

EQUITY RESEARCH

September 5, 2023

Earnings Update

CONSTELLATION SOFTWARE INC.

Adding Scale In Mortgage Software

Our Conclusion

With Intercontinental Exchange’s (ICE) acquisition of Black Knight (BKI), we expect Constellation’s acquisitions of Empower and Optimal Blue to close shortly. The \$700MM Optimal Blue deal is one of Constellation’s largest acquisitions, adding significant scale to Perseus’ mortgage operations. We believe that Constellation benefited from a motivated seller, with FTC approval of the ICE/BKI merger held up by concerns related to concentration issues within the loan origination system (LOS) and product, pricing & eligibility (PPE) groups. With the Constellation acquisitions, these concentration issues are removed, paving the way for FTC approval of the \$11.7B ICE/BKI merger. Constellation acquired Optimal Blue at a valuation of ~6.3x EBITDA, a significant discount from the ~24x EBITDA multiple at which BKI acquired the asset in 2019. We retain our Outperformer rating on Constellation and our price target increases to C\$3,100 (from \$3,000) on our revised forecast, which incorporates the Empower and Optimal Blue acquisitions.

Key Points

**Adds Scale In Mortgages:** Optimal Blue’s SaaS platform facilitates commerce between mortgage originators and investors. The platform serves lenders that originate ~40% of the U.S.’s national residential mortgages. The Optimal Blue platform is vendor agnostic and used in more than a dozen different LOS platforms. Empower is the second-largest LOS platform in the mortgage space, with an estimated market share of ~10%-15%. The Perseus operating group has been building out its mortgage solutions offering since its 2019 acquisition of Mortgage Builder. Similar to prior Constellation acquisitions, we do not expect significant integration with other mortgage businesses, although do expect that Constellation management has used recent mortgage deals to gain knowledge in the space.

**Expect Minimal Restructuring:** Unlike the recent Altera acquisition, which has dragged on revenue growth and margins, Optimal Blue has historically had solid organic growth and EBITDA margins. During the strong mortgage market in 2019-2021, Optimal Blue was growing organically in the 30% range. In today’s more muted mortgage market, we estimate the business is growing in the 10% range and we expect that it will continue to grow above Constellation’s typical mid-single-digit organic growth range. The Optimal Blue business also has a very solid margin profile, with BKI suggesting margins in the 50% range. We see little restructuring necessary for the asset post acquisition.

**Changes To Our Model:** We are updating our model to reflect the closure of the Optimal Blue acquisition. We expect \$115MM in EBITDA from Optimal Blue in 2024E, increasing our 2024 EBITDA estimate by 5%. We had assumed \$1.44B in M&A spend in 2023E and post Optimal Blue now assume \$2.1B in spending and 2023E free cash flow of \$1.3B. Post Optimal Blue we calculate 2023E leverage to increase by 0.3x to 1.2x.

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

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

**Kirill Kozyar, CFA**  
Associate  
+1 416-594-7907  
Kirill.Kozyar@cibc.com

**Erin Kyle, CPA**  
Associate  
+1 416-313-9851  
Erin.Kyle@cibc.com

Outperformer

CSU-TSX, Sector: Information Technology  
Current Price (9/5/23): C\$2,822.23  
Price Target (12-18 mos.): **↑C\$3,100.00**  
Previous: C\$3,000.00

CIBC Estimates and Valuation

(Dec. 31)	2021	2022	2023	2024
EPS diluted	7.97A	26.00A	13.71E	56.74E
Prior			13.45E	53.20E
EBITDA(mln)	1,511.0A	1,699.0A	2,075.6E	2,492.6E
Prior			2,062.2E	2,367.0E

EPS diluted	Q1	Q2	Q3	Q4
2023	4.44A	4.88A	7.44E	9.05E
Prior			7.43E	8.80E
2022	5.24A	6.37A	6.75A	7.69A

EBITDA(mln)	Q1	Q2	Q3	Q4
2023	455.8A	517.0A	522.8E	581.0E
Prior				567.6E
2022	373.0A	411.0A	419.0A	496.0A

Valuation	2021	2022	2023	2024
EV/EBITDA	28.8x	25.6x	20.9x	17.4x

Stock Performance and Key Indicators

Avg. Dly. Vol.: 25K Shares O/S: 21.2M  
Market Cap.: C\$59,831M Float: 19.8M  
52-wk Range: ,797.90 - C\$2,847.35 Div. / Yield: C\$7.29/0.26%

TSX Composite Index vs. CSU-TSX



(Source: FactSet)

All figures in US dollars unless otherwise stated (C\$1.360:US\$1.00).

