

EQUITY RESEARCH

June 2, 2022

Industry Update

Bring In The Robots – Bits & Bytes Weekly

Robots Move Beyond The Automotive Industry

Our Conclusion

In the midst of a tight labour market, companies are increasingly turning to robotic alternatives, with orders for workplace robots in the U.S. surging by a record 40% Y/Y in Q1 2022. Innovations in warehouse robotics via smarter programming arrived just in time to help support the pandemic-driven e-commerce rush. With companies losing production days due to COVID-related shutdowns while simultaneously dealing with rising wages and a shrinking labour pool, robots have become increasingly important in helping to meet surging demand. We expect that there will be many more robotic developments to come as the technology continues to evolve and offer broader use cases.

Key Points

The use of robotics has historically been highly concentrated in the automotive industry, where it is used to handle repetitive tasks such as welding. However, as the technology evolves, robotic use cases have broadened. While auto makers and manufacturers of auto parts accounted for 71% of robot orders in 2016, their share declined to 42% in 2021 as robots made inroads to other sectors including consumer products and food production. The pandemic-driven e-commerce rush has driven innovation in warehouse robotics, with heightened demand, COVID-related worker absences, and supply chain disruptions driving the need for automation. The programming supporting the robots has also gotten much better, allowing robots to perform more complex tasks and improve both productivity and profitability.

Robotic process automation (RPA) is seeing increasing demand as companies look to mitigate a tight labour market. RPA uses software to automate screen-based office tasks, such as software development and customer service. The global RPA market is expected to reach US\$13.1B by 2027, up from US\$1.89B in 2021 according to Grand View Research. There have been a number of transactions in the space as demand accelerates, with UiPath completing its US\$1.34B IPO last year and SS&C completing the acquisition of Blue Prism for US\$1.65B after outbidding Vista Equity Partners.

It's clear that robotics will change labour market dynamics as more sophisticated robotic and automation technologies are developed. This change will inevitably bring some pushback around lost jobs, but historically we have seen that when there is innovation, there is a need for new roles to support that innovation. As we see logistics getting more optimized through AI, we expect a rise in demand for robotic maintenance and supervision.

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

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

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

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

Sector:
Information Technology

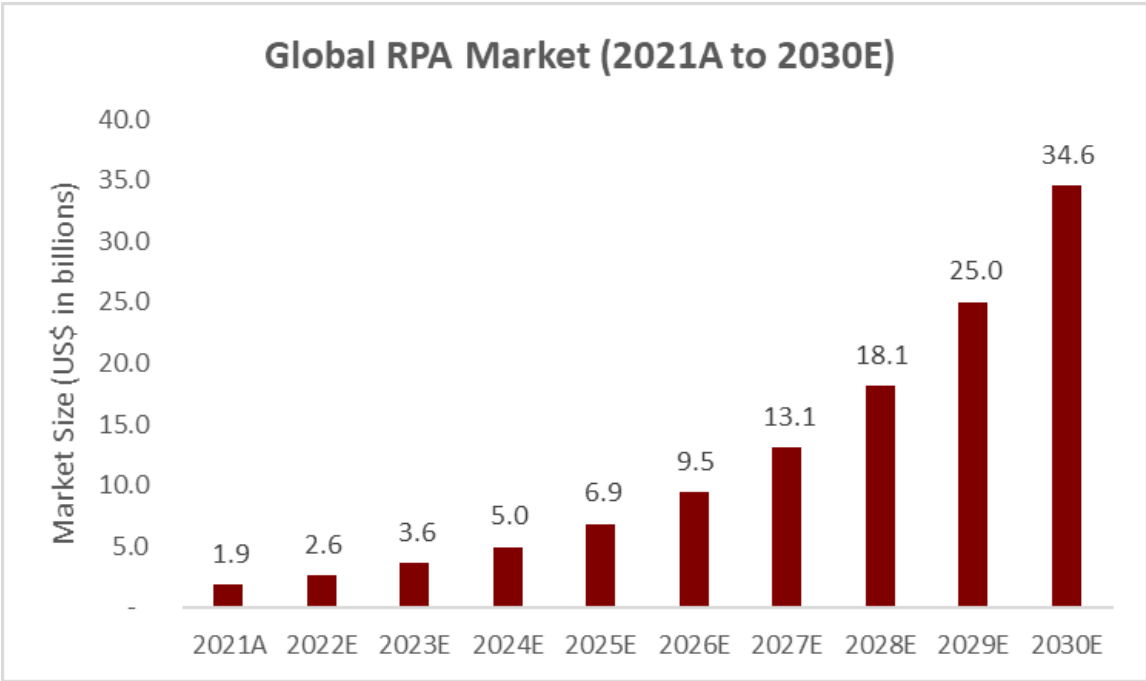
All figures in Canadian dollars unless otherwise stated.

