

EQUITY RESEARCH

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

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

April 13, 2023

Industry Update

Looking For The Exit – Bits & Bytes Weekly

Is The IPO Freeze Starting To Thaw?

Sector:
Information Technology

Our Conclusion

After a record 2021, the IPO market ground to a near halt in 2022 with Americas IPOs hitting their lowest levels in 13 years. The start of 2023 has remained much the same as the market looks for more clarity on the interest rate ceiling and assesses the correct forward revenue (EBITDA?) multiples to apply to tech IPO candidates. That said, green shoots are starting to emerge, with marketing automation firm Klaviyo Inc. announcing plans last week for an IPO in September. If Klaviyo does undergo an IPO in that timeframe, it will be the first large initial public offering of 2023 and could set the stage for dozens of other late-stage privates to hold IPOs, possibly including Stripe, Instacart, Databricks, and SpaceX.

Key Points

One concern about going public in the current market is that many high-flying 2021 unicorns may need to take haircuts from valuations of their last announced funding rounds. Some companies are proactively adjusting their valuations, with Stripe cutting its internal valuation by 28% in July 2022 to US\$74B and Checkout.com slashing its internal valuation to US\$11B in December 2022 after its last funding round had valued it at US\$40B. Instacart also revalued itself multiple times over the course of 2022, reducing its valuation from US\$39B to US\$10B over the year. However, for every private that has engaged in that process, there are a number that have not. There were 519 newly minted unicorns in 2021 and a good portion of those firms have not adjusted valuations or raised additional funds. These companies may be reluctant to approach the IPO market in an environment that has resulted in most 2021 IPOs trading below their initial offering price.

In addition to VC-backed unicorns, we see a number of PE-backed firms that could look to go public. Private equity firms such as Thoma Bravo, Vista Equity Partners and others took advantage of tech market weakness over the past year to acquire private and public tech companies that demonstrated solid financials and the potential to be turned into consistent profit makers. We expect that these firms could be another source of IPO activity once the market thaws.

Klaviyo could be the IPO that restarts the process, with the potential autumn IPO testing investor appetite for tech names. Klaviyo helps companies send more targeted marketing emails and text messages and was valued at US\$9.5B in its most recent (2021) funding round. The company posted more than US\$575 million in recurring revenue last year and has been readying for IPO. Klaviyo hired Amanda Whalen, the former CFO of Walmart International, as its CFO in May 2022 and announced a strategic partnership with Shopify in August 2022 to serve as the recommended email solution partner for Shopify Plus. Shopify also invested \$100M in Klaviyo.

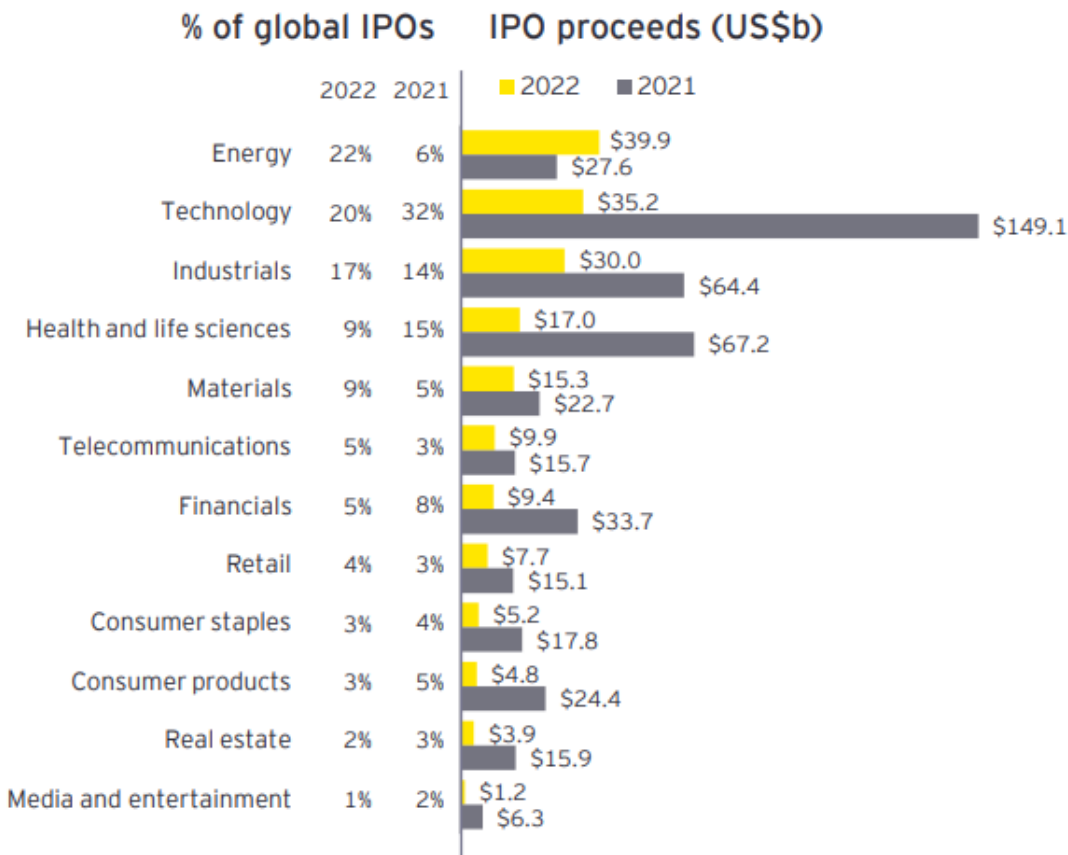
All figures in Canadian dollars unless otherwise stated.

For required regulatory disclosures please refer to "Important Disclosures" beginning on page 10.

A Closer Look At The IPO Market

2022 was a dismal year for IPOs, with Americas IPO volumes down 76% Y/Y and IPO proceeds down 95%, according to data from E&Y. The data was just as stark when narrowed down to Technology, with global technology IPO proceeds of US\$35.2B in 2022, down from US\$149.1B in 2021 (see bar chart, Exhibit 1).

Exhibit 1: Global IPO Proceeds 2021–2022



Source: E&Y Global IPO Trends 2022 and CIBC World Markets Inc.

Both the number of unicorn IPOs and the number of mega IPOs (+US\$1B) were down significantly in 2022, likely creating a backlog of IPO prospects once the IPO market eventually reopens (see table, Exhibit 2).

