0.2x	83.5x	38.0x	20.7x	...	0.3x	0.2x
ZETA	ZETA GLOBAL HOLDINGS	\$10.36	2,242	3.1x	2.6x	2.3x	0.1x	0.1x	0.2x	32.8x	19.4x	14.9x	1.3x	0.3x	0.5x
Average				5.3x	4.7x	4.2x	0.5x	0.5x	0.4x	44.7x	41.5x	31.9x	1.9x	2.3x	1.1x
Median				4.9x	4.5x	4.1x	0.4x	0.4x	0.3x	41.1x	41.3x	34.4x	0.2x	0.7x	0.8x

Source: BofA Global Research estimates

As of 3/11/2024

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Exhibit 13: On a Rule of 40 (FCF) basis, ASAN, BLKB, EGHT, and LAW presented the largest improvement on Rule of 40, while AMPL, FROG, INTA, and ZETA saw the largest deterioration

Small cap rule of 40 – EBITDA and FCF*

	2023 Rule of 40 (EBITDA)	2024 Rule of 40 (EBITDA)	2025 Rule of 40 (EBITDA)	Change (2023 vs 2025)	2023 Rule of 40 (FCF)	2024 Rule of 40 (FCF)	2025 Rule of 40 (FCF)	Change (2023 vs 2025)
Small cap								
AI	(16.8%)	(14.7%)	1%	17.8%	(19.6%)	6%	19%	38.5%
ALRM	22%	23%	27%	4.4%	19%	12%	22%	3.1%
AMPL	23%	19%	19%	(4.0%)	25%	13%	15%	(9.8%)
ASAN	11%	9%	25%	13.5%	14%	18%	32%	17.3%
AVDX	32%	35%	38%	5.5%	22%	26%	27%	4.8%
AYX	22%	24%	27%	4.5%	14%	16%	20%	5.8%
BIGC	10%	8%	10%	0.1%	2%	9%	11%	9.6%
BL	32%	31%	31%	(1.1%)	33%	30%	31%	(2.2%)
BLKB	36%	40%	41%	4.9%	17%	30%	30%	13.5%
EGHT	29%	30%	38%	8.4%	14%	22%	31%	17.3%
ENFN	32%	35%	37%	5.0%	26%	27%	30%	3.5%
EVBG	22%	26%	28%	5.6%	10%	14%	18%	8.5%
FROG	37%	37%	37%	0.1%	46%	40%	40%	(5.5%)
HCP	11%	6%	17%	6.2%	21%	21%	28%	7.7%
INTA	33%	25%	17%	(15.8%)	36%	29%	30%	(5.6%)
JAMF	30%	28%	27%	(3.0%)	23%	19%	19%	(3.8%)
LAW	(16.6%)	(5.3%)	(0.5%)	16.1%	(19.9%)	(7.5%)	(2.6%)	17.3%
LSPD	24%	23%	23%	(0.8%)	10%	24%	24%	13.6%
MLNK	43%	45%	45%	2.4%	27%	31%	32%	4.5%
NCNO	30%	31%	33%	2.9%	32%	29%	28%	(4.1%)
PD	35%	31%	36%	1.0%	32%	30%	35%	2.6%
PWSC	44%	47%	44%	0.1%	35%	38%	35%	0.7%
RNG	40%	39%	40%	(0.0%)	25%	24%	28%	2.6%
VERX	34%	35%	36%	1.9%	21%	23%	23%	2.2%
WEAV	17%	16%	21%	4.4%	25%	26%	31%	5.9%
ZETA	41%	39%	34%	(7.1%)	33%	34%	29%	(3.6%)
Average	25%	25%	28%	2.8%	20%	22%	26%	5.5%
Median	30%	29%	29%	2.7%	22%	24%	28%	4.0%

Source: BofA Global Research estimates

Rule of 40 is defined as revenue growth + EBITDA (FCF) margin

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Software Valuation by Category

We categorized the enterprise software space across 9 categories: Collaboration, Communication, Front office apps, Design, Finance apps, Human resources apps, Infrastructure, Security and Vertical industry apps.

