February 4, 2022

Collaborative Research

KeyBanc Capital Markets

What We've Learned So Far from 2022

Revisiting Our Key Ideas from KBCM Software

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Contents

Software Team Coverage List

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Software Coverage List

ALKT
AVDX
BIGC
BILL
BL
BLND
BTRS
COUP
ESMT
GLBE
INTU
LSPD
NCNO
PAYC
PCTY
PLAN
QTWO
SHOP
SQSP
TOST
VTEX
WIX

Cloud Infrastructure

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Software Coverage List

AKAM
ANET
CVLT
FFIV
FSLY
JNPR
NET
NTNX
PSTG
VMW

Vertical Software

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Software Coverage List

ANSS
APPF
AZPN
ADSK
BSY
CDNS
CHGG
COUR
DSY-FR
HRT
LTCH
MTLS
PCOR
PRO
PTC
SPSC
SNPS
STER
TRMB
TWOU
UDMY

Collaboration & DevOps Software

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Software Coverage List

APPN
ASAN
BAND
BOX
DAVA
DBX
EPAM
FIVN
GLOB
GTLB
HCP
FROG
KLTR
LPSN
ONTF
PATH
PEGA
RNG
SMAR
TEAM
TWLO
VG
ZM

Enterprise Software

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Software Coverage List

AI
AMPL
AYX
CHKP
CFLT
CRM
CXM
DDOG
DOCN
FTNT
GTLB
HCP
HUBS
MSFT
NEWR
NOW
OKTA
ORCL
PANW
PATH
RPD
SEMR
SPLK
SPT
TEAM
TWLO
WDAY
WKME

Emerging Tech Summit 2022

KeyBanc Capital Markets | MOSAIC.

Join us in-person, where more than 150 public and private companies will be presenting either individually or in one of our thematic panel discussions, at our 17th Annual KBCM Emerging Technology Summit in San Francisco, CA.

Technology continued to outperform in 2021 despite a tumultuous year of headwinds, including global supply chain issues, labor shortages, inflation concerns, and a lingering pandemic. This year's Emerging Technology Summit will explore how technology-driven companies are navigating and winning in the new normal. Executives from leading Enterprise & Vertical Software, Semiconductors, IT & Digital Infrastructure, Internet & Media, E-Commerce, and FinTech companies will be in attendance.

Notable public companies:

SEMRUSH, paycom, bill.com, ON24, avidxchange, Amplitude, PROCORE, ptc, PURESTORAGE, box, appian, VTEX, zoom, SYNOPSYS, PEGA, coursera, sproutsocial, Dropbox

25+ Unicorns:

dialpad, Own{backup}, workhuman, BlockFi, GOATGROUP, databricks, pony.ai, data iku, Gympass, Icertis, acorns, bigpanda, Alation, contentful, impact.com, neo4j, tipalti, sumup, Rapyd, Collibra

Source: Company reports

Portfolio Manager Summary

The KBCM software team projects a healthy overall IT spending environment (link to KBCM CIO survey) as the current market correction (SaaS multiple off 42%) matches prior historical max drawdown (45%). Against this backdrop, our key ideas encompass secular/tactical themes such as: 1) market leading platforms: SHOP, BILL, TEAM; 2) rising digitization tailwinds: AVDX, PCOR, FIVN, COUR; 3) computing modernization: FFIV, NET, PSTG; and 4) high conviction quality: MSFT, PANW, SNPS

KBCM Software Team: Key Ideas for 2022

Analyst	Sector	Company	Ticker	Market Cap ($B)	Current Price	Price Target
Beck	Commerce & Backoffice Software	Shopify Bill.com AvidXchange	SHOP BILL AVDX	$101.6 $17.5 $2.1	$809.44 $170.3 $10.0	$1,250 $250 $15
Blakey	Cloud Infrastructure	Cloudflare, Inc. F5 Inc. Pure Storage, Inc.	NET FFIV PSTG	$30.4 $12.6 $8.0	$96.66 $204.24 $25.94	$132 $256 $36
Celino	Vertical Software	Procore Technologies, Inc. Coursera, Inc. Synopsys, Inc.	PCOR COUR SNPS	$8.7 $3.3 $47.7	$59.61 $19.97 $303.51	$117 $35 $445
Enders	Collaboration & DevOps Software	Five9, Inc. Atlassian Corporation PLC	FIVN TEAM	$8.3 $77.6	$122.98 $304.41	$208 $442
Turits	Enterprise Software	Microsoft Palo Alto	MSFT PANW	$2,260 $48.6	$301.25 $492.41	$373 $615

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022

What Have We Learned So Far in 2022…

New (open ended) debates—

- **Front Office (FO) vs. Back Office (BO) Prioritization Debate—FO pull forward or just natural decel on tough comps?**
  - Bear: “Pull forward” of FO spend into ‘20-’21, priority shift to back-office/infrastructure and toughening comps result in rapid decel.
  - Bull: Front office Digital Transformation continues post-COVID at sustained growth levels for several years.
- **Cracks in low-end consumer. Does slowing low-end consumer e-Com spending (generally more discretionary) in Dec/Jan expand to other consumer and/or SMB segments?**
  - Bear: Choppy consumer spending hampered by inflation and lack of stimulus bleeds into other consumer segments and SMB.
  - Bull: Inflation, labor constraints, and normalizing economic growth drive increased investments in technology.
- **Supply Chain and Labor Constraints—How much impact on 2022?**
  - Bear: Ongoing component shortages constrain shipments, manufacturing, data center refreshes; labor constraints slow project, hiring, sales capacity; both further drive inflation.
  - Bull: Constraints not disappearing but ease, businesses adapting with earlier ordering, automation, digital collaboration, with the latter a positive for IT/SW spend.

Emerging potential tailwinds (+) and headwinds (-) to monitor from recent reports

(+) Enterprise IT budgets, supported by positive Q4 earnings/outlooks from MSFT, NOW, TEAM, and GOOG.
(+) Strong cloud results from Azure (46% CC growth + guide to acceleration), Google Cloud +45%, and AWS +40% y/y.
(+) SMB off to a reasonable start with positive results from Bill.com (BILL) and Lightspeed (LSPD).
(+) XM: positive print encouraging for emerging front office sub-segments.
(+) Strong initial security results from CHKP and FTNT.

(-) Low-end consumer weakness in Jan/Dec cited by KFL e-Com data and PayPal.
(-) Internet/Social FB/META $10B headwind from IDFA.
(-) Concern regarding Observability with DT q/q deceleration.
(-) Supply chain negative impacts include FTNT, FFIV.

Updated thoughts on Software Valuations….where do we go from here?

- **Current market correction (SaaS multiple off 42%) matches prior historical max drawdown (45%).** Positive company data points tied to 2022 IT budgets support our case that the current market correction could prove to be in the late innings.
- **Relative risk of High-Growth software stocks starting to ease.** The EV/rev premium investors pay for high-growth (>30%) vs. overall software has narrowed to about its 5-year average. While still above the 10-year average, we believe the correction could provide an opportunity to revisit higher-growth names.

2022 Software: Key Ideas

	GARP [growth at a reasonable price]		Core Growth [core growth holdings over a multi-year period]	
LARGE-cap [$10B+ market cap.]	**FFIV** 8.6% growth (CY22)	EV/EBITDA (CY23) 11.1x	**BILL** 22% growth (CY23) 35% Core/Diivy 2yr CAGR	EV/R (CY23) 19.6x
	PANW 22.5% growth (FY23)	EV/FCF (FY23) 27.0x	**MSFT** 13.1% growth (FY23)	EV/FCF (FY23) 28.9x
	SNPS 10% growth (CY22)	EV/FCF (FY23) 30.5x	**NET** 41% growth (CY22)	EV/R (CY22) 32.5x
			SHOP 32% growth (CY23)	EV/R (CY23) 12.3x
			TEAM 24% growth (FY23)	EV/R (FY23) 21x
SMID-cap [$1B-10B market cap.]	**AVDX** 20% growth (CY23)	EV/R (CY23) 4.6x	**FIVN** 24% growth (CY23)	EV/R (CY23) 10x
	COUR 26% growth (CY23)	EV/R (CY23) 3.7x	**PCOR** 23% growth (CY23)	EV/R (CY23) 9.7x
	PSTG 19.3% growth (CY23)	EV/EBITDA (CY23) 16.8x		

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022

Software Valuations: Peak-to-Trough Valuation Analysis

	2014 Feb. to 2014 Oct.				2015 Jun. to 2016 Feb.				2018 Sep. to 2018 Dec.				2019 Jul. to 2019 Oct.			
	Peak	Trough	Delta (x)	Delta (%)	Peak	Trough	Delta (x)	Delta (%)	Peak	Trough	Delta (x)	Delta (%)	Peak	Trough	Delta (x)	Delta (%)
Broad Universe	6.4x	4.4x	2.0x	-31.6%	5.4x	3.2x	2.2x	-40.9%	7.5x	5.8x	1.7x	-22.6%	8.2x	6.9x	1.3x	-16.4%
>30%	15.2x	7.8x	7.4x	-48.8%	8.5x	3.6x	5.0x	-58.2%	12.2x	9.3x	2.9x	-23.7%	15.8x	11.8x	4.0x	-25.4%
25-30%	10.3x	5.0x	5.3x	-51.8%	6.2x	3.0x	3.2x	-52.0%	10.6x	7.2x	3.3x	-31.6%	10.5x	8.5x	1.9x	-18.4%
15-25%	4.9x	4.0x	0.9x	-18.4%	4.8x	2.8x	2.0x	-41.2%	7.9x	6.2x	1.6x	-20.8%	7.6x	6.7x	0.9x	-11.6%
<15%	3.8x	3.3x	0.5x	-13.0%	3.9x	3.1x	0.8x	-20.4%	5.3x	4.3x	1.0x	-18.9%	5.4x	5.0x	0.4x	-6.6%
SaaS	8.9x	5.3x	3.6x	-40.9%	5.8x	3.1x	2.6x	-45.5%	9.1x	6.9x	2.3x	-24.8%	10.8x	8.3x	2.5x	-22.9%
On-Prem	4.8x	3.7x	1.1x	-22.3%	4.7x	3.2x	1.6x	-32.7%	5.9x	4.8x	1.1x	-19.2%	6.0x	5.4x	0.6x	-9.7%
Saas >30% vs. Broad	8.9x	3.4x	5.4x	-61.2%	3.1x	0.4x	2.7x	-88.5%	4.7x	3.5x	1.2x	-25.4%	7.6x	4.9x	2.7x	-35.0%

	2020 Feb. to 2020 Mar.				2021 Feb. to 2021 May.				2021 Nov. to Present				Current Period		Historical Avg.		Historical Max	
	Peak	Trough	Delta (x)	Delta (%)	Peak	Trough	Delta (x)	Delta (%)	Peak	Present	Delta (x)	Delta (%)	Delta (x)	Delta (%)	Delta (x)	Delta (%)	Delta (x)	Delta (%)
Broad Universe	8.7x	6.2x	2.6x	-29.5%	14.3x	10.2x	4.0x	-28.3%	13.5x	9.0x	4.5x	-33.4%	4.5x	-33.4%	2.3x	-28.2%	4.0x	-40.9%
>30%	16.9x	12.1x	4.8x	-28.4%	31.2x	18.8x	12.4x	-39.8%	29.5x	16.2x	13.3x	-45.2%	13.3x	-45.2%	6.1x	-37.4%	12.4x	-58.2%
25-30%	11.6x	9.7x	1.9x	-16.8%	23.1x	12.4x	10.8x	-46.6%	15.3x	9.0x	6.3x	-40.9%	6.3x	-40.9%	4.4x	-36.2%	10.8x	-52.0%
15-25%	7.6x	4.9x	2.7x	-35.1%	14.0x	10.0x	4.0x	-28.6%	11.4x	7.6x	3.9x	-33.8%	3.9x	-33.8%	2.0x	-26.0%	4.0x	-41.2%
<15%	5.6x	4.0x	1.6x	-29.3%	7.3x	6.0x	1.3x	-17.5%	6.5x	5.8x	0.7x	-10.2%	0.7x	-10.2%	0.9x	-17.6%	1.6x	-29.3%
SaaS	10.0x	7.1x	3.0x	-29.5%	18.2x	12.0x	6.2x	-33.9%	17.0x	10.0x	7.1x	-41.5%	7.1x	-41.5%	3.4x	-32.9%	6.2x	-45.5%
On-Prem	6.3x	4.4x	2.0x	-31.0%	9.2x	7.8x	1.4x	-15.5%	8.9x	7.0x	2.0x	-22.1%	2.0x	-22.1%	1.3x	-21.7%	2.0x	-32.7%
Saas >30% vs. Broad	8.1x	5.9x	2.2x	-27.3%	16.9x	8.6x	8.4x	-49.5%	16.0x	7.2x	8.8x	-55.2%	8.8x	-55.2%	3.8x	-47.8%	8.4x	-88.5%

Last updated 2/3/2022

*We have set a new low on Jan. 27 with SaaS multiple dipping to **9.4x**, which is a **46%** drawdown from Nov. peak (vs. prior historical max of **45%**).*

See our latest weekly Software Valuation Charts for more details

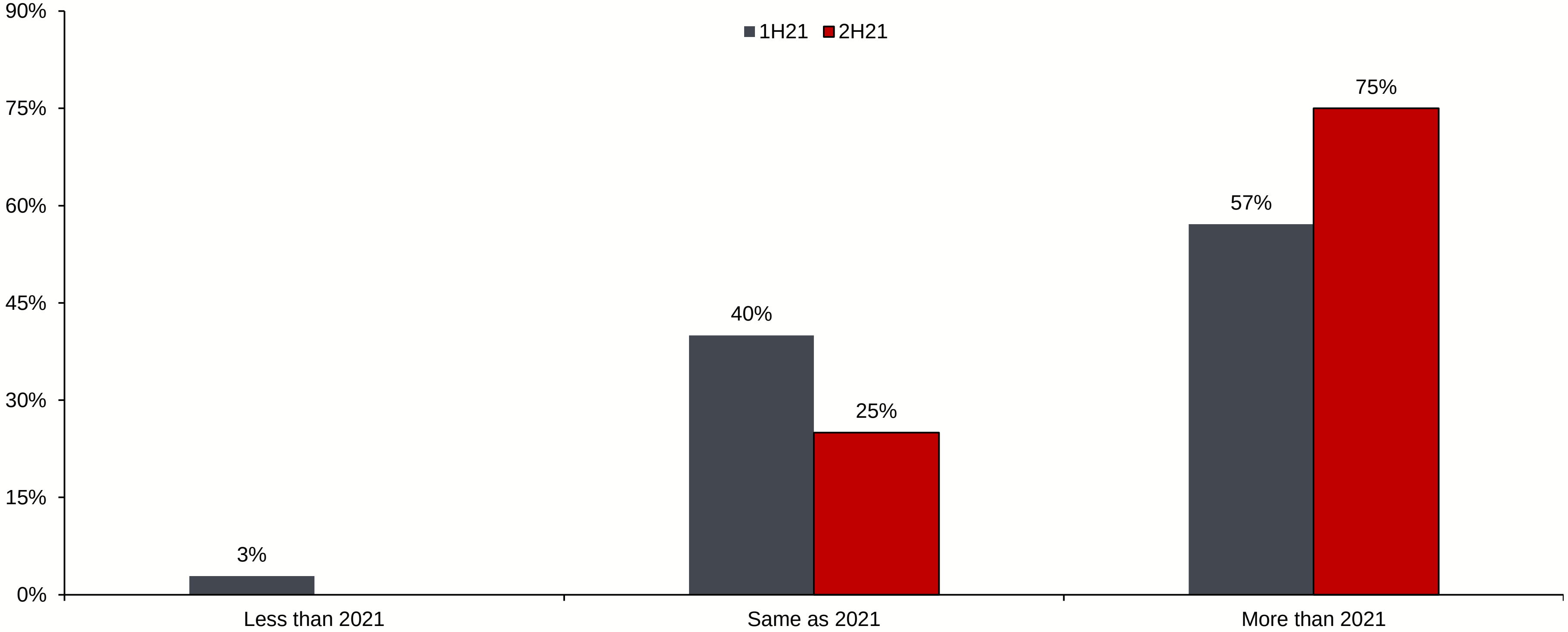
Source: Company reports, Thomson Reuters, KBCM estimates
Note: Prices as of close February 2, 2022

2H21 CIO Survey: IT Budget Strength Suggests Sell-Off Could Be Bottoming

What are you forecasting for your CY22 total IT budget relative to your CY21 IT budget?