Exhibit 2: Unicorn and Mega IPOs 2021–2022

	Unicorn IPOs		
	2022	2021	% Change
Number of IPOs	13	79	-84%
Proceeds (US\$B)	5.3	82.9	-94%
	Mega IPOs		
	2022	2021	% Change
Number of IPOs	21	82	-74%
Proceeds (US\$B)	64	172.7	-63%

Source: E&Y Global IPO Trends 2022 and CIBC World Markets Inc.

News Impacting Our Coverage

TELUS International Announces Two New Directors & Increases Number of Independent Directors

TELUS International announced it has welcomed Madhuri Andrews as an independent director and Navin Arora as a director nominee from TELUS. Ms. Andrews and Mr. Arora fill the vacancies created on TELUS International's board when Kenneth Cheong (Barings Private Equity Asia) and Stephen Lewis retired on January 5, 2023 and February 9, 2023, respectively. Ms. Andrews joined the board on March 9, 2023 and is a member of the Audit Committee and Governance and Nominating Committee. Prior to founding her own consulting firm, Ms. Andrews was an EVP and the Chief Digital and Information Officer with Jacobs Solutions Inc., which she joined in 2018. Mr. Arora joined the board on January 4, 2023 and is a member of the Governance and Nominating Committee. He currently holds the position of EVP, TELUS and President, TELUS Business Solutions, overseeing all business segments across Canada, in addition to Partner Solutions, TELUS' global wholesale division. Separately, TELUS International released its first sustainability report, which can be found [here](#).

Softchoice Appoints Jonathan Roiter as Chief Financial Officer

Softchoice announced it has appointed Jonathan Roiter as Chief Financial Officer effective June 1, 2023. Softchoice has had an interim CFO since prior CFO Brian Rocco left in September 2022 to join Achievers. Mr. Roiter joins Softchoice from GoodFood Market, where he served as Chief Financial Officer and brings experience across sectors including as a consultant with McKinsey & Company, as CFO and COO of Ace Bakery, and as the leader of the corporate finance and corporate development functions at Gildan Activewear. He is a Chartered Professional Accountant and holds a Bachelor of Commerce from McGill University and an MBA from the Wharton School of Business, University of Pennsylvania.

Constellation's Altera Announces Contract Renewal

Altera Digital Health announced that Bergen New Bridge Medical Center, New Jersey's largest hospital and a clinical affiliate of Rutgers New Jersey Medical School, has expanded its Paragon electronic health record (EHR) partnership for an additional five years. In addition, the medical centre will also implement Paragon Ambulatory Care EHR, as well as Microsoft Azure and several other Altera solutions.

CGI Recognized As Solutions Partner For Microsoft Cloud

CGI announced it had earned a Solutions Partner designation for Microsoft Cloud, having completed all six Solutions Partner requirements. The six required Solutions Partner designations for Microsoft Cloud include business applications, data and artificial intelligence, digital and app innovation, infrastructure, security, and modern work for enterprises. The Solutions Partner for Microsoft Cloud designation is only available to organizations that have completed all six requirements.

Exhibit 3: CIBC Coverage – Price Returns, For The Period Ending April 12, 2023

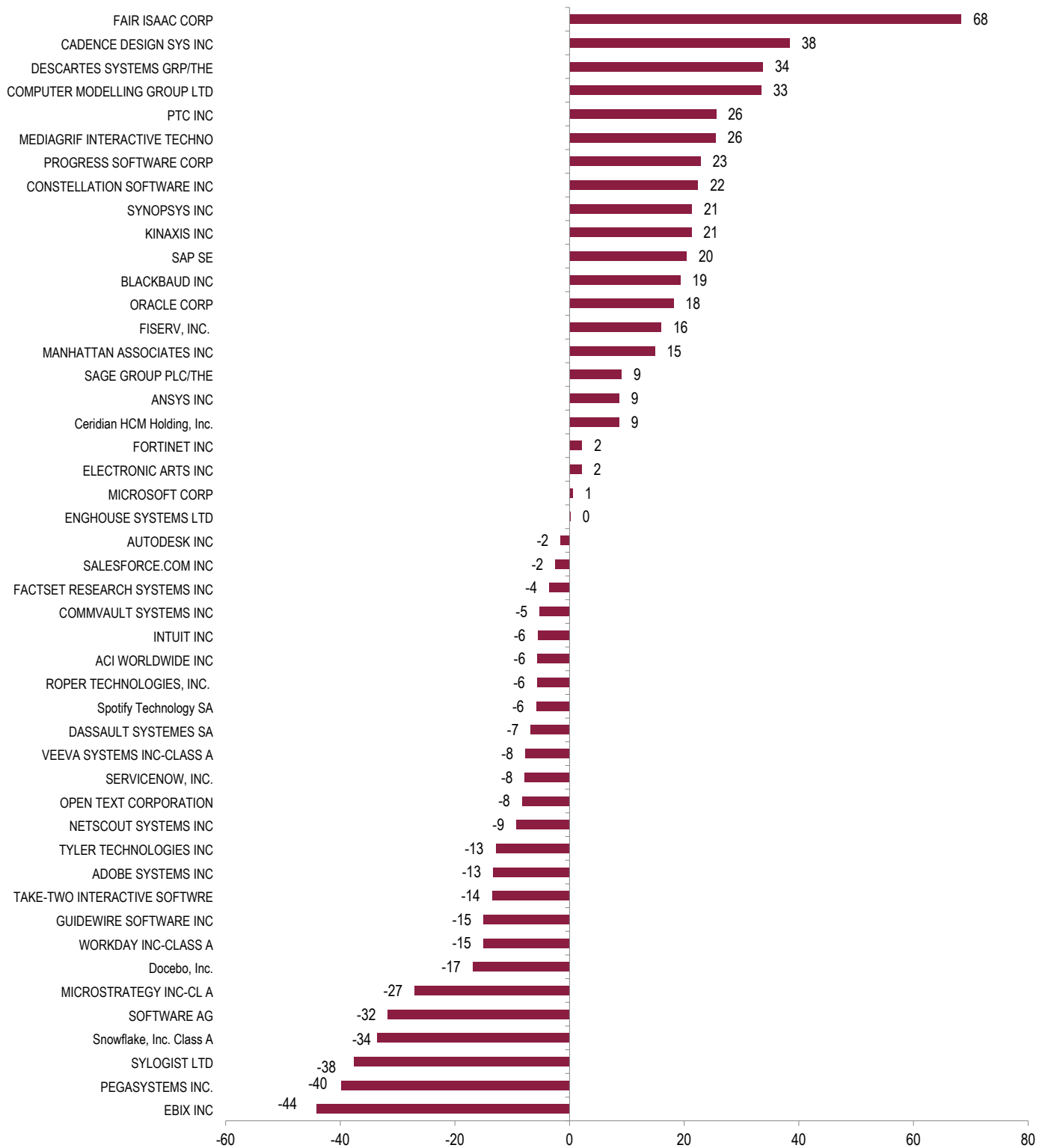
Software & Systems	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
Constellation Software Inc	2,615.60	2.1	14.2	18.4	45.1	22.6	26.3	2651.00	1747.83
Descartes Systems	80.43	(0.8)	7.8	14.7	20.2	25.8	15.5	81.57	56.19
Enghouse Systems Limited	39.45	(1.7)	20.4	(0.8)	39.0	0.3	9.7	44.59	23.96
Open Text Corp	38.76	0.7	12.7	19.9	50.6	(8.3)	30.8	43.10	24.91
Kinaxis	182.36	(1.9)	8.8	29.8	35.3	21.3	20.0	187.01	119.48
Docebo, Inc.	51.75	(2.4)	5.4	9.6	41.0	(16.6)	15.7	64.43	31.66
Dye & Durham	16.42	(2.5)	(13.1)	(12.8)	5.5	(23.4)	0.1	24.68	11.62
Altus Group	57.26	0.9	0.5	1.2	24.5	14.1	6.0	61.60	41.27
Q4 Inc.	3.88	(2.8)	25.2	65.1	4.3	NA	20.9	5.14	1.88
Average		(0.9)	9.1	16.1	29.5	4.5	16.1		

