

EQUITY RESEARCH

February 14, 2023

Company Update

CONSTELLATION SOFTWARE INC.

A Closer Look At Constellation's Spin-out Strategy

Our Conclusion

The typical shareholder view of a successful spin-out is one that unlocks value through a premium multiple on the spun-out business. However, we believe Constellation's spin-out strategy is based on a different premise: allowing it to achieve targeted hurdle rates on larger deals and to incentivize management of the newly spun-out entity. While these two views may sometimes be at odds, Constellation was able to achieve both objectives with its Topicus spin-out. The Topicus spin-out allowed Constellation to win a larger deal and the spin-co has traded at a 5x-7x EV/EBITDA premium to Constellation over the last six months. Constellation is in the midst of another spin-out (Lumine) and we expect Lumine to trade at a slight discount to Topicus given lower organic growth and more sector concentration, but at a premium to Constellation given Lumine's smaller size and longer runway to continue to make accretive, smaller VMS-type software acquisitions.

Key Points

What Is CSU's Spin-co Rationale? We believe that Constellation views a spin-out as a way to compete on deals that would not have met its hurdle rates on a standalone basis, with rollover equity from the target's management team allowing Constellation to acquire companies with less of an upfront cash contribution. Constellation also holds preferred shares in the spun-out entity, which yield a cumulative dividend of 5%. In addition, we believe Constellation looks at the spin-co as a way to incentivize management, with bonus' paid on the profitability and growth of their businesses.

The Topicus Spin-out Created Value: Topicus' shares have consistently traded at a premium to Constellation, with the premium normalizing to the 5x-7x EV/EBITDA range over the past six months. We would also note that Topicus did not appear to be carved out of Constellation's share price post spin. Constellation's shares actually traded up on key dates related to the Topicus spin-out, with the combined market cap of Constellation and Topicus up 39% since the date of the spin-out versus the S&P Software index's increase of 7% over the same time period.

Comparing Lumine Group To Topicus: Lumine's average organic growth has been slightly lower than Topicus' over the past two years (3% vs. 5%), and we would characterize its end markets (media/communications) as potentially less recession-resistant. The Wide Orbit operating group (40% of revenue) will also make up a larger percentage of revenue versus the Topicus operating group (~15% of revenue).

What Should We Expect Lumine Group To Trade At? We expect that the consolidated Lumine spin-out will trade at a discount to Topicus, but a premium to Constellation. Based on current multiples, we expect a Lumine share price in the \$12-\$15/share range, fully diluted.

All figures in US dollars unless otherwise stated (C\$1.335:US\$1.00).

Please see "Price Target Calculation and Key Risks to Price Target" information on page 10. For required regulatory disclosures please refer to "Important Disclosures" beginning on page 12.

CIBC CAPITAL MARKETS

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Outperformer

CSU-TSX, Sector: Information	Technology
Current Price (2/14/23):	C\$2,405.91
Price Target (12-18 mos.):	C\$2,450.00

CIBC Estimates and Valuation

(Dec. 31)	2021	2022	2023	2024
EPS diluted	7.97A	24.49E	40.77E	51.92E
EBITDA(mln)	1,511.0A	1,642.1E	1,895.8E	2,219.5E
EPS diluted	Q1	Q2	Q3	Q4
2022	5.24A	6.32A	6.75A	6.18E
2021	(8.26)A	3.68A	5.71A	6.84A
EBITDA(mln)	Q1	Q2	Q3	Q4
2022	373.0A	410.0A	419.0A	440.1E
2021	348.0A	366.0A	387.0A	410.0A
Valuation	2021	2022	2023	2024
EV/EBITDA	19.8x	18.2x	15.8x	13.5x

Stock Performance and Key Indicators

Avg. Dly. Vol.:	30K	Shares O/S:	21.2M
Market Cap .:	C\$51,005M	Float:	14.5M
52-wk Range:	61,816.32 - C\$2,405.91	Div. / Yield:	C\$7.16/0.30%

TSX Composite Index vs. CSU-TSX



Constellation Software Inc. (CSU-TSX) — Outperformer

Price (2/14/23) C\$2,405.91 12-18 mo. Price Target C\$2,450.00 Sector: Information Technology Stephanie Price, CFA +1 416-594-7047 Stephanie.Price@cibc.com