Average Expected CY22 Budget Growth:

+4.1% as of 1H21 ***+7.0% as of 2H21***



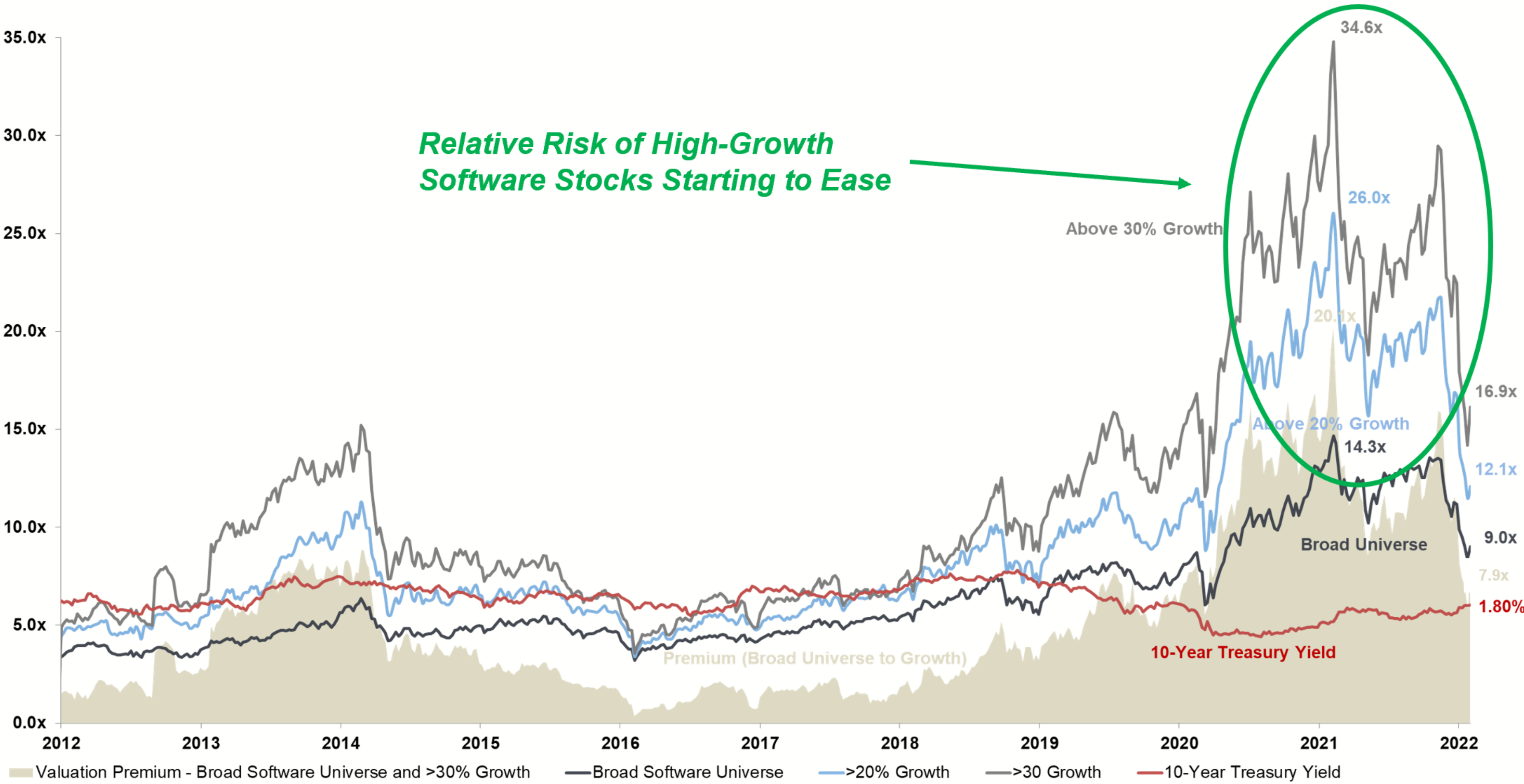
Key Takeaways:

1. **+5.7% expected growth in CY21 budget** vs. 7.1% as of 1H21 and 3.4% as of 2H20 (Gartner 12.2% for 2021)
2. **SMB vs. Enterprise:** SMB (<10,000 employees) higher expected growth at +6.1% y/y vs. Enterprise at +5.1%

See our +75 slides 2H21 CIO Survey deck here.

N= 32
Source: KBCM

Software Valuations: 10-Yr NTM EV/Rev & 10-Yr Yield



Last updated 2/3/2022

See our latest weekly Software Valuation Charts for more details

Source: Company reports, Thomson Reuters, KBCM estimates
Note: Prices as of close February 3, 2022

Software Valuations: 1/3/5/10 Year EV/R Delta

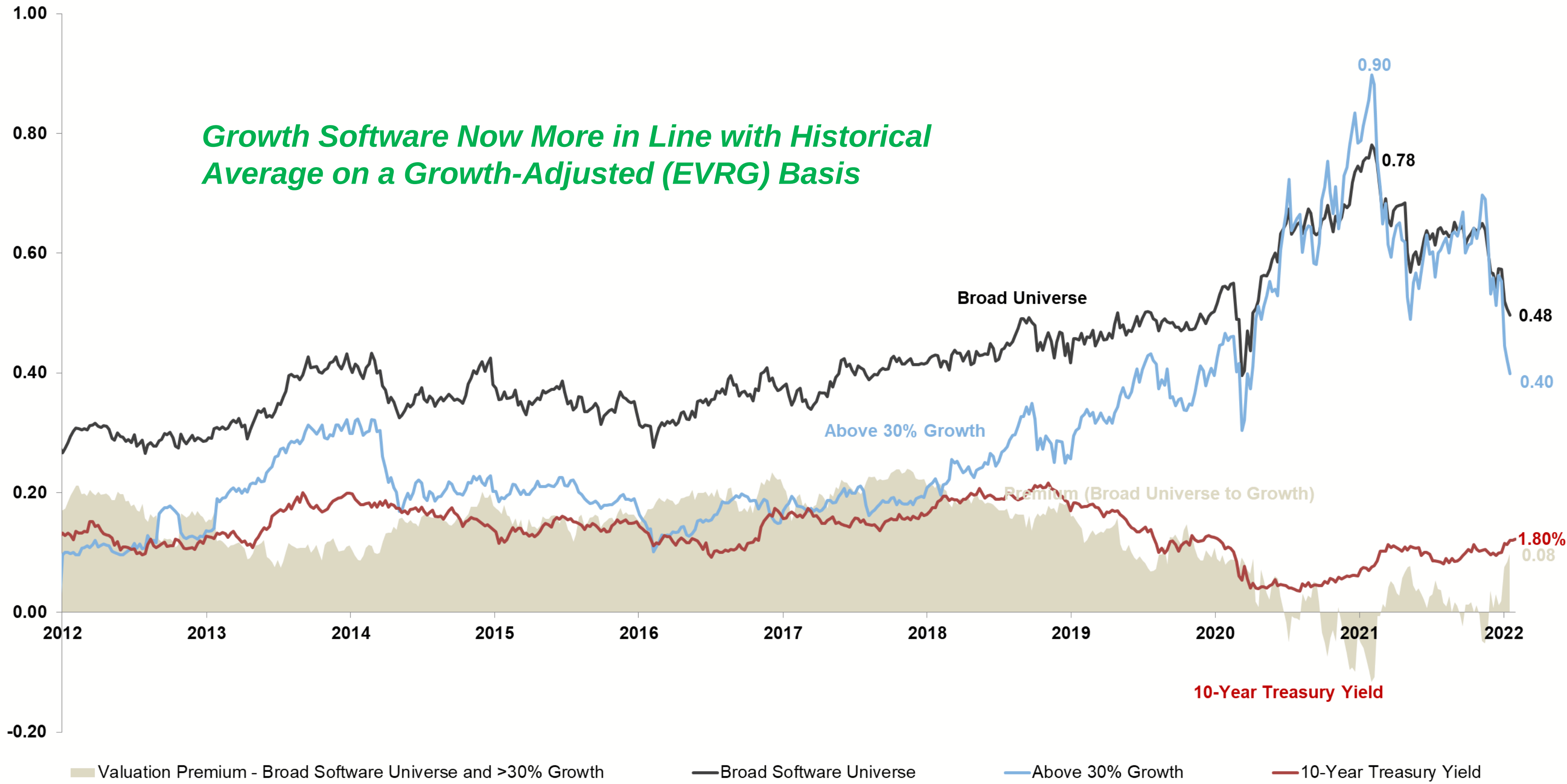
		Total Software	>20% Growth	Delta (>20% to	>30% Growth	Delta (>30% to
EV/NTM REV	**Current**	**9.0X**	**12.1X**	**3.1X**	**16.2X**	**7.2X**
Downside	*Points*	*-2.6X*	*-2.9X*	*-0.3X*	*-4.6X*	*-1.9X*
To 10-Yr Avg	*%*	*-29%*	*-24%*	*-9%*	*-28%*	*-27%*
	Max	14.7X	26.0X	11.3X	34.8X	20.1X
1-Year	**Average**	**12.1X**	**18.8X**	**6.6X**	**23.8X**	**11.5X**
	Min	8.4X	11.5X	3.1X	14.2X	5.8X
	Max	14.7X	26.0X	11.3X	34.8X	20.1X
3-Year	**Average**	**9.9X**	**15.3X**	**4.5X**	**19.9X**	**8.3X**
	Min	6.0X	8.9X	1.1X	11.3X	1.5X
	Max	14.7X	26.0X	11.3X	34.8X	20.1X
5-Year	**Average**	**8.2X**	**12.1X**	**3.9X**	**15.2X**	**7.0X**
	Min	4.4X	5.2X	0.7X	6.0X	1.0X
	Max	14.7X	26.0X	11.3X	34.8X	20.1X
10-Year	**Average**	**6.4X**	**9.2X**	**2.8X**	**11.6X**	**5.2X**
	Min	3.2X	3.4X	0.2X	3.6X	0.4X

Delta between premium growth closer to 5-yr average but still above 10-yr average

Last updated 2/3/2022

See our latest weekly Software Valuation Charts for more details

Software Valuations: 10-Yr NTM EVRG & 10-Yr Yield



Last updated 2/3/2022

See our latest weekly Software Valuation Charts for more details

KeyBanc Capital Markets

Source: Company reports, Thomson Reuters, KBCM estimates
Note: Prices as of close February 3, 2022

February 4, 2022

Software Valuations: 1/3/5/10 Year EV/R/G Delta

		Total Software	>20% Growth	Delta >20% to	>30% Growth	Delta >30% to
EVRG	**Current**	**0.48**	**0.37**	**0.11**	**0.40**	**0.09**
Downside	*To 10-Yr Avg*	*-0.05*	*-0.06*	*0.01*	*-0.10*	*0.04*
	Max	0.77	0.82	0.12	0.88	0.12
1-Year	**Average**	**0.62**	**0.58**	**0.05**	**0.60**	**0.02**
	Min	0.47	0.35	-0.04	0.35	-0.11
	Max	0.78	0.83	0.18	0.90	0.21
3-Year	**Average**	**0.57**	**0.50**	**0.09**	**0.53**	**0.08**
	Min	0.40	0.30	-0.04	0.30	-0.12
	Max	0.78	0.83	0.20	0.90	0.24
5-Year	**Average**	**0.51**	**0.41**	**0.11**	**0.41**	**0.10**
	Min	0.34	0.19	-0.04	0.16	-0.12
	Max	0.78	0.83	0.21	0.90	0.24
10-Year	**Average**	**0.43**	**0.31**	**0.12**	**0.30**	**0.13**
	Min	0.27	0.12	-0.04	0.10	-0.12