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

Fast-growing Industry

The global robotic process automation market size was valued at \$1.89 billion in 2021, and is projected to reach \$13.1 billion by 2027, growing at a CAGR of 37.6%. The on-premise RPA segment dominated the market share in 2021, and this trend is expected to continue in the forecast period. Intelligent automation is anticipated to eliminate more than 40% of service desk interactions by 2025 using cognitive RPA in combination with other chatbot technologies, reducing human interventions and improving operational productivity.

Exhibit 1: Robotic Process Automation (RPA) Market Size – 2021A to 2030E (US\$B)



Source: Grand View Research and CIBC World Markets Inc.

News Impacting Our Coverage

Constellation's Harris Acquires Sedona Learning Solutions

Constellation continues to expand in the healthcare vertical, announcing the acquisition of Sedona, a provider of custom e-learning and education consulting to hospitals across the U.S. and Canada. Sedona will become a division of iatricSystems, a Harris Healthcare company that helps organizations improve patient care and outcomes with expertise in electronic health records (EHRs), patient privacy, and analytics.

CGI Completes Block Purchase In Connection With Its Proposed Acquisition Of Umanis

CGI announced the completion of the acquisition of all the shares of Umanis held by MURA and the Pouligny Family, approximately 70.6% of Umanis' total shares outstanding. The purchase was completed after a fairness opinion issued by an independent expert that confirmed the fairness of the offer and the unanimous recommendation of the board.

CGI Announces Senior Management Appointments

CGI announced that, effective October 1, 2022, François Boulanger, currently EVP and CFO, will assume the position of President and COO; and Steve Perron, currently SVP and Corporate Controller, will assume the position of EVP and CFO. Mr. Boulanger will oversee CGI's operations in Canada, U.S. (Commercial and State Government), APAC Delivery Centers of Excellence, and Global IP Solutions.

Infineum Selects Kinaxis For Concurrent Supply Chain Planning Solutions

Infineum has selected Kinaxis' RapidResponse platform to increase efficiency and reduce waste across its supply chain. Infineum is a specialty chemicals company with R&D focused on sustainability.

Q4 Inc. Launches Q4 Capital Connect™

The Capital Connect platform will allow public companies to launch and measure the impact of their complete investor relations strategies. IR teams will be able to use Capital Connect to visualize all investor data alongside analytics for insights to shape a communication strategy that investors value.

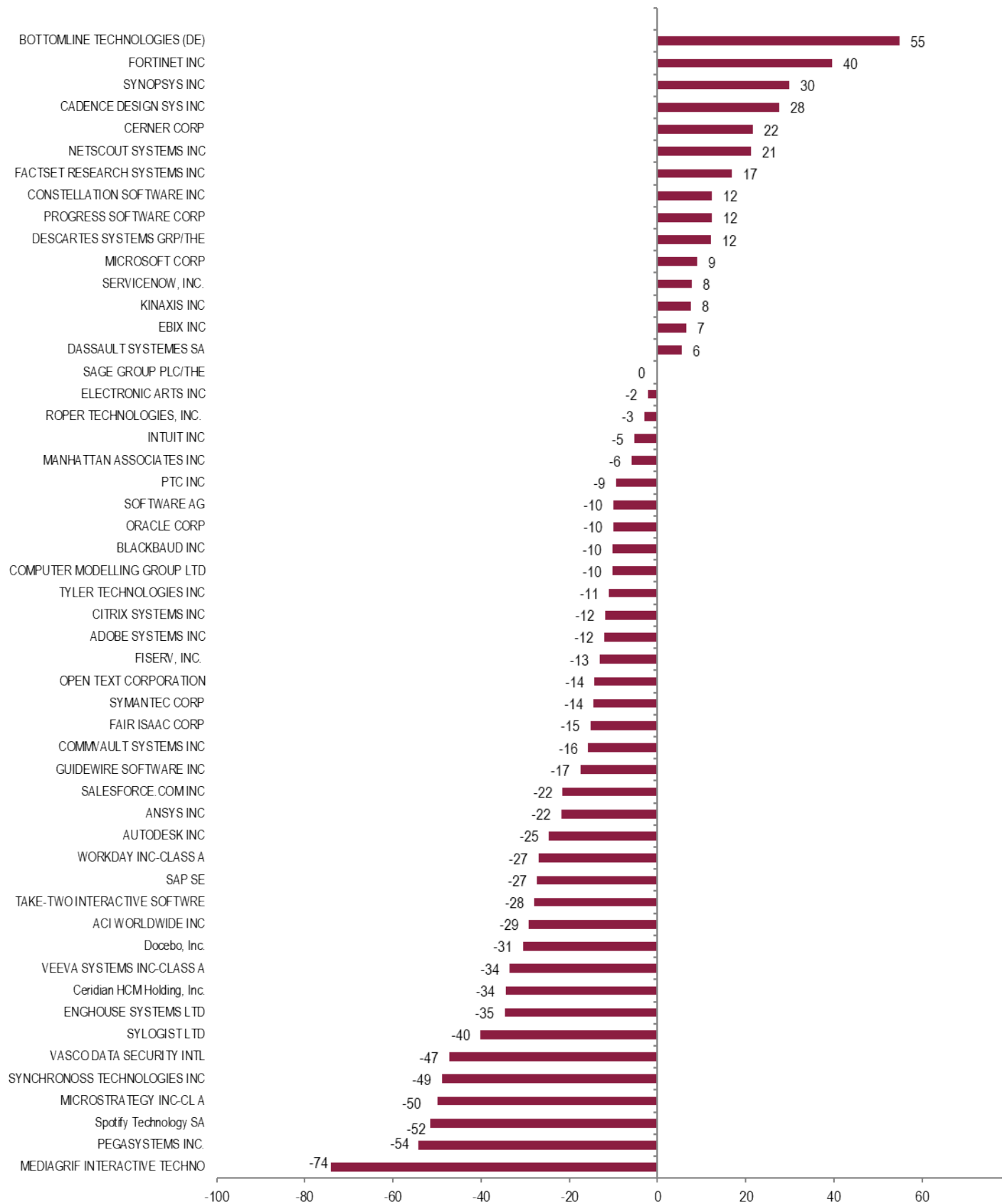
Exhibit 2: CIBC Software/Services – Coverage Performance, 5/26/2021 - 5/26/2022