Exhibit 14: Design software is currently trading at a significant premium to the broader software group (9.9x C25 Sales, or 0.9x growth adjusted)

Software comp sheet by category

Categories	Mkt Cap (\$mn)	EV/2023 Sales	EV/2024 Sales	EV/2025 Sales	2023 EV/Rev/ Growth	2024 EV/Rev/ Growth	2025 EV/Rev/ Growth	EV/2023 FCF	EV/2024 FCF	EV/2025 FCF	2023 EV/FCF/ Growth	2024 EV/FCF/ Growth	2025 EV/FCF/ Growth
Collaboration	\$34,733												
Average		7.1x	5.9x	4.9x	0.4x	0.9x	0.8x	28.1x	24.4x	25.0x	0.4x	0.6x	0.9x
Median		4.2x	4.0x	3.8x	0.4x	0.4x	0.4x	19.1x	16.8x	12.8x	0.0x	0.6x	1.1x
Communication	\$60,606												
Average		2.7x	2.5x	2.5x	0.3x	0.3x	0.4x	27.2x	21.1x	19.2x	0.7x	0.5x	0.6x
Median		2.2x	2.0x	2.2x	0.2x	0.2x	0.2x	17.8x	16.3x	16.1x	0.4x	0.7x	0.4x
Front office apps	\$493,278												
Average		6.1x	5.2x	4.4x	0.4x	0.5x	0.4x	49.5x	37.8x	34.7x	0.5x	0.6x	0.7x
Median		5.3x	4.7x	4.2x	0.3x	0.4x	0.3x	44.9x	32.9x	31.3x	1.3x	1.0x	0.6x
Design	\$552,669												
Average		12.0x	11.0x	9.9x	1.2x	1.0x	0.9x	46.7x	38.0x	31.6x	0.8x	0.7x	1.2x
Median		11.9x	10.8x	9.7x	1.3x	1.1x	0.9x	44.6x	36.2x	32.0x	1.3x	1.8x	1.7x
Finance apps	\$554,002												
Average		6.9x	6.2x	5.5x	0.8x	0.6x	0.3x	39.9x	40.2x	32.4x	0.4x	0.4x	0.8x
Median		6.9x	6.0x	5.2x	0.5x	0.5x	0.4x	40.7x	36.8x	30.6x	0.2x	1.5x	0.9x
Human resources apps	\$250,858												
Average		7.1x	6.4x	5.7x	0.5x	0.6x	0.6x	35.7x	46.4x	33.9x	0.9x	...	1.1x
Median		7.2x	6.3x	5.5x	0.4x	0.5x	0.4x	35.0x	35.2x	27.7x	1.0x	...	1.0x
Infrastructure	\$3,873,965												
Average		9.2x	7.8x	6.7x	1.7x	1.0x	0.7x	50.1x	44.2x	36.2x	0.7x	0.8x	1.0x
Median		7.2x	6.5x	5.9x	0.5x	0.6x	0.4x	49.2x	46.0x	36.2x	0.9x	0.8x	1.1x
Security	\$260,651												
Average		9.5x	8.1x	7.0x	0.3x	0.1x	0.7x	37.3x	34.9x	30.8x	0.7x	0.9x	0.8x
Median		7.4x	6.8x	6.3x	0.4x	0.6x	0.6x	31.1x	28.6x	25.2x	0.7x	0.7x	1.0x
Vertical industry apps	\$190,178												
Average		7.0x	6.1x	5.4x	0.4x	0.4x	0.5x	36.2x	37.0x	28.4x	0.8x	0.8x	0.9x
Median		6.0x	5.4x	4.8x	0.4x	0.5x	0.4x	34.9x	31.9x	27.6x	0.7x	0.8x	1.1x

Source: BofA Global Research estimates for companies under coverage, Bloomberg consensus for companies not under coverage
As of 3/11/24. Stocks included may not be under BofA software coverage. See appendix.