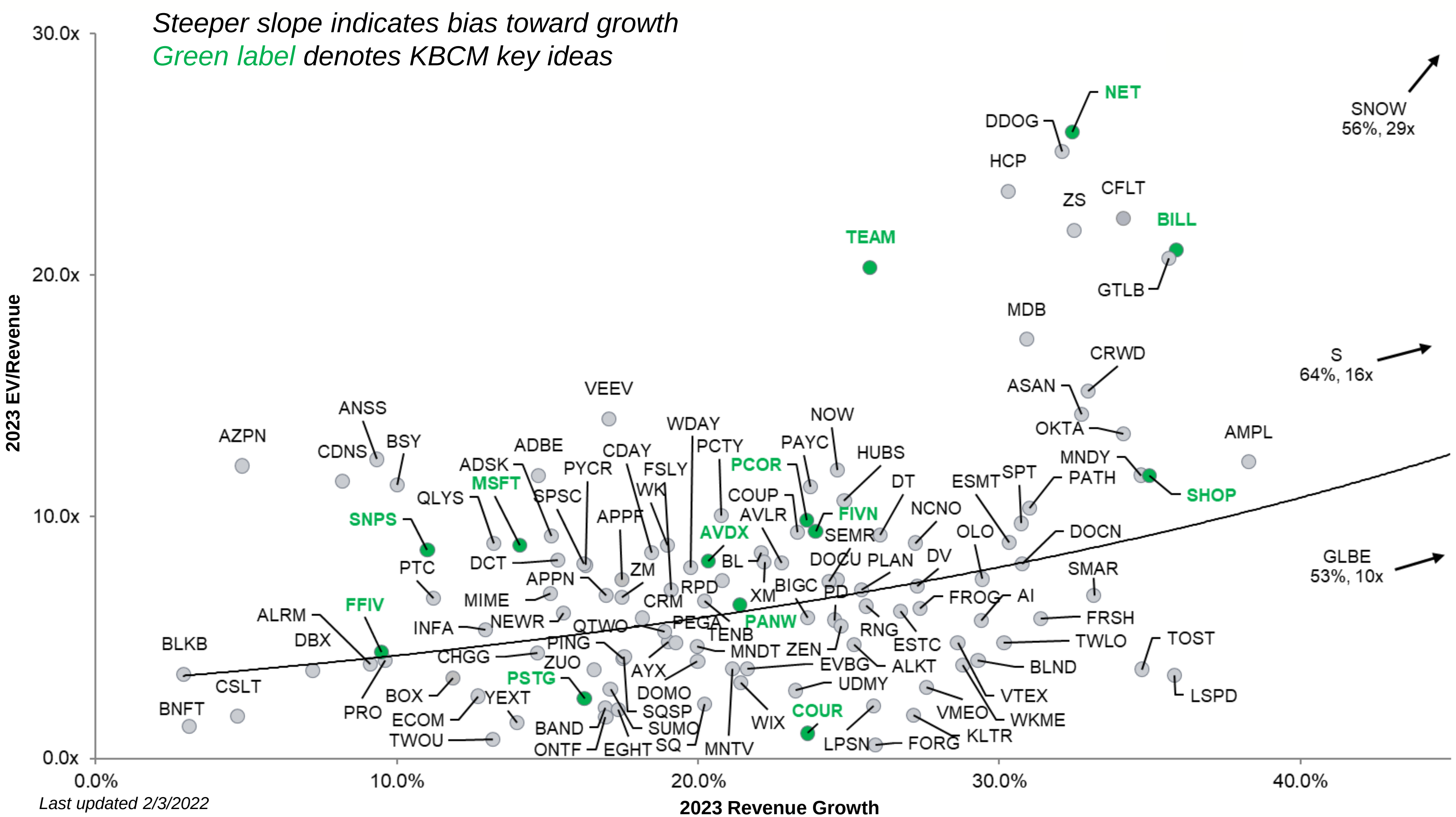
With EVRGs back from their .02 average premium over the last year to their historical ~-0.10 level, the market appears to be more properly accounting for risk in high-growth names— suggesting an opportunity to revisit higher growth names

Last updated 2/3/2022

See our latest weekly Software Valuation Charts for more details

Source: Company reports, Thomson Reuters, KBCM estimates
Note: Prices as of close February 2, 2022

Software Valuations: EV/Revenue-to-Growth



Last updated 2/3/2022

N=119 includes the following tickers: ADBE ADSK AI ALKT ALRM AMPL ANSS APPF APPN ASAN AVDX AVLR AYX AZPN BAND BIGC BILL BL BLKB BLND BNFT BOX BSY CDAY CDNS CFLT CHGG COUP COUR CRM CRWD CSLT DBX DCT DDOG DOCN DOCU DOMO DT DV ECOM EGHT ESMT ESTC EVBG FIVN FFIV FORG FROG FRSH FSLY GLBE GTLB HCP HUBS INFA KLTR LPSN LSPD MDB MIME MNDT MNDY MNTV MSFT NCNO NET NEWR NOW OKTA OLO ONTF PANW PATH PAYC PEGA PCOR PCTY PD PING PLAN PRO PSTG PTC PYCR QLYS QTWO RNG RPD S SEMR SHOP SMAR SNOW SNPS SPSC SPT SQ SQSP SUMO TEAM TENB TOST TWLO TWOU UDMY VEEV VMEO VTEX WDAY WIX WK WKME XM YEXT ZEN ZM ZS ZUO

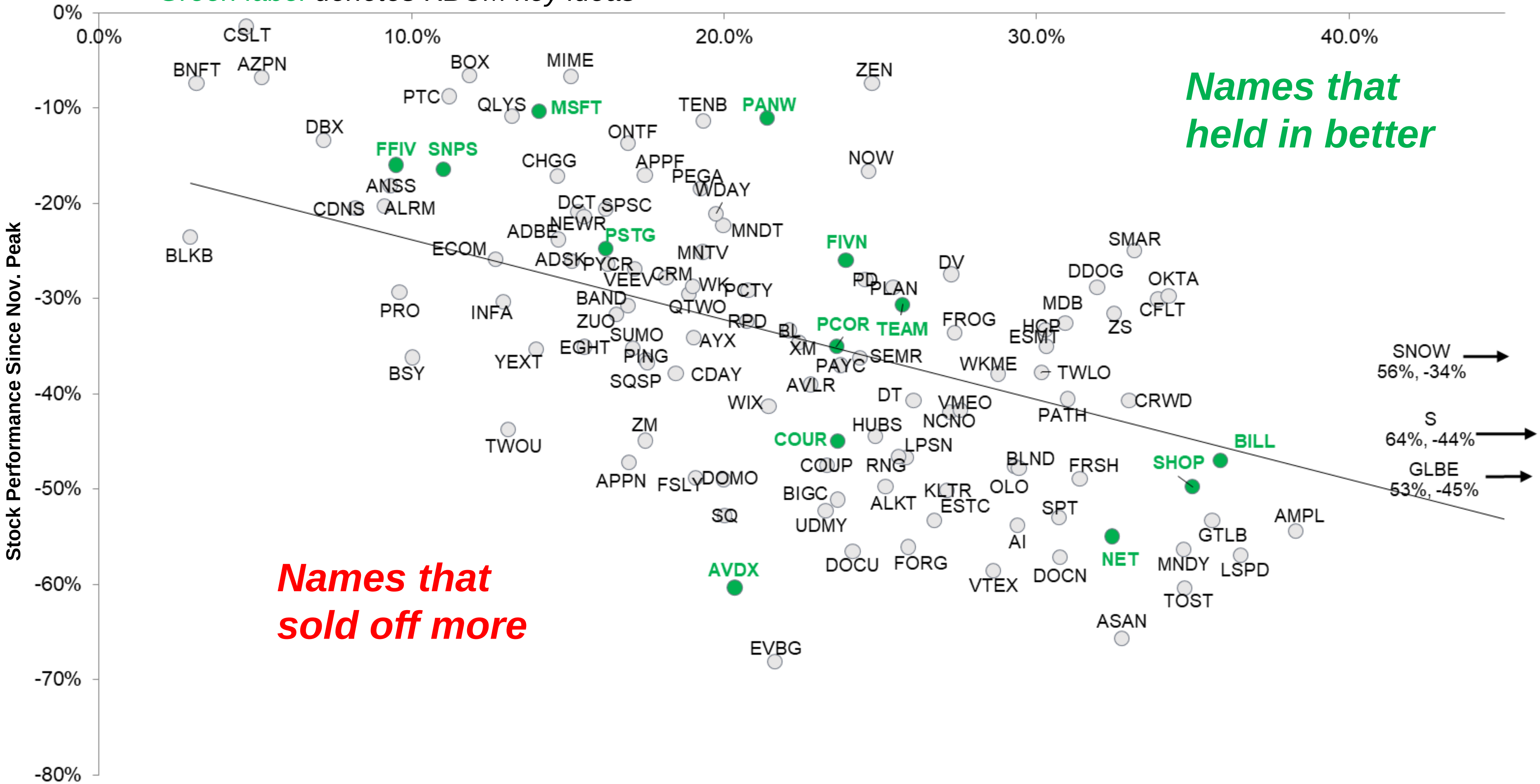
See our latest weekly [Software Valuation Charts](#) *for more details*

KeyBanc Capital Markets

Source: Company reports, Thomson Reuters, KBCM estimates
Note: Prices as of close February 3, 2022

Who’s Pulled Back the Most Relative to Growth

Green label denotes KBCM key ideas



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See our latest weekly [Software Valuation Charts](#) *for more details*

Source: Company reports, Thomson Reuters, KBCM estimates
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KBCM Software Team 2022 Outlooks

Celino- ***Vertical Software Outlook***

January 9, 2021

KeyBanc Capital Markets

2022 Vertical Software Outlook

We're Feeling 22 – and a Little More Tactical. Key Ideas and Themes.

Vertical Software
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Enders- ***Collab & DevOps Outlook***

January 13, 2022

KeyBanc Capital Markets

Collab & DevOps Software
2022 Outlook

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Blakey- ***Cloud Infrastructure Launch/ Outlook***

January 18, 2022

KeyBanc Capital Markets

Cloud Infrastructure:
Rise of the Incumbents and Edge
Incumbent and Edge IT Providers Benefit as Enablers of Hybrid, Distributed Compute
Initiating: FFIV, FSLY, JNPR, NET, NTNX, VMW
Transitioning: AKAM, ANET, CSCO, CVLT, PSTG

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Beck- ***Commerce & Backoffice Software Outlook***

January 24, 2022

KeyBanc Capital Markets

2022 Software Outlook:
A High Bar (Commerce & Backoffice)
Commerce: SHOP, GLBE, BIGC, VTEX, TOST, LSPD, SQSP, WIX
Backoffice: BILL, COUP, INTU, AVDX, ESMT, BTRS, PLAN, BL, PAYC, PCTY, NCNO, ALKT, BLND, QTWO

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Turits- ***Enterprise Software Outlook***

Enterprise Software: (+) 2022 Outlook – Pos. on Cloud & Security, More Selective on Front Office (CXM to SW)

For 2022, we expect: 1) continued strong Enterprise Software spending growth; 2) the broadening of priorities to infrastructure and backoffice modernization from 2020/2021's front-office/WFH focus; and 3) continued strength in public cloud and security (preview). After a 48% pullback from 52-week highs in >30% growth software stocks vs. a 39% pullback for software overall and 4% for S&P, we see the relative risk of high-growth software stocks beginning to moderate. However, with growth valuations still above historical levels even in increasingly prioritized sectors observability, data/analytics, and cloud management, we view risk/rewards for covered names there as neutral. Remain positive on Cloud (key ideas MSFT, DOCN) and Security (key ideas PANW, OKTA). Maintain positive overall front-office outlook (key ideas HUBS, SPT) but downgrading enterprise-focused social media management vendor CXM to SW to be more selective in front office as spending broadens to infrastructure. Lowering PTs to reflect revised market conditions.

Source: Company reports

Josh Beck

The Year Ahead (2022): Commerce & Backoffice Software

KeyBanc Capital Markets

February 4, 2022

Beck: Commerce & Backoffice Software

2022 Investment Themes

- **Digital Persistence:** The industry bull case is premised upon a structural increase in commerce digitization consistent with our Digital Persistence thesis.
- **Backoffice Prioritization:** Rising Backoffice prioritization following ~two years of lower consideration as customer-facing/front-office and employee facing/middle-office took precedent to adjust to at-home conditions.
- **Valuation:** Improving risk/reward following a significant market creation justified by a DCF, MT normalized EBITDA multiples, and prior cycle analysis.

2022 Key Ideas

1. **SHOP:** We believe Shopify's cloud-based, mobile-centric platform is well positioned to capitalize on the m-com wave given an impressive innovation velocity and vibrant partner ecosystem. Multiple initiatives, including international, payments, FinTech, and the up-market pivot, could ramp ahead of expectations, which we think warrants commensurate investment and a tradeoff that favors growth in lieu of margins, particularly considering strong LTV:CAC ratios.
2. **BILL:** BILL.com has a significant SMB moat due to a strong PMF honed over years of product development, unique accounting/FI partnerships, and sizable network effects via an ecosystem of buyers and suppliers (~2M). Our estimates could prove conservative if digital payments penetration, new products, and customer growth benefit more than expected from increased investment .
3. **AVDX:** Compelling network effects (e.g., 7K buyers, 700K suppliers), a fragmented mid-market accounting ecosystem (200+ integrations), and multi-vertical domain expertise (e.g., real estate, construction, etc.) create a formidable competitive moat. Multiple initiatives could offer upside, including: 1) new logos; 2) payments digitization; 3) supplier financing; 4) new verticals; and 5) strategic M&A

Source: KeyBanc Capital Markets Inc. estimates.

SHOP: Retail Operating System Scaling Up

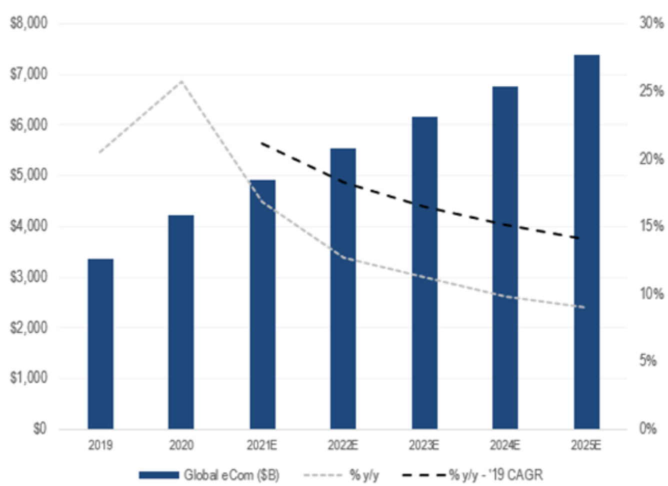
Market Cap: $101.6B
Current Share Price: $809.44

Upside to Price Target ($1,250): 54.4%
Current Valuation (CY23 Revenue): 12.3x

Our Call

- **Digital Persistence.** While we project GMV growth to moderate in ’22 to around the mid-30s growth, on a ’19 CAGR basis we still see high-30s GMV growth, which is structurally higher than what we had anticipated pre-COVID.
- **Shop app trajectory continues.** Shop App has showed encouraging momentum (see our survey), and we expect that continue in ’22 as it remains a top downloaded app tracking the top 10 shopping apps according *App Annie*, and adds a credible growth narrative to the story.
- **SFN confidence re-bounds.** Following a *Business Insider* article citing capacity woes, confidence in SFN has down-ticked. We see delivery and pick/pack fees as compromising ~80% of the cost structure and wouldn’t expect a material deviation from own vs. leased warehouse space, which is an option SHOP articulated at project launch.