Business Services	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
CGI Group Inc	132.62	1.4	6.7	14.2	28.8	30.2	13.6	133.32	95.45
Converge Technologies	3.90	2.9	(7.6)	(25.3)	(37.7)	(55.2)	(15.0)	9.45	3.60
Information Services Corp	22.46	0.9	(0.5)	(2.9)	5.9	(3.0)	(7.1)	25.36	19.12
Softchoice Corporation	19.96	9.0	33.6	6.6	2.5	(21.3)	9.3	26.42	13.57
Telus International	26.96	2.3	(6.3)	(8.3)	(21.8)	(10.6)	0.9	40.55	24.11
Average		3.9	6.6	(3.2)	(7.1)	(14.2)	2.2		

Indices	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD
S&P/TSX Composite Index	20,454.62	1.5	3.4	1.2	12.3	(5.8)	5.5
S&P 500 Index	4,091.11	0.0	5.9	2.7	14.4	(7.0)	6.6
S&P/TSX Software Index	167.10	1.1	8.6	16.9	40.1	4.7	22.5
S&P500 Software Index	4,832.17	(0.5)	12.4	16.2	26.1	0.3	18.0

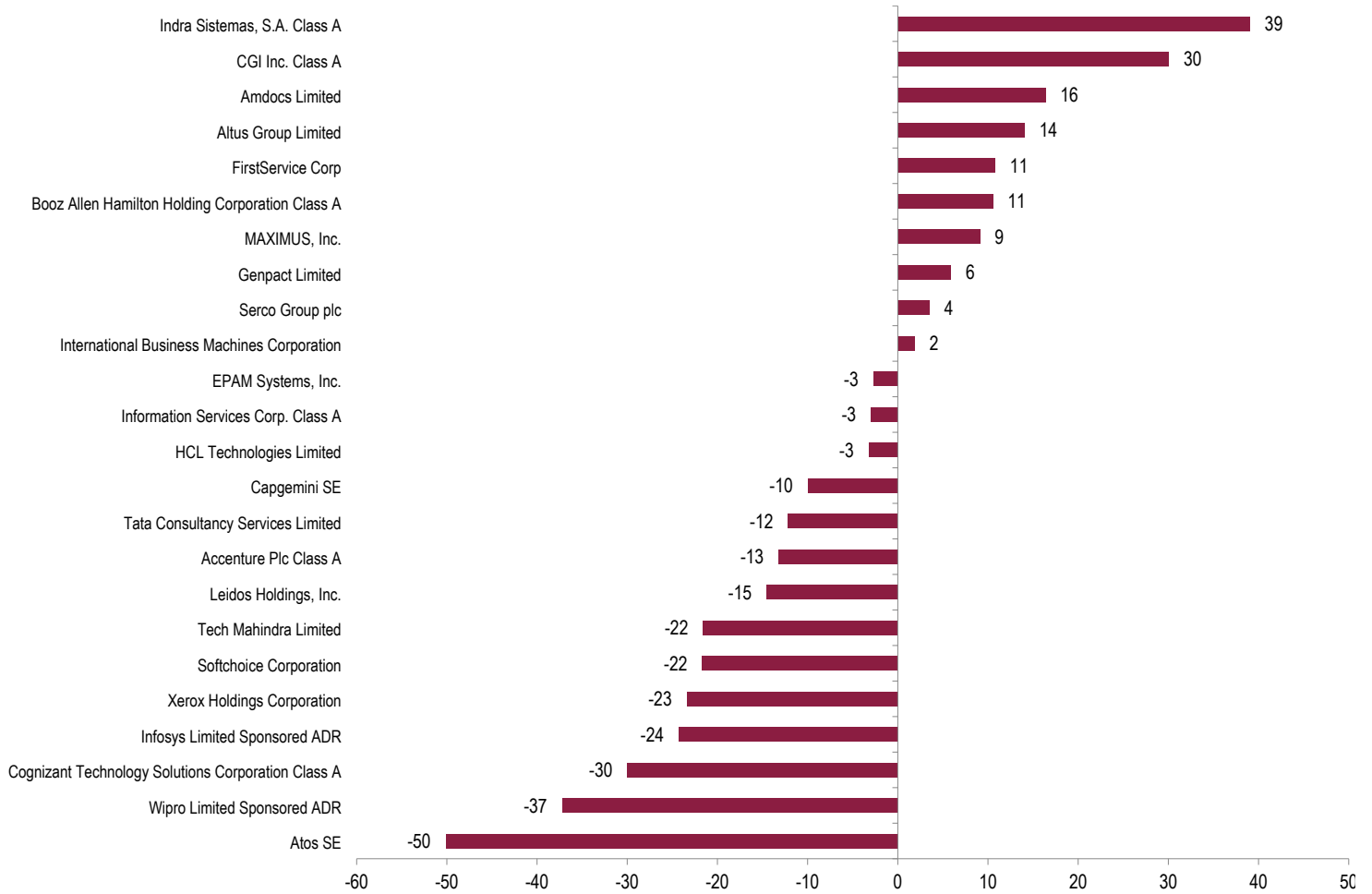
Source: FactSet and CIBC World Markets Inc.

