CFA Institute Research Challenge
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Team 1 - University of Minnesota Duluth

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Ecolab, Inc. Ticker: ECL (NYSE)

Sector: **Materials**
Industry: **Specialty Chemicals**

Current Price: **$214.80**
Target Price: **$245** (+14%)
Recommendation: **BUY**

University of Minnesota Duluth
Student Research

Ecolab, Inc. | A Clean, Green, Cash Flow Machine

Ecolab, Inc. (Ecolab, ECL, the company) is a global leader in technology and services for water, hygiene, and healthcare, operating in four distinct segments: Global Industrial (GI), Global Institutional & Specialty (GIS), Global Healthcare & Life Sciences (GHLS), and Other. With a strong focus on ESG initiatives and expanding organic and inorganic growth, we believe Ecolab will thrive in an ever-changing world. We have initiated a **BUY** recommendation on Ecolab, with a 12-month price target of $245 (+14%), formulated through our assumptions and Discounted Cash Flow (DCF) valuation method.

Superior Business Strategy | "Circle the Customer - Circle the Globe"

We believe Ecolab's strategy makes for a high-quality business in any environment and appreciate the company's ability to increase prices through its razor-and-blade model, all while supporting a strong focus on deploying value to its customers. As the company continues its strategy as a one-stop-shop, we believe Ecolab will continue to benefit from its high switching costs, keeping competitors at arm's length and leading to an expansion in market share. We also appreciate the company's ability to increase prices with lower input costs and believe this will support attractive margins and bottom-line profitability in the future. Lastly, we are confident in the abilities of Ecolab's highly skilled sales and service teams that focus on delivering tangible values to its more than three million global customers.

Seizing Sustainable Opportunities | Embracing Macro Trends

Ecolab has increased its focus to upscale sustainable service offerings, enhancing its current chemical business. The company has successfully leveraged opportunities in water scarcity and climate change by offering complementary services like water and energy management. An example is Ecolab's latest acquisition of Purolite, where the company has found a new growth opportunity with separation and purification, technology not previously owned. We believe Ecolab will continue to pursue its current strategy by adding Purolite's offerings as a complementary service, as seen previously with Nalco Water. Ecolab will continue to strengthen its moat with future acquisitions, leading to new capabilities while maintaining long-term growth opportunities.

Increased Profitability & Capital Efficiency | Disciplined Deployment of Resources

In Ecolab's 98-Year history, specifically the past decade, profit margins have expanded, leading to tangible opportunities to utilize capital and drive shareholder value. By incorporating new technologies and continuing to improve the human infrastructure of the company, it has been able to leverage top-line growth to expand bottom-line profitability. In addition to generating higher profits, Ecolab has exhibited an ability to skillfully deploy its capital through successful acquisitions and internal improvements, while continuing to return greater value to its shareholders.

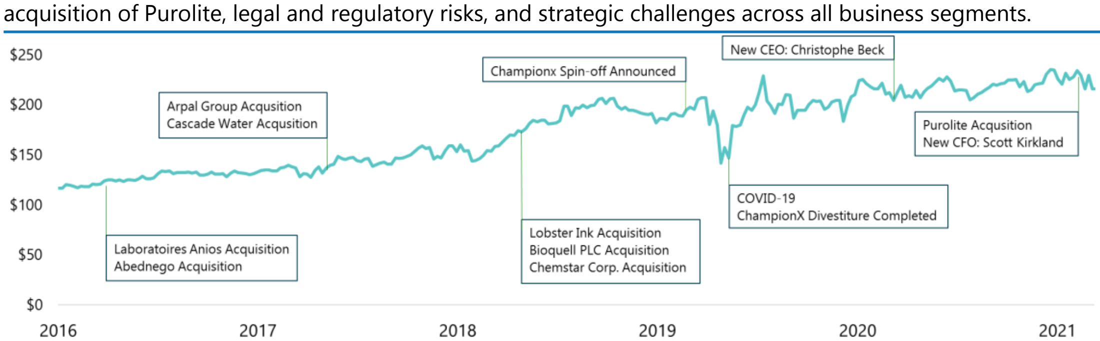
Key Information

Industry Outlook: Ecolab competes in the U.S. Specialty Chemicals industry where it controls 13% of U.S. market share and 8% globally. The industry is highly fragmented with few large players, while smaller firms are focused on their respective regions. According to Allied Market Research, the industry revenue is forecasted to grow annually at 5% through FY2027. This growth is spurred by key industry drivers as demand increases for economically viable solutions from consumers in the healthcare end markets.

Financial Analysis: We believe that Ecolab has firmly placed itself in a healthy financial position. The company's impressive ability to generate cash, expand margins, and refrain from overleveraging its financial position are the anchors of our overall investment thesis. We expect this to continue well into the future, as increasing profits drive further innovation and opportunities through the company's well-structured capital deployment.

Valuation: To value Ecolab, we constructed an intrinsic valuation approach further backed-up by a multiples valuation. Due to the nature of Ecolab's business, we believe a Discounted Cash Flow Analysis (DCF) is the best valuation method when factoring in consistent Free Cash Flow growth and our future assumptions. The result of our DCF is supported by our Enterprise Value to Earnings before Interest, Taxes, Depreciation, and Amortization (EV/EBITDA) multiple valuation.

Risks: Key risks include, but are not limited to, the impact of COVID-19, Management turnover, the recent acquisition of Purolite, legal and regulatory risks, and strategic challenges across all business segments.