Please see "Price Target Calculation and Key Risks to Price Target" information on page 7. For required regulatory disclosures please refer to "Important Disclosures" beginning on page 8.

**Constellation Software Inc. (CSU-TSX) — Outperformer**

Price (9/5/23) C\$2,822.23 12-18 mo. Price Target C\$3,100.00

Sector: Information Technology

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

Peer Comparison	2021	2022	2023E	2024E
P/E - Cdn Consolidators	-	15.6x	26.7x	27.0x
P/E - Constellation	-	-	39.2x	28.3x
EV/EBITDA - Cdn Consolidators	-	20.5x	17.7x	14.9x
EV/EBITDA - Constellation	-	27.1x	22.2x	18.5x
EV/Sales - Constellation	-	27.1x	17.7x	5.3x
Key Financial Metrics	2021	2022	2023E	2024E
Free Cash Flow	1,271	1,256	1,328	1,794
Sales Growth	28.6%	29.7%	23.1%	16.7%
Per Share Data	2021	2022	2023E	2024E
FCFPS	59.98	59.27	62.65	84.65
Diluted EPS	7.97	26.00	13.71	56.74
Adj. EPS Dil.	31.14	57.05	53.68	74.33
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	2022	2023E	2024E
Revenue	5,106	6,622	8,152	9,510
EBITDA	1,511	1,699	2,076	2,493
EBITDA Margin	29.59%	25.66%	25.46%	26.21%
EBIT	437	811	672	1,848
Pretax profit	373	725	534	1,718
Tax Expense	206	175	243	515
Adjusted Net Income	660	1,209	1,137	1,575
Adjusted Net Margin	12.9%	18.3%	14.0%	16.6%
Cash Flow Statement	2021	2022	2023E	2024E
Net CFO	1,300	1,297	1,365	1,818
Capex	(29)	(41)	(37)	(24)
Acquisitions	(1,216)	(1,566)	(2,145)	(800)
Free Cash Flow	1,271	1,256	1,328	1,794
Balance Sheet	2021	2022	2023E	2024E
Cash & ST Investment	763	811	219	1,128
Intangible Assets	3,428	4,679	6,084	6,164
Goodwill	0	0	260	420
Total Assets	5,766	7,882	9,604	11,231
ST Int-Bearing Debt	210	821	1,017	1,017
LT Int-Bearing Debt	915	1,153	1,409	1,409
Total Liabilities	4,245	5,949	7,428	7,937
Shareholders' Equity	1,521	1,933	2,176	3,294

Source: FactSet, Company Reports & CIBC World Markets

**Company Profile**

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

**Price Target (Base Case): C\$3,100.00**

Our C\$3,100 price target is based on a sum-of-the-parts valuation. We value CSU (ex-TOI) at a 26x forward EBITDA multiple and CSU's 30% ownership of TOI and 61% ownership of LMN at market values.

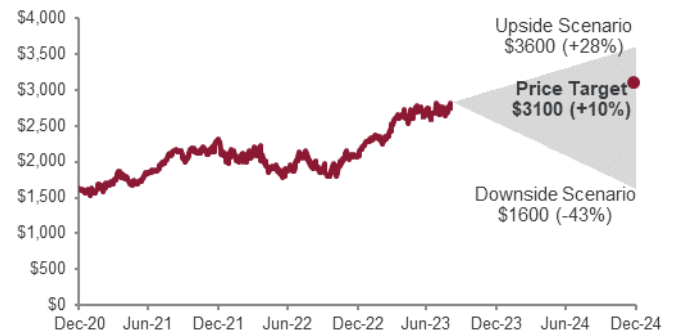
**Upside Scenario: C\$3,600.00**

Our C\$3,600 upside scenario is based on a sum-of-the-parts valuation. We value CSU (ex-TOI and LMN) at a 27x forward EBITDA multiple, with 15% revenue growth and 27% EBITDA margins.

**Downside Scenario: C\$1,600.00**

Our C\$1,600 downside scenario is based on a sum-of-the-parts valuation. We value CSU (ex-TOI) at a 19x forward EBITDA multiple, with 5% revenue growth and 20% EBITDA margins.

**Scenario Analysis:**



Source: FactSet and CIBC World Markets Inc.

