

EQUITY RESEARCH

February 23, 2023

Industry Update

Race To Zero – Bits & Bytes Weekly

SEC Set To Increase Climate-related Reporting

Our Conclusion

Last March, the SEC unveiled plans to standardize climate-related ESG disclosures, with final details expected in April 2023. The Scope 3 emissions (which include all indirect emissions that occur in a company's value chain) disclosures are generating some discussion, with the SEC deciding between two options: 1) detailed reporting requirements; or, 2) a more open-ended standard that relies on materiality. While ESG advocates argue for detailed Scope 3 reporting, many corporates are concerned that restrictive Scope 3 rules will significantly increase reporting costs and add operational complexity. Despite comparatively strong ESG rankings, the tech sector has room to improve its Scope 3 disclosures, with our recent [ESG report](#) highlighting that only half of our tech coverage has environmental disclosures and only 30% have communicated net-zero commitments.

Key Points

Scope 3 emissions comprise ~90% of tech companies' emissions and these indirect emissions have a dramatic impact on companies' overall carbon footprint. Currently, only 10% of companies globally track Scope 3 emissions, according to [BCG](#), underscoring that we are in the early innings of Scope 3 disclosure. In addition, studies have suggested significant under-reporting of CO₂ emissions among tech companies as non-standardized self-reporting allows for significant leeway. Amazon's Scope 3 disclosure includes only Amazon-branded products (comprising ~1% of total sales) and exclude transportation carbon emissions from third-party sellers. Nor are third-party emissions included in its net-zero target.

Industry participants are actively seeking ways to improve the accuracy and consistency of Scope 3 accounting. Auditable carbon data networks are among the fledgling solutions. One example is the Partnership for Carbon Transparency's (PACT) Pathfinder Network, which provides an inter-operable network for carbon data exchange that allows participants to connect and support emissions data sharing across value chains and industries. These cross-sectoral and multi-party data networks can scale up measurement of Scope 3 emissions and have strong technology partner backing, include heavyweights such as SAP, IBM, and Siemens.

Scope 3 measurement is not only useful for ESG reporting but also serves to identify emissions hotspots and improve energy efficiency. While product quality and costs remain the primary considerations in vendor selection, we expect Scope 3 measurement to lead to more of a focus on suppliers' climate policies. For example, Apple has pledged to decarbonize its global supply chain by 2030 and is taking steps to convert its manufacturing partners to use 100% clean energy.

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

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

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

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

Sector:
Information Technology

Tech Sector & Its Scope 3 Emissions Assessed

The tech industry is a relatively low emitter (as seen in the right-hand bar chart in Exhibit 1), but standardized climate regulations that include Scope 3 will have an impact on the sector's reporting. As noted in the left-hand bar chart in Exhibit 1, the majority of the emissions within the tech sector come from Scope 3 emissions, particularly from downstream activities.

Exhibit 1: GHG – Emissions By Sector, August 2021

Exhibit 1: Share of scope 1,2,3, by sector

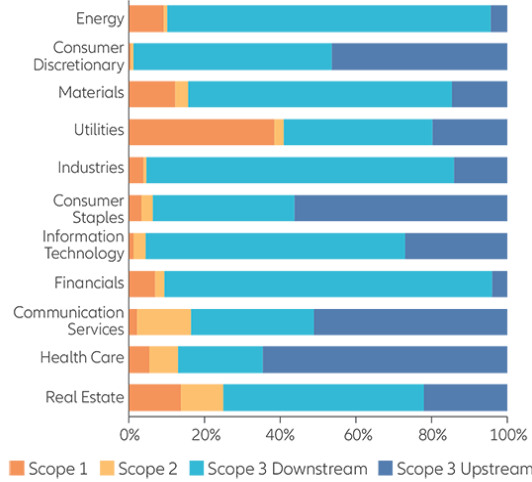
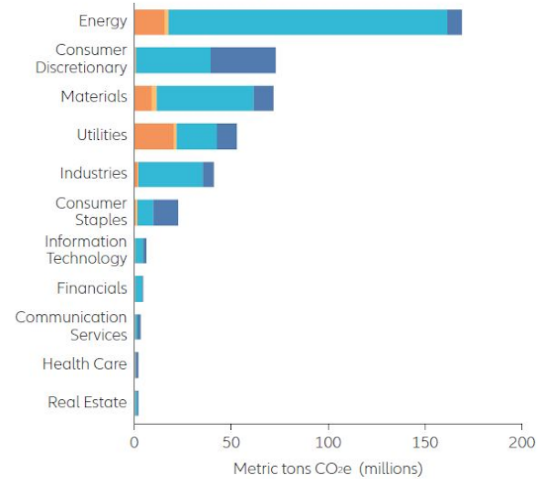