Exhibit 4: Software Stocks – Return Performance (%), 4/12/2022–4/12/2023



Source: FactSet and CIBC World Markets Inc.

Exhibit 5: Business Services Stocks – Return Performance (%), 4/06/2022–4/06/2023



Source: FactSet and CIBC World Markets Inc.

Exhibit 6: Software Stocks – Comp Table, 2022–2024E

	Enterprise Value (\$mlns.)	EV/S			EV/EBITDA			P/E		
		C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Enterprise Application Software										
Constellation Software Inc.*	42,420	6.4x	5.4x	4.8x	25.0x	21.1x	18.7x	34.0x	31.3x	27.4x
BlackBerry Limited*	2,540	3.8x	2.8x	2.5x	NEG	NEG	>50	NEG	NEG	NEG
Sage Group plc	8,760	4.4x	4.0x	3.7x	19.2x	17.1x	15.5x	29.5x	25.4x	22.8x
Tyler Technologies, Inc.	15,863	8.6x	8.1x	7.4x	33.4x	33.1x	29.4x	47.9x	47.4x	41.6x
Roper Technologies, Inc.	53,242	9.9x	8.9x	8.4x	24.3x	21.8x	20.4x	31.1x	27.5x	25.6x
Enghouse Systems Limited	1,948	4.6x	4.50x	4.43x	14.1x	14.5x	13.38x	19.9x	30.8x	27.37x
Oracle Corporation	310,893	6.6x	6.0x	5.6x	13.3x	11.9x	10.8x	18.8x	17.5x	15.6x
SAP SE	146,654	4.4x	4.6x	4.3x	18.5x	16.0x	14.0x	28.6x	21.9x	18.8x
Enterprise Application Software Average		6.1x	5.5x	5.1x	21.1x	19.4x	17.5x	30.0x	28.8x	25.6x
Extended ERP										
Adobe Incorporated	168,091	9.5x	8.6x	7.7x	19.3x	17.8x	16.0x	26.7x	23.6x	20.8x
Open Text Corporation	13,109	3.7x	2.4x	2.1x	10.5x	7.7x	5.6x	12.3x	13.9x	7.2x
Manhattan Associates, Inc.	9,361	12.2x	11.3x	10.1x	42.8x	42.5x	37.5x	>50	>50	49.0x
Pegasystems Inc.	4,163	3.2x	3.0x	2.7x	>50	23.2x	16.1x	>50	30.5x	21.6x
Software AG	1,727	1.8x	1.7x	1.6x	10.1x	9.7x	8.0x	21.6x	14.1x	11.7x
Fiserv, Inc.	93,311	5.6x	5.2x	4.8x	12.9x	11.9x	10.9x	17.7x	15.6x	13.8x
Extended ERP Average		6.0x	5.4x	4.8x	19.1x	18.8x	15.7x	19.5x	19.5x	20.7x
Software As A Service										
Descartes Systems Group Inc.	6,556	13.5x	11.9x	10.8x	30.5x	26.9x	23.8x	>50	>50	>50
Kinaxis, Inc.*	3,593	9.8x	8.4x	7.0x	45.2x	>50	44.2x	>50	>50	>50
Docebo, Inc.*	1,051	7.4x	5.7x	4.3x	>50	>50	33.5x	>50	>50	>50
Lightspeed Commerce Inc*	1,297	1.9x	1.5x	1.2x	NEG	NEG	38.1x	NEG	>50	>50
Veeva Systems Inc Class A	25,212	11.8x	10.8x	9.1x	29.8x	30.4x	24.5x	41.8x	41.2x	34.5x
Shopify, Inc. Class A	54,193	9.7x	8.2x	6.7x	>50	>50	>50	>50	>50	>50
Q4 Inc*	87	1.6x	1.6x	1.4x	NEG	NEG	NEG	NEG	NEG	NEG
Ceridian HCM Holding, Inc.	11,102	8.9x	7.4x	6.4x	44.3x	30.3x	24.4x	>50	>50	42.1x
ServiceNow, Inc.	93,440	12.9x	10.5x	8.7x	40.9x	33.9x	26.9x	>50	>50	41.4x
Workday, Inc. Class A	46,870	7.7x	6.6x	5.6x	29.9x	23.5x	19.6x	>50	38.5x	31.3x
Software As A Service Average		8.9x	7.4x	6.2x	36.8x	31.0x	29.3x	41.8x	39.8x	37.3x
Infrastructure Vendors										
Microsoft Corporation	2,084,706	10.2x	9.5x	8.4x	21.0x	19.3x	16.6x	30.6x	28.2x	24.4x
Infrastructure Vendors Average		10.2x	9.5x	8.4x	21.0x	19.3x	16.6x	30.6x	28.2x	24.4x
Software Average		7.4x	6.4x	5.6x	25.5x	22.7x	21.6x	27.7x	27.2x	26.5x

*Share Price Converted to USD

Note: Bolded names are covered by CIBC World Markets Inc.

Source: Company reports, FactSet and CIBC World Markets Inc.