Key Statistics

Trading Data (1/19/2022)	
52 Week Low	$238.93
52 Week High	$201.15
Market Value	$61,153
Enterprise Value	$67,175
Diluted Shares	289.2 M
Dividend Yield	1.0%
WACC	6.35%
Float	87.3%
Top 10 Institutional Holders	26.9%
Beta	0.81

Financial Metrics (Q3 2021)	
Gross Margin	39.3%
Operating Margin	14.0%
EBITDA Margin	20.3%
Net Margin	9.8%
Diluted EPS	$1.12
ROA	7.2%
ROE	18.6%
Cash Ratio	0.28x
Current Ratio	1.58x
Total Debt	5951
Debt to Equity	0.85
PE	54.6x
EV/EBITDA	25.6x
P/BV	9.0x
P/S	5.0x

Intrinsic Valuation	
Est. Value of Operations	$77,262
Excess Cash +	$2,219
Total Debt -	$7,951
Underfunded Pension -	$1,042
Non-Controlling Interest -	$28
Est. Equity Value	**$70,460**
/ Diluted Shares	288
DCF Value per Share	**$245**

Earnings Forecast	2020A	2021E	2022E
Q1	$1.00	$0.67 A	$1.37
Q2	$0.44	$1.08 A	$1.43
Q3	$0.85	$1.12 A	$1.51
Q4	$1.06	$1.64	$1.56
FY EPS	**$3.35**	**$4.51**	**$5.88**
FY P/E	31x	38x	40x

Business Description

Established in 1923 in St. Paul, Minnesota under the name Economics Laboratory, Ecolab employs over 44,000 employees in approximately 90 countries. For the Trailing Twelve Months (TTM) as of 3Q2021, Ecolab generated revenues of $12.5B compared to $11.9B during the same period a year ago. Ecolab incorporates a "Circle-The-Customer" strategy, cross-selling a variety of products and services to its respective customers in varying industries. Furthermore, 90% of Ecolab products are sold under contract, providing a consistent source of revenue through a razor-and-blade model, which involves renting equipment followed by selling correlated proprietary products. Ecolab primarily serves North America (55% of total revenue), while maintaining a sizeable presence in Europe (22%) and Asia (13%). The company has also penetrated smaller markets including Latin America (6%) and the Middle East & Africa (3%) *(Figure 1)*. Global Industrial (GI) is Ecolab's largest segment (49% of total revenue), followed by Global Institutional & Specialty (GIS) (31%), Global Healthcare and Life Sciences (GHLS) (10%), and Other (10%) *(Figure 2)*.

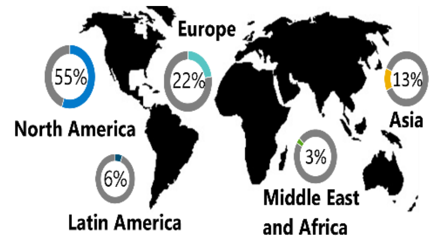
Global Industrial (GI) - Ecolab's Global Industrial (GI) segment provides water treatment and processing applications as well as cleaning and sanitizing solutions to customers in the Manufacturing, Paper, Transportation, Mining, and Food & Beverage industries. Overall, the segment contributed $6.2B in revenue on a TTM basis through 3Q2021 *(Figure 3)*. Water is Ecolab's largest Global Industrial (GI) operation with the majority of revenue represented internationally. Notable products include 3D TRASAR, which uses 24/7 automated sensing and monitoring to detect and automatically correct water quality problems. As energy consumers continue to focus on reducing emissions, Ecolab supports customer ESG goals with its "Net Zero" program. This program optimizes water utilization and contributes towards carbon neutral commitments. Food & Beverage operations support some of the largest producers with improved efficiency and clean, safe food. With ESG trends becoming more prominent, specifically water scarcity, we foresee Global Industrial (GI) as a strong segment that will continue to serve as the backbone for Ecolab's performance in 2022 and beyond.

Global Institutional & Specialty (GIS) - Ecolab's Global Institutional & Specialty (GIS) segment provides cleaning and sanitation products to Foodservice, Hospitality, Government, and Education industries. This segment produced $3.8B in revenue on a TTM basis through 3Q2021 and is centered primarily in the United States. Products include general purpose hard surface cleaners, degreasers, sanitizers, dispensers, and leased dishwashers. EcoSure provides customized on-site evaluations, training, and quality assurance services to Foodservice operations. The Lobster Ink business provides customers with end-to-end digital training solutions. Additionally, "Ecolab Science Certified" is a new public health and food safety program launched in 2020, aimed at advancing clean practices for businesses and building brand awareness. We anticipate a continued recovery in revenue, driven by reduced COVID-19 mandates on client business and increased product volume.

Global Healthcare & Life Sciences (GHLS) - Ecolab's Global Healthcare & Life Sciences (GHLS) segment provides specialized cleaning solutions to the Healthcare, Personal Care, and Pharmaceutical industries. Products are marketed under the Ecolab, ANIOS, and Microtek brand names, targeting infection prevention and surgical solutions. This segment produced $1.2B in revenue on a TTM basis through 3Q2021. The Global Healthcare segment provides services primarily for hospitals, whereas Life Sciences is targeted towards Pharmaceutical companies. Life Sciences products are sold under the "Ecolab" brand name and include detergents, cleaners, and electronic dispensers, while decontamination systems and services utilizing hydrogen peroxide vapor are sold under the "Bioquell" brand name *(Figure 5)*. We believe Global Healthcare & Life Sciences (GHLS) stand to benefit from Ecolab's recent Laboratories ANIOS (FY2017) and Purolite (FY2021) acquisitions, illustrating a strong commitment to future growth. Ecolab closed on its acquisition of Purolite on December 1st, 2021, purchasing the company for $3.7B, with expected $0.10 accretive to adjusted earnings per share in FY2023.

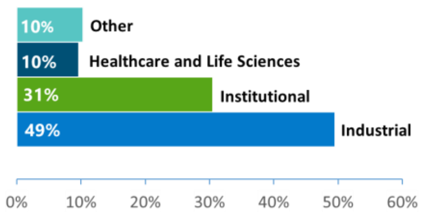
Other - Ecolab's Other segment contains various niche businesses including Pest Elimination, Textile Care, and its Colloidal Technologies Group (CTG). Pest Elimination blends well with Ecolab's other services, and makes up much of the segment, benefiting from several acquisitions in FY2017 and providing a variety of pest solutions and technologies. Textile Care is a smaller subset, helping customers reduce operating costs for large commercial laundry operations. Ecolab's CTG unit is one of the leading producers of colloidal silica, a substance used for binding and polishing in semiconductor manufacturing. CTG also provides growth opportunities with services to major semiconductor manufacturers. Operations in the Other segment produced $1.3B in revenue on a TTM basis through 3Q2021. In the future, we expect to see Ecolab further leverage its Pest Control segment to Global Institutional & Specialty (GIS) clients, enhancing growth as the COVID-19 recovery continues.