Peer Comparison	2021	2022E	2023E	2024E
P/E - Canadian Consolidators	10.4x	-	-	-
EV/EBITDA - Canadian Consolidat	28.4x	25.7x	25.7x	25.7x
EV/Sales - Canadian Consolidators	11.1x	10.0x	10.0x	-
Key Financial Metrics	2021	2022E	2023E	2024E
Free Cash Flow	1,271	1,308	1,487	1,691
Sales Growth	28.6%	28.2%	13.0%	17.5%
Per Share Data	2021	2022E	2023E	2024E
FCFPS	59.98	61.72	70.16	79.78
Diluted EPS	7.97	24.49	40.77	51.92
Adj. EPS Dil.	31.14	55.16	58.37	69.52
Wgt Avg # of Shares	21.2	21.2	21.2	21.2
FD Number of Shares	21.2	21.2	21.2	21.2
Income Statement	2021	2022E	2023E	2024E
Revenue	5,106	6,544	7,393	8,690
Gross Profit	5,106	6,544	7,393	8,690
Gross Margin %	100.00%	100.00%	100.00%	100.00%
Tot Operating Exp	1,964	2,677	2,991	3,517
OpEx (% of Revenue)	38.46%	40.92%	40.46%	40.47%
EBITDA	1,511	1,642	1,896	2,219
EBITDA Margin	29.59%	25.10%	25.64%	25.54%
EBIT	437	804	1,324	1,647
Pretax profit	373	708	1,234	1,572
Tax Expense	206	189	370	472
Adjusted Net Income	660	1,169	1,237	1,473
Adjusted Net Margin	12.9%	17.9%	16.7%	17.0%
Cash Flow Statement	2021	2022E	2023E	2024E
Net CFO	1,300	1,342	1,511	1,715
Capex	(29)	(34)	(24)	(24)
Acquisitions	(1,216)	(1,529)	(800)	(800)
Free Cash Flow	1,271	1,308	1,487	1,691
Balance Sheet	2021	2022E	2023E	2024E
Cash & ST Investment	763	883	1,485	2,291
Intangible Assets	3,428	4,392	4,392	4,392
Goodwill	0	100	500	900
Total Assets	5,766	7,599	8,662	10,193
ST Int-Bearing Debt	210	598	598	598
LT Int-Bearing Debt	915	1,230	1,230	1,230
Total Liabilities	4,245	5,789	6,073	6,588
Shareholders' Equity	1,521	1,810	2,589	3,605

Source: FactSet, company reports & CIBC World Markets Inc.

Company Profile

Constellation Software is a leading provider and acquirer of vertical market software and services.

Price Target (Base Case): C\$2,450.00

Our C\$2,450 price target is based on a sum-of-the-parts. We value CSU (ex-TOI) at 20x forward EBITDA multiple, a premium to enterprise software peers, and CSU's 30.35% ownership of TOI at market value.

Upside Scenario: C\$3,335.00

Our C\$3,335 upside scenario is based on a sum-of-the-parts. We value CSU (ex-TOI) at 25x forward EBITDA multiple, with 15% revenue growth, 27% EBITDA margins.

Downside Scenario: C\$1,554.00

Our C\$1,554 downside scenario is based on a sum-of-the-parts. We value CSU (ex-TOI) at 19x forward EBITDA multiple, with 5% revenue growth, 19% EBITDA margins.



Why Is CSU Pursuing Spin-outs?

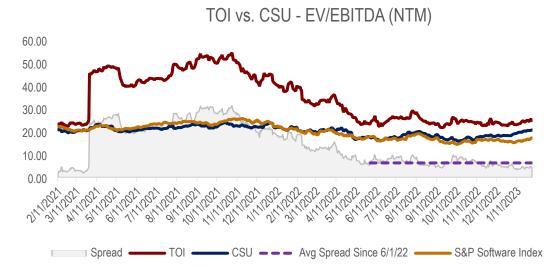
We believe that Constellation looks at spin-cos as a way to incentivize the management teams at both the target and spun-out CSU operating group and as a means of achieving its hurdle rates on larger deals. While we believe these factors are the key drivers in Constellation's spin-out strategy, we believe that investors are most interested in the shareholder value created by the spin-co, which is derived primarily by a higher multiple on the spin-co shares. We explore the motivation behind Constellation's spin-out strategy in greater detail below:

- 1. Compete More Effectively On Larger Deals: Constellation CEO Mark Leonard noted in his 2021 President's Letter that the company would focus on pursuing larger VMS transactions. As part of this push, the company lowered its hurdle rate on larger deals in an attempt to become more competitive with private equity and other bidders. We believe the spin-outs are an additional method to compete for larger transactions. Spin-co deals may allow Constellation to compete on transactions that would not have met its hurdle rates on a standalone basis, with the target management/founder rollover equity allowing CSU to acquire companies using a lower upfront cash contribution. We see the strategy as similar to an LBO, but instead of relying on leverage as a major piece of funding, rollover equity is used. The WideOrbit transaction, announced with the spin-out of Lumine Group, is structured to include rollover equity from select members of WideOrbit's management team, representing ~40% of the WideOrbit gross purchase price. Constellation also holds preferred shares in the spun-out entity, which yield a cumulative dividend of 5%.
- 2. Incentivize Management: The spin-outs also act as an incentive to the target's management/founders, allowing them to retain an ownership stake with upside participation and aligning the interests of spin-co management, Constellation and shareholders. Rollover shareholders will hold ~14% of post-spin Lumine on a fully diluted basis. In theory, the spin-outs will allow the management teams to focus on their distinct core businesses, with management bonuses paid based on the profitability and growth of their business. Similar to Constellation, Lumine's annual incentive bonus will be paid in cash, with a portion of the bonus expected to be used to purchase subordinate voting shares, further aligning management with shareholders.
- 3. Potentially Unlocking A Higher Valuation Multiple: While we do not see it as the core rationale for Constellation's spin-co strategy, we note the possibility of unlocking a higher valuation multiple on spin-co shares. In Constellation's case, the rationale for a higher valuation multiple would be that the spin-co is smaller and has a longer runway to pursue Constellation's traditional strategy of small VMS acquisitions.

Did The Topicus Spin-out Generate Additional Shareholder Returns?

Shares Trading At A Premium

The key question for shareholders in relation to the spin-outs is whether they are creating value, and whether the market is ascribing more value to the earnings and cash flow generated by the spun-out business. In the case of Topicus, if we look at valuation on an NTM EBITDA basis (assuming 20% Y/Y growth on Topicus' LTM EBITDA), we see that the shares have continuously traded at a premium to Constellation. In the first year of trading, Topicus shares were subject to significant fluctuation, at one point hitting a valuation of 54x forward EBITDA. Topicus' valuation has normalized since the tech sell-off beginning in November 2021, and for the last six months the shares have begun to trade at a relatively consistent premium in the range of 5x-7x.





Source: Company reports and CIBC World Markets Inc.

Through the lens of EBITDA multiples, the spin-out of the combination of the TSS Operating Group and Topicus has created value, as the TSS EBITDA is now consistently trading at a premium to Constellation's consolidated EBITDA.

We would have expected Topicus to be carved out of Constellation's share price following the spin-out (with only Constellation's 30% equity interest retained). However, Constellation's shares traded up on key dates related to the Topicus spin-out, with Constellation's shares up 70% from the date the spin-out was announced.

Exhibit 2: Constellation	- Share Price	Returns, 2020	- 2021
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Key Event	Date	Return Since	1 Day Return
Topicus Acquisition & Spin-out			
Announced	5/20/2020	70%	3.0%
Prospectus Filed	12/18/2020	54%	3.0%
Spin-out Completed	1/5/2021	44%	0.8%
Shares Start Trading	2/1/2021	42%	2.2%

Source: Company reports and CIBC World Markets Inc.

This is despite the fact that we estimate TSS was contributing 12% of Constellation's EBITDA pre-spin based on 2019 results, as noted in the table in Exhibit 3.

	Prospectus	Press Release	Backed Out	Financial Statements	
	Topicus.com	Topicus (Pre Acq.)	TSS	CSU	TSS as % of CSU
Revenue - EURO	417	101	316		
Revenue - USD	477	115	362	3,490	10.4%
EBITDA - EURO	125	30*	95		
EBITDA - USD	143	34*	108	934	11.6%

Exhibit 3: TSS Contribution To Constellation, F2019

*Assuming 30% margins, in line with the combined business.

Source: Company reports and CIBC World Markets Inc.

The lack of a carve-out of Topicus' EBITDA post spin appears contrary to financial theory and contrary to the returns of other parents of Canadian spin-cos. The CIBC Portfolio Strategy team ran a screen of all Canadian spin-cos that have occurred over 20 years, and we found that 70% of the non-commodity Canadian Parent Cos saw negative returns the first year post spin, with an average negative 2% return.