Software & Systems	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
Constellation Software Inc	1,957.04	0.1	(3.8)	(9.0)	(9.9)	12.3	(16.6)	2385.80	1730.92
Descartes Systems	62.88	3.1	1.2	(12.4)	(22.1)	7.4	(24.0)	91.39	56.19
Dye & Durham	22.62	6.1	6.3	(21.8)	(43.1)	NA	(49.6)	50.49	12.95
Enghouse Systems Limited	34.28	2.7	(2.5)	(16.2)	(35.7)	(34.6)	(29.2)	64.42	31.40
Open Text Corp	40.93	5.0	2.0	(5.8)	(13.2)	(14.3)	(13.8)	55.25	35.04
Kinaxis	143.22	5.2	0.9	(5.8)	(26.1)	7.6	(19.2)	229.98	127.24
Docebo, Inc.	43.67	(2.4)	(23.9)	(30.5)	(48.6)	(30.5)	(48.5)	117.55	37.57
Magnet Forensics	16.60	(3.2)	(30.8)	(39.5)	(49.7)	(33.8)	(49.5)	65.80	15.60
Q4 Inc.	4.91	10.0	12.9	(20.8)	(46.0)	NA	(42.2)	12.05	4.03
Average		2.9	(4.2)	(18.0)	(32.7)	(12.3)	(32.5)		

Business Services	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD	52W High	52W Low
CGI Group Inc	107.03	1.1	4.1	2.6	(2.7)	(0.9)	(4.3)	116.88	98.77
Converge Technologies	7.47	4.6	(12.6)	(23.3)	(33.6)	(5.8)	(31.3)	13.09	5.88
Softchoice Corporation	22.10	3.6	(2.1)	(0.6)	(2.9)	9.2	3.5	45.74	17.94
Telus International	31.74	0.6	14.3	1.8	(25.7)	(12.7)	(24.1)	49.43	26.75
Average		2.5	0.9	(4.9)	(16.2)	(2.5)	(14.0)		