Figure 1: Geographic Revenue



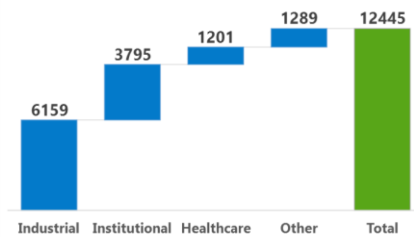
Source: ECL Company Information

Figure 2: TTM Segment Revenue Percentage



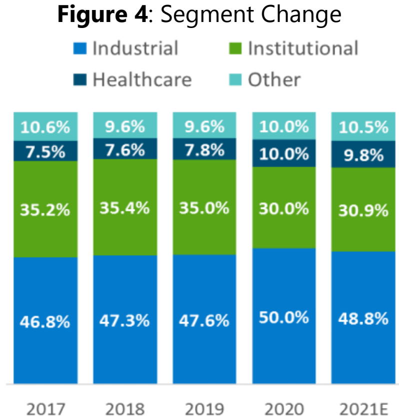
Source: ECL Company Information

Figure 3: TTM Revenue by Segment



Source: ECL Company Information

Figure 4: Segment Change



Source: ECL Company Information

Figure 5: Brands and Businesses

Lobster Ink

NALCO Water An Ecolab Company

bioquell An Ecolab Solution

KAY PROTECT Food Safety. Savings. Simplified.

LABORATOIRES ANIOS An Ecolab Company

Purolite

Source: ecolab.com

Environmental, Social, and Governance

Environmental

Ecolab has set a precedence in building a more sustainable planet. Over the past decade it has taken significant strides in ESG integration, addressing issues like water scarcity, energy emissions, and waste. In Ecolab's 2020 sustainability report, it estimated total customer savings of 260 billion gallons of water, 3.5 million tons of GHG emissions, and 77 million pounds of waste. The company recognizes these savings as "clean revenue," which accounted for 64% of revenues in FY2020. In fact, Ecolab was one of 118 companies in the world to receive a prestigous A rating in water security from CDP, while also receiving an A- for climate change *(Figure 6)*. Ecolab measures its customer environmental savings with eROI, a metric that encompasses the environmental impact savings brought to customers. In FY2020, eROI projects saved its customers a total of $877B. In Ecolab's chemical business, it deals with over 10,000 chemicals, some labeled as "Substances of Very High Concern." It has taken steps to eliminating hazardous chemicals with more eco-friendly options. By building out its environmental offerings, Ecolab has become a leader in sustainable awarenesss. We believe that Ecolab will continue to benefit from secular trends with its fusion of its ensuing chemical business and environmental platform.

Social

Ecolab takes tremendous pride in its commitment to the well-being of communities inside and outside of the company. Frequently recognized for its inclusion, integrity, and ethical nature, Ecolab demonstrates its continuous commitment towards resolutions of social issues. Publicly acknowledged repeatedly, the company has received awards in these categories *(Figure 6)*. As a part of the FY2030 impact goals, Ecolab looks to achieve an increase of representation in Management by 50%, with gender diversity increasing to 35% and ethnic diversity increasing to 25%. In FY2018 and FY2020, Ecolab reported studies of its pay equality, validating that individuals doing the same work will receive equal pay. One of the ways Ecolab has supported its community engagement is through the Ecolab foundation, which has donated over $131M dollars since its 1986 inception. In response to COVID-19, the company provided over $23M in contributions to community. Ecolab has also remained focused on the safety of its workers, reporting in its most recent employee engagement survey that 85% of employees are "highly engaged" on safety within the company. This translates into the Total Recordable Injury Rate (TRIR) of 0.79 per 100 workers. Ecolab also provides its customers with the tools to institute proper training and handling of its chemicals to lower injury risk.

Figure 6 – Recent Awards

Source: Company Information

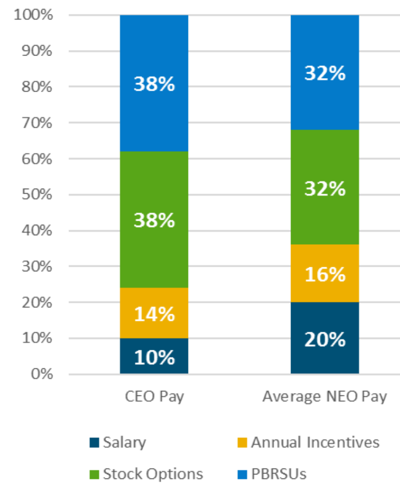
Governance

Christophe Beck, President and CEO: On January 1st, 2021, Mr. Christophe Beck, the company's former COO, was promoted to CEO following the retirement of longtime CEO Mr. Douglas Baker. Mr. Beck has been with Ecolab for over 14 years, working in positions across all fronts of the business. He has held senior positions inside the Global Industrial (GI) and Global Institutional & Specialty (GIS) segments, as well as leading Nalco Water throughout his tenure. Prior to Ecolab, Mr. Beck was a senior executive at Nestle for 16 years. Mr. Beck's academic background consists of a Bachelor's degree in Leader and Global Policy, and a Master's in Mechanical Engineering and Aerodynamics *(Appendix B)*. Mr. Beck's compensation package is geared towards long-term performance with 76% of the total coming from stock options and performance-based restricted stock units (PBRSU's). With salary attributing only 10% of his total compensation package, we believe his compensation is strongly aligned with long-term shareholder value. Mr. Beck's experience should prove to be a smooth transition for the company with the help of Executive Chairman of the board, Mr. Douglas Baker.

Scott Kirkland, CFO: On January 1st, 2022, Ecolab named its new CFO following the retirement of Mr. Dan Schmechel. Mr. Kirkland has been with Ecolab since 2005, working in a variety of financial leadership positions across Global Institutional & Specialty (GIS), Corporate Planning & Analysis, Global Energy Services, and Asia Pacific and Latin America regions. Mr. Kirkland also previously worked at PricewaterhouseCoopers for about 8 years, acting in different financial management positions. We believe with Mr. Kirkland's financial experience within Ecolab, this change should also be seamless.