Exhibit 7: Business Services Stocks – Comp Table, 2022–2024E

	Enterprise Value (\$mlns.)	EV/EBITDA			P/E			EV/S		
		C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Business & IT Services										
CGI Inc. Class A	34,107	13.8x	12.2x	11.8x	21.2x	19.0x	18.1x	2.6x	2.4x	2.4x
TELUS International (CDA), Inc.	6,327	10.4x	8.9x	7.7x	16.3x	16.2x	13.4x	2.6x	2.1x	1.9x
Accenture Plc Class A	183,397	16.0x	15.3x	14.1x	25.8x	23.9x	21.9x	2.9x	2.8x	2.6x
Booz Allen Hamilton	15,191	15.3x	14.3x	13.1x	21.9x	20.2x	18.2x	1.7x	1.6x	1.5x
CACI International Inc Class A	9,191	13.7x	12.7x	11.9x	17.1x	16.1x	14.5x	1.4x	1.4x	1.3x
DXC Technology Co.	9,202	3.8x	3.9x	4.0x	7.2x	6.5x	5.7x	0.6x	0.6x	0.6x
Genpact Limited	9,358	11.9x	10.9x	9.9x	16.5x	15.2x	13.6x	2.1x	2.0x	1.8x
International Business Machines	161,563	10.3x	10.8x	10.4x	14.1x	13.6x	12.8x	2.7x	2.6x	2.5x
Atos SE	2,986	3.0x	2.7x	2.5x	>50	4.8x	3.5x	0.3x	0.3x	0.3x
Capgemini SE	35,036	10.0x	9.6x	8.8x	14.8x	15.2x	13.7x	1.6x	1.5x	1.4x
Sopra Steria Group SA	5,206	8.8x	7.6x	7.0x	14.1x	11.6x	10.2x	1.0x	0.9x	0.9x
Converge Technology Solutions Corp	1,075	7.5x	6.2x	6.0x	36.7x	21.4x	25.7x	0.5x	0.4x	0.4x
Business & IT Services Average		10.6x	9.9x	9.2x	16.9x	14.7x	13.2x	1.8x	1.7x	1.6x
HR Outsourcing										
		EV/EBITDA			P/E			EV/S		
Ceridian HCM Holding, Inc.	11,106	44.4x	30.3x	24.4x	>50	>50	42.1x	8.9x	7.5x	6.4x
Willis Towers Watson	29,433	12.4x	12.1x	10.9x	17.7x	16.4x	13.8x	3.3x	3.2x	3.0x
Aon Plc Class A	76,554	19.2x	17.8x	16.7x	24.0x	22.0x	19.8x	6.1x	5.8x	5.5x
Automatic Data Processing, Inc.	91,272	19.8x	17.8x	16.2x	28.4x	25.2x	22.6x	5.3x	4.9x	4.6x
Paychex, Inc.	38,765	18.0x	16.8x	15.5x	26.7x	24.3x	22.6x	8.0x	7.5x	7.0x
HR Outsourcing Average		22.8x	18.9x	16.7x	24.2x	22.0x	24.2x	6.3x	5.8x	5.3x
Information Services										
		EV/EBITDA			P/E			EV/S		
Broadridge Financial Solutions, Inc.	20,961	15.9x	14.6x	14.0x	21.8x	20.2x	18.4x	3.6x	3.4x	3.2x
Dye & Durham Ltd.	2,083	13.1x	11.9x	9.6x	0.1x	0.1x	0.1x	4.3x	4.4x	4.2x
Deluxe Corporation	2,034	4.9x	5.1x	5.0x	3.8x	5.1x	4.7x	0.9x	0.9x	0.9x
Information Services Corp	440	6.8x	6.7x	6.4x	11.3x	11.3x	10.4x	2.3x	2.2x	2.1x
Information Services Average		10.2x	9.6x	8.7x	9.2x	9.2x	8.4x	2.8x	2.7x	2.6x
Financial Services Technology										
		EV/EBITDA			P/E			EV/S		
Fidelity National Information Services	51,198	8.3x	8.5x	8.0x	8.3x	9.5x	8.6x	3.5x	3.6x	3.4x
Fiserv, Inc.	93,339	12.9x	11.9x	10.9x	17.7x	15.7x	13.8x	5.6x	5.2x	4.8x
Jack Henry & Associates, Inc.	11,252	17.9x	16.5x	15.2x	31.1x	29.9x	27.0x	5.6x	5.3x	4.9x
ACI Worldwide, Inc.	3,798	10.2x	9.9x	9.1x	20.6x	23.6x	19.1x	2.7x	2.6x	2.5x
Temenos AG	5,562	15.2x	14.4x	12.6x	22.7x	21.2x	18.1x	5.9x	5.6x	5.1x
Global Payments Inc.	40,264	10.3x	9.5x	8.7x	11.3x	10.3x	8.9x	5.0x	4.7x	4.4x
Financial Services Technology Average		12.5x	11.8x	10.8x	18.6x	18.3x	15.9x	4.7x	4.5x	4.2x
Diversified Real Estate Services										
		EV/EBITDA			P/E			EV/S		
Colliers International Group Inc.	5,999	9.5x	8.3x	7.8x	14.1x	13.0x	11.9x	1.3x	1.3x	1.2x
Altus Group Limited	2,725	20.1x	19.9x	15.6x	30.1x	27.9x	24.3x	3.7x	3.5x	3.1x
CBRE Group, Inc. Class A	23,846	8.2x	9.1x	8.1x	12.3x	14.1x	11.8x	0.8x	0.8x	0.7x
Jones Lang LaSalle Incorporated	8,898	7.1x	7.7x	6.7x	8.6x	9.3x	7.8x	0.4x	0.4x	0.4x
Diversified Real Estate Services Average		11.2x	11.3x	9.5x	16.3x	16.1x	14.0x	1.6x	1.5x	1.3x
Software Focused IT Solutions/VARs										
		EV/EBITDA			P/E			EV/S**		
Softchoice Corporation* USD	978	12.0x	11.1x	10.1x	18.6x	18.3x	16.4x	3.1x	2.9x	2.8x
Softcat Plc*	2,533	14.9x	13.5x	12.4x	20.0x	18.9x	17.9x	6.2x	5.3x	4.8x
Crayon Group Holding ASA*	9,276	>50	>50	>50	>50	>50	>50	20.9x	18.5x	15.9x
Bytes Technology Group Plc*	868	13.0x	11.5x	10.3x	17.5x	16.3x	14.6x	NA	NA	NA
Bytes Technology Group Plc* Average		13.3x	12.1x	11.0x	18.7x	17.8x	16.3x	10.1x	8.9x	7.8x
Business Services Average		13.1x	11.9x	10.8x	17.3x	16.1x	15.2x	3.8x	3.6x	3.3x

*Share Price Converted to USD

**Software Focused IT Solutions/VARs uses EV/GP metric.

Note: Bolded names are covered by CIBC World Markets Inc.

Source: Company reports, FactSet and CIBC World Markets Inc.