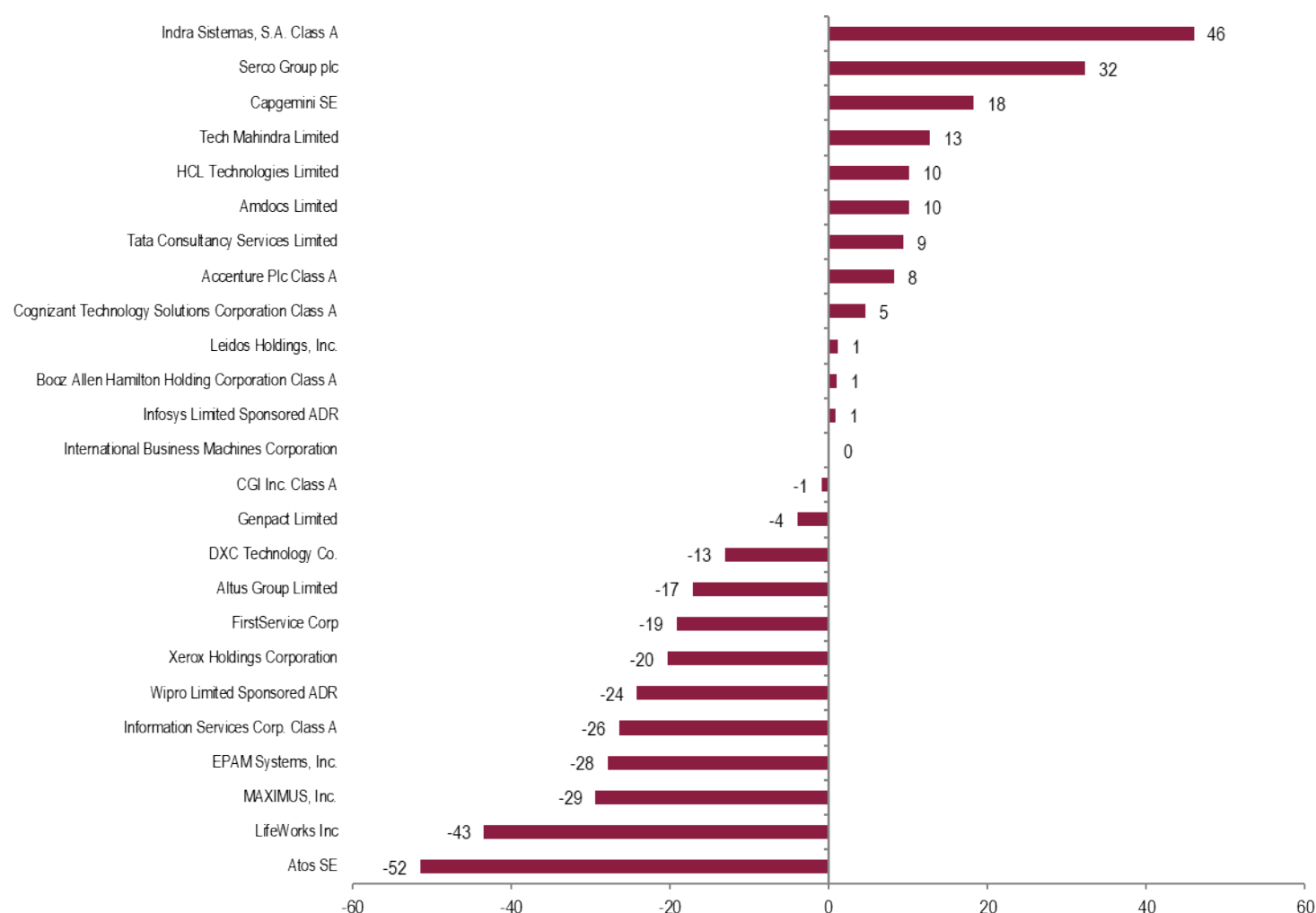
Indices	Price	1 Week	1 Month	3 Month	6 Month	1 Year	YTD
S&P/TSX Composite Index	21,010.81	2.3	1.5	(1.2)	1.2	5.2	(1.0)
S&P 500 Index	4,143.36	2.1	(0.3)	(5.5)	(9.5)	(1.5)	(13.1)
S&P/TSX Software Index	139.84	3.5	(3.5)	(16.0)	(35.5)	(27.0)	(34.1)
S&P500 Software Index	4,629.54	3.3	(2.4)	(9.7)	(20.6)	2.3	(20.8)

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

Exhibit 4: Software Stocks – Return Performance (%), 5/26/2021 - 5/26/2022

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

Exhibit 5: Business Services Stocks – Return Performance (%), 5/26/2021 - 5/26/2022