Compensation: Executive compensation is determined by the Board of Directors' Compensation Committee, and is split up into four segments: (1) Base Salary, (2) Annual Cash Incentives, (3) Stock Options, and (4) Performance-Based Restricted Stock Units (PBRSU). Ecolab has been able to maintain key personnel over the years because of its pay-for-performance and long-term outlook. Short-term incentives are split between Salary and Annual incentives. Annual incentives were awarded based on adjusted EPS, and during 2020 the Compensation Committee approved a 3% raise in base salaries but cancelled this implementation due to COVID-19. Long-term incentives are split between Stock Options and Performance-Based Restricted Stock Units (PBRSU) *(Figure 7)*. We believe the pay-for-performance incentives awarded to Management align with shareholder value by forcing Management to focus on the long-term growth of the company.

Figure 7: Compensation Breakdown



Source: ECL Proxy Statement FY2020

Board of Directors: The Board of Directors is comprised of thirteen highly experienced and knowledgeable members, with an average tenure of over 8 years. Members makeup the five different committees: (1) Audit, (2) Compensation, (3) Governance, (4) Finance, and (5) Safety, Health, & Environment (SHE). ECL has remained dedicated to its sustainability and social initiatives with its SHE Committee, which is not required in the United States. Insiders within the board include CEO Christophe Beck and Michael Larson, Chief Investment Officer of William Gates III private investment firm, Cascade Investments. Mr. Gates III has backed Ecolab as an investor for over 10 years, controlling 12% of total shares outstanding. This separation of duties between CEO and Executive Chairman reduces overall governmental risk. Representation within the board is set with five women (38.5%) and two minority directors (15%), a minority ratio which we believe can be further improved *(Figure 8)*.

Figure 8: Board Structure

Source: ECL Proxy Statement FY2020

Figure 9: Major Shareholders

Beneficial Owners	Shares held	% of Ecolab
William Gates III	35,051,980	12.25%
The Vanguard Group	21,499,195	7.52%
Blackrock	17,842,047	6.20%

Source: FactSet

Industry Overview

The Specialty Chemicals industry is a globally connected landscape that serves a multitude of end markets in a highly fragmented environment. Products created by companies within this industry are uniquely constructed for individual solutions, allowing acquiring firms distinct advantages. The largest segments in the industry are made up of Flavors & Fragrances, Industrial & Institutional Cleaners, Surfactants, Electronic Chemicals, and Polymers. Firms within the industry have the advantage of being first within the supply chain and lead economic activity. Innovation and customer needs are highly relied upon as the industry is consumer driven, with the products and services being used in our everyday lives. The Specialty Chemicals industry has generated an annual revenue CAGR of 7.9% over the past five years and is expected to generate a revenue CAGR of 8.7% over the next two years, according to the NYU Stern School of Business. Additionally, Allied Market Research predicts the Specialty

Chemicals industry to grow at an annual revenue CAGR of 5% from CY2020 through CY2027. With its unique position in the Global Industrial (GI), Global Institutional & Specialty (GIS), and Global Healthcare & Life Sciences (GHLS) industries, we believe Ecolab will maintain its strong market position due to the following industry trends.

Demand Drivers

Global Industrial (GI) – Demand for Fresh Water: Water scarcity and demand for fresh water is becoming a growing concern amongst global populations. According to the World Wildlife Fund, it is estimated that only 3% of the world's water is fresh with even smaller portions of that supply available for human consumption. Additionally, 66% of the global populous could face scarcity by 2025. Herein lies the opportunity for companies like Ecolab. If water scarcity trends continue as projected, Water Treatment and Water Recycling services will be in even higher demand as governments and corporations work towards greater sustainability initiatives *(Figure 10)*.

Global Institutional & Specialty (GIS) – Economic Growth: After more than two years of economic challenges and uncertainty, it appears the COVID-19 pandemic is improving, setting up global GDP for robust growth in CY2022 *(Figure 11)*. Pent up consumer demand is expected to stay elevated for some time as consumers return to normalized consumption patterns like travel and leisure *(Figure 12)*. We believe this will help drive returns for institutional industries as consumers resume activities within travel, hotels, restaurants, retail, hospitals, and more. According to IBIS World, per capita disposable income and consumer spending are likely to grow at annualized rates of 2.5% through CY2026, while U.S. residents are expected to increase domestic travel by 9.6% annually and 18.9% internationally. We believe these trends have the potential to significantly push demand for chemical solutions globally as institutions will need to meet growing consumer demands.

Global Healthcare & Life Sciences (GHLS) – Increasing Demographics: According to Centers for Medicare & Medicaid Services, national health spending in the United States is projected to grow at an annualized rate of 5.4% and reach a value of $6.2T by CY2028, compared to current estimated annual spending of $4.2T. Medicare spending is projected to increase at an average rate of 5.7% by CY2023, and according to the White House-President's Budget, Medicare spending is forecasted to increase at an annualized rate of 4.4% through CY2025. Currently, a fifth of all healthcare spending in the United States is generated through Medicare, and we believe these tailwinds will be strong drivers to the industry, causing future spending rates to rapidly increase. We believe a key catalyst for future demand will be the aging population and life expectancy of older generations, which will require more medical attention *(Figure 13)*. Increasing demand should keep funding high as more consumers use healthcare products and services pushing for industry leaders to provide the chemical solutions to compliment operations.

Industry Overview

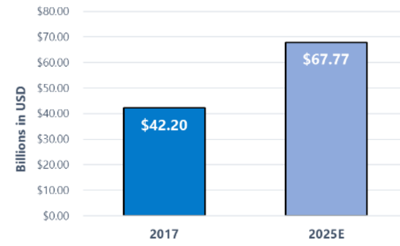
We opted to compare Ecolab to a pool of global competitors we felt offered comparative products and services within the primary business segments the company currently serves. All of the competitors we selected compete within different global industries, so we chose to value each competitor respective to its industry. We believe Ecolab possesses the widest economic moat anchored by its proven business strategy, leading technology, strong brand reputation, and exceptional customer service. These advantages not only position Ecolab as the leader in these segments today but for years to come.