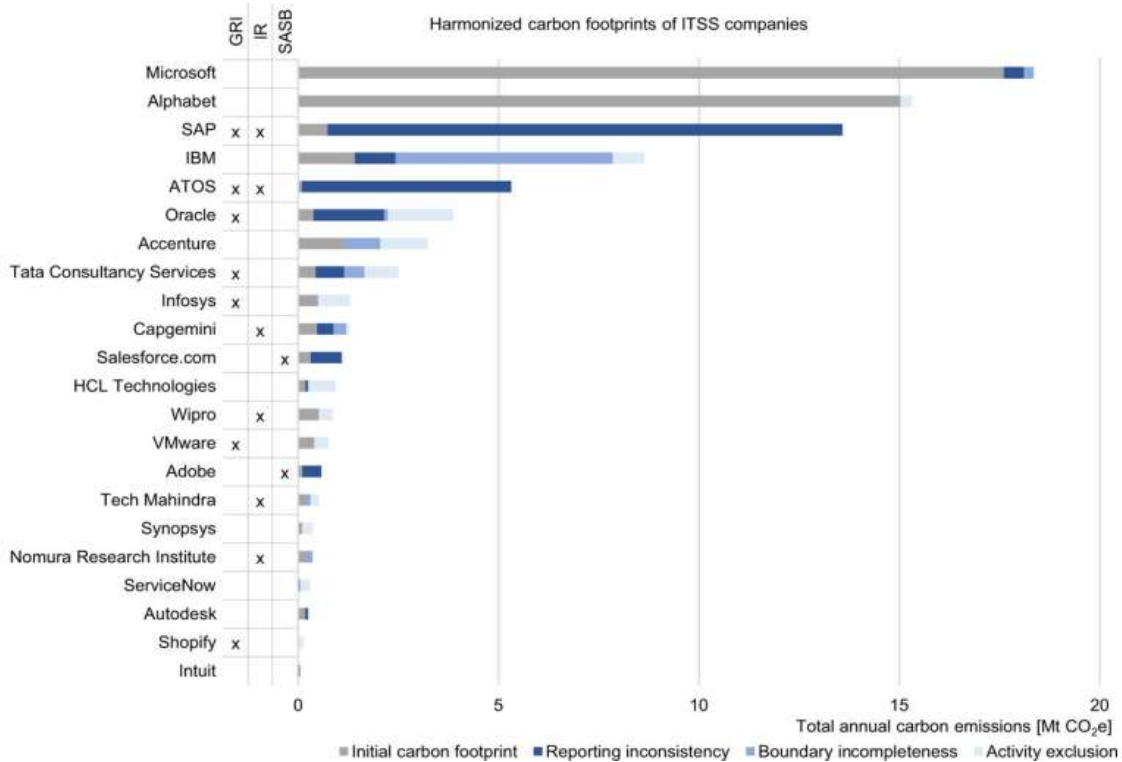
Exhibit 2: Average company emissions by scope



Source: Allianz Global Investors.

According to a study by Technical University Munich, more than half of the emissions across a sample of 56 major tech companies were excluded from self-reporting in 2019, equating to 390 megatons CO₂ (i.e., the carbon footprint of Australia). The study found that 43% of the companies omitted emissions from the use of products sold and 30% omitted emissions from purchased goods and services.

Exhibit 2: Technical University Munich – Harmonized Scope 3 Carbon Footprint Of Tech Companies, November 2021



Source: Technical University Munich.

News Impacting Our Coverage

Research: TIXT – Investor Day Highlights WillowTree Upside & The Market Opportunity

TELUS International (TI) held its inaugural Investor Day, which focused on synergies from WillowTree, upside from AI, and the longer-term opportunity as TI transitions its revenue mix to higher-value digital IT solutions. In the medium term, TI is targeting mid- to high-teens organic growth and is looking to increase margins 100 bps-200 bps over the next three years. Management also noted an aspirational target of growing the EV of the business by 10x over the next five years. ([Link to note](#))

Constellation Software Closes Purchase Of WideOrbit, Lumine Group Spin-out

Constellation has purchased WideOrbit and it is now a wholly owned subsidiary of Lumine Group and will operate as an autonomous business unit within Lumine Group's portfolio of companies. Constellation expects trading of Lumine shares to start on the TSXV on March 24 under the LMN ticker.

Dye & Durham And Chicago Title To Grow Their Partnership

DND announced its multi-year partnership agreement with Chicago Title Insurance Company Canada, which will increase access to title insurance offers for real estate transactions via DND's conveyancing platform. The expanded partnership will allow legal professionals in Canada to use DND's Unity platform to deliver title insurance products.

Activist Investor TCI Tells Airbus To End Its Talks To Buy 30% Of Atos' Cybersecurity Business, Evidian

In January, Airbus had offered to take a 30% minority stake in Evidian, the cybersecurity and big data unit of Atos. Activist investor TCI Fund Management, which holds a 3%+ stake in Airbus, called for a halt to the talks between the two companies as the minority stake would be "an illiquid and distressed asset" and would be "an extremely inefficient use of shareholder funds."