Exhibit 8: SaaS Stocks – Comp Table, 2022–2024E

	LTM Revenue Growth	LTM FCF Margin	NTM Revenue Growth	NTM FCF Margin	LTM Rule Of 40	NTM Rule Of 40	Enterprise Value (\$MM)	EV/S		
								C22E	C23E	C24E
Tier 1 SaaS (Rule of 40 > 50)										
Snowflake, Inc. Class A	69%	26%	40%	25%	95%	65%	44,583	22.4x	15.8x	11.5x
DataDog	63%	23%	25%	20%	86%	45%	20,007	11.9x	9.5x	7.5x
CrowdStrike Holdings, Inc.	54%	31%	34%	30%	85%	64%	27,711	12.7x	9.4x	7.3x
Zscaler, Inc.	57%	23%	43%	21%	80%	64%	14,294	11.1x	8.2x	6.4x
The Trade Desk Holding	32%	33%	20%	28%	64%	48%	27,377	17.3x	14.5x	11.7x
Paylocity Holding Corp.	37%	19%	36%	19%	56%	55%	10,541	10.5x	8.2x	6.8x
Qualys, Inc.	18%	38%	14%	34%	56%	48%	4,424	9.0x	8.0x	7.0x
Kinaxis, Inc.*	52%	2%	16%	19%	54%	35%	3,160	8.6x	7.4x	6.2x
Toast, Inc. Class A	60%	-6%	33%	-1%	54%	32%	3,160	1.2x	1.4x	1.1x
Atlassian Corp Class A	31%	23%	25%	20%	54%	45%	3,160	1.0x	2.1x	1.8x
ServiceNow, Inc.	23%	30%	22%	30%	53%	52%	92,622	12.8x	10.5x	8.6x
Veeva Systems Inc	16%	36%	9%	35%	53%	45%	25,778	12.1x	11.0x	9.3x
Adobe Incorporated	10%	41%	11%	40%	52%	51%	3,160	0.2x	NEG	NEG
Descartes Systems	14%	37%	14%	35%	51%	49%	6,537	13.6x	12.5x	10.8x
Tier 1 SaaS (Rule of 40 > 50) Average								10.3x	9.1x	7.4x
Tier 2 SaaS (Rule of 40 b/w 41-49)										
Okta, Inc. Class A	43%	6%	17%	10%	49%	27%	12,549	6.9x	5.9x	5.0x
Splunk Inc.	37%	12%	6%	20%	49%	27%	17,575	4.9x	4.5x	4.0x
HubSpot, Inc.	33%	15%	19%	11%	48%	30%	19,438	11.2x	9.5x	7.8x
Cloudflare Inc	49%	-1%	37%	3%	48%	40%	18,967	19.4x	14.2x	10.7x
Box, Inc. Class A	13%	34%	6%	29%	47%	35%	3,961	4.0x	3.8x	3.4x
Paycom Software, Inc.	30%	17%	24%	18%	47%	41%	16,849	12.3x	9.9x	8.2x
MongoDB, Inc.	47%	-1%	18%	6%	46%	24%	14,558	11.7x	9.7x	7.9x
Docebo, Inc.*	43%	2%	28%	9%	45%	37%	1,064	6.8x	5.8x	4.6x
JFrog Ltd.	35%	9%	22%	10%	45%	32%	1,554	5.5x	4.5x	3.7x
Dropbox, Inc.	8%	37%	7%	34%	44%	41%	8,549	3.7x	3.5x	3.3x
Workday, Inc.	20%	21%	16%	24%	41%	40%	47,940	7.8x	6.7x	5.7x
Tier 2 SaaS (Rule of 40 b/w 41-49) Average								8.6x	7.1x	5.8x
Tier 3 SaaS (Rule of 40 b/w 25-40)										
Paychex, Inc.	9%	30%	8%	37%	40%	45%	38,658	8.0x	7.5x	7.0x
DocuSign, Inc.	19%	19%	7%	19%	38%	26%	10,986	4.4x	4.1x	3.8x
Rapid7 Inc.	28%	8%	13%	10%	36%	23%	3,372	4.9x	4.4x	3.7x
Lightspeed POS, Inc.*	49%	-13%	33%	-13%	36%	20%	1,287	1.9x	1.5x	1.2x
Qualtrics International, Inc. Cl	36%	-1%	14%	7%	35%	22%	10,377	7.1x	6.2x	5.4x
Zoom Video Communications	7%	28%	2%	29%	35%	31%	15,616	3.6x	3.5x	3.3x
BlackLine, Inc.	23%	10%	13%	10%	33%	23%	4,089	7.8x	6.9x	6.0x
VMware, Inc.	4%	29%	7%	28%	33%	35%	58,714	4.4x	4.1x	3.9x
Five9, Inc.	28%	5%	16%	7%	32%	23%	5,330	6.8x	5.9x	5.0x
RingCentral, Inc.	25%	6%	10%	11%	31%	21%	4,174	2.1x	1.9x	1.7x
Twilio, Inc.	35%	-7%	13%	3%	27%	16%	8,278	2.2x	1.9x	1.6x
Akamai Technologies, Inc.	4%	23%	3%	14%	27%	17%	14,192	3.9x	3.8x	3.6x
PayPal Holdings, Inc.	6%	19%	9%	20%	25%	29%	84,267	3.1x	2.9x	2.6x
Ceridian HCM Holding, Inc.	22%	3%	20%	11%	25%	31%	11,737	9.4x	7.9x	6.8x
Tier 3 SaaS (Rule of 40 b/w 25-40) Average								5.0x	4.5x	4.0x
Tier 4 SaaS (Rule of 40 <28)										
Confluent Inc Class A	51%	-28%	30%	-9%	23%	21%	5,604	9.6x	7.4x	5.7x
New Relic, Inc.	18%	2%	18%	3%	20%	21%	4,620	5.2x	4.5x	3.9x
Shopify, Inc.	21%	-3%	19%	-3%	18%	16%	55,578	9.9x	8.4x	6.9x
Q2 Holdings Inc.	13%	4%	12%	4%	18%	16%	1,624	2.9x	2.6x	2.3x
Teradata Corporation	-6%	23%	1%	18%	16%	20%	4,145	2.3x	2.3x	2.2x
UiPath, Inc. Class A	19%	-3%	19%	8%	16%	27%	7,462	7.1x	6.0x	5.1x
Wix.com Ltd.	10%	1%	10%	9%	11%	18%	5,199	3.7x	3.4x	3.0x
Zuora, Inc.	14%	-5%	9%	6%	10%	15%	1,063	2.7x	2.5x	2.2x
Yext, Inc.	3%	6%	1%	8%	8%	8%	972	2.4x	2.4x	2.3x
2U, Inc.	2%	0%	3%	1%	2%	4%	1,365	1.4x	1.4x	1.3x
LivePerson, Inc.	10%	-21%	-18%	-6%	-11%	-24%	683	1.3x	1.6x	1.6x
Q4 Inc.	5%	-59%	10%	-12%	-54%	-2%	93	1.7x	1.5x	1.3x
Tier 4 SaaS (Rule of 40 <28) Average								4.2x	3.7x	3.1x
SaaS Average								7.0x	6.1x	5.1x

* Share Price Converted to USD

Source: Company reports, FactSet and CIBC World Markets Inc. Bolded names covered by CIBC World Markets Inc.