Veolia Environment SA (VIE-FR)

Headquartered in Paris, France, Veolia is a world leader in Water Management and Water Services operations with a Market Cap of $26B. Veolia operates in 55 countries through three business segments: (1) Water Management, (2) Waste Management and (3) Energy Services. Veolia competes most notably in the Global Industrial (GI) industry, Ecolab's largest business segment. Serving the U.S. for more than 30 years, U.S. revenues account for 8% of the firm's total revenues as of FY2020. Veolia offers environmental solutions designed to meet the challenges and needs of the Hospitality, Energy, Manufacturing, Food & Beverage, and Healthcare marketplaces.

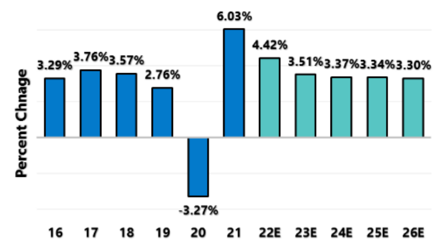
Analysis: In our analysis of Veolia, we found that the company generated €13.6B for 1H2021, equivalent to ~$16.2B and has generated a 5-year average revenue growth rate of 3%. Net Margins were in line with its industry at 2% over those five years, while Operating Margins and ROE lag the industry's 5-year average at 5% and 7% respectively *(Appendix E2)*. The company's Water and Waste segments accounted for 77% of revenues during the 1H2021. As a leader in Industrial Service within Europe, Veolia is expected to control a greater market share after the closing of its merger with longtime French rival, Suez, in the 1H2022. This merger is expected to generate combined revenues in excess of €36B in FY2022 and establish Veolia as a dominant leader within the European marketplace. We believe Veolia presents the greatest competitive threat to Ecolab's European presence but lacks much of a threat in the North American marketplace at this time. In our analysis, we discovered the company's Water segment decreased by ~2% in FY2020 due to a volume decrease in the U.S. market. Synergies from the merger are expected to attribute to short-term positive earnings outlook for Veolia. In a long-term outlook we see Veolia's ESG strategy more focused on Waste and Energy services rather than Water. With the recent reduction in the Water segment, compared to the increases in Waste and Energy, we believe there is an opportunity for Ecolab to capitalize within this market *(Appendix E3)*. Currently, Veolia is valued at 8.7x EV/EBITDA, lower than the industry's current 10.1x, however this is quite common as the company usually trades at a discount with a 5-year average of 6.8x compared to an industry average of 8.9x *(Appendix E1)*. Thus, we believe the value that Suez will bring is accurately reflected within the company's current share price.

Figure 10: Global Water Treatment Chemicals Market Value



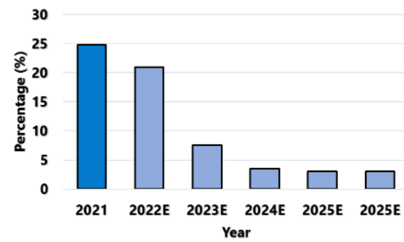
Source: America News Hour

Figure 11: World GDP Growth Compared to Previous Year



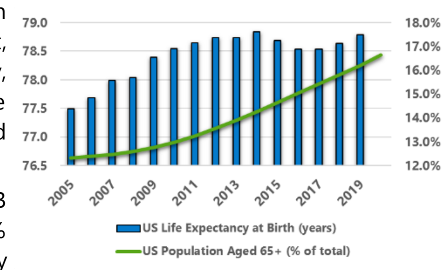
Source: Statista

Figure 12: Accommodation and Food Services Industry Outlook



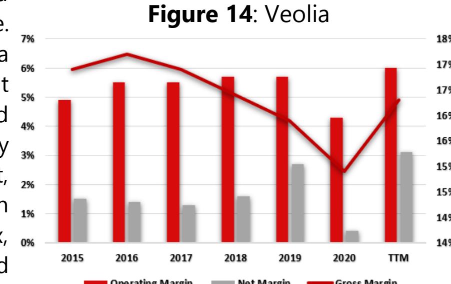
Source: IBISWorld

Figure 13: US Demographics



Source: World Bank

Figure 14: Veolia



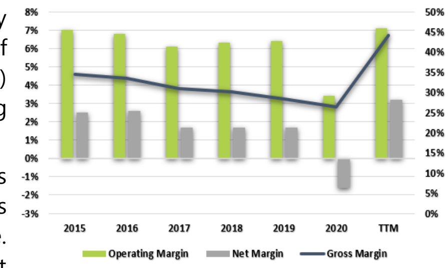
Source: Company Information

Suez SA (SEV-FR)

Suez is an industry leader in Water Treatment and Waste Management that provides services internationally through its three operating business segments: (1) Recycling & Recovery, (2) Water, and (3) Water Technology Solutions. Headquartered in Paris, France, Suez is slightly over half the size of Veolia carrying a Market-Cap of $14.4B with higher revenue exposure to the U.S. at 12% as of FY2020. Suez competes in the Global Industrial (GI) segment directly serving the Food & Beverage, Chemical & Pharmaceutical, and Oil & Gas industries offering environmental products and solutions.

Analysis: In our analysis, we discovered Suez has generated a 5-year average revenue growth of 3% and has performed slightly worse than Veolia over the past few years as profitability was stagnant *(Figure 15)*. With its expected merger of Veolia in 1H2022, Suez will need to spin off some assets to establish new operations in France. Suez will bring its operations in the U.S. with subsidiary company GE Water to the merger, as well as Suez's asset performance Management service which will benefit Veolia's water capabilities. As a result, we believe Suez will be less of a threat to Ecolab's European market as the company shifts its focus to France and its municipalities.

Figure 15: Suez



Source: Company Information

Diversey Holdings, Ltf. (DSEY-US)

Diversey offers products and services to the Global Institutional & Specialty (GIS) marketplace serving customers through its Hygiene and Cleaning Solutions. Diversey currently carries a Market-Cap of $4.4B and is headquartered in Fort Mill, South Carolina. We believe Diversey competes directly against Ecolab through the company's Global Institutional & Specialty (GIS) segment providing value-added Cleaning Products and Services to the Hospitality, Healthcare, Food & Beverage, Retail, and Grocery Industries.