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On an EV/NTM Sales basis, the Communication software group saw the largest multiple expansion w/w (+0.8%) led by RingCentral (covered by Mike Funk) with the Design software group seeing the largest expansion relative to the 5-year median (+6.4%), led by Cadence Design Systems (covered by Vivek Arya).

On an EV/NTM FCF basis, the Front office apps group saw the largest multiple expansion w/w (+2.8%) led by Yext (not covered) with the Design software group seeing the largest expansion relative to the 5-year median (+3.1%), led by Newmont Corp (covered by Lawson Winder).

Exhibit 15: Communication software saw the largest EV/NTM Sales multiple expansion, led by RingCentral

Software multiple expansion/contraction by category

Category	EV/NTM Sales				EV/NTM Sales/growth				EV/NTM FCF			
	Multiple		% Change		Multiple		% Change		Multiple		% Change	
	Current	5-yr median	1 wk	5-yr median	Current	5-yr median	1 wk	5-yr median	Current	5-yr median	1 wk	5-yr median
Collaboration	5.6x	7.2x	-3.2%	-21.9%	0.7x	0.4x	-2.1%	102.0%	26.1x	20.2x	-3.3%	NA
Communication	2.3x	7.7x	0.8%	-70.4%	0.7x	0.4x	-2.7%	55.5%	19.4x	27.6x	1.4%	-29.5%
Front office apps	4.9x	8.6x	-2.7%	-42.3%	0.4x	0.3x	-1.2%	32.2%	37.1x	42.4x	2.8%	-12.5%
Design	10.5x	9.8x	-1.1%	6.4%	1.0x	0.8x	-1.4%	25.7%	37.1x	36.0x	-0.5%	3.1%
Finance apps	4.8x	7.5x	-0.1%	-35.7%	0.5x	0.4x	2.7%	12.8%	36.6x	38.5x	-0.9%	-4.9%
Human resources apps	6.3x	9.8x	-0.5%	-35.5%	0.6x	0.6x	-0.4%	-3.0%	46.2x	45.1x	-1.0%	2.5%
Infrastructure	7.8x	10.6x	-5.2%	-26.7%	0.5x	0.5x	-3.2%	3.3%	39.5x	39.9x	-1.7%	-0.9%
Security	8.0x	8.9x	-0.7%	-10.9%	0.7x	0.5x	0.1%	55.1%	31.2x	32.4x	-3.1%	-3.8%
Vertical industry apps	6.0x	7.9x	-0.3%	-24.3%	0.5x	0.5x	4.5%	-2.2%	39.5x	40.3x	-1.8%	-2.0%

Source: BofA Global Research estimates for companies under coverage, Bloomberg consensus for companies not under coverage
As of 3/11/24. Stocks included may not be under BofA software coverage. See appendix.