## A Bargain Purchase?

When Constellation announced the acquisition of Optimal Blue in July, we had a number of inbound queries on the structure of the deal, with Constellation acquiring Optimal Blue for \$700MM but for an upfront cash payment of only \$200MM. The remaining \$500MM is a promissory note, with news reports suggesting a 40-year term and 7% interest rate. In addition to the payment terms, the valuation also appeared to be well below prior levels, with BKI acquiring 60% of Optimal Blue in 2019 at an EV/EBITDA multiple of 23.9x and the remaining 40% in 2022 at a 28.8x valuation. The implied EV/EBITDA of Constellation’s purchase of the asset is 6.3x, as shown in the table in Exhibit 1.

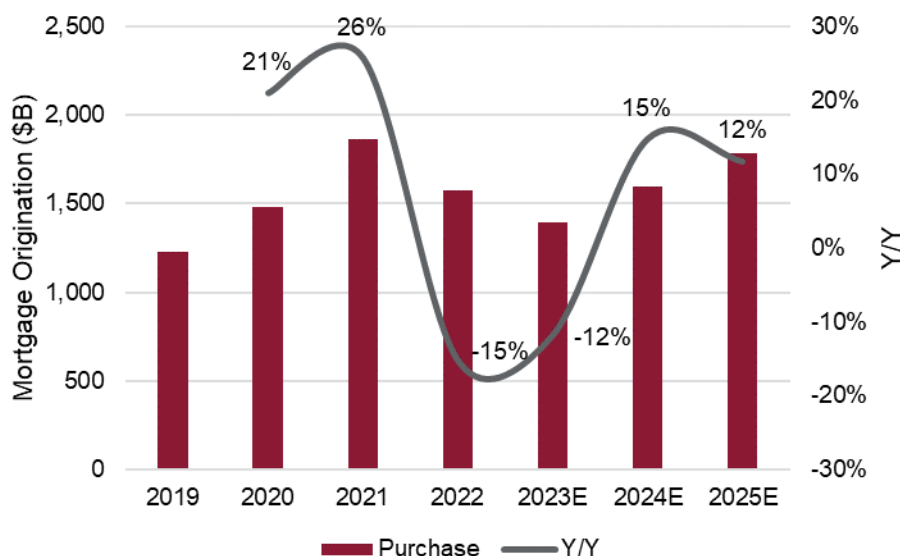
**Exhibit 1: Optimal Blue – Purchase Price History, February 2020 – July 2023E**

Date	Acquirer	EV (\$MM)	NTM EV/EBITDA
February 2019	BKI (60%)	1,800	23.9x
February 2022	BKI (40%)	2,890	28.8x
July 2023	CSU	700	6.3x

Source: Company reports and CIBC World Markets Inc.

We believe that a tougher macro environment and weaker mortgage market are partial drivers of the discounted valuation. Since BKI’s acquisition of Optimal Blue, mortgage originations in the U.S. have fallen. Mortgage originations were down 15% in 2022 and the MBA Mortgage Finance Association forecasts them to be down 12% in 2023E. It does expect a rebound in 2024E and 2025E, as shown in the bar chart in Exhibit 2.

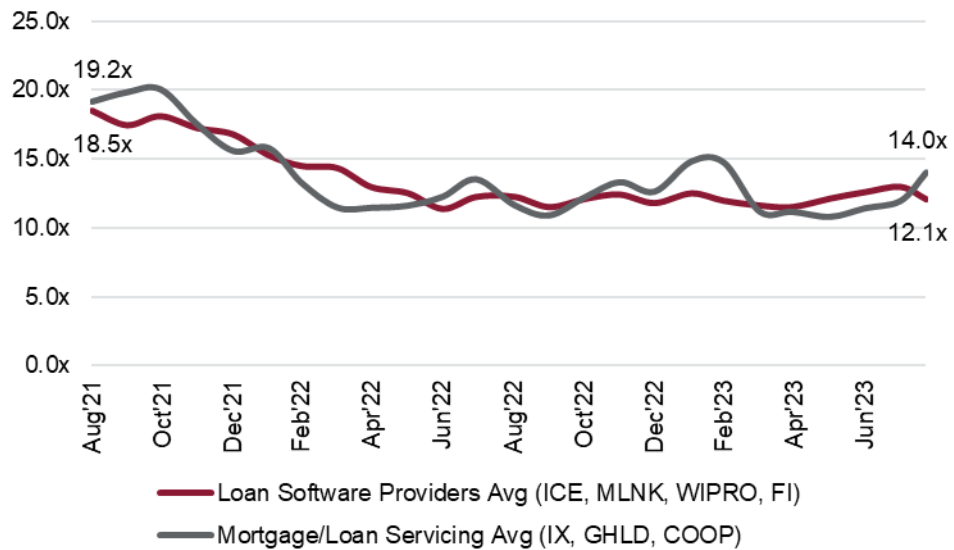
**Exhibit 2: U.S. – Mortgage Originations, 2019 - 2025E**



Source: MBA Mortgage Finance Forecast (July-2023) and CIBC World Markets Inc.