Analysis: Founded in 1923, Diversey serves as one of the largest players within the Industrial Cleaning market and will be celebrating its 99th year of business in 2022. Since its founding, Diversey has had multiple owners and has been sold off several times due to the fragmented nature of the industry. Since 2017, Diversey has had a difficult time growing its revenues, generating $2.6B annually for the past four fiscal years. Over the past five years, revenue growth for the company has declined at an average of (-1%) per year compared to an industry average of 4% *(Appendix E2)*. Due to the limited size and reach of Diversey, we do not believe the company poses a serious risk to Ecolab in the near future.

Figure 16: Diversey

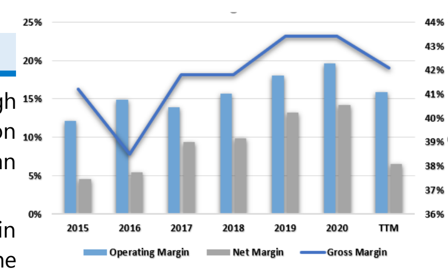
Source: Company Information

STERIS PLC (STE-US)

Headquartered in Dublin, Ireland, STERIS provides procedural Healthcare Products & Cleaning Services through Sterile & Hygiene Solutions operating within three business segments: (1) Healthcare, (2) Applied Sterilization Technologies and (3) Life Sciences. The company currently carries Market-Cap of $23.7B, operates in more than 100 countries, and competes directly against Ecolab in the Global Healthcare & Life Sciences (GHLS) segment.

Analysis: Steris is a leader in sterilization solutions with potential for future growth prospects to continue in double digit ranges driven by its Applied Sterilization Technologies. Steris has had steady revenue growth over the past five years with a 9% average, but lags the industry in its profitability metrics *(Appendix E2)*. We believe Ecolab's recent acquisition of Purolite will allow the company to improve its service offerings in the Pharmaceutical industry, thus gaining market share from Steris. From a valuation perspective, we strong feel Steris is overvalued since it is currently trading at 28.8x on an EV/EBITDA basis compared to the industry at 25.3x and the company's 5-year average EV/EBITDA multiple of 19.2x *(Appendix E1)*.

Figure 17: STERIS



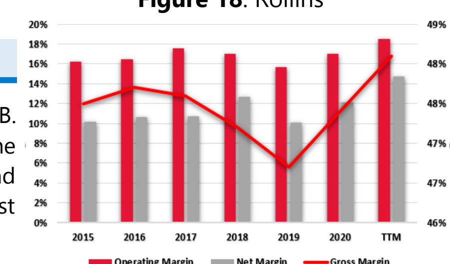
Source: Company Information

Rollins, Inc (ROL-US)

Rollins offers pest solutions globally through its subsidiaries, most notably Orkin LLC with a Market Cap of $16.6B. Rollins focuses on the control and extermination of pests, insects, rodents, and termites. Rollins serves to meet the needs of both residential and commercial customers, compared to ECL whose strict focus is on institutional and commercial customers. Headquartered in Atlanta, Georgia, Rollins operates within 71 countries but has the vast majority of its revenue generated from the United States.

Analysis: As a smaller piece of Ecolab's revenue, historically averaging 6%, Rollins stands as Ecolab's biggest competitor in this segment. However, over the past year Ecolab has seen a substantial uptick in revenue from their pest operations driven by all-time new business generation. While Rollins has more exposure of revenues to residential than commercial, we still see them as a keynote competitor that could lose market share if Ecolab can continue to capitalize on its "Circle-the-Customer" strategy. Over the past five years, Rollins has outperformed its industry within every profitability metric *(Appendix E2)*. With an EV/EBITDA multiple of 31.2x, just slightly below its 5-year average, and below its current industry average of 37.1x *(Appendix E1)*. We believe Rollins is trading at a discount and will have to capitalize on its acquisitions and customer service to continue its growth.

Figure 18: Rollins

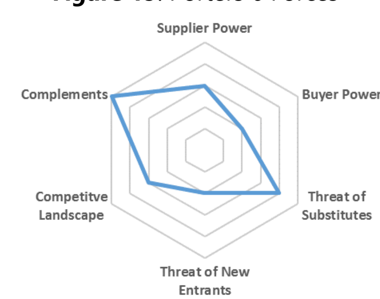


Source: Company Information

Investment Summary

We believe Ecolab is in a unique position to capture greater market share in a world where sustainable solutions are becoming more prevalent. Strategic partnerships, quality of service, and clear-cut pricing power lead us to believe the company is poised for continuous organic growth and consistent sources of revenue going forward. With its optimized portfolio of products and services aimed at assisting a wide range of customer needs, we believe Ecolab is positioned well for the future. We are confident in the company's ability to expand profitability through its efficient use of capital and believe this will present a great opportunity for the company and shareholders well into the future.

Figure 19: Porters 6 Forces



Source: Company Information

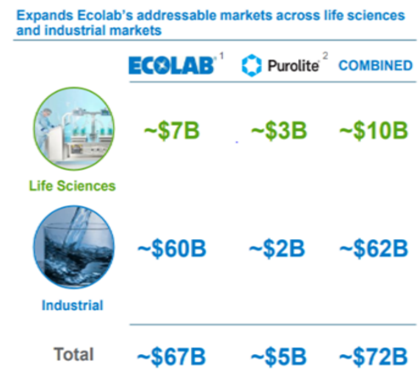
Superior Business Strategy | "Circle-the-Customer, Circle-the-Globe"

Razor-and-Blade: Ecolab's "razor-and-blade" business model has historically served as a fundamental component of the company's core business strategy, and we believe it will continue to be an essential growth driver for the company in the future. Ecolab rents cleaning equipment to restaurants, hotels, and long-term care facilities and then sells proprietary cleaning solutions to these customers to be used in the equipment. Over 90% of Ecolab's annual revenue is recurring, leading to very stable and predictable cash flows, averaging 2% annual growth year-over-year (y/y) since 2012. When Ecolab reaches a new customer, it allows for the company to cross-sell products and services to a larger addressable market. At the time of the acquisition Ecolab only shared one third of Purolite's customer list. As an example, Ecolab offers cleaning services and water treatment to the Global Healthcare & Life Sciences (GHLS) and Global Industrial (GI) customers, while Purolite has the potential to complement the company's portfolio by providing purification services *(Figure 21)*. We believe the more products and services used at customer locations, the stronger the switching cost advantage for the company will become. Ecolab's solutions help its customers save money on chemical, water, and energy use over time. We believe this justifies Ecolab's pricing which is generally 20% to 30% higher than its competitors.