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Appendix

Exhibit 16: Software by category analysis includes the stocks below

Software companies by category

Collaboration		Communication		Front office apps		Design		Finance apps		Human resources apps		Infrastructure		Security		Vertical industry apps	
ASAN	Asana	EGAN	eGain	BIGC	Bigcommerce	ADBE	Adobe	AVDX	AvidXchange, Inc.	ADP	Automatic Data	AI	C3.ai	ALRM	Alarm	APPF	Appfolio Inc
BOX	Box Inc	EGHT	8x8	CRM	Salesforce.com	ADSK	Autodesk	BILL	BILL	PAYC	Paycom	AMPL	Amplitude, Inc.	CHKP	Check Point	BLKB	Blackbaud, Inc.
DBX	Dropbox	FIVN	Five9	CRTD	Criteo	ANSS	Ansys, Inc.	BL	BlackLine, Inc.	PAYX	Paychex	APPN	Appian Corp	CLVT	Clarivate PLC	CCCS	CCC Intelligent Sol
MNDY	Monday.com	KLTR	Kaltura	CVO	Coveo	AZPN	AspenTech	DOCU	DocuSign	PCTY	Paylocity	AYX	Alteryx, Inc	CRWD	CrowdStrike	COUR	Coudera
SMAR	Smartsheet	LPSN	LivePerson	CXM	Sprinklr	BSY	Bentley Systems	EXFY	Expensify	PYCR	Paycor HCM Inc	BASE	Couchbase	CYBR	CyberArk Software	CPLF	Copperleaf
		LVOX	LiveVox	FRSH	Freshworks	CDNS	Cadence	INTU	Intuit	WDAY	Workday	BBAI	BigbearAI	FTNT	Fortinet	CWAN	Clearware Analytics
		MCHX	Marchex	GLBE	Global-e Online Ltd.	DSY	Dassault Systems	LAW	Disco			CFLT	Confluent	GEN	Gen Digital, Inc.	DH	Definitive Hlthcare.
		NICE	NICE Ltd.	HUBS	HubSpot	NEM	Newmont	SAP	SAP			DDOG	Datadog Inc	OKTA	Okta Inc	DOX	Amdocs
		RNG	RingCentral	LSPD	Lightspeed	PTC	PTC	UPLD	Upland Software			DOMO	Domo	PANW	Palo Alto Networks	EBIX	Ebix
		TWLO	Twilio	ONTF	ON24	U	Unity	VERX	Vertex			DT	Dynatrace	QLYS	Qualys Inc	ENFN	Enfusion, Inc.
		VRNT	Verint	SEMR	SEMrush			WK	Workiva Inc			ESTC	Elastic	RPD	Rapid7 Inc	ETWO	E2open
		ZM	Zoom	SHOP	Shopify, Inc.			ZUO	Zuora			EVBG	Everbridge	S	SentinelOne	EVMC	EverCommerce
				SPT	Sprout Social Incorp							FROG	JFrog	SCWX	SecureWorks	GWRE	Guidewire Software
				WIX	Wix							GTLB	GitLab	TENB	Tenable Holdings Inc	INST	Instructure
				YEXT	Yext							HCP	HashiCorp	ZS	Zscaler	INTA	Intapp Inc.
				ZETA	Zeta Global							INFA	Informatica Inc.			IOT	Samsara Inc.
				ZI	ZoomInfo							JAMF	Jamf			KARO	Karoooo
												MDB	MongoDB			MANH	Manhattan Associates
												MSFT	Microsoft			MLNK	MeridianLink
												NOW	ServiceNow			MODN	Model N
												ORCL	Oracle			NCNO	nCino
												OTEX	Open Text			PAR	Par Technology
												PATH	UiPath			PCOR	Procore Technologies
												PD	PagerDuty			PRO	PROS
												PEGA	Pegasystems Inc			PWSC	PowerSchool
												PLTR	Palantir			QTWO	Q2
												SNOW	Snowflake			SPSC	SPS Commerce Inc
												SWI	Solarwinds			TEMN	Temenos
												TEAM	Atlassian Corp Plc			TOST	Toast
																TYL	Tyler Technologies
																VEEV	Veeva Systems, Inc.
																WEAV	Weave

Source: BofA Global Research

Stocks included may not be under BofA software coverage

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Exhibit 17: YTD large-cap software stock performance lagged Nasdaq and S&P 500

Large-cap software stock performance

	1 Week	YTD	2023 Return
Nasdaq	-0.8%	7.1%	43.4%
S&P 500	-0.3%	7.3%	24.2%
ADBE	-1.1%	-5.8%	77.3%
ADSK	-1.0%	6.0%	30.3%
BSY	-4.3%	-6.0%	41.2%
CRM	-2.6%	16.4%	98.5%
DDOG	-6.5%	0.6%	65.1%
HUBS	-1.7%	6.5%	100.8%
INTU	-2.3%	4.4%	60.6%
MDB	-15.7%	-9.5%	107.7%
MSFT	-2.3%	7.8%	56.8%
NOW	-2.4%	7.2%	82.0%
ORCL	0.5%	8.7%	29.0%
SHOP	-0.3%	-3.0%	124.4%
SNOW	-8.9%	-18.5%	38.6%
VEEV	1.0%	18.5%	19.3%
WDAY	-1.8%	-2.9%	65.0%
ZM	0.5%	-2.6%	6.2%
Large-Cap Average	-3.1%	1.7%	62.7%