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

Exhibit 6: Software Stocks – Comp Table, 2021 - 2023E

		Enterprise Value	EV/S			EV/EBITDA			P/E		
			C21A	C22E	C23E	C21A	C22E	C23E	C21A	C22E	C23E
Enterprise Application Software											
Constellation Software Inc.*	33,698	6.6x	5.3x	4.6x	22.3x	19.5x	16.4x	>50	28.1x	24.2x	
BlackBerry Limited*	3,243	3.3x	3.7x	3.5x	41.6x	NEG	NEG	>50	NEG	NEG	
Sage Group plc	6,684	3.6x	3.4x	3.2x	16.1x	14.3x	13.0x	25.1x	24.4x	21.6x	
Tyler Technologies, Inc.	15,565	9.8x	8.4x	7.6x	44.3x	32.3x	29.4x	>50	45.9x	42.3x	
Roper Technologies, Inc.	50,018	8.7x	8.0x	7.6x	22.6x	20.8x	19.5x	42.0x	27.6x	25.6x	
Enghouse Systems Limited	1,685	3.7x	3.5x	3.3x	10.4x	10.1x	9.7x	20.2x	20.5x	19.4x	
Oracle Corporation	246,758	6.1x	5.7x	5.4x	13.2x	11.1x	10.5x	15.8x	14.3x	13.1x	
SAP SE	125,133	4.5x	4.2x	3.9x	17.5x	14.0x	12.6x	21.0x	18.6x	16.4x	
Enterprise Application Software Average		5.8x	5.3x	4.9x	23.5x	17.4x	15.9x	24.8x	25.6x	23.2x	
Extended ERP											
Adobe Incorporated	199,326	12.6x	11.0x	9.6x	29.8x	22.6x	19.6x	42.1x	30.5x	25.9x	
Open Text Corporation	13,917	4.1x	3.8x	3.8x	10.9x	10.9x	10.1x	12.9x	12.9x	11.8x	
Manhattan Associates, Inc.	7,422	11.2x	10.3x	9.2x	>50	40.5x	35.0x	>50	>50	47.8x	
Pegasystems Inc.	4,424	3.7x	3.0x	2.5x	NEG	40.5x	24.5x	NEG	>50	36.5x	
Software AG	2,010	2.4x	2.2x	2.0x	13.0x	10.4x	8.4x	28.1x	20.5x	16.2x	
Fiserv, Inc.	84,682	5.2x	5.1x	4.8x	15.2x	11.9x	10.9x	>50	15.4x	13.4x	
Extended ERP Average		6.5x	5.9x	5.3x	17.2x	22.8x	18.1x	27.7x	19.8x	25.3x	
Software As A Service											
Descartes Systems Group Inc.	4,922	11.6x	10.3x	9.6x	26.6x	23.6x	21.3x	>50	>50	>50	
Kinaxis, Inc.*	2,887	11.5x	8.3x	7.3x	>50	45.2x	36.1x	>50	>50	>50	
Docebo, Inc.*	901	8.6x	6.2x	4.6x	NEG	NEG	>50	NEG	NEG	NEG	
Lightspeed Commerce Inc*	2,908	13.1x	4.1x	3.1x	NEG	NEG	NEG	NEG	NEG	NEG	
Nuvei Corporation*	6,763	9.3x	7.0x	5.5x	28.0x	16.3x	12.3x	>50	23.5x	18.1x	
Dye & Durham Ltd.	565	1.5x	1.0x	0.8x	2.7x	1.8x	1.5x	>50	35.5x	13.6x	
Salesforce, Inc.	183,141	8.6x	5.8x	4.9x	42.0x	19.6x	16.6x	41.2x	38.0x	31.6x	
Veeva Systems Inc Class A	23,991	16.4x	11.2x	9.6x	>50	28.4x	24.3x	>50	42.6x	36.8x	
Shopify, Inc. Class A	41,782	9.1x	7.2x	5.5x	>50	>50	>50	16.6x	>50	>50	
Ceridian HCM Holding, Inc.	9,371	9.1x	7.7x	6.6x	>50	47.2x	37.5x	NEG	>50	>50	
ServiceNow, Inc.	95,154	16.1x	12.8x	10.3x	>50	41.2x	32.7x	>50	>50	>50	
Workday, Inc. Class A	37,470	8.7x	6.1x	5.1x	>50	24.4x	19.8x	NEG	45.2x	36.0x	
Software As A Service Average		10.3x	7.3x	6.1x	24.8x	27.5x	22.5x	28.9x	37.0x	27.2x	
Infrastructure Vendors											
Citrix Systems, Inc.	15,517	4.8x	4.7x	4.5x	22.1x	15.6x	14.6x	41.4x	19.4x	17.2x	
Microsoft Corporation	2,015,326	12.0x	9.4x	8.3x	24.9x	18.7x	16.3x	33.9x	27.1x	23.4x	
Infrastructure Vendors Average		8.4x	7.1x	6.4x	23.5x	17.2x	15.5x	37.7x	23.3x	20.3x	
Software Average		8.1x	6.4x	5.6x	22.4x	22.5x	18.9x	28.4x	27.2x	24.5x	
*Share Price Converted to USD											