Important Disclosures

Analyst Certification: Each CIBC World Markets Inc. research analyst named on the front page of this research report, or at the beginning of any subsection hereof, hereby certifies that (i) the recommendations and opinions expressed herein accurately reflect such research analyst's personal views about the company and securities that are the subject of this report and all other companies and securities mentioned in this report that are covered by such research analyst and (ii) no part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by such research analyst in this report.

Potential Conflicts of Interest: Equity research analysts employed by CIBC World Markets Inc. are compensated from revenues generated by various CIBC World Markets Inc. businesses, including the CIBC World Markets Investment Banking Department. Research analysts do not receive compensation based upon revenues from specific investment banking transactions. CIBC World Markets Inc. generally prohibits any research analyst and any member of his or her household from executing trades in the securities of a company that such research analyst covers. Additionally, CIBC World Markets Inc. generally prohibits any research analyst from serving as an officer, director or advisory board member of a company that such analyst covers.

In addition to 1% ownership positions in covered companies that are required to be specifically disclosed in this report, CIBC World Markets Inc. may have a long position of less than 1% or a short position or deal as principal in the securities discussed herein, related securities or in options, futures or other derivative instruments based thereon.

Recipients of this report are advised that any or all of the foregoing arrangements, as well as more specific disclosures set forth below, may at times give rise to potential conflicts of interest.

CIBC World Markets Inc. does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that CIBC World Markets Inc. may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Analysts employed outside the U.S. are not registered as research analysts with FINRA. These analysts may not be associated persons of CIBC World Markets Corp. and therefore may not be subject to FINRA Rule 2241 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

CIBC World Markets Inc. Stock Rating System

Stock Ratings	Abbreviation	Description
Outperformer	OP	Stock is expected to outperform similar stocks in the coverage universe during the next 12-18 months.
Neutral	NT	Stock is expected to perform in line with similar stocks in the coverage universe during the next 12-18 months.
Underperformer	UN	Stock is expected to underperform similar stocks in the coverage universe during the next 12-18 months.
Tender	TR	Shareholders are advised to tender shares to a specific offer as we do not believe a superior offer will materialize.
Not Rated	NR	CIBC World Markets does not maintain an investment recommendation on the stock.
Restricted	R	CIBC World Markets is restricted (due to potential conflict of interest) from rating the stock.

Sector Ratings	Abbreviation	Description
Overweight	O	Sector is expected to outperform the broader market averages.
Marketweight	M	Sector is expected to equal the performance of the broader market averages.
Underweight	U	Sector is expected to underperform the broader market averages.
None	NA	Sector rating is not applicable.

Note: Broader market averages refer to S&P 500 in the U.S. and S&P/TSX Composite in Canada.

CIBC World Markets Inc. Price Chart

For price and performance charts, please visit CIBC on the web at <https://researchcentral.cibccm.com/#/disclaimer-central-new> or write to CIBC World Markets Inc., 161 Bay Street, 4th Floor, Toronto, ON M5H 2S8, Attn: Research Disclosure Chart Request.

Important Disclosure Footnotes

For important disclosure footnotes for companies mentioned in this report that are covered by CIBC World Markets Inc., click here: [CIBC Disclaimers & Disclosures](#)

Ratings Distribution*: CIBC World Markets Inc. Coverage Universe

(as of 13 Apr 2023)	Count	Percent	Inv. Banking Relationships	Count	Percent
Outperformer	146	49%	Outperformer	146	100%
Neutral	130	44%	Neutral	129	99%
Underperformer	7	2%	Underperformer	6	86%
Tender	0	0%	Tender	0	0%
Restricted	12	4%	Restricted	12	100%

Important disclosures for each issuer can be found by visiting the Research Central website at <https://researchcentral.cibccm.com/#/disclaimer-central-new> and then entering the issuer name. Access to our research dissemination policy can be found on the same website at <https://researchcentral.cibccm.com/#/dissemination-policy>. These important disclosures can also be obtained by writing to CIBC World Markets Inc., 161 Bay Street, 4th Floor, Toronto, ON M5H 2S8, Attention: Research Disclosures Request.

Access to CIBC Equity Research

Clients may access CIBC Equity Research online at Research Central at <https://researchcentral.cibccm.com/>, or at the following research aggregators: Bloomberg, Refinitiv, Capital IQ, and FactSet.

Legal Disclaimer

This report is issued by CIBC Capital Markets.

CIBC Capital Markets is a trademark brand name under which Canadian Imperial Bank of Commerce (“CIBC”), its subsidiaries and affiliates (including, without limitation, CIBC World Markets Inc., CIBC World Markets Corp. and CIBC Capital Markets (Europe) S.A.) provide different products and services to our customers around the world. Products and/or services offered by CIBC include corporate lending services, foreign exchange, money market instruments, structured notes, interest rate products and OTC derivatives. CIBC’s Foreign Exchange Disclosure Statement relating to guidelines contained in the FX Global Code can be found at <https://cibccm.com/en/disclosures/fx-disclosure-statement/>. Other products and services, such as exchange-traded equity and equity options, fixed income securities and futures execution of Canadian securities, are offered through directly or indirectly held subsidiaries of CIBC as indicated below.

CIBC World Markets Inc. is a member of the Canadian Investor Protection Fund and the Investment Industry Regulatory Organization of Canada. In the United States, CIBC World Markets Corp. is a member of the Financial Industry Regulatory Authority and the Securities Investor Protection Fund. In Luxembourg, CIBC Capital Markets (Europe) S.A. (RCS Luxembourg: B236326) is authorised by the European Central Bank (the “ECB”) and supervised by the Luxembourg Financial Supervisory Authority (Commission de Surveillance du Secteur Financier) under the oversight of the ECB. CIBC Australia Ltd (AFSL No: 240603) is regulated by the Australian Securities and Investment Commission (“ASIC”). CIBC World Markets (Japan) Inc. is a member of the Japanese Securities Dealer Association. CIBC (TSX/NYSE: CM) is a bank chartered under the Bank Act (Canada) having its registered office in Toronto, Ontario, Canada, and regulated by the Office of the Superintendent of Financial Institutions. CIBC New York Branch is licensed and supervised by the New York State Department of Financial Services. In the United Kingdom, CIBC London Branch is authorised by the Prudential Regulation Authority and subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Canadian Imperial Bank of Commerce, Sydney Branch (ABN: 33 608 235 847) is an authorised foreign bank branch regulated by the Australian Prudential Regulation Authority (APRA). Canadian Imperial Bank of Commerce, Hong Kong Branch is a registered institution under the Securities and Futures Ordinance, Cap 571, and a limited liability foreign company registered with the Hong Kong Companies Registry. Canadian Imperial Bank of Commerce, Singapore Branch is a wholesale bank licensed and regulated by the Monetary Authority of Singapore.