Source: BofA Global Research, Bloomberg

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Exhibit 18: YTD mid-cap software stock performance lagged Nasdaq and S&P 500

Mid-cap software stock performance

	1 Week	YTD	2023 Return
Nasdaq	-0.8%	7.1%	43.4%
S&P 500	-0.3%	7.3%	24.2%
BILL	3.6%	-16.8%	-25.1%
CFLT	-7.7%	36.1%	5.2%
DBX	-1.9%	-19.8%	31.7%
DOCU	6.8%	-3.8%	7.3%
DT	-5.1%	-15.1%	42.8%
ESTC	-4.8%	-8.4%	118.8%
FRSH	-2.4%	-18.1%	59.7%
GLBE	1.5%	-14.5%	92.0%
GTLB	-23.8%	-9.8%	38.6%
GWRE	-2.4%	6.3%	74.3%
INFA	-0.4%	12.5%	74.3%
NICE	-3.1%	19.4%	3.7%
PATH	2.0%	-2.8%	95.4%
PAYC	3.7%	-10.6%	-33.4%
PCTY	-1.3%	2.0%	-15.1%
TWLO	3.1%	-18.2%	55.0%
U	1.7%	-32.8%	43.0%
Mid-Cap Average	-1.8%	-5.6%	39.3%

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 19: YTD small-cap software stock performance lagged Nasdaq and S&P 500

Small-cap software stock performance

	1 Week	YTD	2023 Return
Nasdaq	-0.8%	7.1%	43.4%
S&P 500	-0.3%	7.3%	24.2%
AI	-8.2%	9.0%	156.6%
ALRM	-1.0%	14.9%	30.6%
AMPL	-1.4%	-12.6%	5.3%
AVDX	0.3%	5.3%	24.6%
AYX	0.4%	2.3%	-6.9%
BIGC	-2.1%	-22.7%	11.3%
BL	2.6%	7.3%	-7.2%
BLKB	2.1%	-14.6%	47.3%
CVO	-5.7%	10.4%	5.7%
EGHT	17.8%	-16.1%	-12.5%
ENFN	-1.6%	-12.7%	0.3%
FIVN	0.4%	-22.8%	16.0%
FROG	-3.9%	21.2%	62.3%
HCP	3.0%	10.8%	-13.5%
INTA	-9.1%	-9.7%	52.4%
JAMF	0.4%	-0.8%	-15.2%
LAW	5.5%	-9.5%	20.1%
LSPD	-5.1%	-35.8%	46.8%
MLNK	-3.1%	-26.0%	80.4%
NCNO	-2.0%	-12.5%	27.2%
PWSC	0.1%	-12.1%	2.1%
RNG	8.8%	6.7%	-4.1%
VERX	-4.0%	8.4%	85.7%
WEAV	-7.8%	2.4%	150.4%
ZETA	0.2%	17.2%	8.0%
ZI	1.2%	-9.0%	-38.6%
Small-Cap Average	-0.5%	-3.9%	28.3%

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 20: Monday.com within Collaboration software led the stock performance YTD