Figure 20: Investment Thesis

Source: Team Estimates

Figure 21: Purolite Acquisition



Source: ECL Company Information

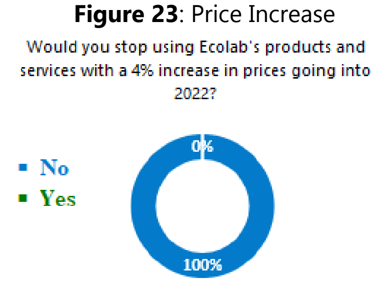
Pricing Power: Ecolab has demonstrated a remarkable ability to charge a premium on its services due to the value these products and services generate for its customers. The company has the ability to raises its prices by reducing the customer's use of natural resources, offering on site services, improving customer productivity, and its continued innovation of digital solutions. Major competitors lack a similar pricing power ability compared with Ecolab, making the company a leader in the industries it operates in. Over the last 10 years, Ecolab has raised its prices at least 1% y/y and 2.3% on average within the past three years *(Appendix F)*. For FY2022, the company has indicated its plans to raise prices by 4% given the current macroeconomic environment. We believe this demonstrates the strength of the company's pricing power as Ecolab continues to raise prices even in times of economic distress (*Figure 22)*. This has had little or no effect on the company's continued market share, indicating its ability to raise prices when needed. Therefore, we believe further price hikes in FY2022 will benefit margins in the future and we have factored this into our assumptions going forward. We expect these price increases will stay elevated, adding substantial value to the company's bottom-line.

Figure 22: Ecolab Net Sales

Source: ECL Company Information

Customer Relationships: Ecolab is a global leader in Infection Prevention Solutions and expertise with the industry's largest sales and services force of 25,000 strong. It has accelerated its work with customers providing sustainable solutions and hygiene protocols to ensure customers can run a clean, safe, and healthy business throughout the world. Through a limited sample of our local Institutional market, we verified the satisfaction level of some of its customers in terms of pricing and brand reputation *(Figure 23)*. Customer relationships are built on two cornerstones: (1) Customer-Centric Innovation and (2) Personalized On-site Services. In the current economic environment affected by COVID-19 and supply chain disruptions, not one of Ecolab's customer were shut down or seriously affected because of a shortage of supplies or services from Ecolab. The company serves over 3 million customer locations and does not have a single customer that represents more than 10% of its overall revenues, making Ecolab relatively immune from the impact of a concentrated customer base *(Figure 24)*.

Figure 23: Price Increase



Source: Proprietary Research

Figure 24: Customer Relationships

Source: Company Information

Seizing Sustainable Opportunities | "Embracing Macro Trends"

Water Scarcity: By 2030, there is expected to be a 56% gap between clean water supply and demand, according to World Resources Institute. Ecolab has taken steps to address this problem with innovative products like 3DTRASAR and Jetted Agarose Resin technologies. With the gap between clean water supply and demand, an enormous opportunity is presented for Ecolab to advent potential economic decline in challenged areas of the world while also expanding its Global Industrial (GI) segment. Specifically, the Total Addressable Market (TAM) for the Heavy Water Business of the Industrial segment is estimated to be a $20B annual revenue market. As of 3Q2021, Ecolab's share of this market was estimated to be less than 20%, leaving vast potential for this segment of its business. Ecolab has intentionally invested in this segment of its business, evident by the company's recent acquisitions of Nalco Water and Purolite. We believe the addition of these two businesses compliment Ecolab's existing product portfolio and enable the company to further grow in areas not formerly possible. In 3Q2021, Global Industrial (GI) revenue grew 7% y/y, in large part due to Water Sales, increasing 8%. Due to the increasing demand in this area, coupled with the company's clear commitment to find ways to capitalize on this opportunity, we believe Water Sales will be a large driver of growth for the company in the future.

Purolite: Ecolab's recent acquisition of Purolite brings in a global leader of separation and purification with its proprietary Jetted Agarose Resin technology. This technology uses programmable beads to attract unwanted particles in liquids. We believe Ecolab will combine this with its current water capabilities to bring ultrapure water services to its Global Industrial (GI) and Global Healthcare & Life Sciences (GHLS) segments. This will enhance the company's current water capabilities and help Ecolab reach one of its 2030 impact goals by conserving 300B gallons of water per year for its customers. Of all the industries that Purolite serves, we believe Biopharma presents the largest and fastest growing opportunity with attractive gross margins an excess of 60% *(Figure 25)*. Since 2017, the Life Sciences portion of Purolite has grown at a 40% revenue CAGR and we expect it will maintain this expansive growth.

Outlook: We believe the integration of acquisitions combined with a structure built to focus on the needs of the future will create long-lasting growth within the company. Growing needs in water, health, food, and climate continue to expand the TAM for Ecolab. Through divestitures and restructuring, namely ChampionX in FY2020, the company has become more efficient and productive while continuing to complement its existing product portfolio based on consumer needs. Overall, the recent acquisitions by Ecolab will assist in meeting global climate initiatives while seizing additional market share in a rapidly changing environment.