Exhibit 4: Canadian Parent Co Returns

	Canadian Parent-co returns	% of companies with negative returns
One-year	-2.30%	70%

Source: FactSet and CIBC World Markets Inc.

By contrast, the combined market cap of Constellation and Topicus has increased by 39% since the date of the spin-out, with CSU shares up 42% and TOI shares up 13%. It is worth pointing out that the two-year period in which Topicus has been public has been defined by market volatility, particularly in the software space. Relative to the S&P Software Index, the consolidated market values have outperformed by an impressive 32%.

Exhibit 5: Stock Price Returns Since Topicus Spin-out

	Combined CSU and TOI	CSU	ΤΟΙ	S&P Software
Return Since Spinout (2/1/2021)	39%	42%	13%	7%

Source: Company reports and CIBC World Markets Inc.

Topicus' premium valuation, and the lack of pullback in CSU shares at the time of the spinout, are compelling arguments that the Topicus spin-out has created value for shareholders despite concerns around orphan shares (given its Venture listing and of lack of sell-side coverage) and the 5% cumulative dividend on the preferred shares pre-conversion.



How Is Lumine Different From Topicus?

Topicus is primarily a European mini-Constellation, with the majority (~85%) of its business generated by consolidating small to mid-sized VMS software businesses in various verticals. By contrast, the Lumine spin-out will have a specific focus on the media and communications verticals and have a larger component (~40%) tied to a single operating group (WideOrbit).

Pre-spin, Lumine Group operated two business units, supplying software and services primarily to the communications industry. The acquisition of WideOrbit will add a third operating group focused on software solutions sold into the media vertical. To understand how the Lumine operating group compares with Topicus and CSU, we highlight the following key indicators:

1. **Organic Growth:** Maintenance constant currency organic growth for Lumine Group has underperformed both CSU and TOI for the last four quarters, while Topicus organic growth has been consistently ahead of CSU and Lumine Group. We see this as one of the key indicators that would lead to a premium multiple for Topicus, with the company appearing more insulated against macroeconomic headwinds. The Lumine Group posted -11% Y/Y constant currency organic growth in Q3/22, primarily driven by tough Y/Y comps and a settlement received by a customer in Q3/21 over the termination of future services.

Overall	Q4/20	Q1/21	Q2/21	Q3/21	Q4/21	Q1/22	Q2/22	Q3/22	Average
Topicus Constellation	2%	7%	8%	5%	10%	3%	5%	2%	5%
(incl. Altera)	-3%	0%	8%	5%	4%	4%	2%	2%	3%
Lumine Group	-1%	3%	7%	19%	4%	1%	1%	-11%	3%
Maintenance									
Topicus Constellation	6%	7%	7%	7%	9%	6%	8%	5%	7%
(incl. Altera)	0%	0%	7%	6%	5%	7%	5%	5%	4%
Lumine Group	7%	5%	7%	6%	3%	3%	3%	-4%	4%

Exhibit 6: Constant Currency Organic Growth - Overall And Maintenance, Q4/20 - Q3/22

Source: Company reports and CIBC World Markets Inc.

- 2. End Markets: WideOrbit has greater levels of customer concentration, with one contract signed in F2021 accounting for ~5% of the total ~9% Y/Y revenue growth in F2021. WideOrbit's software solutions manage a variety of business advertising operations, processing more than \$35B in advertising revenue annually. In recent months, we have seen a number of advertising and technology companies call out a softer-than-expected advertising market as cost-cutting becomes a priority. With high customer concentration and macro headwinds facing the digital advertising market, we see WideOrbit (now Lumine Group) at a higher risk of revenue declines in this environment. Comparatively, the Topicus business is focused on ERP software solutions that are designed to boost productivity and operate more cost effectively. We see TOI's base business as mission critical with high switching costs and solid recurring revenue.
- 3. Valuation: CSU's gross purchase price for WideOrbit was \$490MM, implying a ~10x EV/ F21 EBITDA and ~3x EV/ F21 sales multiple. While there are limited pure comps for WideOrbit, the table in Exhibit 7 takes a look at comps related to the combined business that are trading at an average multiple of 11x FY1 EBITDA and 3x sales, roughly in line with the multiple paid for the WideOrbit business.