This report is issued and approved for distribution by (a) in Canada, CIBC World Markets Inc., a member of the Investment Industry Regulatory Organization of Canada (“IIROC”), the Toronto Stock Exchange, the TSX Venture Exchange and a Member of the Canadian Investor Protection Fund and (b) in the United States either by (i) CIBC World Markets Inc. for distribution only to U.S. Major Institutional Investors (“MII”) (as such term is defined in SEC Rule 15a-6) or (ii) CIBC World Markets Corp., a member of the Financial Industry Regulatory Authority (“FINRA”). U.S. MIIs receiving this report from CIBC World Markets Inc. (the Canadian broker-dealer) are required to effect transactions (other than negotiating their terms) in securities discussed in the report through CIBC World Markets Corp. (the U.S. broker-dealer). CIBC World Markets Corp. accepts responsibility for the content of this research report.

Distribution to Institutional Customers Only

Canada

This report is provided, for informational purposes only, to institutional investor and retail clients of CIBC World Markets Inc. in Canada, and does not constitute an offer or solicitation to buy or sell any securities discussed herein in any jurisdiction where such offer or solicitation would be prohibited.

Legal Disclaimer (Continued)

United States

This report is provided, for informational purposes only, to Major US Institutional Investor clients of CIBC World Markets Corp. in the United States, and does not constitute an offer or solicitation to buy or sell any securities discussed herein in any jurisdiction where such offer or solicitation would be prohibited.

United Kingdom

The distribution of this report in the United Kingdom is being made only to, or directed only at, persons falling within one or more of the exemptions from the financial promotion regime in section 21 of the UK Financial Services and Markets Act 2000 (as amended) (“FSMA”) including, without limitation, to the following:

- authorised firms under FSMA and certain other investment professionals falling within article 19 of the FSMA (Financial Promotion) Order 2005 (“FPO”) and directors, officers and employees acting for such entities in relation to investment;
- high value entities falling within article 49 FPO and directors, officers and employees acting for such entities in relation to investment; and
- persons who receive this presentation outside the United Kingdom.

The distribution of this report to any other person in the United Kingdom is unauthorised and may contravene FSMA. No person falling outside such categories should treat this report as constituting a promotion to them or rely or act on it for any purposes whatsoever.

This report is distributed solely to eligible counterparties or professional clients and not retail clients as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of UK domestic law by virtue of the European Union (Withdrawal) Act 2018.

All other jurisdictions

This report is distributed solely to institutional clients and not retail clients as defined by the applicable securities legislation and regulation to which CIBC Capital Markets may be subject in any jurisdiction, and only in compliance with all applicable laws and regulations.

The securities mentioned in this report may not be suitable for all types of investors. This report does not take into account the investment objectives, financial situation or specific needs of any particular client of CIBC World Markets. Recipients should consider this report as only a single factor in making an investment decision and should not rely solely on investment recommendations contained herein, if any, as a substitution for the exercise of independent judgment of the merits and risks of investments. The analyst writing the report is not a person or company with actual, implied or apparent authority to act on behalf of any issuer mentioned in the report. Before making an investment decision with respect to any security recommended in this report, the recipient should consider whether such recommendation is appropriate given the recipient's particular investment needs, objectives and financial circumstances. CIBC World Markets suggests that, prior to acting on any of the recommendations herein, Canadian retail clients of CIBC World Markets contact one of our client advisers in your jurisdiction to discuss your particular circumstances. Non-client recipients of this report who are not institutional investor clients of CIBC World Markets should consult with an independent financial advisor prior to making any investment decision based on this report or for any necessary explanation of its contents. CIBC World Markets will not treat non-client recipients as its clients solely by virtue of their receiving this report.

Legal Disclaimer (Continued)

Past performance is not a guarantee of future results, and no representation or warranty, express or implied, is made regarding future performance of any security mentioned in this report. The price of the securities mentioned in this report and the income they produce may fluctuate and/or be adversely affected by exchange rates, and investors may realize losses on investments in such securities, including the loss of investment principal. CIBC World Markets accepts no liability for any loss arising from the use of information contained in this report, except to the extent that liability may arise under specific statutes or regulations applicable to CIBC World Markets.

Information, opinions and statistical data contained in this report were obtained or derived from sources believed to be reliable, but CIBC World Markets does not represent that any such information, opinion or statistical data is accurate or complete (with the exception of information contained in the Important Disclosures section of this report provided by CIBC World Markets or individual research analysts), and they should not be relied upon as such. All estimates, opinions and recommendations expressed herein constitute judgments as of the date of this report and are subject to change without notice.

Nothing in this report constitutes legal, accounting or tax advice. Since the levels and bases of taxation can change, any reference in this report to the impact of taxation should not be construed as offering tax advice on the tax consequences of investments. As with any investment having potential tax implications, clients should consult with their own independent tax adviser.

This report may provide addresses of, or contain hyperlinks to, Internet web sites. CIBC World Markets has not reviewed the linked Internet web site of any third party and takes no responsibility for the contents thereof. Each such address or hyperlink is provided solely for the recipient's convenience and information, and the content of linked third party web sites is not in any way incorporated into this document. Recipients who choose to access such third-party web sites or follow such hyperlinks do so at their own risk.

Although each company issuing this report is a wholly owned subsidiary of CIBC, each is solely responsible for its contractual obligations and commitments, and any securities products offered or recommended to or purchased or sold in any client accounts (i) will not be insured by the Federal Deposit Insurance Corporation ("FDIC"), the Canada Deposit Insurance Corporation or other similar deposit insurance, (ii) will not be deposits or other obligations of CIBC, (iii) will not be endorsed or guaranteed by CIBC, and (iv) will be subject to investment risks, including possible loss of the principal invested. CIBC Capital Markets and the CIBC Logo Design are trademarks of CIBC, used under license.

© 2023 CIBC World Markets Inc., CIBC World Markets Corp. and CIBC Capital Markets (Europe) S.A. All rights reserved. Unauthorised use, distribution, duplication or disclosure without the prior written permission of CIBC World Markets is prohibited by law and may result in prosecution.