*Share Price Converted to USD

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

Exhibit 7: Business Services Stocks – Comp Table, 2021 - 2023E

	Ticker	Price	Dividend	FCF	Shares	Market	Net Debt	Enterprise	EV/EBITDA			P/E			EV/S		
		6/2/2022	Yield	Yield	Out	Cap	(\$mlns.)	Value	C21A	C22E	C23E	C21A	C22E	C23E	C21A	C22E	C23E
Business & IT Services																	
CGI Inc. Class A	GIB.A	107.82	0.00%	7.31%	240	25,840	2,674	28,514	11.5x	11.0x	10.4x	19.3x	17.2x	16.0x	2.3x	2.2x	2.1x
Accenture Plc Class A	ACN	298.68	1.05%	4.35%	633	189,184	(1,919)	187,265	19.5x	15.7x	14.4x	32.6x	26.6x	23.8x	3.7x	2.9x	2.7x
TELUS International (CDA), Inc.	TXT	24.97	0.00%	2.74%	266	6,643	936	7,579	16.3x	12.2x	10.3x	>50	20.8x	17.4x	3.5x	2.9x	2.6x
Booz Allen Hamilton	BAH	85.29	1.75%	5.71%	132	11,274	2,404	13,678	15.3x	14.3x	13.4x	19.5x	19.6x	17.9x	1.7x	1.5x	1.4x
CACI International Inc Class A	CACI	280.07	0.00%	8.46%	23	6,557	2,061	8,618	11.6x	12.6x	11.8x	15.3x	14.9x	13.7x	1.4x	1.3x	1.3x
DXC Technology Co.	DXC	34.26	0.00%	19.80%	244	8,376	3,496	11,872	5.9x	4.7x	4.5x	NEG	8.9x	7.3x	0.7x	0.8x	0.8x
Genpact Limited	G	44.2	0.81%	7.51%	185	8,184	1,358	9,542	14.8x	11.8x	10.6x	23.1x	16.4x	14.5x	2.4x	2.2x	2.0x
International Business Machines	IBM	138.89	4.90%	8.54%	899	124,923	46,777	171,700	12.8x	10.4x	10.1x	21.9x	14.3x	13.2x	3.0x	2.8x	2.7x
Atos SE	ATO	24.37	0.00%	3.15%	111	2,699	1,805	4,504	4.3x	4.1x	3.6x	NEG	10.8x	7.5x	0.4x	0.4x	0.4x
Capgemini SE	CAP	176.75	1.11%	7.12%	172	30,470	5,872	36,342	12.6x	10.8x	9.8x	26.6x	17.5x	15.5x	2.0x	1.8x	1.6x
Sopra Steria Group SA	SOP	162.6	2.03%	1.51%	21	3,341	493	3,834	7.3x	6.4x	5.8x	17.7x	12.0x	10.6x	0.8x	0.8x	0.7x
Business & IT Services Average									12.0x	10.4x	9.5x	22.0x	16.3x	14.3x	2.0x	1.8x	1.7x
Human Capital Service Providers																	
LifeWorks Inc	LWRK	18.15	3.06%	8.84%	69	1,259	583	1,842	9.5x	9.2x	8.6x	NEG	22.5x	19.2x	1.8x	1.7x	1.7x
Ceridian HCM Holding, Inc.	CDAY	55.43	0.00%	-0.18%	153	8,461	910	9,371	>50	47.2x	37.5x	NEG	>50	>50	9.1x	7.7x	6.6x
Aon Plc Class A	AON	270.61	0.66%	3.34%	212	57,473	10,219	67,692	17.7x	16.7x	15.7x	48.8x	20.5x	18.4x	5.6x	5.3x	5.0x
Automatic Data Processing, Inc.	ADP	221.3	1.86%	3.08%	418	92,447	1,777	94,224	24.6x	21.2x	19.3x	36.5x	30.1x	26.9x	6.3x	5.5x	5.1x
Paychex, Inc.	PAYX	122.24	2.49%	2.59%	361	44,131	(524)	43,607	26.4x	20.7x	19.3x	40.3x	31.1x	28.9x	10.7x	9.2x	8.6x
Human Capital Service Providers Average									19.5x	23.0x	20.1x	41.8x	26.0x	23.4x	6.7x	5.9x	5.4x
Information Services																	
Broadridge Financial Solutions, Inc.	BR	144.82	1.42%	3.45%	117	16,977	4,175	21,152	18.2x	16.1x	15.2x	31.2x	21.5x	19.8x	4.1x	3.6x	3.5x
Dye & Durham Ltd.	DND	22.21	0.12%	4.62%	69	1,535	982	2,516	15.9x	11.1x	8.9x	>50	35.5x	13.6x	6.7x	4.4x	3.8x
Deluxe Corporation	DLX	23.905	3.74%	9.93%	43	1,028	1,559	2,587	7.0x	5.9x	5.6x	16.5x	5.2x	4.7x	1.3x	1.2x	1.1x
Information Services Corp.	ISV	20.31	3.16%	16.07%	18	355	26	382	5.6x	6.9x	6.5x	9.9x	11.5x	11.7x	2.3x	2.2x	2.1x
Information Services Average									11.7x	10.0x	9.1x	19.2x	18.4x	12.5x	3.6x	2.9x	2.6x
Software Focused IT Solutions/VARS																	
Softcat Plc (€)	SCT	13.93	1.08%	3.21%	199	2,777	(46)	2,731	22.0x	19.6x	18.5x	28.9x	26.2x	25.7x	NA	NA	NA
Crayon Group Holding ASA (NOK)	CRAYN	141.4	0.00%	4.20%	88	12,396	1,518	13,913	25.8x	15.1x	12.1x	>50	26.9x	20.5x	NA	NA	NA
Bytes Technology Group Plc (€)	BYT	4.556	0.00%	2.85%	239	1,091	(94)	997	26.5x	19.7x	17.9x	>50	28.3x	27.2x	NA	NA	NA
SoftwareONE Holding Ltd. (CHF)	SWON	12.78	1.67%	7.23%	159	2,027	(549)	1,478	9.8x	6.1x	5.3x	16.5x	15.5x	12.9x	NA	NA	NA
Converge Technology Solutions Corp. (CHF)		7.28	0.00%	5.48%	215	1,564	(209)	1,356	14.4x	9.4x	7.7x	>50	38.1x	23.4x	NA	NA	NA
Softchoice Corporation*	SFTC	17.61	1.19%	4.77%	63	1,116	108	1,225	17.7x	13.0x	10.9x	27.2x	24.4x	20.1x	NA	NA	NA
Software Focused IT Solutions/VARS Average									19.4x	13.8x	12.1x	24.2x	26.6x	21.6x	NA	NA	NA
Diversified Real Estate Services																	
Colliers International Group Inc.	CIGI	118.615	0.14%	3.47%	44	5,226	1,167	6,393	11.7x	10.1x	9.1x	-13.0x	16.1x	14.7x	1.6x	1.4x	1.3x
Altus Group Limited	AIF	46.86	0.85%	2.48%	44	2,082	327	2,409	22.0x	18.2x	16.1x	24.6x	30.0x	19.8x	3.9x	3.3x	3.1x
CBRE Group, Inc. Class A	CBRE	80.42	0.00%	8.55%	331	26,592	2,580	29,172	13.7x	9.1x	8.3x	14.9x	12.9x	11.7x	1.1x	0.9x	0.8x
Jones Lang LaSalle Incorporated	JLL	189.785	0.00%	8.81%	50	9,415	3,052	12,467	8.5x	8.3x	7.8x	10.3x	9.3x	8.7x	0.6x	0.6x	0.5x
Diversified Real Estate Services Average									14.0x	11.4x	10.3x	9.2x	17.1x	13.7x	1.8x	1.5x	1.4x
Business Services Average									16.5x	14.9x	13.2x	22.3x	20.2x	16.7x	4.2x	3.6x	3.3x
*Share Price Converted to USD																	