Global e-Com GMV
($M, annual)



SHOP: KBCM vs. Consensus

($ in millions)	2020A	2021E	2022E	2023E
Revenue	**$2,929.5**	**$4,511.8**	**$5,950.0**	**$7,838.0**
Y/Y Growth	*85.6%*	*54.0%*	*31.9%*	*31.7%*
Consensus	-	*$4,577.8*	*$6,124.0*	*$8,258.0*
Operating Income	**$437.4**	**$670.8**	**$650.0**	**$840.3**
Operating Margin	*14.9%*	*14.9%*	*10.9%*	*10.7%*
Consensus	-	*$739.7*	*$762.0*	*$1,100.0*

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

BILL: SMB Financial Operations Platform Unfolding

Market Cap: $17.5B
Current Share Price: $170.30

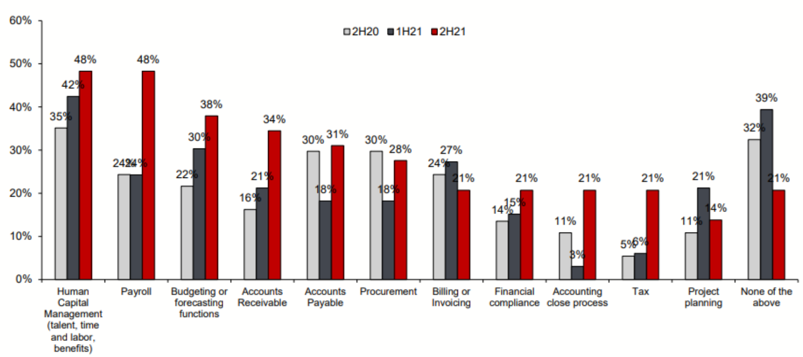
Upside to Price Target ($250): 46.8%
Current Valuation (CY23 Revenue): 19.6x

Our Call

- **Backoffice demand returns.** Backoffice applications such as procurement, B2B, financial operations, and HCM may prove to be second-order WFH/Digital Acceleration beneficiaries with rising consideration as DT continues and we move to an "endemic" state. CIO survey results support the theme of returning demand.
- **Core business fueled by balance of customer growth and payments monetization.** Channel diversification across channels such as direct, accounting, partner and bank continue to track well while payments monetization (e.g., x-border, virtual) continues to ramp, driving 65%+ organic growth in FY22.
- **Synergies bear out across two-sided network.** Divvy and Invoice2Go synergies play out faster than anticipated, scaling to a $250M+ run-rate exiting FY22.

KBCM 2H21 CIO Survey

For which of the following financial or backoffice applications are you most likely to consider a SaaS solution?



BILL: KBCM vs. Consensus

($ in millions)	FY20A	FY21A	FY22E	FY23E
Revenue	**$157.6**	**$238.3**	**$598.6**	**$750.0**
Y/Y Growth	-	*51.2%*	*151.2%*	*25.3%*
Consensus	-	-	*-$541.5*	*-$742.2*
Operating Income	**($15.0)**	**($14.7)**	**($32.6)**	**($60.0)**
Operating Margin	*-9.5%*	*-6.2%*	*-5.4%*	*-8.0%*
Consensus	-	-	*($68.2)*	*($48.6)*

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

AVDX: Core Mid-market B2B Automation Propels Steady Growth

Market Cap: $2.1B
Current Share Price: $10.00

avidxchange

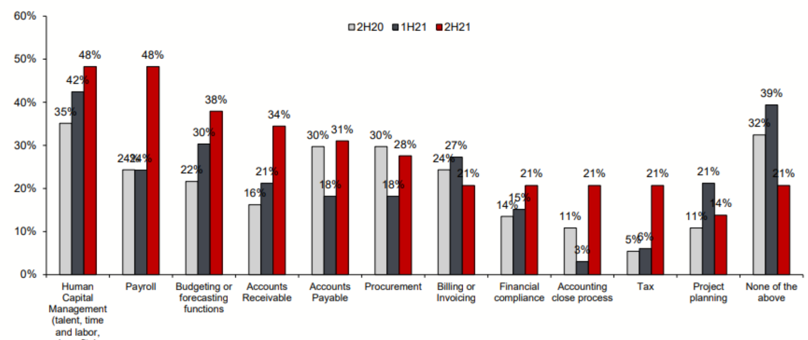
Upside to Price Target ($15): 50%
Current Valuation (CY23 Revenue): 4.6x

Our Call

- **Backoffice demand returns.** Backoffice applications such as procurement, B2B, financial operations, and HCM may prove to be second-order WFH/Digital Acceleration beneficiaries with rising consideration as DT continues and we move to an "endemic" state. CIO survey results support the theme of returning demand.
- **Inflation proves a tailwind.** With an attractive payments monetization model the veers towards transaction size (e.g., virtual, AvidPay Direct), inflation proves to be a tailwind while supply chain interruptions are minimized provided a domestic-centric set of end markets.
- **S&M ROI bears out.** We project AvidXchange to spend more on S&M increase the level of automation within the attractive B2B mid-market segment, which should lead to a pick-up in new logos as we'd expect payback periods to remain consistent.

KBCM 2H21 CIO Survey

For which of the following financial or backoffice applications are you most likely to consider a SaaS solution?



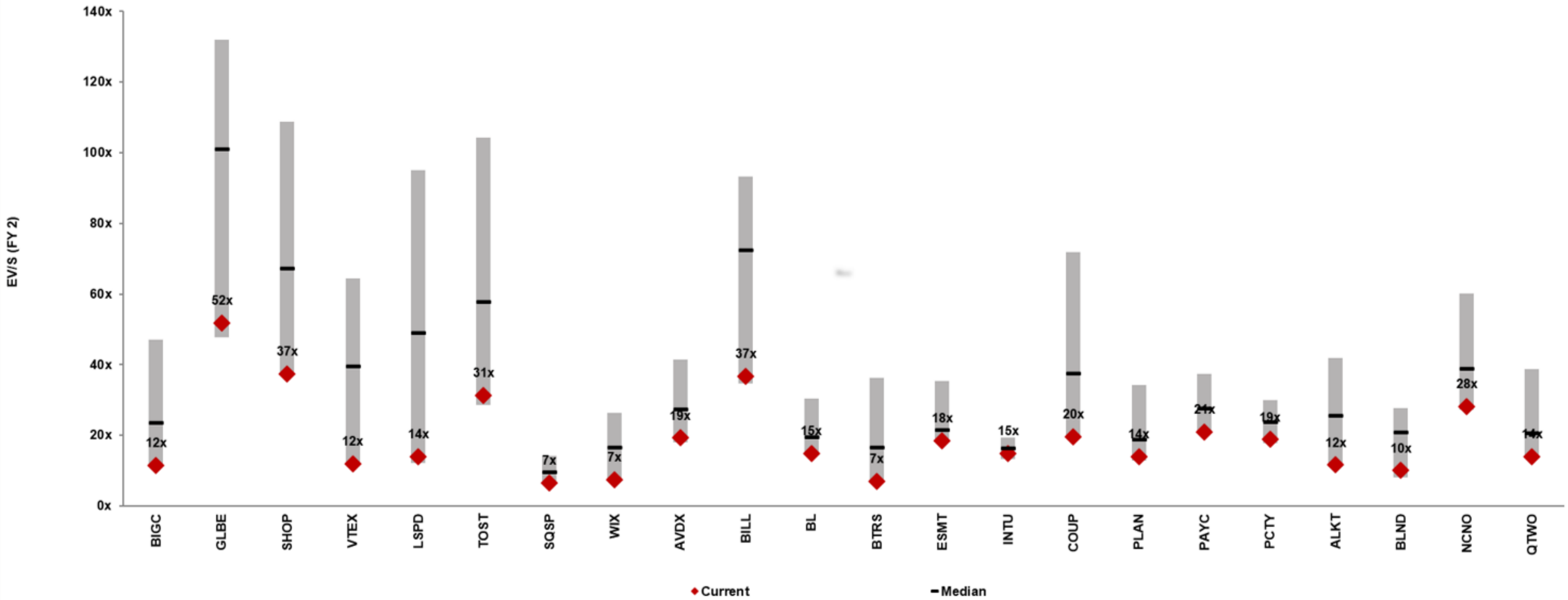
AVDX: KBCM vs. Consensus

($ in millions)	FY20A	FY21E	FY22E	FY23E
Revenue	**$185.9**	**$245.0**	**$286.0**	**$343.6**
Y/Y Growth	-	*31.8%*	*16.7%*	*20.1%*
Consensus	-	*$245.1*	*$295.1*	*$355.5*
Adj. EBITDA	**($32.7)**	**($29.1)**	**($59.9)**	**($50.4)**
Adj. EBITDA Margin	*-17.6%*	*-11.9%*	*-20.9%*	*-14.7%*
Consensus	-	*($31.7)*	*($50.8)*	*($43.2)*

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Commerce & Backoffice Software

Current Group Average = 20x



Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Thomas Blakey

The Year Ahead (2022): Cloud Infrastructure

KeyBanc
Capital Markets

February 4, 2022

Blakey: Cloud Infrastructure

2022 Investment Themes

- **Fusing private and public clouds = Hybrid Cloud.** Modernizing heterogeneous, decentralized workloads and connecting disparate traditional applications to modern, cloud-native architectures will remain a key trend in 2022. Traditional cloud infrastructure and edge providers are uniquely positioned to benefit from hybrid cloud management, in our view. Benefits of incumbency include, diverse, best of breed tech, leveraging existing spend/skills sets, and increasingly more open, interoperable solutions that aim to lower TCO. These trends and benefits should sustain profitable growth of key cloud infrastructure providers, enhancing multiples over the LT.
- **Diversity, complexity of hybrid cloud shifts security to the network/edge.** Trends toward network and security convergence continue in 2022, increasing the strategic value of cloud infrastructure and edge providers' security portfolios, in our view. Demands for secure network performance further blur the lines between networking and security, providing opportunities for incumbents to virtualize and consolidate certain security functionalities.
- **Unified data, enabling better business outcomes.** Software-defined storage leverages hybrid cloud trends, unifying siloed and often uncaptured data, providing a more cohesive view of an enterprise's data. The value proposition of holistic insights by utilizing AI/ML driving better outcomes and lowering TCO provides strong tailwinds for infrastructure providers.

2022 Key Ideas

1. **NET: Secure Network as a Service.** NET is down 24.1% compared to the S&P 500 at 3.7%. NET still trades at 33.6x, relatively in line w/ dynamic growth peers, a 4.3% premium to the group. We view NET premium warranted provided early-stage disruption of large network service TAMs and increasing strategic importance of network security. 2022 catalysts incl. R2 storage GA and potential for accel top line driven by accel enterprise customers.
2. **FFIV: Bridging app services across the hybrid cloud.** FFIV has pulled back 14.5% compared to the S&P 500 at 3.7%, driven by unique supply chain issues hitting NT systems rev. We don't believe the pullback represents fundamentals, creating a buying opportunity. 2022 catalysts include the roll-out of the Volterra network (delivering F5 SaaS), rebound in system sales, and software renewal cycle potentially leading to positive software revisions.
3. **PSTG: Unifying data.** Software-defined data services driven by hybrid cloud trends sustain in 2022, driving Pure's sub/SaaS business to accel in FY23 (FYE Jan). PSTG shares have pulled back 18.9% vs. the S&P at 3.7%,providing an attractive entry point for a potential re-rating of shares LT, driven by mix shift to sub/SaaS.

Source: KeyBanc Capital Markets Inc. estimates
Note: Stock performances are YTD

NET: Secure Network as a Service Provider

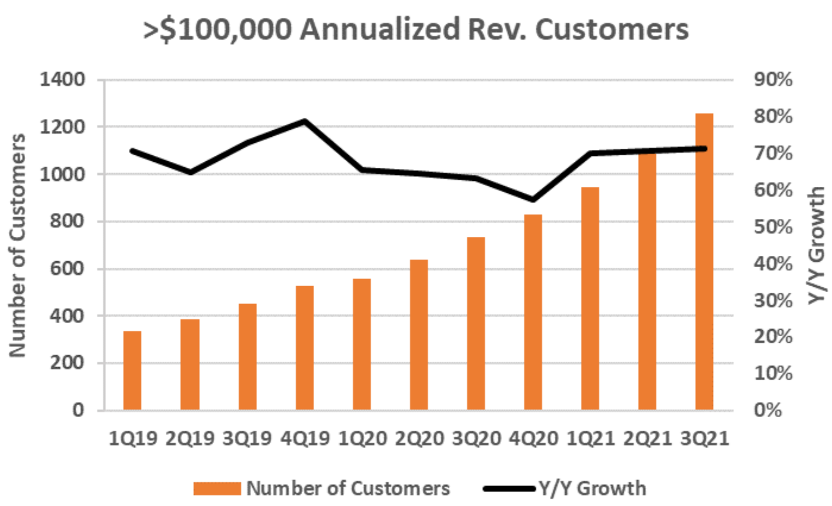
Market Cap: $30.4B
Current Share Price: $96.66

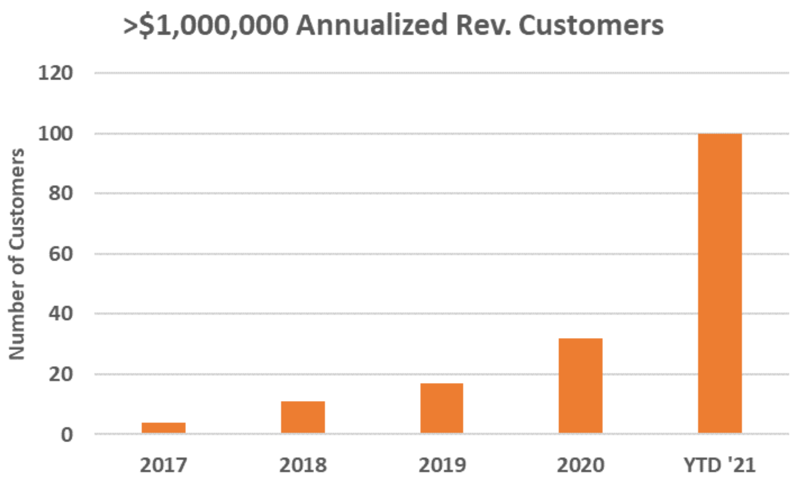
CLOUDFLARE

Upside to Price Target ($132): 37%
Current Valuation (CY22 Revenue): 32.5x

Our Call

- **Disrupting large communication/network services TAMs.** Gartner currently estimates enterprise-driven communication services markets (e.g., MPLS, VPN, etc.) to be over $100B, growing at a LSD% CAGR CY20-CY25 driven by connecting enterprise sites/offices to private corporate networks. We believe Cloudflare is early in addressing these markets evidenced by recent acceleration in the number of customers spending over $100K and $1M annualized on their platform.
- **Security is key.** Cloudflare One, the Company's zero trust network service, enables enterprises to leverage the Cloudflare network as its own corporate network. Digital transformation coupled with ever increasing distributed computing needs continues to expand the attack surface and security needs of enterprises as evidenced by apparently unbound security IT spend. Cloudflare's secure connectivity and bundled network security allows customers to replace legacy security with a single solution.
- **Momentum and new product introductions could lead to upside in 2022.** Linearity of quarterly growth will be difficult to predict, but 2022 top-line growth looks conservative, in our view. We are modeling 41% top-line growth in 2022 vs. 50% in 2021 despite recent enterprise momentum, early-stage disruption of network services, and 2022 roll-out of new products (R2, Offices).