Given the slowdown in mortgage originations, peers in the space have seen valuations fall from 2021 heights, with the average EV/EBITDA multiple for loan software providers down 6.4x from August 2021 and the average valuation of mortgage/loan servicing solutions down 5.1x, as shown in the line chart in Exhibit 3. By contrast, Optimal Blue’s valuation is down 22.5x, suggesting that a slower mortgage market alone was not the primary driver of the lower Optimal Blue valuation.

**Exhibit 3: Loan Software & Servicing Providers – Average EV/EBITDA Valuations, August 2021 - August 2023**



Source: Company reports and CIBC World Markets Inc.

Instead, we believe that the primary driver of the discounted valuation was a motivated seller. The \$11.7B acquisition of BKI by ICE was facing FTC scrutiny, with the FTC noting that concentration in the LOS market and PPE services were areas of concern. The FTC concerns led BKI to conditionally sell the Empower LOS to Constellation in March and more recently announce the conditional divestiture of its PPE, Optimal Blue, in July. Post these divestitures, the FTC announced on August 7 that it was dismissing the case against the ICE/BKI merger.

**What Did It Buy?**

Through the FTC process, Constellation has acquired both Empower and Optimal Blue. The Optimal Blue acquisition is one of the largest acquisitions Constellation has ever completed and the two acquisitions dramatically expand the Perseus group’s mortgage software offering.

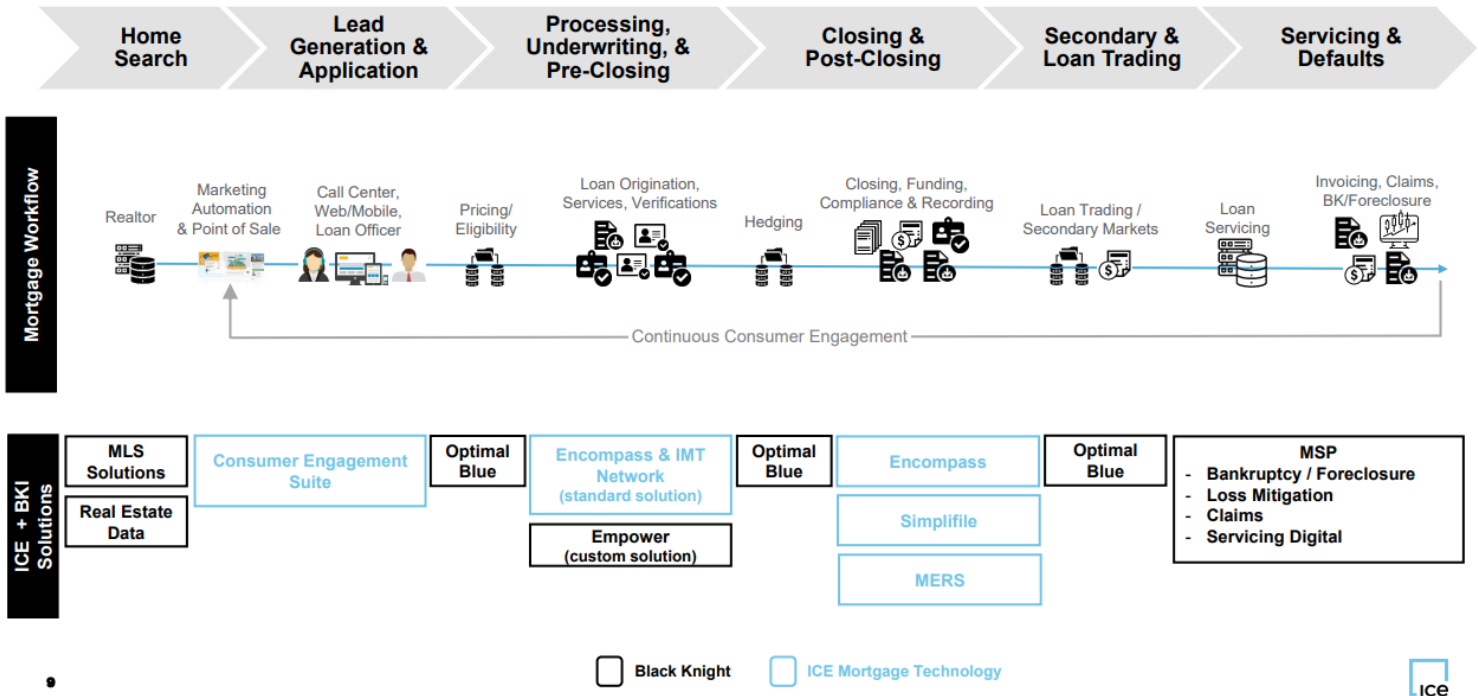
**Exhibit 4: Empower & Optimal Blue – Description Of Acquired Assets**