*Share Price Converted to USD

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

Exhibit 8: SaaS Stocks – Comp Table, 2021 - 2023E

	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		
								C21A	C22E	C23E
Tier 1 SaaS (Rule of 40 > 60)										
Lightspeed POS, Inc.*	137%	-17%	37%	-8%	120%	29%	2,908	13.1x	4.1x	3.1x
Nuvei*	70%	35%	30%	32%	105%	61%	6,763	9.3x	7.0x	5.5x
CrowdStrike Holdings, Inc.	66%	31%	48%	30%	97%	78%	36,409	41.6x	17.4x	12.8x
Zoom Video Communication	29%	36%	11%	29%	65%	41%	26,180	9.9x	5.8x	5.1x
Zscaler, Inc.	61%	22%	41%	21%	83%	62%	20,588	30.6x	16.6x	12.4x
Veeva Systems Inc	26%	44%	17%	36%	70%	53%	23,991	16.4x	11.2x	9.6x
Magnet Forensics*	37%	31%	46%	26%	68%	72%	404	5.8x	4.4x	3.4x
DocuSign, Inc.	45%	23%	17%	19%	68%	37%	16,819	11.6x	6.9x	5.9x
Shopify, Inc.	40%	5%	28%	0%	45%	28%	41,782	9.1x	7.2x	5.5x
HubSpot, Inc.	47%	17%	30%	13%	64%	43%	16,230	12.5x	9.4x	7.4x
Tier 1 SaaS (Rule of 40 > 60) Average								16.0x	9.0x	7.1x
	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		
								C21A	C22E	C22E
Tier 2 SaaS (Rule of 40 b/w 41-60)										
Descartes Systems	22%	40%	12%	35%	62%	48%	4,922	11.6x	10.3x	9.6x
Atlassian Corp. Plc	33%	29%	26%	22%	62%	48%	46,398	22.2x	14.8x	11.5x
ServiceNow, Inc.	29%	31%	26%	30%	61%	56%	95,154	16.1x	12.8x	10.3x
Twilio, Inc.	57%	-4%	32%	-2%	53%	31%	15,307	5.4x	4.0x	3.1x
Qualys, Inc.	15%	46%	18%	31%	61%	49%	4,660	11.3x	9.6x	8.2x
Docebo, Inc.*	54%	-3%	40%	-4%	50%	37%	901	8.6x	6.2x	4.6x
MongoDB, Inc.	48%	1%	37%	0%	49%	37%	15,955	27.0x	13.7x	10.3x
Dropbox, Inc.	12%	34%	7%	34%	47%	41%	8,723	4.0x	3.7x	3.5x
Workday, Inc.	21%	26%	20%	18%	47%	38%	37,470	8.7x	6.1x	5.1x
Tier 2 SaaS (Rule of 40 b/w 41-60) Average								12.8x	9.0x	7.4x
	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		
								C21A	C22E	C22E
Tier 3 SaaS (Rule of 40 b/w 25-40)										
Avalara Inc	38%	6%	22%	2%	44%	24%	6,932	9.9x	8.0x	6.5x
Zendesk, Inc.	31%	12%	26%	12%	43%	38%	11,250	8.4x	6.6x	5.3x
Paylocity Holding Corp.	32%	16%	25%	14%	48%	39%	9,692	15.2x	10.3x	8.5x
RingCentral, Inc.	35%	7%	24%	8%	42%	32%	7,478	4.7x	3.7x	3.0x
VMware, Inc.	8%	28%	7%	27%	36%	34%	63,646	5.4x	4.7x	4.4x
BlackLine, Inc.	21%	11%	24%	6%	32%	30%	4,680	11.0x	8.9x	7.3x
Rapid7 Inc.	32%	6%	26%	9%	38%	35%	4,815	9.0x	7.0x	5.7x
Five9, Inc.	37%	0%	24%	3%	37%	27%	7,352	12.1x	9.5x	7.7x
Akamai Technologies, Inc.	7%	25%	6%	23%	32%	30%	19,045	5.5x	5.2x	4.8x
Wix.com Ltd.	22%	1%	12%	2%	23%	14%	3,451	2.7x	2.4x	2.1x
Tier 3 SaaS (Rule of 40 b/w 25-40) Average								8.4x	6.6x	5.5x
	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		
								C21A	C22E	C22E
Tier 4 SaaS (Rule of 40 <28										
Ceridian HCM Holding, Inc.	30%	-1%	17%	8%	29%	25%	9,371	9.1x	7.7x	6.6x
Q4 Inc.	26%	-27%	40%	-11%	-1%	29%	94	1.7x	1.4x	1.1x
Anaplan, Inc.	32%	-5%	26%	-1%	27%	25%	9,616	21.5x	13.1x	10.6x
Teradata Corporation	2%	25%	-7%	21%	26%	14%	4,148	2.2x	2.3x	2.2x
Q2 Holdings Inc.	21%	3%	17%	2%	24%	19%	3,283	6.6x	5.7x	4.8x
Splunk Inc.	24%	7%	23%	14%	30%	37%	19,098	8.6x	5.8x	4.8x
Zuora, Inc.	14%	7%	20%	0%	20%	20%	1,133	3.7x	2.8x	2.5x
LivePerson, Inc.	24%	-18%	17%	-12%	6%	5%	1,523	3.2x	2.7x	2.3x
Yext, Inc.	10%	4%	4%	-1%	14%	3%	548	1.5x	1.4x	1.2x
Kinaxis, Inc.*	21%	5%	19%	1%	26%	20%	2,887	11.5x	8.3x	7.3x
New Relic, Inc.	18%	-1%	18%	0%	17%	18%	2,919	4.4x	3.3x	2.8x
Tier 4 SaaS (Rule of 40 <28 Average								6.7x	5.0x	4.2x
SaaS Average								10.8x	7.3x	6.0x