Sources: Company reports, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

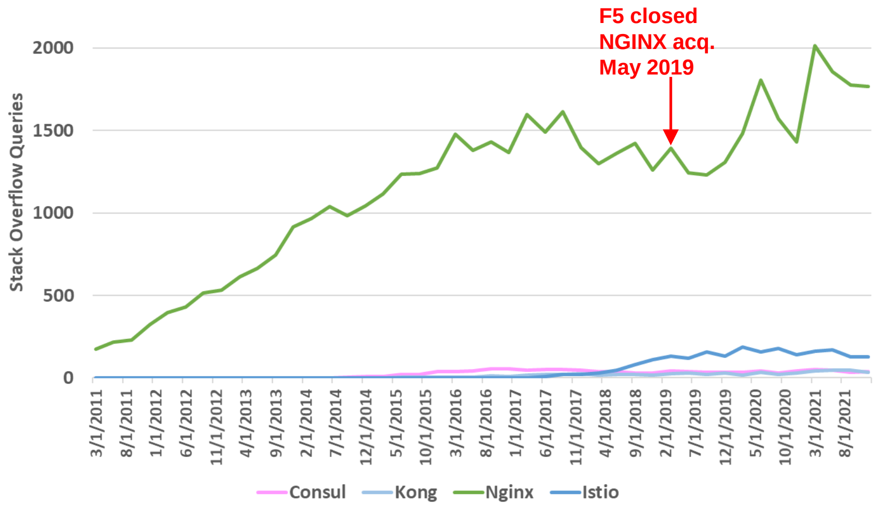
FFIV: Bridging Traditional and Modern Apps

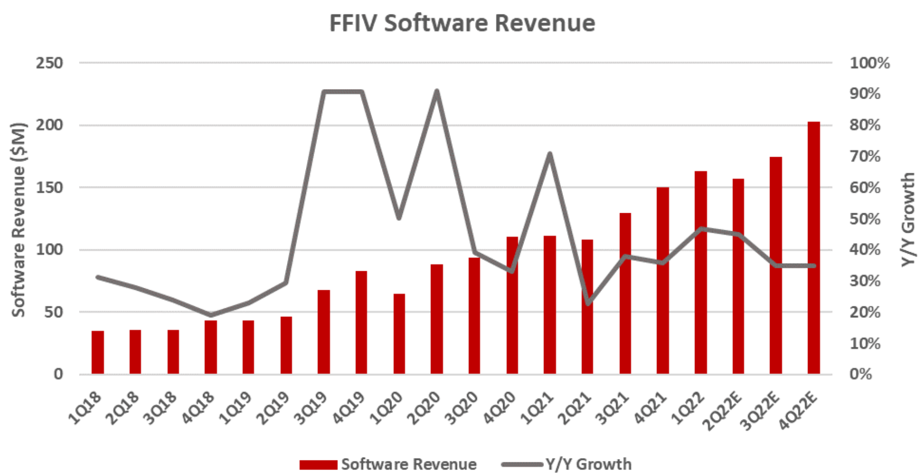
Market Cap: $12.6B
Current Share Price: $204.24

Upside to Price Target ($256): 25%
Current Valuation (CY23 EBITDA): 11.1x

Our Call

- **System sales supply chain disruption creates buying opportunity.** We are modeling system sales to decline 35% y/y, or -27% q/q, in F2Q largely driven by midrange disruptions, which should be redesigned with new procurement intra quarter leading to +23% q/q growth in F3Q (-11% y/y). Backlog continues to grow, driven by security, leading to a "when," not "if" scenario for systems growth to resume in 2HF22 and into FY23 (our model does not have F5 reaching FY21 system sales level until FY24).
- **Software demand driven by modern app delivery, security.** F5's purchase of NGINX in early 2019 enabled it to extend its leadership in traditional app management to cloud-native, modern apps. Demand is driven by existing enterprises and new logos with open-source NGINX, a leader in web server and reverse proxy (i.e., security) markets, beating leaders such as Apache.
- **2022 and 2023 software catalysts.** Growth rates in late 2019, driven by NGINX, drove subscription software from 27% in FY18 to 78% in FY21 and 81% in most recent F1Q22 (FYE September). With an average three-year term, these subscriptions are up for renewal in F2H22, with tailwinds into 2023, around the same time F5 is expected to launch the Volterra network, offering all the Company's products as SaaS globally.





Sources: Company reports, Stack Overflow, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

PSTG: Unifying Data, Driving Insights and Outcomes

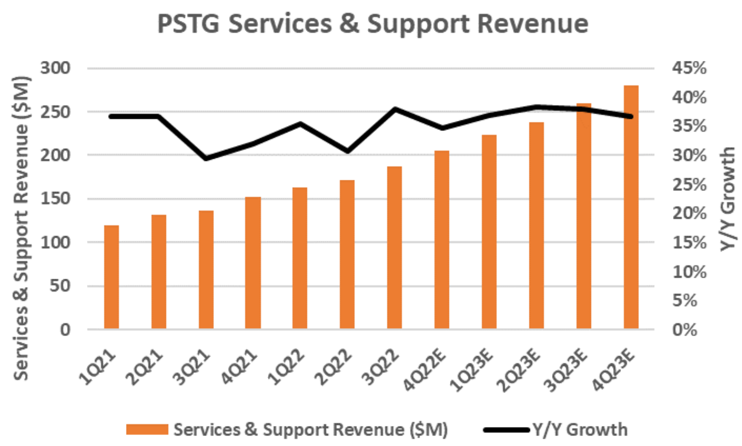
Market Cap: **$8.0B**
Current Share Price: **$25.94**

PURESTORAGE®

Upside to Price Target ($36): **39%**
Current Valuation (CY23 EBITDA): **16.8x**

Our Call

- **Subscription software set to accelerate in FY23.** Pure (FYE January) continues to experience strong demand for its Evergreen storage as a service solution, which we estimate is the vast majority of subscription/services revenue today. The Company's September 2020 purchase of K8s based Portworx, enabling Pure to offer a cloud-native storage and data management platform, should drive accelerated and sustained Services growth. Pure's offerings, driven by industry-leading all flash arrays, now extend across on-prem and modern cloud storage driving growth alongside secular hybrid cloud trends, in our view.
- **Mix shift to recurring subscription services and SaaS should drive margins.** Pure's non-GAAP EBIT margins have been negative and inconsistent over the years, but reaching 3% in FY21 and we model 10% in FY22. With the Company targeting 50% of its revenue from subscription services and SaaS by FY25 (33% most recent quarter), we believe margins should remain more consistent over time. Further, stable margins and mix shift could re-rate shares LT, amplifying the NT pullback opportunity.
- **Hyperscale unknown.** In most recent quarter (F3Q22), Pure reported 37% Product growth, driven by ~$35M (KBCM est.) from Meta to help build, what Meta dubbed, among the fastest AI supercomputers today and the fastest when built out in mid-2022. While difficult to predict add on Meta sales or related hyperscale wins, we view this win as validating Pure's industry-leading, AI-driven product set and highlight our 9% and 4% Product growth in FY23 and FY24, respectively, appearing conservative.

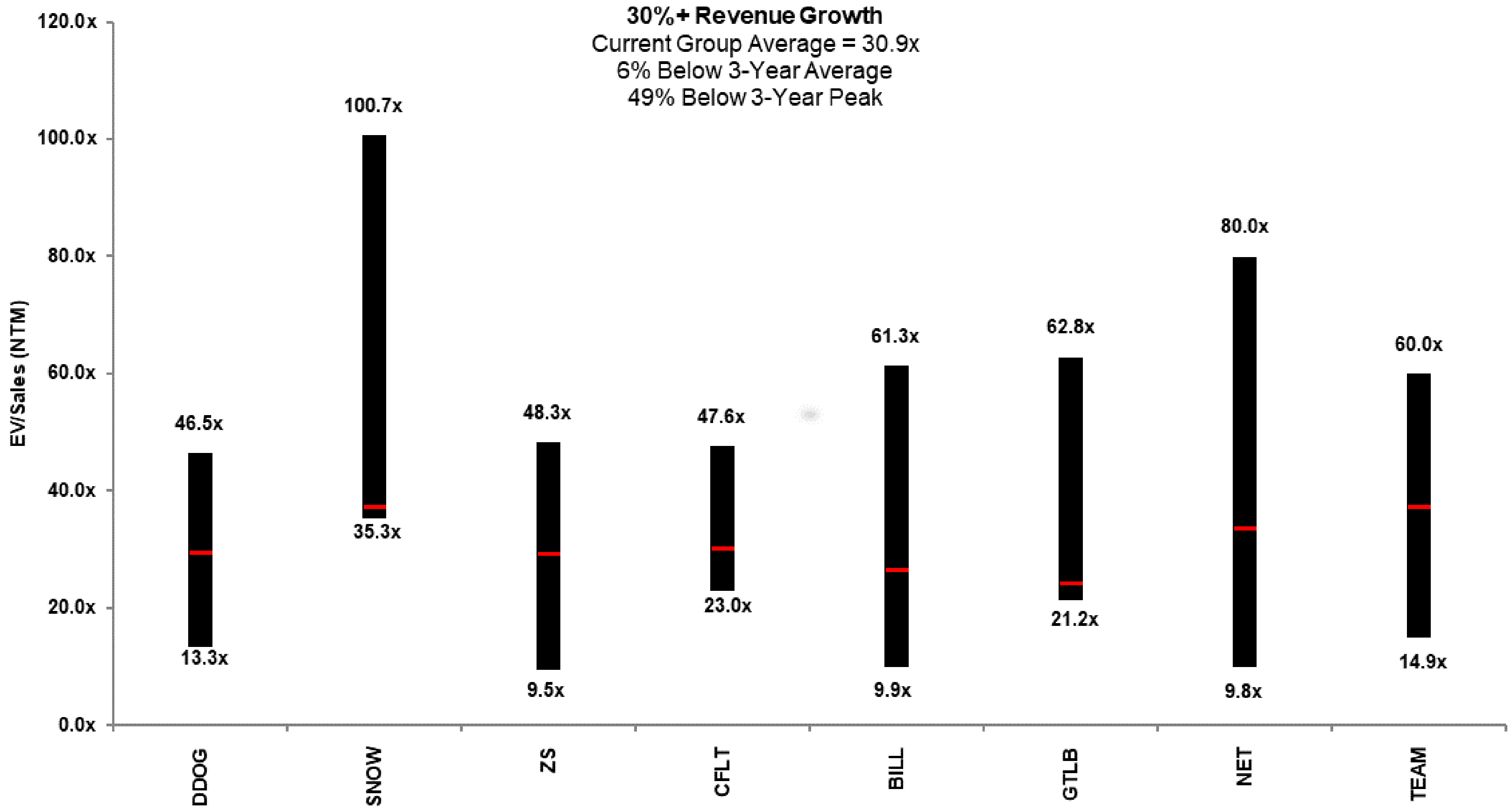


PSTG: KBCM Estimates vs. Consensus

($ in millions)	2020A	2021A	2022E	2023E
Revenue	**$1,643.4**	**$1,684.2**	**$2,103.7**	**$2,503.1**
Y/Y Growth	*20.9%*	*2.5%*	*24.9%*	*19.0%*
Consensus	-	-	*$2,103.2*	*$2,474.4*
EBIT	**$55.5**	**$46.0**	**$210.8**	**$259.0**
EBIT Margin	*3.4%*	*2.7%*	*10.0%*	*10.3%*
Consensus	-	-	*$207.0*	*$243.7*

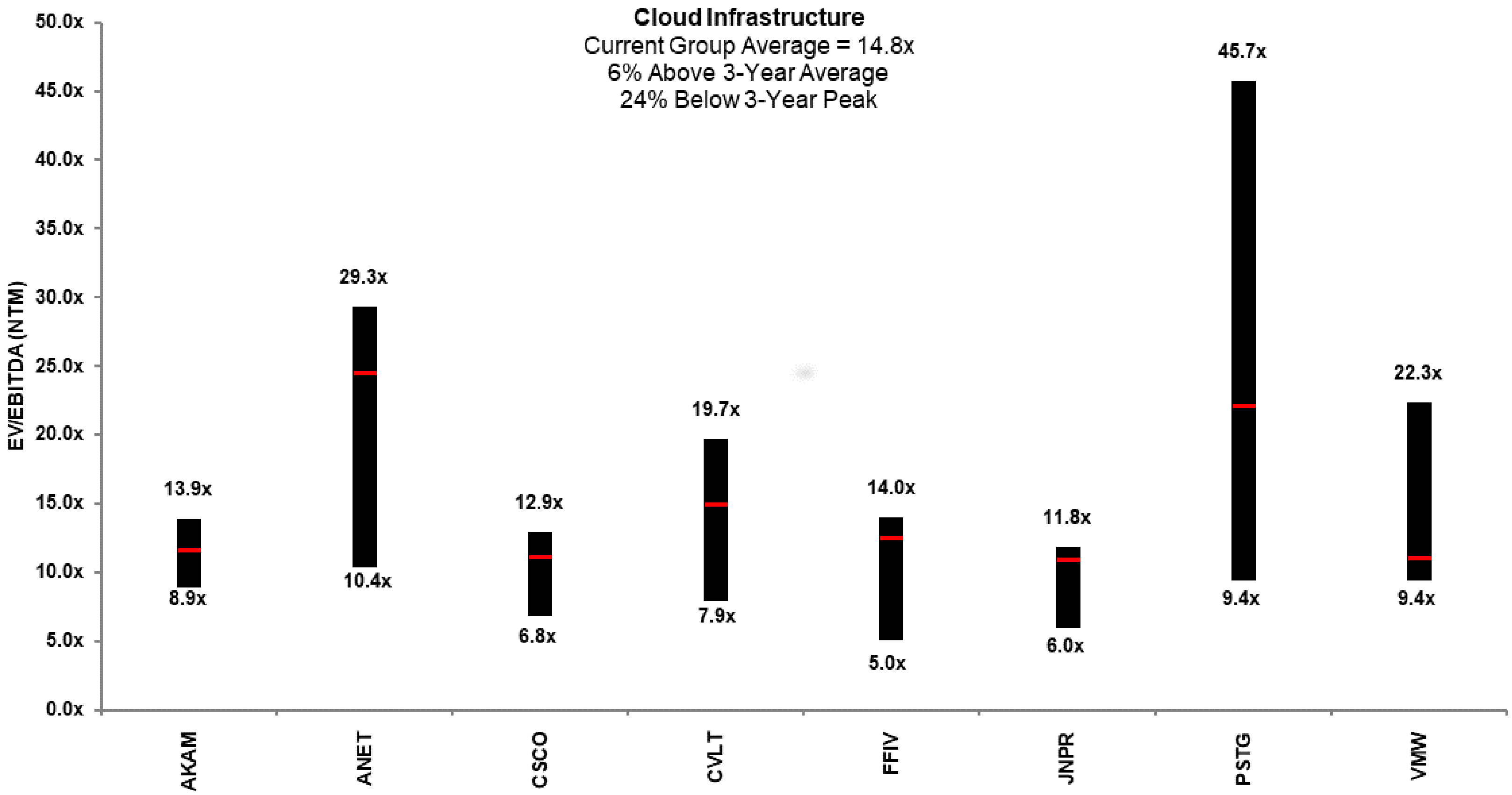
Sources: Company reports, Thomson Reuters, Visible Alpha, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Valuation: 30%+ Revenue Growth



Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Valuation: Cloud Infrastructure



Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Jason Celino

The Year Ahead (2022): Vertical Software

Celino: Vertical Software

2022 Investment Themes

- **Cloud reaching deeper into under-digitized industries.** We see an increasing focus for vertical specific applications and believe some of the most compelling SaaS share gains are likely to occur in historically undigitized, underserved, and offline markets. While we continue to see more immediate opportunities in blue-collar industries such as construction (PCOR), opportunities appear to be forming in areas of manufacturing and transportation/ logistics as well.
- **Finding ways to play labor shortages: bookending ideas from Skilling to Hiring.** The continuation of the "Great Resignation" in 2022 presents direct NT upside potential for background check vendors (STER, HRT) and business tailwinds for Enterprise Skilling leaders (UDMY, COUR) as companies look toward upskilling/reskilling to attract and retain talent.
- **Innovation + Silicon Arms Race = Keep Buying EDA.** Carrying over business momentum from 2021, we are again highlighting EDA as one of our most durable thematic ideas. Entering a new phase of consistent double-digit industry growth + steady operating margin expansion = SNPS and CDNS positioned for another strong year.