Exhibit 7: WideOrbit And Lumine Group Comps - Last Completed Fiscal Year

			Valua	tion	La	test Completed Fiscal	Year (In Local cur	rency \$MM)
			EV/ (FY1)				
Company	Ticker	EV (US\$M)	Sales	EBITDA	Sales	Y/Y Sales Growth %	EBITDA (M)	EBITDA Margin
WideOrbit	NA	490.0	~3x*	~10x*	166.6	10%	48.6	29%
Criteo ADR	CRTO-US	1,558	0.74x	7.3x	2,250.7	8%	255.8	11%
Magnite	MGNI-US	1,998	3.55x	17.1x	468.4	111%	103.6	22%
Enghouse	ENGH-CA	2,067	4.68x	14.3x	332.0	-9%	109.1	33%
Oracle	ORCL-US	347,791	7.55x	14.1x	42,440.0	5%	18,984.0	45%
Amdocs Ltd	DOX-US	11,797	2.53x	11.1x	4,576.0	7%	918.7	20%
CSG Systems Int.	CSGS-US	2,218	2.06x	9.4x	1,089.0	4%	198.0	18%
RCS Media Group	RCS-IT	367	0.40x	3.1x	1,000.0	13%	137.0	14%
Average			3.07x	10.9x				
Median			2.53x	11.1x				

*represents take-out multiple paid by Constellation on F21 results

Source: Company reports and CIBC World Markets Inc.

Looking at it in the context of Constellation's larger deals, the WideOrbit purchase price is slightly above the average $\sim 2x$ sales multiple paid.

Torget	Drice (LISCMANA)		EV/Sales	Description
Target	Price (US\$MM)	Revenue (US\$MM)	EV/Sales	Description Provider of electronic health record (EHR) and
Allscripts	700	928	0.75x	practice management software to hospitals and large
Topicus	€ 217	€ 101	2x	European developer of vertical market software. Focus on vertical market integration in education, healthcare, municipalities and financial services.
TOPICUS	C 217	C 101	28	Canadian IT provider of management, accounting and
Acceo	CAD\$250	CAD\$500	2.1x	payment solutions for SMB.
MDS Global	50	88	1.5-2.0x	Provider of business support systems (BSS) to telecom service providers. <i>(Lumine Portfolio Company)</i>
Salvia	50	€ 15	3x	French provider and integrator of software solutions for private companies, real estate- and local public entities.
Sygnity	65	85	1.5x	Provider of information technology services to corporate and institutional clients.

Exhibit 8: CSU – Historical Large Acquisitions, Metrics

*Price and revenue figures presented in US\$ unless indicated otherwise.

Source: Company reports and CIBC World Markets Inc.

4. **Return On Invested Capital:** Topicus and Lumine have generated relatively similar returns on capital in recent years. Constellation's excellent track record of capital allocation is evident in the comparison, but the 20%+ ROICs at Topicus and Lumine are still quite strong, and would be well in excess of their costs of capital.



Exhibit 9: Return On Invested Capital Comparison, 2019 - 2021

	2019	2020	2021
Constellation	34.0%	36.0%	30.9%
Topicus	21.4%	24.4%	19.8%
Lumine Portfolio (Pre - W/O)		20.7%	24.7%

Source: Company reports and CIBC World Markets Inc.

A Look At The Pro Forma Business

Lumine Group has solid margins in the low-30% range versus WideOrbit, which has a more variable margin profile. We expect post-acquisition Lumine will look to put Wide Orbit on its operating model, allowing for more consistent margins in the 30% range. We also expect that Lumine will look to utilize WideOrbit's free cash flow to accelerate its M&A strategy.

Exhibit 10: Financial Summary – Lumine Group And Wide Orbit, F2020 To Sep 2022

	F2020			F2021			Nine Months Ended Sep 30/22		
US\$ In Millions	Lumine	WideOrbit	Consolidated	Lumine	WideOrbit	Consolidated	Lumine	WideOrbit	Consolidated
Revenue	166,372	151,652	318,024	228,355	166,595	394,950	187,462	124,170	311,632
Y/Y growth (%)				37%	10%	24%			
EBITDA	52,175	39,013	91,188	68,962	48,302	117,264	60,896	30,437	91,333
Y/Y growth (%)				32%	24%	29%			
EBITDA Margins	31.4%	25.7%	28.7%	30.2%	29.0%	29.7%	32.5%	24.5%	29.3%
Y/Y growth (bps)				-116	327	102			
FCF	58,853	20,445	79,298	85,328	28,741	114,069		NA	

Source: Company reports and CIBC World Markets Inc.