* 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](#)

Companies mentioned in the report but not listed are not covered by fundamental research at CIBC.

Ratings Distribution*: CIBC World Markets Inc. Coverage Universe

(as of 02 Jun 2022)	Count	Percent	Inv. Banking Relationships	Count	Percent
Outperformer	183	59.0%	Outperformer	183	100.0%
Neutral	115	37.1%	Neutral	114	99.1%
Underperformer	9	2.9%	Underperformer	9	100.0%
Tender	3	1.0%	Tender	3	100.0%
Restricted	3	1.0%	Restricted	3	100.0%

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 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, (b) in the United Kingdom, CIBC World Markets plc, is Authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, (c) in Australia to wholesale clients only, CIBC Australia Ltd, a company regulated by the ASIC with AFSL license number 240603 and ACN 000 067 256, and (d) in Japan, CIBC World Markets (Japan) Inc., a registered Type 1 Financial product provider with the registration number Director General of Kanto Finance Bureau #218 (collectively, "CIBC World Markets") and (e) 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.

This report is provided, for informational purposes only, to institutional investor and retail clients of CIBC World Markets 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. This document and any of the products and information contained herein are not intended for the use of Retail investors in the United Kingdom. Such investors will not be able to enter into agreements or purchase products mentioned herein from CIBC World Markets plc. The comments and views expressed in this document are meant for the general interests of wholesale clients of CIBC Australia Ltd.

This report has been prepared by the CIBC group and is issued in Hong Kong by Canadian Imperial Bank of Commerce, Hong Kong Branch, a registered institution under the Securities and Futures Ordinance, Cap 571 (the "SFO"). This report is intended for "professional investors" only (within the meaning of the SFO) and has been prepared for general circulation and does not take into account the objectives, financial situation or needs of any recipient. Any recipient in Hong Kong who has any questions or requires further information on any matter arising from or relating to this report should contact Canadian Imperial Bank of Commerce, Hong Kong Branch at Suite 3602, Cheung Kong Centre, 2 Queen's Road Central, Hong Kong (telephone number: +852 2841 6111). Orders for Hong Kong listed securities will be executed by Canadian Imperial Bank of Commerce, Hong Kong Branch. Canadian Imperial Bank of Commerce, Hong Kong Branch has entered into an arrangement with its broker-dealer affiliates worldwide to execute orders for securities listed outside of Hong Kong for Hong Kong clients.

This report is intended for distribution in Singapore solely to "institutional investors" (within the meanings of the Financial Advisers Act (Chapter 110 of Singapore)).

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 Canadian Imperial Bank of Commerce ("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. The CIBC trademark is used under license.

© 2022 CIBC World Markets Inc. and CIBC World Markets Corp. All rights reserved. Unauthorized use, distribution, duplication or disclosure without the prior written permission of CIBC World Markets is prohibited by law and may result in prosecution.