Capgemini Q4/22 Results And 2023 Outlook In Line With Consensus

French IT services provider Capgemini reported Q4/22 results, with fiscal year revenue of €22.0B roughly in line with consensus estimates of €21.9B. Fiscal year organic growth of 15.3% beat consensus of 14.5%. Reported EBIT of €2.87B also came in above consensus of €2.75B. The company expects 2023E constant-currency revenue growth to be 4%-7%, with the mid-point of revenue guidance of €23.2B sitting above current consensus of €22.9B. While in line with consensus, the guidance does represent a deceleration from constant-currency revenue growth of 17% in 2022 (15% organic).

Q4 Inc. Launches Innovative Benchmarking And Targeting As Part Of Engagement Analytics Suit

With the launch of benchmarking, Q4 Engagement Analytics gives IR teams the ability to compare the performance of their IR program with that of their peers, sector, and overall market. The new Engagement Analytics platform provides clients with insight into the investors who are engaging within their sector by opening email alerts, visiting investor websites, or attending investor events across the Q4 platform.

Exhibit 3: CIBC Coverage – Price Returns, 2/23/2022 - 2/23/2023

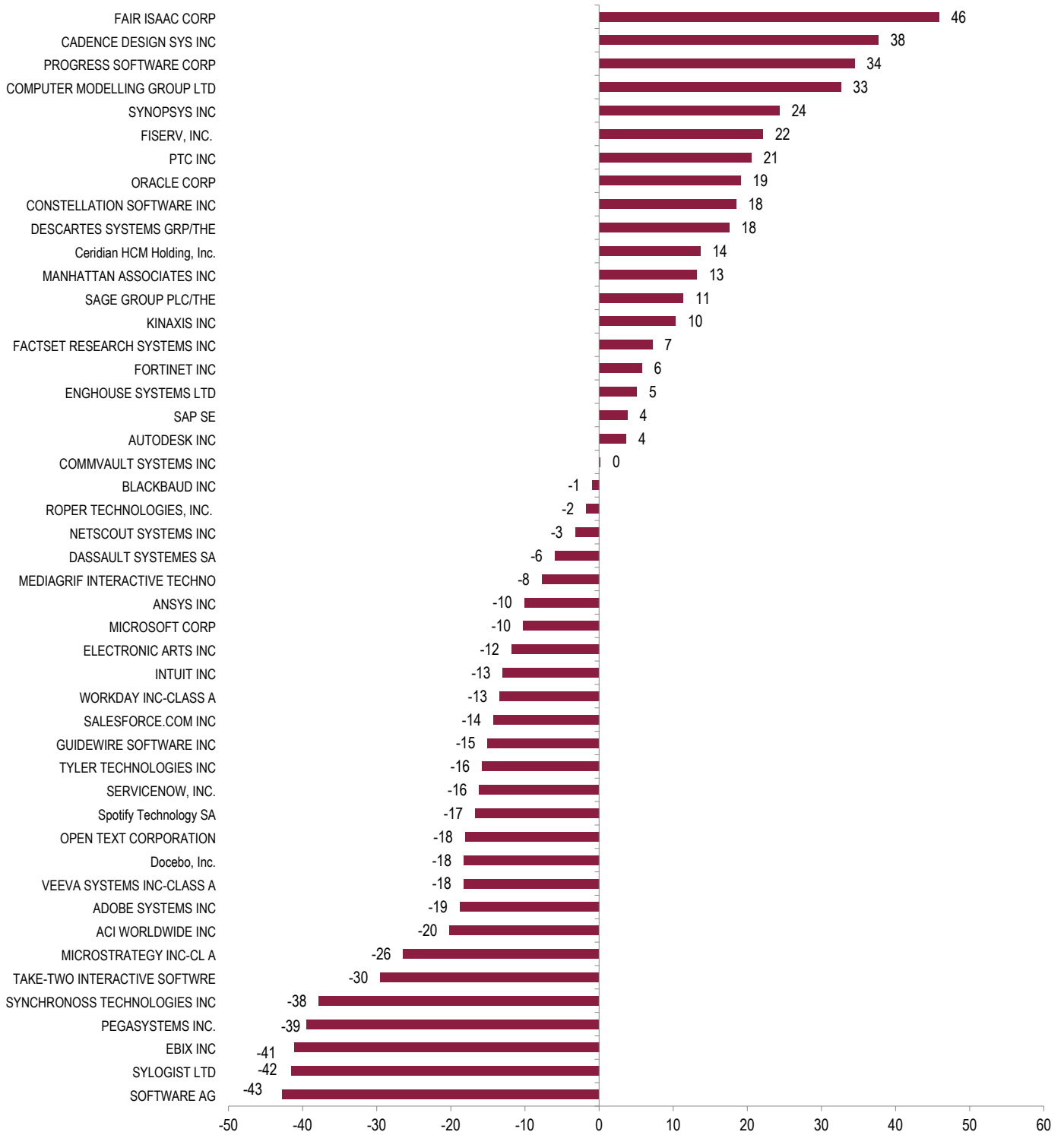
Software & Systems	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
Constellation Software Inc	2,361.32	(0.1)	2.8	15.1	15.1	18.5	13.7	2417.15	1752.90
Descartes Systems	74.39	(4.5)	4.3	7.5	5.1	10.3	6.8	79.08	56.19
Enghouse Systems Limited	42.43	(1.9)	7.9	43.8	28.7	5.1	18.0	43.62	23.96
Open Text Corp	34.58	(4.6)	2.0	16.5	(7.4)	(18.1)	16.7	44.10	24.91
Kinaxis	156.72	(5.6)	6.5	4.4	(1.6)	10.3	3.2	173.45	119.48
Docebo, Inc.	49.79	(6.4)	3.5	19.7	24.9	(18.3)	11.3	67.61	31.66
Magnet Forensics	43.99	(1.0)	0.8	26.2	75.0	82.5	18.4	45.20	14.89
Q4 Inc.	2.58	(1.9)	16.7	(13.1)	(41.8)	NA	(19.6)	6.20	1.88
Average		(3.2)	5.6	15.0	12.3	12.9	8.5		