To get an idea of the potential valuation of Lumine shares, we have made a handful of assumptions to arrive at an estimate for the combined Lumine and WideOrbit 2023 EBITDA, as noted in the table in Exhibit 11. We assume:

- Free cash flow conversion: We assume 80% free cash flow conversion consistent with Constellation's recent free cash flow conversion.
- M&A spending: We assume 75% of free cash flow is spent on M&A. This is below the ~100% of free cash flow Constellation has been spending recently, but above Constellation's historical average in the 60% range.
- Revenue multiple: We assume a revenue multiple of 1.1x, slightly above Constellation's historical 0.8x sales multiple on smaller deals given the more specific vertical market focus.
- Organic growth: We assume 3% organic growth, in line with historical.

Exhibit 11: Consolidated Lumine Group – F2022 (Pro Forma) To F2023E

	F2022 - Consolidated	Organic Growth	Acquired Growth	Total Growth	F2023E
Revenue	415,509	3%	16.25%	19.25%	495,490
EBITDA	123,779				148,647
Free Cash Flow					
Conversion	80%				
Free Cash Flow	99,023				
% of FCF on M&A	75%				
M&A Spending	74,267				
Revenue Multiple	1.1				
Acquired Revenue	67,516				
% Growth	16.25%				

Source: Company reports and CIBC World Markets Inc.

Expect Lumine To Trade At A Valuation Between Topicus And Constellation

Given Lumine's positioning relative to Topicus and Constellation, we see it most likely that the consolidated Lumine spin-out will trade at a discount to Topicus given lower organic growth and a more cyclical business structure. However, we expect that it will trade at a premium to Constellation given its smaller size and ability to continue to make accretive, smaller, VMS-type software acquisitions.

In the table in Exhibit 12, we take a look at a potential valuation range. In the "low" scenario, we use Constellation's current NTM EV/EBITDA multiple and in the "high" scenario Topicus' current NTM EV/EBITDA multiple. We see Lumine potentially trading between the two values, as noted in our midpoint scenario. Based on this analysis, we arrive a share price between \$12.40 and \$14.75

	Low	Mid	High
F2023 EBITDA	148,647	148,647	148,647
Multiple	20.7x	22.8x	24.8x
Enterprise Value	3,081,407	3,382,514	3,683,621
Net Debt	(50,752)	(50,752)	(50,752)
Equity Value	3,132,159	3,433,266	3,734,373
Shares Outstanding	253,105	253,105	253,105
Share Price	\$12.40	\$13.50	\$14.75

Exhibit 12: Lumine Group – Potential Equity Value, F2023

Source: Company reports and CIBC World Markets Inc.

Conclusion

To date, Constellation's spin-out strategy has worked well for the business, allowing Constellation to bid on larger deals that would not have met their hurdle rates and incentivizing management. The Topicus spin-out also benefitted shareholders, with the market cap of the combined entity up 39% since the spin-out, versus the S&P Software Index's increase of 7%.

We continue to like Constellation here and see upside as Constellation continues to use spincos as a vehicle to make larger acquisitions. With over 150 different software businesses within Constellation today, we see the potential for businesses to continue to be spun out over the longer term.

Price Target Calculation

Our C\$2,450 price target is based on a sum-of-the-parts methodology. We value CSU (ex-TOI) at 20x forward EBITDA multiple, a premium to enterprise software peers, and CSU's 30.35% ownership of TOI at market value.

Key Risks To Price Target

The primary risks to our price target include the following: 1) ability to scale; 2) ability to acquire; 3) vertical market exposure; 4) lack of detailed disclosure

Environmental, Social and Governance (ESG) Metrics for CSU-TSX

CIBC ESG Metrics							
Governance Metrics	2017	2018	2019	2020	2021		
Insider Ownership	6.1%	6.0%	7.1%	7.8%	6.0%		
Board Gender Diversity	10.0%	10.0%	17%	20%	33%		
Separation of Chair & CEO	NO	NO	NO	NO	NO		
Dual-class Ownership?	NO	NO	NO	NO	NO		
Disclose ESG Data?	NO	NO	NO	NO	NO		
Social Metrics	2017	2018	2019	2020	2021		
CEO Comp./Mkt Cap*	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0		
Diversity Targets	NO	NO	NO	NO	NO		
Women Managers	0%	0%	0%	0%	0%		
Environmental Metrics	2017	2018	2019	2020	2021		
Emissions Intensity**	NA	NA	NA	NA	NA		
Net-zero Targets?	NO	NO	NO	NO	NO		