2022 Key Ideas

1. **PCOR: Hammering in on construction digitization themes.** Building upon underappreciated digitization catalysts, we are highlighting Procore as one of our favorite ideas for 2022. With continued improvement in construction end markets, we additionally see Procore as a potential candidate for top-line acceleration upside.
2. **COUR: Potential wave of new degree program announcements could provide catalysts.** With the Consumer business gaining traction from subscriptions and certifications, and the Enterprise business firing on all cylinders from skilling tailwinds, we see Coursera entering 2022 with strong momentum, particularly in Degrees where we could potentially see wave of new degree program announcements, which we see as a positive catalyst.
3. **SNPS:** Entering a new phase of consistent double-digit EDA industry growth and steady operating margin expansion runway gives us confidence to highlight the EDA sub-sector as our most durable thematic idea.

Source: KeyBanc Capital Markets Inc. estimates.

PCOR: Vertical Leader in Construction

Market Cap: $8.7B
Current Share Price: $59.61

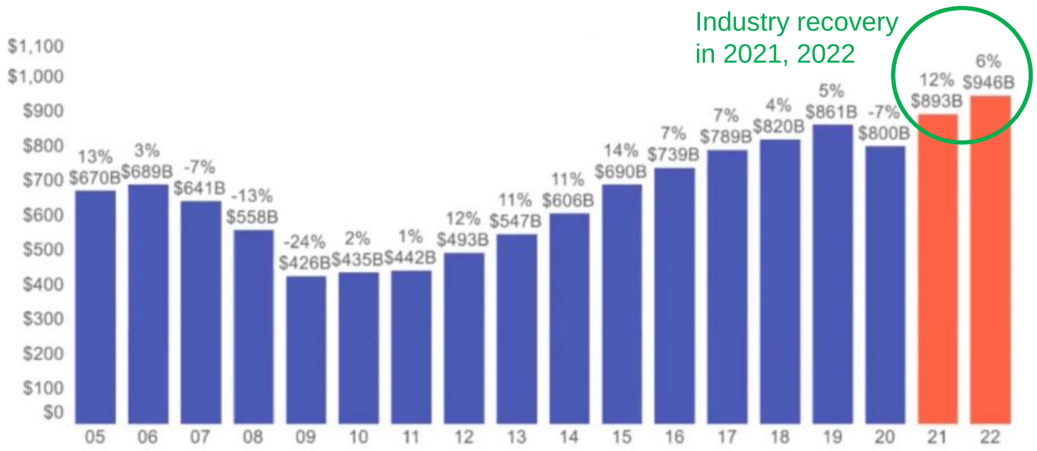
PROCORE

Upside to Price Target ($117): 61.3%
Current Valuation (2023 revenue): 9.7x

Our Call

- **Construction is large and significantly underdigitized.** The +$10T construction industry is one of the largest and least digitized industries with ample greenfield market opportunities for tech adoption. Additionally, we view the skilled labor shortages as a potential underappreciated catalyst for accelerated construction digitization.
- **Highlighting as potential upside acceleration candidate.** We are modeling 26% y/y growth for 2022 (24% excluding contribution from Levelset). However, we are highlighting PCOR as a potential upside candidate for organic acceleration in 2022, based on construction macro data pointing to incremental recovery (vs. 2021) and additional international expansion levers.
- **Positioned as a vertical leader in construction.** Given Procore's concentrated construction focus and integrated ecosystem-centric platform, we believe the Company is positioned to be one of a few dominant share leaders in the construction software vertical and one of our favorite ways to play the digitization of construction.

U.S. Total Construction Starts



PCOR: KBCM vs. Consensus

($ in millions)	2020A	2021E	2022E	2023E
Revenue	**$400.3**	**$506.7**	**$638.6**	**$783.7**
Y/Y Growth	*38.4%*	*26.6%*	*26.0%*	*22.7%*
Consensus	-	*$507.3*	*$631.7*	*$780.8*
Operating Income	**($4.2)**	**($31.6)**	**($93.0)**	**($90.2)**
Operating Margin	*-1.0%*	*-6.2%*	*-14.6%*	*-11.5%*
Consensus	-	*($35.9)*	*($110.2)*	*($108.8)*

Sources: Company reports, Dodge Data and Analytics, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

COUR: High Quality Digital Learning Provider

Market Cap: $3.3B
Current Share Price: $19.97

coursera

Upside to Price Target ($35): 75.3%
Current Valuation (2023 Revenue): 3.7x

Our Call

- **Compelling opportunities in Degrees with meaningful content synergies, cost advantages, and sizable international footprint.** With high-quality, university-branded content, we believe Coursera drives meaningful content synergies across its Consumer, Enterprise, and Degrees businesses. This, combined with the Company's freemium model and large, global base of 87M registered learners, acts as an efficient top of the funnel for conversion, which drives meaningful cost advantages.
- **Potential wave of new degree program announcements could provide catalysts.** Coursera's decision in August to further lower and tier degree program take rates continues to be debated, particularly around timing and rationale. Based on what we expect is a six- to nine-month lead time, we believe a wave of new degree program announcements could provide a catalyst for multiple expansion.
- **Positioned to be a leading B2B player, in our view.** As businesses continue to prioritize upskilling and re-skilling, to both attract and retrain employees, we view the digital B2B skilling market as one of the largest opportunities in EdTech.

Branded Degree Programs from All Around the World

Master's Program (14 University Partners, 29 Programs)

Arizona State University — *1 program*
Boulder — *2 programs*
Fundação Instituto de Administração — *1 program*
Illinois — *5 programs*
Imperial College London — *2 programs*
HEC Paris — *1 program*
National Research Tomsk State University — *1 program*
Higher School of Economics — *5 programs*
Macquarie University Sydney-Australia — *1 program*
O.P. Jindal Global University — *3 programs*
Universidad de los Andes Colombia — *2 programs*
UP Universidad de Palermo — *1 program*
University of Michigan — *3 programs*
Penn University of Pennsylvania — *1 program*

Bachelor's Program (2 University Partners, 4 Programs)

North Texas — *1 program*
University of London — *3 programs*

COUR: KBCM vs. Consensus

($ in millions)	2020A	2021E	2022E	2023E
Revenue	**$293.5**	**$412.4**	**$525.3**	**$661.2**
Y/Y Growth	*59.2%*	*40.5%*	*27.4%*	*25.9%*
Consensus	-	*$410.4*	*$514.4*	*$636.3*
Adj. EBITDA	**($39.8)**	**($35.1)**	**($41.2)**	**($36.2)**
Adj.EBITDA Margin	*-13.6%*	*-8.5%*	*-7.8%*	*-5.5%*
Consensus	-	*($38.5)*	*($40.5)*	*($34.2)*

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

SNPS: Durable EDA Tailwinds w/ OM Expansion Upside

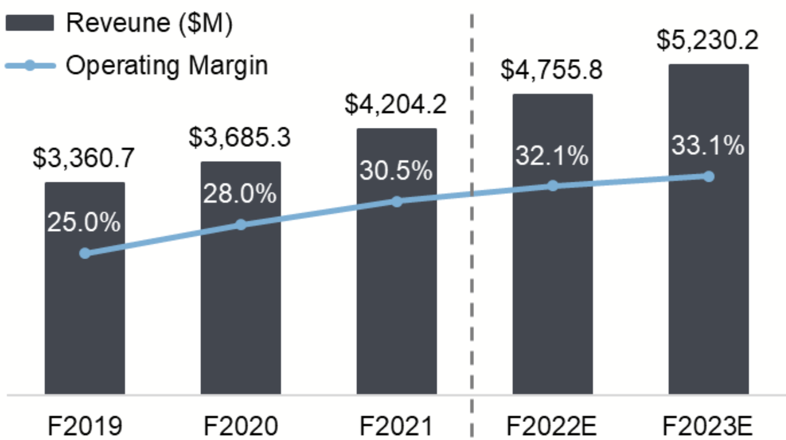
Market Cap: $47.7B
Current Share Price: $303.51

Upside to Price Target ($445): 46.6%
Current Valuation (FY23 FCF): 30.5x

Our Call

- **EDA entering double-digit growth phase.** With increased use cases in AI/ML designs, electrification, autonomous, 5G, IoT, and HPC, along with chiplets potentially leading to the next leg of chip design complexity, combined with increasing in-house chip development initiatives by hyperscalers and automotive companies, this presents more than enough opportunity for the EDAs (CDNS, SNPS), in our view. As a result, we believe the EDAs are entering double-digit growth phase for the foreseeable future and we see the drivers of EDA as some of the most durable within our coverage.
- **Multiyear margin expansion story continues.** Synopsys expanded its corporate OM by nearly 300 bps in FY21 to 30.5%. The Company also reiterated its commitment in driving annual OM expansion of +100 bps. With momentum carrying forward, we are modeling 100-150 bps of annual OM expansion in FY22-23 and could see margin grind higher toward mid-30% LT.

Revenue and OM Expansion

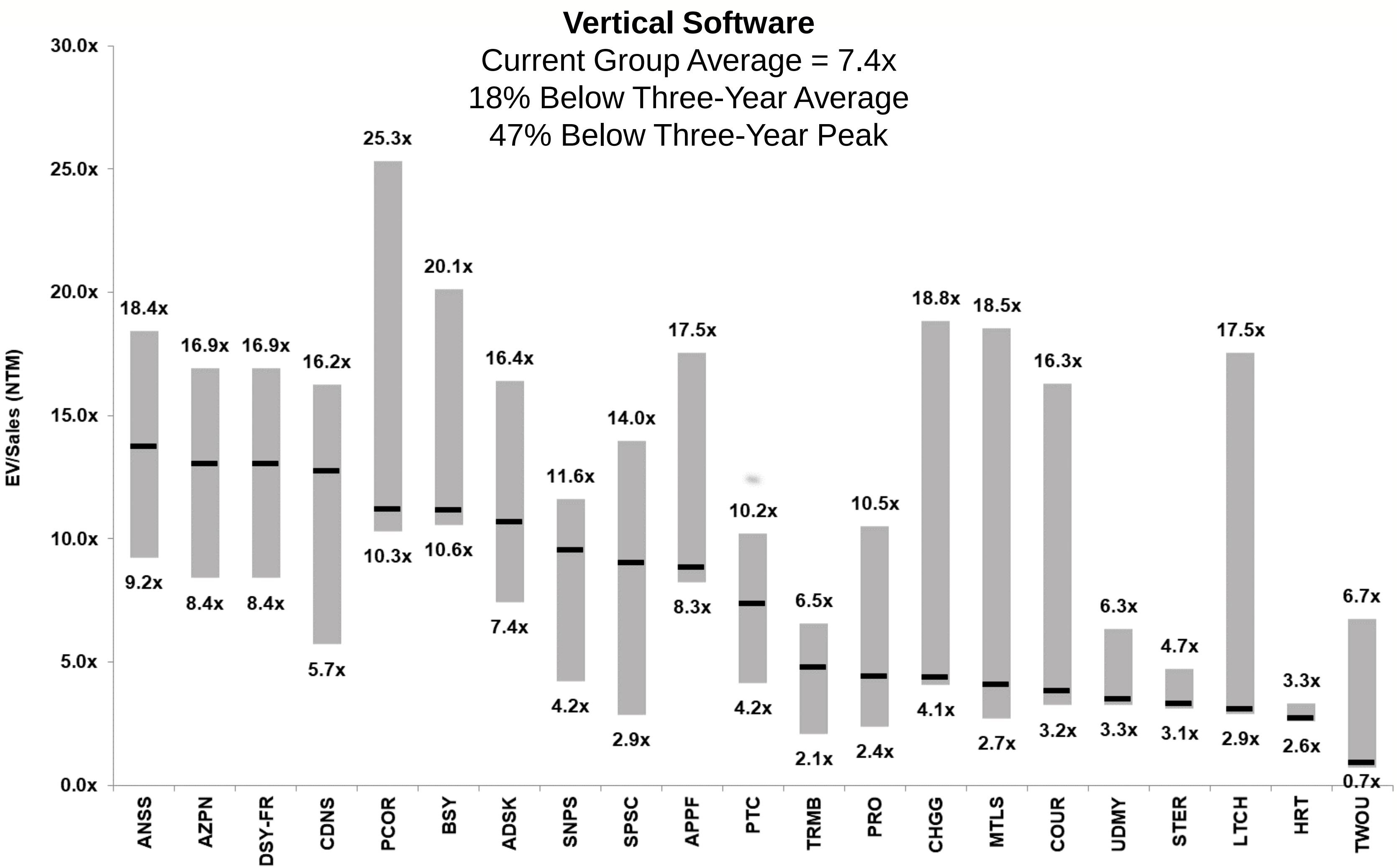


SNPS: KBCM vs. Consensus

($ in millions)	F2021A	F2022E	F2023E
Revenue	**$4,204.2**	**$4,755.8**	**$5,230.2**
Y/Y Growth	*14.1%*	*13.1%*	*10.0%*
Consensus	-	*$4,759.0*	*$5,285.0*
EPS	**$6.85**	**$7.80**	**$8.81**
Y/Y Growth	*23.4%*	*13.9%*	*12.9%*
Consensus	-	*$7.81*	*$9.02*

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Valuation: Vertical Software



Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.
Note: BSY went public in 2020; COUR, HRT, LTCH, PCOR, STER, and UDMY went public in 2021.