Product	Description	Estimated Market Share	Estimated EBITDA
Optimal Blue	Actionable data services and secondary market solutions that provide a broad set of market functions, including real-time price discovery, execution, workflow automation, risk management and counterparty oversight.	~40%	~\$100MM
Empower	Multi-channel loan origination system serving lenders seeking fully customizable, single tenancy solutions to automate processes, increase data integrity, mitigate risk and accommodate business growth.	~10%-15%	NA

Source: Company reports and CIBC World Markets Inc.

Optimal Blue’s marketplace platform facilitates commerce between mortgage originators and investors. The platform serves lenders that originate ~40% of the U.S.’s national residential mortgages each year. The Empower acquisition is smaller, although Empower is the second-largest loan origination system in the mortgage space, with an estimated market share of roughly 10%-15%. With the FTC settlement, Constellation also received a license to resell with Empower certain other Black Knight mortgage-related products and services that would be acquired by ICE.

Exhibit 5: Information Technology – Software Solutions In The Mortgage Workflow



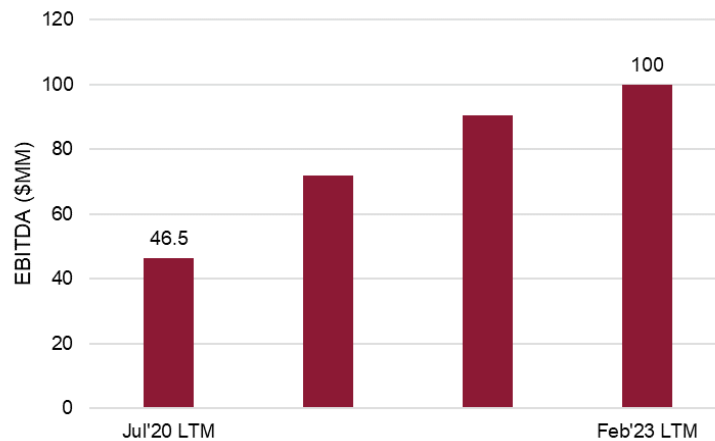
Source: ICE.

**On-strategy With Constellation’s Typical M&A Playbook**

Optimal Blue has solid organic growth, despite the current mortgage environment, strong margins and a defensible moat around its business. We view the acquisition as on-strategy with Constellation’s typical playbook, offering:

- 1. Recurring Revenue:** Optimal Blue has a subscription-based recurring revenue model, and grew from ~1,100 clients at the beginning of 2021 to ~1,400 clients at the end of 2022. That being said, as the macro environment has slowed, so, too, has client growth, with Optimal Blue adding 189 clients in 2021, 129 in 2022 and 49 in H1/23. The business had been growing at ~30% a year in 2021, but a slowdown in mortgage activity in 2022 impacted top-line growth, which we believe has slowed to the ~10% range. We note that the acquisition of Optimal Blue also benefits organic growth at Empower, with BKI management noting that for new Empower clients: *“We bundle additional solutions that help lenders improve their ability to serve customers, mitigate risks, and generate new leads. In fact, over the past six years, we have increased the number of solutions bundled in an Empower sale by nearly five times.”* That being said, Constellation typically does not focus on cross-selling synergies when it makes acquisitions and we assume the business case is driven primarily by recurring revenue growth.
- 2. Solid Margins:** We expect there will be minimal restructuring necessary for the Optimal Blue assets, with EBITDA margins running in the 50% range pre-acquisition. EBITDA more than doubled between July 2020 and February 2023 amidst a buoyant mortgage market, as shown in the bar chart in Exhibit 6.

**Exhibit 6: Optimal Blue – EBITDA, July 2020 - February 2023**



Source: Company reports and CIBC World Markets Inc.