Business Services	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
CGI Group Inc	124.25	(0.4)	6.1	9.1	16.4	21.8	6.5	125.96	95.45
Converge Technologies	4.71	(3.7)	(16.3)	(3.7)	(24.6)	(50.1)	2.6	11.04	3.60
Softchoice Corporation	16.75	(2.6)	(11.7)	13.5	(17.6)	(18.3)	(8.3)	28.66	13.57
TELUS International	29.22	1.0	(4.7)	9.0	(24.3)	(2.5)	9.3	40.55	24.11
Average		(1.4)	(6.7)	7.0	(12.6)	(12.3)	2.5		

Indices	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD
S&P/TSX Composite Index	20,193.33	(2.0)	(2.1)	(0.4)	1.0	(2.7)	4.2
S&P 500 Index	3,991.05	(2.4)	(0.7)	(0.9)	(3.3)	(5.5)	3.9
S&P/TSX Software Index	154.87	(2.4)	0.8	13.5	14.2	(3.0)	13.5
S&P500 Software Index	4,371.04	(3.4)	2.5	3.0	(6.8)	(8.2)	6.7

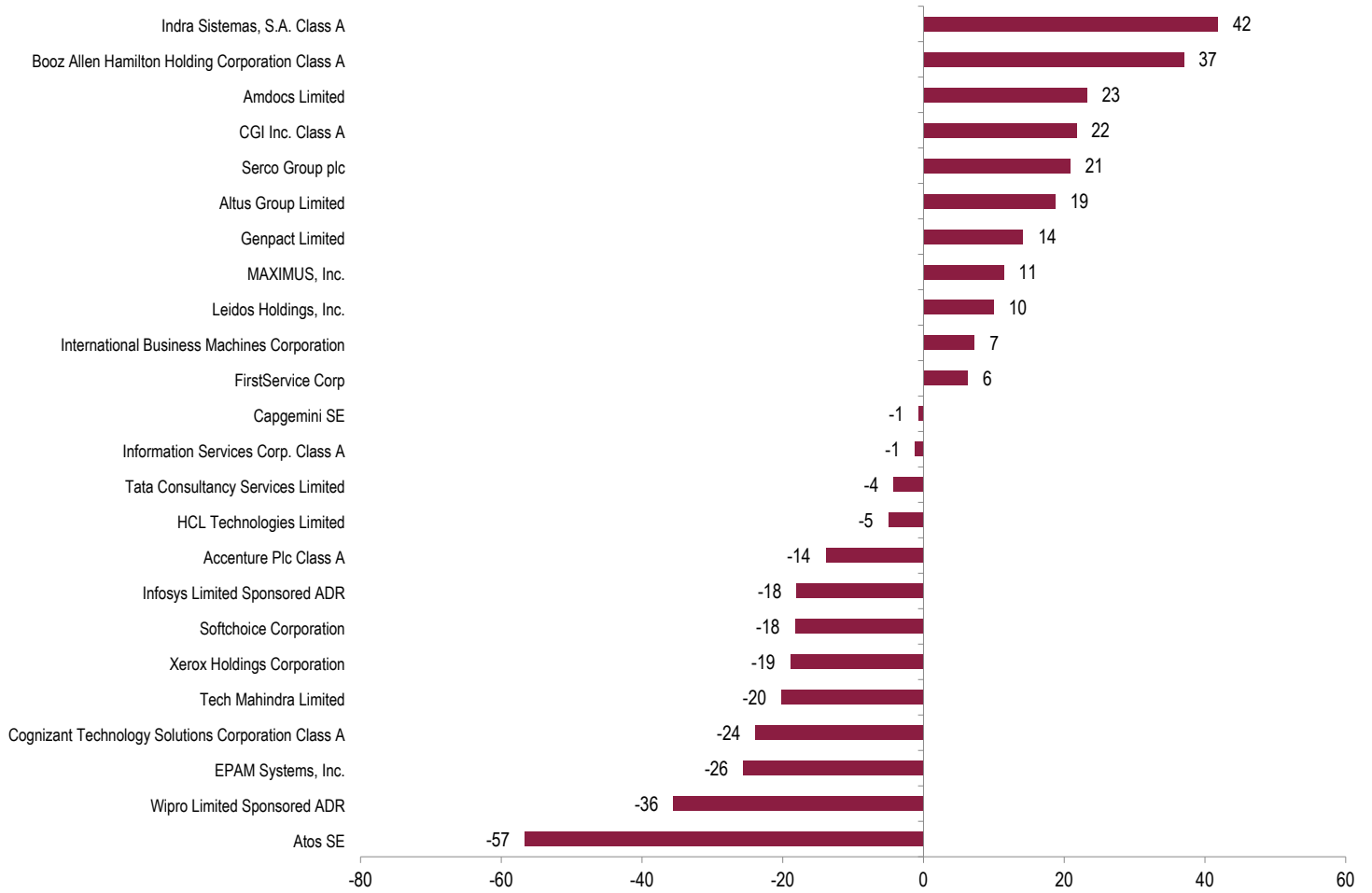
Source: FactSet and CIBC World Markets Inc.