Su	stainalytics	s ESG Risk R	ating		
27.6 Updated on Sep 28, 2022	+3.0 Momen		edium	Ri	sk
NEGL	LOW	MED	HIGH		SEVERE
0-10	10-20	20-30	30-40)	40+
Sus	stainalytics	ESG Risk Ra	ating Rai	nkin	g
UNIVERSE			NK west risk)		RCENTILE = lowest risk)
Global Unive	erse	8271	/14667		57th
Software & S	Services	903	1000		90th

412/419

98th

*CEO Compensation is shown as per thousand dollars of market capitalization

**Emissions Itensity calculated as total emitted CO2e divided by million \$ of CAD revenue

Sustainalytics Material ESG Issues These are the Material ESG Issues driving the ESG Risk Report

Issue Name	ESG Risk Exposure Score Category	ESG Risk Management Score Category	ESG Risk Rating Score Category	Contribution to ESG Risk Rating
Corporate Governance	9.0 High	48.2 Average	4.7 Medium	16.9%
Human Capital	8.0 High	19.5 Weak	6.5 High	23.6%
Product Governance	2.2 Low	0.0 Weak	2.2 Low	8.0%
Resource Use	2.0 Low	7.3 Weak	1.9 Negligible	6.8%
Business Ethics	3.0 Low	10.0 Weak	2.7 Low	9.8%
Data Privacy and Security	8.0 High	5.0 Weak	7.7 High	27.8%
Carbon -Own Operations	2.0 Low	4.0 Weak	1.9 Negligible	7.0%
Overall	34.2 Low	20.9 Weak	27.6 Medium	100%

Enterprise and

SUBINDUSTRY

Infrastructure Software

CIBC Quantitative Scorecard

Within Sector			Within S&P/TSX Comp.		
Style	Rank	Delta	Style	Rank	Delta
Value	8	0	Value	181	+3
Momentum	4	0	Momentum	111	-17
Quality	1	0	Quality	1	0
Market	2	+1	Market	38	+3
Low Volatility	3	+1	Low Volatility	99	+6
Growth	9	-1	Growth	96	0
Note: Ranking out of 14	l stocks		Note: Ranking out of 23	35 stocks	
	General	Notes Behin	d the Quantitative Score	ecard	

Delta refers to the change in the ranking over the past month. Number of stocks "Within Sector" is defined by the number within the GICS. In the "Within S&P/TSX" category, we use all stocks in the S&P/TSX Composite. For detail on the Quant Factors included in each style above, please contact the CIBC Portfolio Strategy Team.

The table above is based upon quantitative, statistical, and mathematical analysis and is not intended to serve as a fundamental recommendation

CIBC Technical Scorecard

	TSM		TSM
Factor	Score	Factor	Score
TSM	-4	Momentum	С
Beta	0.99	MACD	С
Volatility	\uparrow	Alpha (Sector)	А
Trend	\downarrow	Alpha (Index)	В
RSI	Neutral		

General Notes Behind the Technical Scorecard

TSM: The Trendspotting Matrix uses technical factors to score uptrend durability. Momentum and alpha metrics compare performance over one-month, one-quarter and one-year timeframes, outputting a rating from A to D.

Trend/Volatility metrics measure price deviations relative to underlying moving averages. RSI is an oscillator that provides mean-reversion estimations.

MACD is a momentum indicator rated from A to D based off the strength of its signal.

The table above is based upon a technical methodology that examines the past trading patterns and trades and is not intended to serve as a fundamental recommendation

Source: Sustainalytics, Compustat, FactSet, Bloomberg and CIBC World Markets Inc.

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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.
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Sector Ratings	Abbreviation	Description
Overweight	0	Sector is expected to outperform the broader market averages.
Marketweight	Μ	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.

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Neutral	132	44%	Neutral	131	99%
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Tender	3	1%	Tender	3	100%
Restricted	10	3%	Restricted	10	100%

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