- Strong Moat:** Optimal Blue has scale in the mortgage industry, serving lenders that originate roughly 40% of the nation’s residential mortgages each year. Optimal Blue is a software-agnostic platform that is used on more than a dozen different LOS solutions, and its integration with the LOS system allows it to automate many product pricing engine features for the lender. Optimal Blue is focused on lenders in the secondary mortgage market, in which it is the leader, with ICE’s Encompass Product and Pricing Service PPE second in the market. ICE’s product is available only to lenders that use its Encompass LOS.

**Fits Within The Constellation Portfolio**

Optimal Blue was acquired by the Perseus operating group within Constellation. We have received questions about whether Constellation would look to consolidate its financial services solutions under one umbrella (potentially with Volaris’ Vencora business unit), but we do not expect the two operating groups to mingle their business units. Instead, we expect Optimal Blue to remain within Perseus. Perseus has been building out its own financial services vertical over the past several years, acquiring Mortgage Builder in 2019 and two additional mortgage-related software offerings in 2022. Perseus used Mortgage Builder as the cornerstone for its Constellation Mortgage Solutions (CMS) division, which builds, acquires and invests in financial software companies that provide mission-critical solutions for the mortgage industry.

**Exhibit 7: Perseus Group – Real Estate Tech Portfolio**

Company	Acquired	Description
Mortgage Builder	April 2019	Founded in 1999, Mortgage Builder is part of Constellation Mortgage Solution and provides industry-leading loan origination software to mortgage banks, community banks, credit unions, and other financial institutions.
Reverse Vision	February 2022	Reverse Vision is part of the company’s Constellation Mortgage Solution and is the most experienced HECM origination software in the residential mortgage industry. Reverse Vision offers simplified data entry, modern browser-based originator experience, intuitive process flows, and more.
Axacore	October 2022	Axacore was founded to simplify paper-intensive processes and automate multi-tiered document workflows. Over the past three decades, Axacore has provided flexible and comprehensive document and digital fax management systems to mortgage, healthcare, legal, financial, and government organizations.

Source: Company reports and CIBC World Markets Inc.

The fact that Perseus has consolidated its mortgage solutions under the CMS division suggests that the operating group could be looking to leverage best practices out of its mortgage software team, to a greater extent than in a typical Constellation operating group. Further, with the scale provided by Optimal Blue, it could ultimately be considered a stand-alone division that could be spun out in conjunction with another large deal.

## Changes To Our Model

We have updated our model to reflect the Optimal Blue acquisition. We expect \$115MM in EBITDA from Optimal Blue in 2024E, increasing our 2024 EBITDA estimate by 5%. We had assumed \$1.44B in M&A spend in 2023E and post Optimal Blue we now assume \$2.1B in M&A spending and 2023E free cash flow of \$1.3B. Post Optimal Blue we calculate 2023E leverage of 1.2x, an increase of 0.3x from our previous estimate.

### Exhibit 8: Constellation Software – Changes To Our Model, 2022 - 2024E

	Revenues (\$MM)	EBITDA (\$MM)	CFO (\$MM)
<b>2022</b>	6,622	1,699	1,297
<b>2023E</b>			
CIBC Estimate – New	8,152	2,076	1,365
CIBC Estimate – Prior	8,102	2,062	1,353
Consensus	8,283	2,104	1,601
<b>2024E</b>			
CIBC Estimate – New	9,510	2,493	1,818
CIBC Estimate – Prior	9,293	2,367	1,722
Consensus	9,698	2,572	2,098

Source: FactSet and CIBC World Markets Inc.

## Price Target Calculation

Our C\$3,100 price target is based on a sum-of-the-parts methodology. We value CSU (ex-TOI and LMN) at a 26x forward EBITDA multiple and CSU's 30% ownership of TOI and 61% ownership of LMN at market values.

## 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; and, 4) lack of detailed disclosure.

## 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 Constellation Software Inc. (CSU.TO)

- 2g CIBC World Markets Inc. expects to receive or intends to seek compensation for investment banking services from these companies in the next 3 months: Constellation Software Inc.
- 7 CIBC World Markets Corp., CIBC World Markets Inc., and their affiliates, in the aggregate, beneficially own 1% or more of a class of equity securities issued by these companies: Constellation Software Inc.

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 05 Sep 2023)	Count	Percent	Inv. Banking Relationships	Count	Percent
Outperformer	153	51%	Outperformer	153	100%
Neutral	132	44%	Neutral	132	100%
Underperformer	7	2%	Underperformer	7	100%
Tender	1	0%	Tender	1	100%
Restricted	7	2%	Restricted	7	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.