Steve Enders

The Year Ahead (2022): Collaboration & DevOps Software

Enders: Collaboration & DevOps Software

2022 Investment Themes

- **Great Resignation drives employers to seek alternative solutions like asynchronous collab, automation, outsourcing:** Organizations feeling pressure from employee attrition have sought alternative solutions, including improved collaboration tooling to increase productivity and remote employee engagement (+ASAN, +SMAR, +TEAM), automation (+ APPN, +FIVN, +PATH, +PEGA, +SMAR), and outsourcing talent (+DAVA, +EPAM, +GLOB)
- **Anticipate consolidation around platforms – both within and across categories**
  - **Intra-category - broad platforms to gain share over best-of-breed:** As enterprise software subsectors like DevOps, automation, communication, and collaboration begin to mature, we expect a natural transition from best-of-breed toward broader platforms, driving a consolidation in share among fewer vendors as intra-category swim lanes blur (+GTLB, +PATH, +RNG, +ZM)
  - **Inter-categories – sectors continue to merge:** We expect a continuation of the steady merging of adjacent subcategories within DevOps, automation, and collaboration, favoring companies with cross-category horizontal platforms (+SMAR, +TEAM, +TWLO)
- **Look for potential acceleration stories while exercising caution around difficulty of comps**
  - **Annual Acceleration:** 2022 estimates for the Software industry indicate a dearth of accelerating growth stories (25% accelerating relative to 2021 vs. 53% for 2021 relative to 2020) leading us to be more selective in this volatile valuation environment. Positive for names with clear potential to accelerate in 2022 relative to 2021 (+APPN, +BOX, +PEGA)
  - **Sequential Acceleration:** Many software companies are processing difficult comps that will progressively improve through 2022, setting up sequential acceleration as the year progresses (+APPN, +BAND, +KLTR, + LPSN, +ONTF)
  - **Recent Acceleration:** Names that have shown acceleration in recent quarters (+DAVA, +PATH, +RNG, +SMAR, +TEAM), including names with potential to continue recent acceleration through 4Q21 (+BOX, +EPAM, +FROG)

2022 Key Ideas

1. **FIVN (OW, $208PT):** We see FIVN as one of the best positioned names in communications software as contact center remains a central point of ongoing multi-year enterprise CX initiatives with partners seeing resilient demand for CCaaS upgrades. Sustainable 30%+ sub growth profile with strong execution and growth levers from shift up market, international, and automation.

2. **TEAM (OW, $442PT):** We believe Atlassian can continue to drive outsized growth through its cloud transition from a product-led growth strategy, providing more cross-sell opportunities as Atlassian targets a $52B TAM for DevOps, IT, and collab. Cloud/sub transition momentum drives both model and multiple upside as collab/new solutions increasingly spread across orgs.

Source: KeyBanc Capital Markets Inc. estimates.

Five9 (FIVN): OW, Price Target $208

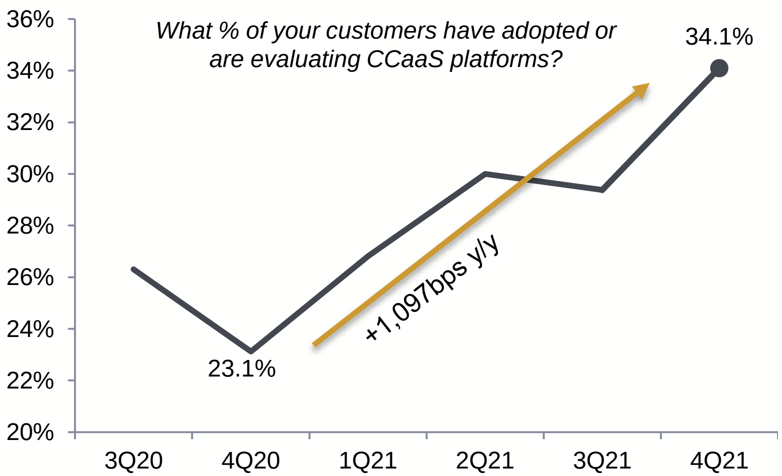
Market Cap: **$8.3B**
Current Share Price: **$122.98**

Upside to Price Target ($208): **69%**
Current Valuation (2023 EV/Rev): **10x**

Our Call

- **Resilient Demand for CCaaS Upgrades:** Cloud contact center remains underpenetrated at ~20%, leaving a long path for sustainable growth as organizations look to modernize outdated on-prem systems. Our survey work and checks indicate the contact center and customer engagement tech have become increasingly prioritized during COVID-19 as organizations sought new methods for connecting with their customer bases in an increasingly digital-first world with demand for CCaaS upgrades broadly continuing in ’22.
- **LT Outlook Supports 30%+ Subscription Growth:** During the recent analyst day, FIVN laid out what we see as a credible path to a sustainable 30%+ subscription growth CAGR and $2.4B in CY26 rev, supported by investments in automation (e.g., IVA w/ Inference acquisition, ~2x ARPU uplift) and enterprise/international GTM as retention rates expand into the high 120s (from 123% in 3Q21).
- **Buying Opportunity on Valuation Pullback:** Valuations have contracted over the last few months with FIVN currently trading at 12x NTM EV/rev vs. the two-year median of 18x. We suspect part of the pullback post the ZM deal falling through was driven by unwinding merger arb dynamics which should be largely out. Additionally, despite the failed deal, we still see Five9 as an attractive takeout target given the unique asset that is difficult to build organically (thus the attempted ZM deal) and a range of potential buyers.

4Q21 VAR Survey Indicates Sustained CCaaS Adoption



FIVN: KBCM vs. Consensus

FIVN	FY21E	FY21 Cons.	FY22E	FY22 Cons.	FY23E	FY23 Cons.
Revenue ($M)	**$ 601.2**	**$ 601.4**	**$ 748.0**	**$ 748.2**	**$ 929.9**	**$ 927.3**
% delta vs cons.	*0.0%*		*0.0%*		*0.3%*	
EBIT ($M)	**$ 80.6**	**$ 80.7**	**$ 84.5**	**$ 87.5**	**$ 119.0**	**$ 127.5**
% delta vs cons.	*0.0%*		*-3.4%*		*-6.7%*	
EBIT Margin	**13.4%**	**13.4%**	**11.3%**	**11.7%**	**12.8%**	**13.8%**
% delta vs cons.	*0.0%*		*-0.4%*		*-1.0%*	
FCF ($M)	**$ 10.8**	**$ 10.4**	**$ 38.1**	**$ 35.3**	**$ 69.1**	**$ 54.2**
% delta vs cons.	*3.4%*		*7.8%*		*27.5%*	
FCF Margin	**1.8%**	**1.7%**	**5.1%**	**4.7%**	**7.4%**	**5.8%**
% delta vs cons.	*0.1%*		*0.4%*		*1.6%*	

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.
N=22 for VAR survey result

Atlassian (TEAM): OW, Price Target $442

Market Cap: **$77.6B**
Current Share Price: **$304.41**

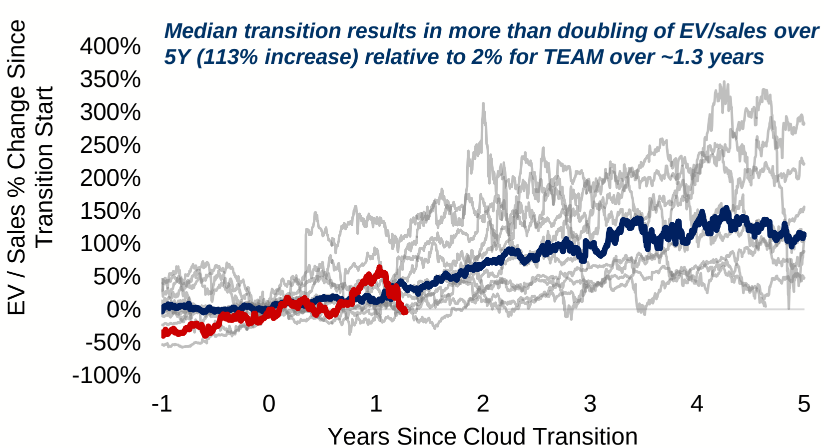
ATLASSIAN

Upside to Price Target ($442): **45%**
Current Valuation (2023 EV/Rev): **21x**

Our Call

- **Cloud Migration Unlocks Multiple Upside:** Atlassian is in the mid stages of a multi-year cloud and sub transition, with end-of-life for on-prem Server (29% of FY21 rev) scheduled for Feb 2024. We expect this to ultimately yield ARPU expansion and improve multi-product attach rates from the shift to cloud. Our analysis of historical transitions indicates ~113% increase in EV/sales over a 5-year time frame (TEAM currently ~1.3 years into transition with ~2% multiple expansion).
- **Unique Model Enables Share Gains Across New Use Cases:** Atlassian already had a best in-class operating model, driving 29% revenue growth and 37% FCF margin in FY21. While the shift to a sub and SaaS model creates some NT model headwinds (revenue and margin to compress), exiting the transition in FY24 should drive strong growth and margin expansion with opportunities to drive better product cross-sell, ARPU expansion, and retention, with NT product opportunities with Jira Service Mgmt and Jira Work Mgmt.
- **Valuation Pullback Provides Buying Opp:** Atlassian has seen multiples compress more significantly than peers during the current industry valuation reset (16x EV/rev pullback since peak on 10/29/21, relative to 4x pullback in broad Software). We believe Atlassian deserves a premium EV/FCF multiple given the strong growth profile for a 30%+ FCF margin company and see the pullback as a buying opportunity.

Cloud Transitions Drive Multiple Upside



TEAM: KBCM vs. Consensus

TEAM	FY22E	FY22 Cons.	FY23E	FY23 Cons.	FY24E	FY24 Cons.
Revenue ($M)	$2,697.2	$2,669.9	$3,301.4	$3,311.1	$4,315.9	$4,222.0
% delta vs cons.	*1.0%*		*-0.3%*		*2.2%*	
EBIT ($M)	$ 558.0	$ 595.6	$ 542.2	$ 758.8	$ 853.7	$1,064.2
% delta vs cons.	*-6.3%*		*-28.6%*		*-19.8%*	
EBIT Margin	20.7%	22.3%	16.4%	22.9%	19.8%	25.2%
% delta vs cons.	*-1.6%*		*-6.5%*		*-5.4%*	
FCF ($M)	$ 654.0	$ 672.1	$ 859.3	$ 890.6	$1,212.4	$1,225.5
% delta vs cons.	*-2.7%*		*-3.5%*		*-1.1%*	
FCF Margin	24.2%	25.2%	26.0%	26.9%	28.1%	29.0%
% delta vs cons.	*-0.9%*		*-0.9%*		*-0.9%*	

Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

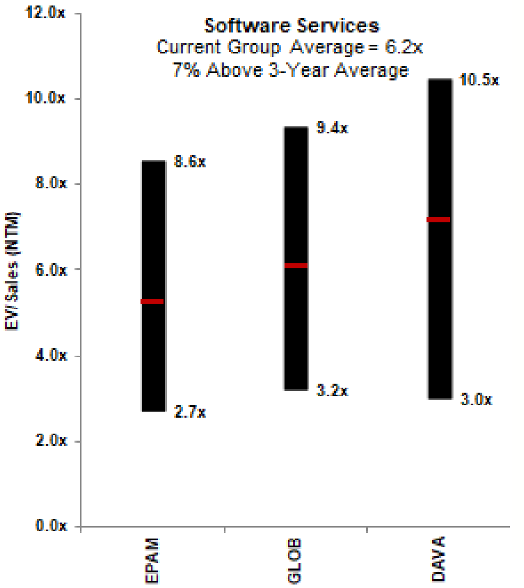
Valuation: Collaboration & DevOps Software

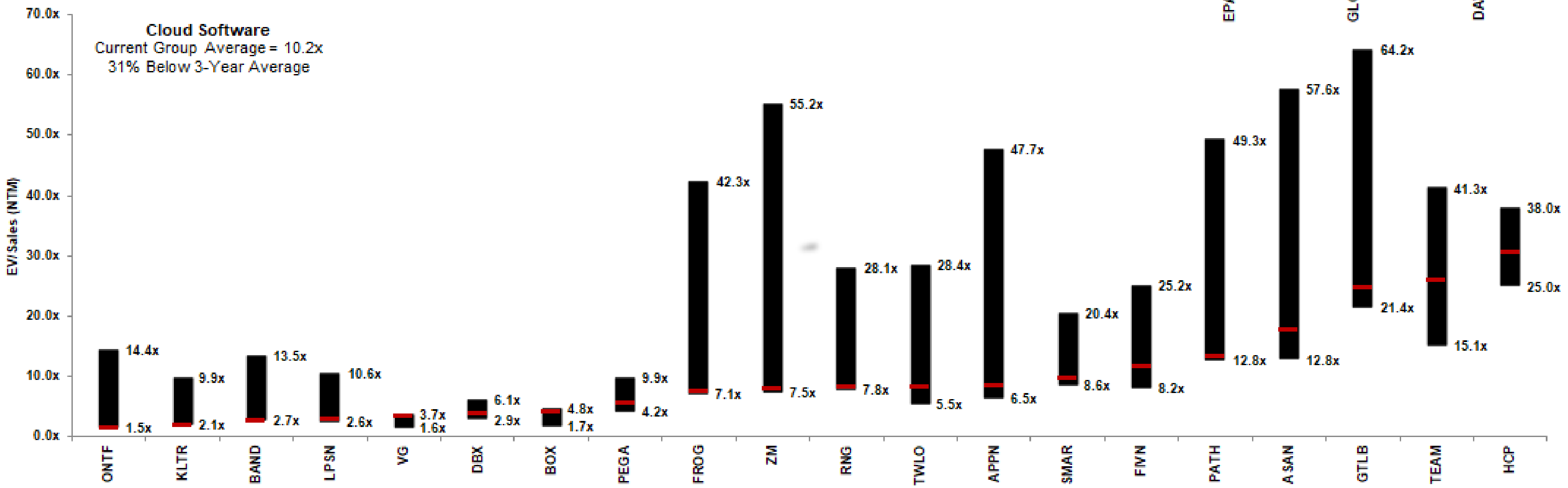
3-YR NTM EV/Sales Candlestick Valuation

- **45% of Cloud Software coverage trading at or near bottom** of 3-yr NTM EV/sales
- **80% of Cloud Software trading below** 3-yr avg.
- **Cloud Software** coverage aggregated is **trading 31% below** the 3-yr group avg.
- **Software Services** are **trading 7% above** the 3-yr group average

Current Cloud Software Avg. 10.2x vs 15.4x 3-yr group avg.

Current Software Services Avg. Trading at 6.2x vs 5.8x 3-yr group avg.





Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Michael Turits

The Year Ahead (2022): Enterprise Software

KeyBanc
Capital Markets

February 4, 2022

2022 Investment Themes

- **Continued Strong Enterprise Software Growth**
  - Our 2H21 CIO survey indicated a confident and improving outlook for 2022 IT budget growth (+7% y/y up from +5% y/y 2021).
  - Gartner forecasts 2022 software spend growth a still strong 11% off 14% in 2021 and 9% in 2020, and at a 12% CAGR though 2025. Gartner currently also forecasts 7% IT growth in 2022 (ex. comm services), but off strong 12% "comp" in 2021. 4Q positive Enterprise Software results so far included MSFT, NOW, TEAM.
- **Priority Broadening to Back Office and Infrastructure**
  - We got positive front-office (*Key Ideas*: **HUBS, SPT**) spend indicators from our 2H21 CIO and 4Q21 VAR Surveys; however, based on our channel checks we expect a shift of post-COVID's front-office spending priority to middle/back-office IT infrastructure as companies look to support prior WFH/front-office investments with back-office, security, and cloud modernization.
- **Ongoing Strength in Security**
  - 85% of security channel partners we spoke to and/or surveyed indicated 4Q results at or above plan and we see this trend continuing into 2022 as data center modernization and public cloud security investments strengthen.
  - According to our 2H21 CIO Survey, security remains the top budget priority for 2022 driven by adoption of modern-solutions to enable zero-trust architectures (*Key Ideas*: **PANW, OKTA**) along with a strong on-going network security refresh and infrastructure upgrades. 4Q positive security results so far included CHKP and FTNT.
- **Cloud Growth Strong: Positive for Cloud Infrastructure SW**
  - Public cloud growth has been strong this year with Azure growth holding in the mid to high 40s and expected to reaccelerate next quarter, AWS 40% and GCP steady q/q at 45%. (*Key Ideas:* **MSFT, DOCN**)
  - We expect continued strength in 2022 as Digital Transformation continues, boosted by the supply/component/labor shortages. Recent trends have included larger application and Data Center migrations and multi/hybrid cloud.