Collaboration, Communications, CRM, and Design software stock performance

	1 Week	YTD	2023 Return
Nasdaq	1.9%	8.4%	43.4%
S&P 500	1.3%	7.7%	24.2%
ASAN	5.4%	5.1%	38.1%
BOX	9.7%	8.5%	-17.7%
DBX	3.0%	-17.9%	31.7%
MNDY	6.7%	22.7%	53.9%
SMAR	3.6%	-8.9%	21.5%
Collaboration Average	5.7%	1.9%	25.5%
EGAN	0.7%	-25.0%	-7.8%
EGHT	-2.4%	-28.7%	-12.5%
FIVN	-4.5%	-23.1%	16.0%
KLTR	-3.1%	-28.5%	13.4%
LPSN	-51.4%	-67.2%	-62.6%
MCHX	10.4%	1.5%	-15.0%
NICE	1.5%	23.9%	3.7%
RNG	7.5%	-1.6%	-4.1%
TWLO	3.5%	-21.2%	55.0%
VRNT	-0.8%	15.5%	-25.5%
ZM	10.8%	-2.8%	6.2%
Communication Average	-2.5%	-14.3%	-3.0%
BIGC	-2.8%	-21.1%	11.3%
CRM	5.5%	20.5%	98.5%
CRTO	1.2%	30.2%	-2.8%
CVO	4.7%	17.8%	5.7%
CXM	7.0%	13.0%	47.4%
FRSH	-3.1%	-15.7%	59.7%
GLBE	0.3%	-15.4%	92.0%
HUBS	4.0%	8.8%	100.8%
LSPD	4.7%	-32.4%	46.8%
ONTF	-4.4%	-13.1%	-8.7%
SEMR	0.7%	-7.0%	67.8%
SHOP	-2.1%	-2.5%	124.4%
SPT	5.5%	4.1%	8.8%
WIX	3.8%	13.5%	60.1%
YEXT	2.9%	4.5%	-9.8%
ZETA	-0.8%	16.2%	8.0%
ZI	-1.7%	-9.9%	-38.6%
CRM Average	1.5%	0.7%	39.5%
ADBE	1.3%	-4.8%	77.3%
ADSK	1.5%	7.3%	30.3%
ANSS	0.9%	-6.5%	50.2%
AZPN	4.3%	-11.6%	7.2%
BSY	-2.5%	-1.9%	41.2%
CDNS	4.8%	16.8%	69.6%
DSY	-0.5%	-2.9%	32.1%
NEM	10.4%	-19.9%	-12.3%
PTC	3.3%	7.3%	45.8%
PTC	3.3%	7.3%	45.8%
U	-17.4%	-33.2%	43.0%
Design Average	0.9%	-3.8%	39.1%

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 21: Palantir within Infrastructure led the stock outperformance YTD

ERP & Back Office, HCM, and Infrastructure software stock performance

	1 Week	YTD	2023 Return
Nasdaq	-0.8%	7.1%	43.4%
S&P 500	-0.3%	7.3%	24.2%
ASAN	-4.6%	0.2%	38.1%
BILL	3.6%	-16.8%	-25.1%
BL	2.6%	7.3%	-7.2%
DOCU	6.8%	-3.8%	7.3%
EXFY	-5.2%	-11.7%	-72.0%
INTU	-2.3%	4.4%	60.6%
LAW	5.5%	-9.5%	20.1%
MANH	0.7%	19.4%	77.4%
QTWO	4.2%	13.2%	61.6%
SAP	-0.5%	22.8%	49.8%
UPLD	-1.4%	-40.5%	-40.7%
VERX	-4.0%	8.4%	85.7%
WK	-0.7%	-16.2%	20.9%
ZUO	12.4%	-0.5%	47.8%
ERP & Back Office Average	1.6%	-1.3%	22.2%
ADP	-0.8%	4.8%	-2.5%
DAY	1.7%	0.9%	4.6%
PAYC	3.7%	-10.6%	-33.4%
PAYX	-0.6%	2.1%	3.1%
PCTY	-1.3%	2.0%	-15.1%
PYCR	-5.0%	-8.7%	-11.8%
WDAY	-1.8%	-2.9%	65.0%
HCM Average	-0.6%	-1.8%	1.4%
AI	-8.2%	9.0%	156.6%
AMPL	-1.4%	-12.6%	5.3%
APPN	2.4%	-3.3%	15.7%
AYX	0.4%	2.3%	-6.9%
BASE	-2.7%	20.8%	69.8%
BBAI	-42.7%	15.9%	217.6%
CFLT	-7.7%	36.1%	5.2%
DDOG	-6.5%	0.6%	65.1%
DOMO	-13.7%	-4.6%	-27.7%
DT	-5.1%	-15.1%	42.8%
ESTC	-4.8%	-8.4%	118.8%
FROG	-3.9%	21.2%	62.3%
GTLB	-23.8%	-9.8%	38.6%
HCP	3.0%	10.8%	-13.5%
INFA	-0.4%	12.5%	74.3%
JAMF	0.4%	-0.8%	-15.2%
MDB	-15.7%	-9.5%	107.7%
MSFT	-2.3%	7.8%	56.8%
NOW	-2.4%	7.2%	82.0%
ORCL	0.5%	8.7%	29.0%
OTEX	-2.1%	-7.9%	41.8%
PATH	2.0%	-2.8%	95.4%
PD	-2.2%	3.9%	-12.8%
PEGA	-0.5%	33.2%	42.7%
PLTR	7.0%	49.8%	167.4%
SNOW	-8.9%	-18.5%	38.6%
SWI	1.2%	-2.0%	33.4%
TEAM	4.2%	-9.1%	84.8%
Infrastructure Average	-4.7%	6.2%	53.7%