Exhibit 4: Software Stocks – Return Performance (%), 2/23/2022 - 2/23/2023



Source: FactSet and CIBC World Markets Inc.

Exhibit 5: Services Stocks – Return Performance (%), 2/23/2022 - 2/23/2023



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.*	38,317	5.9x	5.2x	4.4x	23.3x	20.2x	17.3x	31.6x	29.9x	25.1x
BlackBerry Limited*	2,143	3.2x	2.3x	2.1x	NEG	NEG	NEG	NEG	NEG	NEG
Sage Group plc	8,461	4.2x	3.9x	3.6x	18.5x	16.4x	14.9x	28.4x	24.4x	21.7x
Tyler Technologies, Inc.	14,768	8.0x	7.6x	6.9x	31.1x	30.8x	27.3x	44.6x	44.1x	38.8x
Roper Technologies, Inc.	50,580	9.4x	8.5x	8.0x	23.0x	20.6x	19.2x	29.5x	26.1x	24.3x
Enghouse Systems Limited	2,136	5.0x	4.93x	4.86x	15.5x	14.8x	14.67x	21.4x	30.0x	29.68x
Oracle Corporation	290,325	6.2x	5.6x	5.2x	12.4x	11.1x	9.9x	17.6x	16.3x	14.2x
SAP SE	138,834	4.1x	4.2x	3.9x	17.4x	15.2x	13.2x	26.8x	20.3x	17.5x
Enterprise Application Software Average		5.8x	5.3x	4.9x	20.2x	18.4x	16.6x	28.6x	27.3x	24.5x
Extended ERP										
Adobe Incorporated	158,181	8.9x	8.1x	7.3x	18.2x	16.8x	15.1x	25.2x	22.6x	19.7x
Open Text Corporation	11,982	3.4x	2.2x	2.0x	9.6x	7.0x	5.1x	11.0x	12.4x	6.4x
Manhattan Associates, Inc.	8,713	11.4x	10.5x	9.4x	39.8x	39.6x	34.9x	>50	>50	45.7x
Pegasystems Inc.	4,262	3.2x	3.0x	2.8x	>50	23.6x	16.6x	>50	31.3x	22.2x
Software AG	1,638	1.7x	1.6x	1.5x	9.5x	9.1x	7.5x	17.4x	12.5x	10.6x
Fiserv, Inc.	92,338	5.5x	5.2x	4.8x	12.8x	11.8x	10.8x	17.4x	15.4x	13.6x
Extended ERP Average		5.7x	5.1x	4.6x	18.0x	18.0x	15.0x	17.7x	18.8x	19.7x
Software As A Service										
Descartes Systems Group Inc.	6,080	12.5x	11.4x	10.3x	28.3x	25.6x	23.1x	>50	>50	>50
Kinaxis, Inc.*	3,049	8.2x	7.5x	6.3x	41.3x	40.7x	33.2x	>50	>50	>50
Docebo, Inc.*	999	7.0x	5.2x	4.0x	NEG	>50	>50	>50	>50	>50
Lightspeed Commerce Inc*	1,527	2.2x	1.8x	1.4x	NEG	NEG	38.3x	NEG	>50	>50
Veeva Systems Inc Class A	24,306	11.5x	10.2x	8.8x	29.0x	26.5x	22.3x	41.3x	38.5x	32.9x
Shopify, Inc. Class A	49,999	8.9x	7.5x	6.2x	>50	>50	>50	>50	>50	>50
Q4 Inc*	40	0.7x	0.7x	0.6x	NEG	NEG	NEG	NEG	NEG	NEG
Ceridian HCM Holding, Inc.	12,276	9.9x	8.2x	7.1x	49.0x	33.5x	27.1x	>50	>50	47.2x
ServiceNow, Inc.	87,235	12.0x	9.8x	8.1x	38.2x	31.7x	25.1x	>50	47.8x	38.8x
Workday, Inc. Class A	45,835	7.5x	6.4x	5.4x	29.4x	24.2x	19.6x	>50	40.6x	32.6x
Software As A Service Average		8.5x	7.1x	5.9x	35.8x	31.9x	27.3x	41.3x	42.3x	37.9x
Infrastructure Vendors										
Microsoft Corporation	1,845,834	9.1x	8.4x	7.5x	18.6x	17.1x	14.7x	27.1x	25.0x	21.6x
Infrastructure Vendors Average		9.1x	8.4x	7.5x	18.6x	17.1x	14.7x	27.1x	25.0x	21.6x
Software Average		7.0x	6.1x	5.4x	24.5x	22.7x	20.0x	26.1x	27.3x	25.7x