2022 Key Ideas

1. **PANW (OW, $615 PT):** We see PANW as one of the best positioned names in security as it continues its leadership in firewall and network security and looks to capitalize on expansion into cloud security, endpoint/XDR, cloud data analytics, and SOAR. The heightened priority around security in 2021 and 2022 continues to drive opportunity for PANW. We value based off 9.2x CY23E EV/revenue of $7,234M (+21%) and 27.0x CY23E EV/adjusted FCF of $2,454M vs. the 20-30% growth software group trading at 8.9x EV/CY22E and 39.1x EV/CY22E FCF.
2. **MSFT (OW, $373 PT):** We believe Microsoft will continue to drive strong cloud growth as cloud migrations expand while the Company benefits from an improving PC demand environment, an expanding productivity and applications offering, and an expansion, including M&A of the Microsoft's gaming portfolio, including into mobile and, longer term, the metaverse. Our PT is based on 33.2x our CY23E FCF estimate of $81.3B vs. the large cap SW average of 35.0x forward revs.

Source: KeyBanc Capital Markets Inc. estimates.

Palo Alto Networks (PANW): OW, Price Target $615

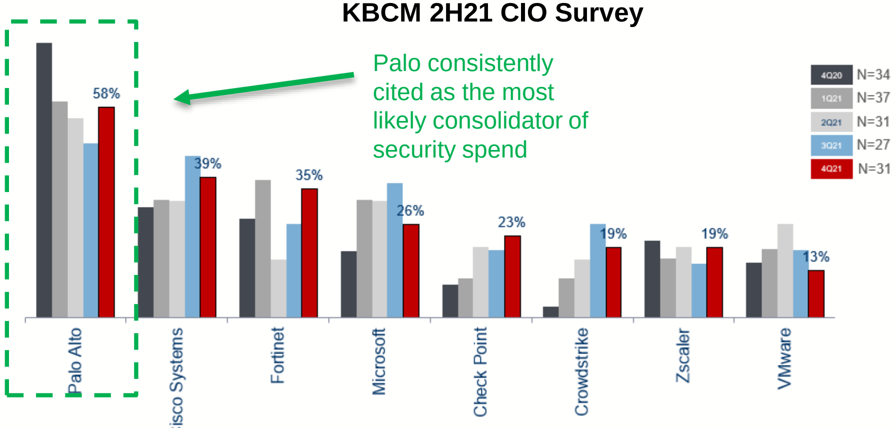
Market Cap: $50,642M
Current Share Price: $492

Upside to Price Target ($615): 25%
Current Valuation (CY22E):8.5X EV/Rev.

Our Call

- **Strong Security Outlook for 2022.** Our 2H21 CIO survey highlighted security, again, as the #1 priority for the upcoming year as organizations continue to adopt modern solutions enabling cloud and Zero-Trust architectures and in response to breaches/ransomware, and undergo a network security refresh following 2020's pause. Most channel partners looking for stable or faster growth in security for 2022. Peer C4Q results and 2022 (CHKP FTNT) outlooks have been very strong thus far.
- **Most Likely Consolidator of Security.** We see Palo Alto as the leading network security/firewall vendor executing well both in its core and in transitioning to cloud-delivered security and security for the cloud. Palo's leadership in Network (Firewall & SASE) and expansion into Endpoint/XDR, AppSec, VM, and Cloud Security we believe positions Palo well to capitalize on the priorities cited in both our 4Q VAR and 2H21 CIO survey.
- **More Durable Growth, Strong FCF, Discount to Peers:** At 8.5x CY22E EV/Revs, PANW trades at a slight discount to peers at 8.9x despite a durable near-term and long-term growth profile given its security leadership and a stronger FCF margin (59 rule of 40 framework vs. 20-30% growth peers at 32). **$615 PT** based on 9.2x CY23E EV/revenue of $7,234M (+21%) and 27.0x CY23E EV/adjusted FCF of $2,454M vs. 20-30% growth software group trading at 8.9x EV/CY22E revenue and 39.1x EV/CY22E FCF.

KBCM 2H21 CIO Survey



Which vendor is most likely to be a security spend consolidator and offer a broad security platform?

PANW: KBCM vs. Consensus

($ in millions)	FY21A	FY22E	FY23E	FY24E
Revenue	**$4,256.1**	**$5,378.4**	**$6,590.1**	**$7,929.7**
Y/Y Growth	*24.9%*	*26.4%*	*22.5%*	*20.3%*
Consensus	-	*$5,389.1*	*$6,544.7*	*$7,944.1*
EBIT	**$802.3**	**$1,009.2**	**$1,277.9**	**$1,586.4**
EBIT Margin	*18.9%*	*18.8%*	*19.4%*	*20.0%*
Consensus	-	*$1,011.7*	*$1,284.7*	*$1,640.8*
FCF	**$1,387.0**	**$1,707.3**	**$2,203.5**	**$2,740.1**
Y/Y Growth	*68.9%*	*23.1%*	*29.1%*	*24.4%*
FCF Margin	*32.6%*	*31.7%*	*33.4%*	*34.6%*
Consensus	-	*$1,746.8*	*$2,191.0*	*$2,720.0*

Sources: Company reports, Dodge Data and Analytics, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Microsoft (MSFT): OW, Price Target $373

Market Cap: $2.276T
Current Share Price: $301.25

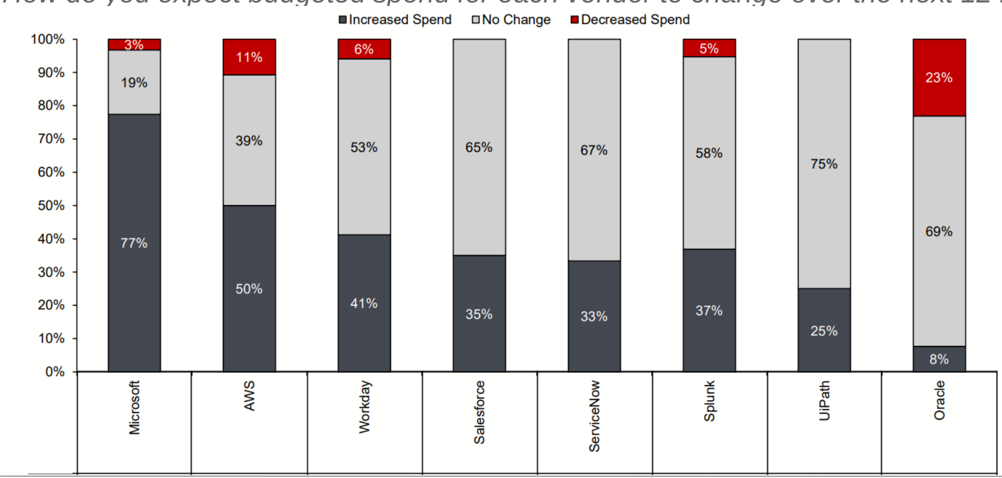
Upside to Price Target ($373): 23.8%
Current Valuation (FY23 FCF): 28.9x

Our Call

- **Continued Cloud Growth Tailwinds.** The cloud opportunity growth remains strong with Azure C4Q growth holding in the mid-high 40%s y/y while GCP sustained 45% and AWS accelerated to 40% from 39% in 3Q. Our CIO and VAR surveys indicate no material slowing in Azure growth with Microsoft ranking the #1 most strategic SaaS vendor and #1 beneficiary of 2022 budgets.
- **SaaS Productivity/Enterprise Applications.** Growing 17% in FY22E, Microsoft's PBP business has expanded far beyond Office with Office/Microsoft 365, LinkedIn, Power Platform, and now Teams as a modern collaborative work and application platform.
- **Expanding Gaming Opportunity.** Following ATVI, we're increasingly bullish on the opportunity in gaming to monetize Microsoft's consumer presence, develop the "metaverse," and leverage Azure cloud infrastructure via cloud and mobile gaming.
- **Indications of a "PC Renaissance".** We're seeing a resurgence in Microsoft's Windows and "structural shift in PC demand" in the post-COVID hybrid work environment driving 13% growth in the Windows OEM in FY22E despite supply chain headwinds.
- **Valuation Attractive.** While MSFT's -14% pullback is less steep than software on average at -16%, we see valuation attractive at 28.9x FY23 FCF growing EPS 15% vs. the S&P at 25.4x CY22 growing EPS at 11% CY22.

KBCM 2H21 CIO Survey

How do you expect budgeted spend for each vendor to change over the next 12 months?

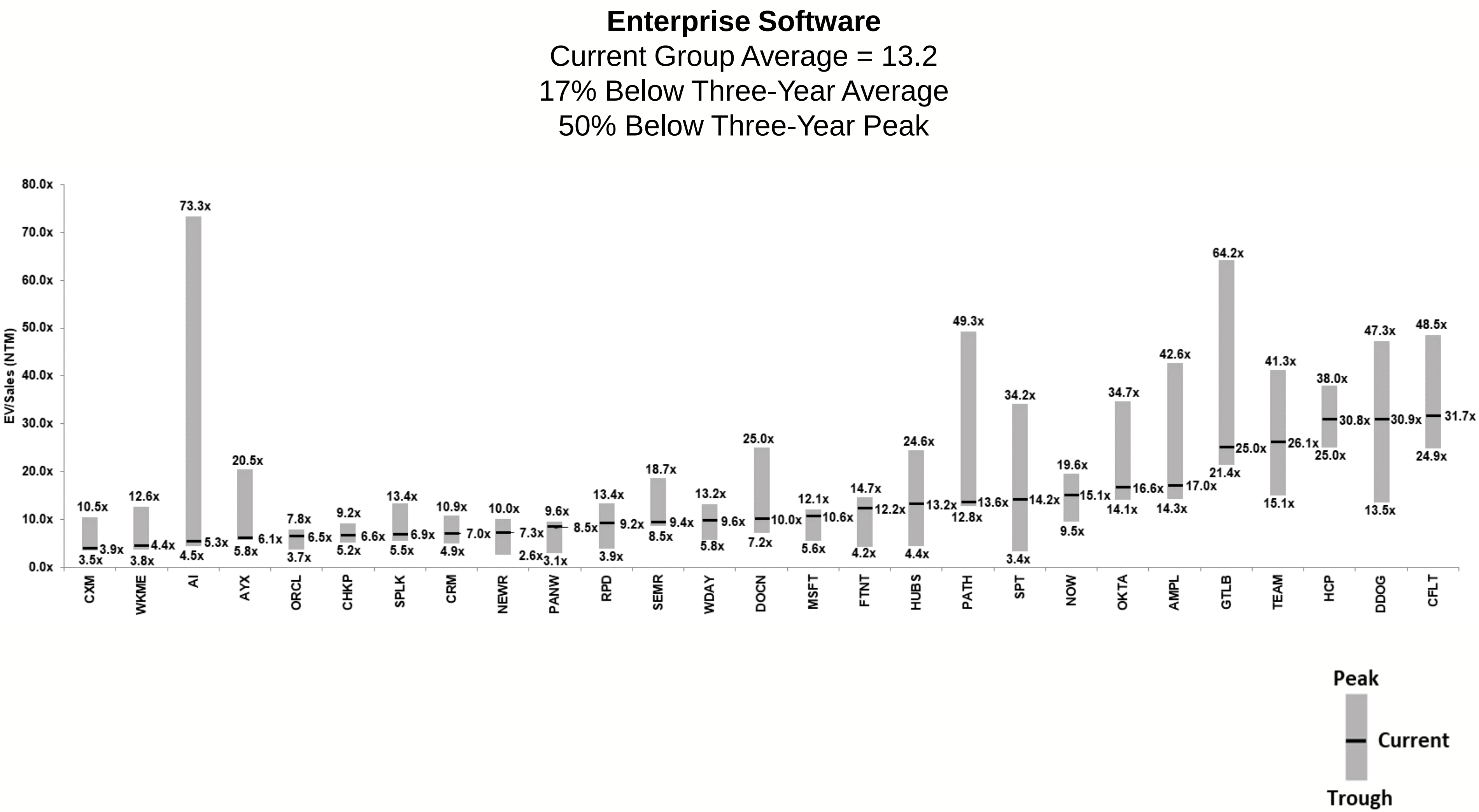


MSFT: KBCM vs. Consensus

($ in millions)	FY21A	FY22E	FY23E	FY24E
Revenue	**$168,088**	**$198,113**	**$224,039**	**$251,151**
Y/Y Growth	*17.5%*	*17.9%*	*13.1%*	*12.1%*
Consensus	-	*$199,071*	*$227,496*	*$259,549*
EBIT	**$69,916**	**$83,042**	**$94,286**	**$106,205**
EBIT Margin	*41.6%*	*41.9%*	*42.1%*	*42.3%*
Consensus	-	*$84,257*	*$96,912*	*$113,544*
EPS	**$8.0**	**$9.2**	**$10.5**	**$11.9**
Y/Y Growth	*38.8%*	*15.0%*	*14.1%*	*13.6%*
Consensus	-	*$9.3*	*$10.8*	*$12.6*
FCF	**$56,118**	**$66,524**	**$76,146**	**$86,064**
FCF Margin	*33.4%*	*33.6%*	*34.0%*	*34.3%*
Consensus	-	*$63,619*	*$74,422*	*$85,972*

Sources: Company reports, Dodge Data and Analytics, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Valuation: Enterprise Software



Sources: Company reports, Thomson Reuters, KeyBanc Capital Markets Inc. estimates.
Note: Prices as of close February 3, 2022.

Disclosure Appendix

Important Disclosures

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Distribution of Ratings/IB Services Firmwide and by Sector

KeyBanc Capital Markets			IB Serv/Past 12 Mos.		Technology			IB Serv/Past 12 Mos.	
Rating	Count	Percent	Count	Percent	Rating	Count	Percent	Count	Percent
Overweight [OW]	352	53.41	121	34.38	Overweight [OW]	132	64.71	45	34.09
Sector Weight [SW]	292	44.31	65	22.26	Sector Weight [SW]	71	34.80	12	16.90
Underweight [UW]	15	2.28	4	26.67	Underweight [UW]	1	0.49	1	100.00

Rating System

Overweight - We expect the stock to outperform the analyst's coverage sector over the coming 6-12 months.

Sector Weight - We expect the stock to perform in line with the analyst's coverage sector over the coming 6-12 months.

Underweight - We expect the stock to underperform the analyst's coverage sector over the coming 6-12 months.

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