Source: BofA Global Research, Bloomberg

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Exhibit 22: CrowdStrike within Security led the stock performance YTD

Security and Vertical software stock performance

	1 Week	YTD	2023 Return
Nasdaq	-0.8%	7.1%	43.4%
S&P 500	-0.3%	7.3%	24.2%
CHKP	2.6%	6.8%	21.1%
CLVT	1.3%	-22.8%	11.0%
CRWD	2.0%	25.3%	142.5%
CYBR	-0.2%	20.7%	69.0%
FTNT	0.5%	22.6%	19.7%
GEN	1.2%	-3.8%	6.5%
OKTA	-0.7%	19.8%	32.5%
PANW	-4.8%	-3.3%	111.3%
QLYS	1.9%	-12.4%	74.9%
RPD	-6.9%	-4.1%	68.0%
S	-0.1%	-1.4%	88.1%
SCWX	-4.7%	-12.3%	15.5%
TENB	-0.5%	3.1%	20.7%
ZS	-6.1%	-9.2%	98.0%
Security Average	-1.0%	2.9%	54.0%
APPF	-4.8%	31.2%	64.4%
BLKB	2.1%	-14.6%	47.3%
CCCS	5.4%	9.7%	30.9%
COUR	-1.7%	-21.9%	63.7%
CPLF	4.3%	4.6%	5.2%
CWAN	-3.3%	-15.3%	6.8%
DH	-5.7%	-15.4%	-9.6%
DOX	1.1%	6.0%	-3.3%
ENFN	-1.6%	-12.7%	0.3%
ETWO	0.9%	-2.3%	-25.2%
EVCN	3.2%	-11.3%	48.3%
GWRE	-2.4%	6.3%	74.3%
INST	-3.6%	-21.8%	15.2%
INTA	-9.1%	-9.7%	52.4%
IOT	8.8%	17.0%	168.5%
KARO	4.4%	7.4%	4.3%
MLNK	-3.1%	-26.0%	80.4%
MODN	2.4%	-5.9%	-33.6%
NCNO	-2.0%	-12.5%	27.2%
PAR	0.9%	-2.0%	67.0%
PCOR	1.2%	15.0%	46.7%
PRO	-1.3%	-7.6%	59.9%
PWSC	0.1%	-12.1%	2.1%
SPSC	-2.6%	-4.8%	50.9%
TEMN	-2.7%	-16.4%	54.2%
TOST	2.2%	36.5%	1.3%
TWOU	-6.4%	-67.9%	-80.4%
TYL	-2.6%	2.1%	29.7%
VEEV	1.0%	18.5%	19.3%
WEAV	-7.8%	2.4%	150.4%
Vertical Average	-0.8%	-4.1%	34.0%

Source: BofA Global Research, Bloomberg

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