*Share Price Converted to USD

Source: FactSet and CIBC World Markets Inc.

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

	Enterprise Value (\$mlns.)	EV/EBITDA	EV/EBITDA			P/E			EV/S		
		C21	C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Business & IT Services											
CGI Inc. Class A	32,142	13.0x	13.0x	11.5x	11.1x	19.8x	17.8x	16.9x	2.4x	2.3x	2.2x
TELUS International (CDA), Inc.	6,575	12.2x	10.8x	9.2x	8.0x	17.5x	17.4x	14.4x	2.7x	2.2x	2.0x
Accenture Plc Class A	172,953	18.0x	15.0x	14.2x	13.2x	24.6x	22.8x	20.6x	2.8x	2.6x	2.4x
Booz Allen Hamilton	15,177	17.0x	15.3x	14.3x	13.1x	21.9x	20.1x	18.1x	1.7x	1.6x	1.5x
CACI International Inc Class A	9,055	12.2x	13.5x	12.5x	11.7x	16.7x	15.8x	14.2x	1.4x	1.3x	1.3x
DXC Technology Co.	9,885	4.9x	4.1x	4.2x	4.3x	8.0x	7.3x	6.3x	0.7x	0.7x	0.7x
Genpact Limited	9,848	15.3x	12.5x	11.5x	10.4x	17.6x	16.2x	14.5x	2.3x	2.1x	1.9x
International Business Machines	163,585	12.2x	10.6x	10.9x	10.5x	14.3x	13.8x	13.0x	2.7x	2.6x	2.5x
Atos SE	3,242	3.1x	3.3x	3.0x	2.7x	14.9x	7.0x	4.3x	0.3x	0.3x	0.3x
Capgemini SE	37,370	12.9x	10.6x	10.2x	9.4x	16.0x	16.3x	14.7x	1.7x	1.6x	1.5x
Sopra Steria Group SA	4,834	9.2x	8.1x	7.3x	6.8x	12.8x	11.5x	10.3x	0.9x	0.9x	0.9x
Converge Technology Solutions Corp	1,186	12.6x	8.5x	6.4x	5.7x	29.6x	23.6x	19.8x	0.5x	0.4x	0.4x
Business & IT Services Average		11.8x	10.6x	9.9x	9.2x	16.7x	15.1x	13.4x	1.8x	1.7x	1.6x
HR Outsourcing											
		EV/EBITDA	EV/EBITDA			P/E			EV/S		
		C21	C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Ceridian HCM Holding, Inc.	12,276	>50	49.0x	33.5x	27.1x	>50	>50	47.2x	9.9x	8.2x	7.1x
Willis Towers Watson	29,809	13.4x	12.5x	12.2x	11.0x	17.6x	16.2x	13.7x	3.4x	3.2x	3.1x
Aon Plc Class A	73,598	19.2x	18.5x	17.1x	16.0x	22.8x	20.9x	18.7x	5.9x	5.6x	5.3x
Automatic Data Processing, Inc.	94,479	24.6x	20.5x	18.4x	16.9x	29.6x	26.3x	23.7x	5.5x	5.1x	4.8x
Paychex, Inc.	39,529	23.9x	18.3x	17.0x	15.8x	27.4x	25.1x	23.4x	8.2x	7.7x	7.2x
HR Outsourcing Average		20.3x	23.8x	19.6x	17.3x	24.3x	22.1x	25.4x	6.6x	6.0x	5.5x
Information Services											
		EV/EBITDA	EV/EBITDA			P/E			EV/S		
		C21	C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Broadridge Financial Solutions, Inc.	20,655	17.8x	15.7x	14.5x	13.8x	21.4x	19.8x	18.1x	3.5x	3.3x	3.1x
Dye & Durham Ltd.	2,495	15.7x	15.7x	14.2x	11.3x	0.1x	0.1x	0.1x	5.2x	5.2x	4.9x
Deluxe Corporation	2,459	6.7x	5.9x	6.2x	6.0x	4.6x	6.2x	5.4x	1.1x	1.1x	1.1x
Information Services Corp	405	6.0x	6.3x	5.9x	6.5x	10.5x	10.7x	11.0x	2.1x	2.0x	1.9x
Information Services Average		11.5x	10.9x	10.2x	9.4x	9.1x	9.2x	8.6x	3.0x	2.9x	2.8x
Financial Services Technology											
		EV/EBITDA	EV/EBITDA			P/E			EV/S		
		C21	C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Fidelity National Information Services	57,723	9.4x	9.3x	9.5x	8.9x	10.1x	11.3x	10.3x	4.0x	4.0x	3.9x
Fiserv, Inc.	92,338	16.6x	12.8x	11.8x	10.8x	17.4x	15.4x	13.6x	5.5x	5.2x	4.8x
Jack Henry & Associates, Inc.	12,302	17.7x	19.5x	18.1x	16.7x	34.0x	32.7x	29.5x	6.2x	5.8x	5.4x
ACI Worldwide, Inc.	3,941	10.7x	10.7x	10.0x	9.4x	19.3x	21.4x	18.6x	2.8x	2.7x	2.6x
Temenos AG	6,162	11.2x	17.3x	16.1x	13.9x	25.6x	24.3x	20.8x	6.5x	6.2x	5.6x
Global Payments Inc.	43,390	11.9x	11.1x	10.2x	9.4x	12.2x	11.1x	9.7x	5.4x	5.1x	4.7x
Financial Services Technology Average		12.9x	13.4x	12.6x	11.5x	19.8x	19.4x	17.1x	5.1x	4.8x	4.5x
Diversified Real Estate Services											
		EV/EBITDA	EV/EBITDA			P/E			EV/S		
		C21	C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Colliers International Group Inc.	6,673	12.2x	10.6x	9.2x	8.6x	16.5x	15.2x	13.9x	1.5x	1.4x	1.3x
Altus Group Limited	2,785	25.4x	20.6x	19.0x	18.5x	30.0x	28.2x	25.7x	3.8x	3.5x	3.3x
CBRE Group, Inc. Class A	28,921	13.5x	9.9x	10.8x	9.5x	15.1x	16.5x	14.0x	0.9x	0.9x	0.9x
Jones Lang LaSalle Incorporated	9,971	6.8x	7.9x	8.5x	7.5x	11.0x	11.6x	9.7x	0.5x	0.5x	0.4x
Diversified Real Estate Services Average		14.5x	12.2x	11.9x	11.0x	18.1x	17.9x	15.8x	1.7x	1.6x	1.5x
Software Focused IT Solutions/VARs											
		EV/EBITDA	EV/EBITDA			P/E			EV/S**		
		C21	C22	C23E	C24E	C22	C23E	C24E	C22	C23E	C24E
Softchoice Corporation* USD	811	33.2x	10.0x	8.7x	7.9x	19.7x	15.0x	14.2x	2.6x	2.3x	2.1x
Softcat Plc*	2,333	13.9x	14.1x	13.1x	12.0x	18.9x	18.3x	17.2x	5.9x	5.2x	4.7x
Crayon Group Holding ASA*	10,179	>50	>50	>50	>50	>50	>50	>50	23.1x	20.2x	17.3x
Bytes Technology Group Plc*	903	18.6x	14.1x	12.3x	10.8x	19.0x	17.9x	15.6x	NA	NA	NA
SoftwareONE Holding Ltd.*	1,976	12.0x	7.5x	6.9x	6.0x	17.4x	15.6x	13.1x	1.9x	1.7x	1.5x
Bytes Technology Group Plc* Average		19.4x	11.4x	10.2x	9.2x	18.8x	16.7x	15.0x	8.4x	7.4x	6.4x
Business Services Average		14.2x	13.4x	12.1x	11.0x	17.7x	16.5x	15.7x	4.0x	3.7x	3.4x

*Share Price Converted to USD

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

Source: 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			
								C21	C22	C23E	C24E
Tier 1 SaaS (Rule of 40 > 60)											
Zoom Video Communications	11%	28%	4%	27%	39%	31%	16,130	6.1x	3.7x	3.5x	3.3x
CrowdStrike Holdings, Inc.	58%	30%	36%	29%	88%	65%	26,350	30.1x	12.2x	9.1x	7.0x
Shopify, Inc.	21%	-3%	19%	-4%	18%	15%	49,999	10.8x	8.9x	7.5x	6.2x
Zscaler, Inc.	60%	23%	34%	22%	82%	56%	18,373	27.3x	14.4x	10.7x	8.4x
Lightspeed Commerce Inc*	49%	-13%	23%	-4%	36%	19%	1,445	6.5x	2.1x	1.7x	1.3x
DocuSign, Inc.	25%	18%	8%	18%	42%	26%	12,236	8.4x	5.0x	4.6x	4.2x
Veeva Systems Inc	18%	38%	12%	36%	56%	48%	24,306	16.6x	11.5x	10.2x	8.8x
Atlassian Corp. Plc	31%	23%	21%	23%	54%	43%	43,475	20.8x	13.8x	11.2x	8.9x
Twilio, Inc.	35%	-6%	12%	4%	29%	16%	9,226	3.2x	2.4x	2.1x	1.8x
ServiceNow, Inc.	23%	30%	22%	30%	53%	52%	87,235	14.8x	12.0x	9.8x	8.1x
HubSpot, Inc.	33%	15%	19%	11%	48%	30%	18,453	14.2x	10.7x	9.0x	7.3x
Tier 1 SaaS (Rule of 40 > 60) Average								14.4x	8.8x	7.2x	5.9x
Tier 2 SaaS (Rule of 40 b/w 40-60)											
Docebo, Inc.*	46%	0%	29%	-4%	46%	25%	1,000	9.6x	7.0x	5.2x	4.0x
Qualys, Inc.	18%	38%	14%	34%	56%	48%	4,256	10.3x	8.7x	7.7x	6.8x
Descartes Systems	17%	37%	9%	39%	54%	48%	6,080	14.3x	12.5x	11.4x	10.3x
Five9, Inc.	32%	1%	16%	6%	33%	22%	5,922	9.7x	7.6x	6.6x	5.5x
Dropbox, Inc.	8%	37%	7%	34%	44%	40%	8,648	4.0x	3.7x	3.5x	3.3x
Wix.com Ltd.	10%	1%	9%	9%	11%	17%	5,397	4.3x	3.9x	3.5x	3.1x
Workday, Inc.	21%	21%	17%	21%	42%	38%	45,835	10.7x	7.5x	6.4x	5.4x
VMware, Inc.	4%	25%	5%	30%	30%	35%	58,090	4.9x	4.4x	4.1x	3.8x
Tier 2 SaaS (Rule of 40 b/w 40-60) Average								8.5x	6.9x	6.0x	5.3x
Tier 3 SaaS (Rule of 40 b/w 28-40)											
BlackLine, Inc.	23%	10%	13%	8%	33%	21%	4,599	10.8x	8.8x	7.8x	6.7x
MongoDB, Inc.	53%	-1%	26%	3%	51%	29%	14,210	24.1x	11.6x	9.1x	7.2x
LivePerson, Inc.	15%	-30%	3%	-4%	-15%	-1%	1,086	2.3x	2.1x	2.0x	1.8x
Rapid7 Inc.	28%	8%	13%	2%	36%	15%	3,484	6.5x	5.1x	4.5x	3.9x
Paylocity Holding Corp.	37%	19%	28%	16%	56%	45%	11,324	17.8x	11.2x	8.8x	7.3x
Q2 Holdings, Inc.	16%	3%	16%	3%	19%	19%	2,068	4.1x	3.7x	3.2x	2.8x
Akamai Technologies, Inc.	4%	23%	3%	14%	27%	17%	14,153	4.1x	3.9x	3.8x	3.6x
Tier 3 SaaS (Rule of 40 b/w 28-40) Average								10.0x	6.6x	5.6x	4.8x
Tier 4 SaaS (Rule of 40 <28)											
RingCentral, Inc.	25%	9%	10%	12%	34%	22%	4,853	3.0x	2.4x	2.2x	2.0x
Teradata Corporation	-6%	23%	1%	18%	16%	20%	4,262	2.2x	2.4x	2.3x	2.2x
Zuora, Inc.	14%	3%	9%	0%	17%	9%	1,006	3.3x	2.6x	2.3x	2.0x
New Relic, Inc.	18%	2%	16%	7%	20%	23%	4,796	7.2x	5.4x	4.7x	4.0x
Kinaxis, Inc.*	44%	3%	19%	10%	46%	29%	3,049	12.2x	8.2x	7.5x	6.3x
Yext, Inc.	5%	4%	3%	-1%	8%	2%	732	2.1x	1.8x	1.8x	1.6x
Splunk Inc.	31%	9%	17%	18%	40%	35%	18,603	8.3x	5.5x	4.7x	4.0x
Tier 4 SaaS (Rule of 40 <28) Average								5.5x	4.0x	3.6x	3.2x
SaaS Average								10.1x	6.9x	5.8x	4.9x

*Share Price Converted to USD

Source: Company reports, FactSet and 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 23 Feb 2023)	Count	Percent	Inv. Banking Relationships	Count	Percent
Outperformer	147	49%	Outperformer	147	100%
Neutral	132	44%	Neutral	131	99%
Underperformer	7	2%	Underperformer	6	86%
Tender	2	1%	Tender	2	100%
Restricted	11	4%	Restricted	11	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.