Increased Profitability & Capital Efficiency | "Disciplined Deployment of Resources"

Capital Efficiency: Fundamentally, Ecolab has shown an ability to not only generate cash but deploy it efficiently and effectively. Management has always stressed the importance of returning value to shareholders, while also using cash to fund its acquisitions strategy. Throughout the company's history, it has actively repurchased shares, with $5.5B repurchased since FY2008 *(Figure 26)*. Ecolab authorized a 20 million share repurchase program in FY2015, which currently has 6 million shares remaining with no set deadline. In addition to share repurchases, the company has proven its ability to provide consistent dividends to reward shareholders, continuing to increase its dividend for the past 30 years *(Figure 27)*. Furthermore, Ecolab has been very effective in using bolt-on acquisitions to expand upon its current portfolio, signaling the company is not afraid to evaluate inorganic growth opportunities. This strategy illustrates Ecolab's ability to institute capital in value driving ways and is also one of the factors in the increasing profitability of the company.

Profitability: Through innovation and well-run operations, Ecolab has continued to find new ways to drive growth over time. As the company progresses, profit margins continue to grow across the board. One factor in these consistently improving margins is a reduction in SG&A expense. SG&A as a percentage of revenue has declined from 32% in FY2015 to 25% in 3Q2021 *(Figure 28)*. Ecolab is constantly looking to institute and leverage technologies such as 3D TRASAR, Ecolab3D Cloud/AI, and remote monitoring technologies. Despite the fact that some technologies have been around for some time, Ecolab continues to expand its capabilities and further apply these technologies to all operational aspects of its company. Another instrumental factor driving profitability is the ability to attract, retain and develop high-level talent which has allowed the company to reach new heights.

Our Expectations: With the immense possibilities for organic and inorganic growth, we strongly expect improved financial performance into the future. Following a sharp decline in Global Institutional & Specialty (GIS) revenue in FY2020, we anticipate a significant rebound with the return of many industries requiring Ecolab's services. The return of these institutional clients should directly contribute to Ecolab's expanding profitability. While its Global Institutional & Specialty (GIS) segment was declining, Ecolab was not complacent and opted to take advantage of opportunities that were presented by advancing its Global Healthcare & Life Sciences (GHLS) segment through a large acquisition to lay the foundation for new growth. By capitalizing on new technologies, in addition to applying cash efficiently, we anticipate Ecolab will continue to improve profitability and create value for shareholders.

Financial Analysis

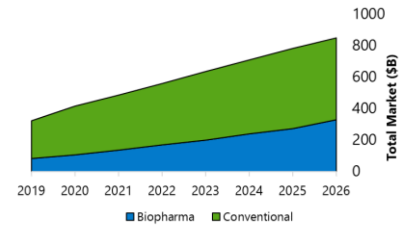
Revenue, Growth, & Profitability

Through 3Q2021, Ecolab generated $12.4B in revenue, a 4.1% increase from 3Q2020 on a TTM basis. The company displayed a strong rebound from the negative effects of the COVID-19 pandemic, generating revenue through product, service, equipment, and lease sales. With a 10-year revenue CAGR of 8.4%, continuous growth has been driven by a combination of price and volume increases *(Appendix F)*. We expect this strong top-line revenue growth to continue at 8.5% for FY2021 followed by an average of 7.4% for the next three years *(Figure 29)*. The largest factor is the Global Healthcare & Life Sciences (GHLS) segment which we believe presents the most attractive long-term potential with growth of 12% during that time. Revenue performance in this segment ballooned by 25% in FY2020 with heightened demand during the pandemic. In meeting this demand an elevated revenue level has been instituted, and with the addition of Purolite we are confident in our assumption. Global Institutional & Specialty (GIS) segment growth has lagged recently with a revenue decline of (-18%) in FY2020 due to reduced client operations and business closures. We anticipate a healthy rebound in-line with COVID-19 mandate reduction, as evident by 3Q2021 revenue growth of 18% y/y, translating to 9% growth in FY2022. Global Industrial (GI) and Other have an expected 5-year CAGR of 3.4% and 0.1%, respectively, through FY2021 with moderate future growth relative to the Global Healthcare & Life Sciences (GHLS) and Global Institutional & Specialty (GIS) segments.

Institutional: Since inception, Ecolab has primarily focused on organic opportunities to drive segment growth. We believe one such scenario exists in the near-term as Institutional clients resume business after the shutdowns from COVID-19. We believe "warewashing" products, used largely by Global Institutional & Specialty (GIS) businesses, present a significant opportunity for the company. These products are the largest class in terms of revenue percentage and accounted for 11% of total revenue in FY2020, down from 13% in FY2018 and FY2019. Clients are likely to increase usage of a variety of products after the COVID-19 pandemic. Notably, when discussing product usage with several of these clients, many noted the recent increased volume of business which directly correlates to a greater need for the products and services that Ecolab provides.

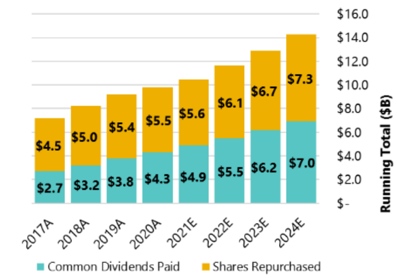
Operational Efficiency: Ecolab has displayed a strong ability to expand profit margins over time. In terms of Net Margin, the 5-year average is 7.3%, although this average is distorted by a 2020 margin of (-9.7%). Through 3Q2021, Net Margin has rebounded to 8.6% on the year, reflecting Ecolab's historical stability as this margin never fell below 11% from 2017-2019 and has remained above 6% on a 10-year basis preceding 2020. Ecolab's bottom-line continues to grow at a 5-year CAGR of 3.5%. These expanding margins have driven further profitability within the organization and will allow for continued reinvestments to support the innovational direction of operations. While inflationary pressure has caused raw material cost increases in the short run, ECL has the pricing power to ensure that these cost increases do not affect the bottom-line. The company expects to increase prices on average

Figure 25: Global Pharmaceutical Manufacturing Market



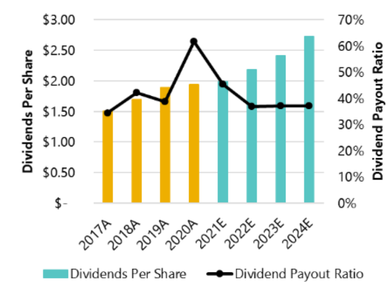
Source: Grand View Research

Figure 26: Dividend and Repurchase Chart



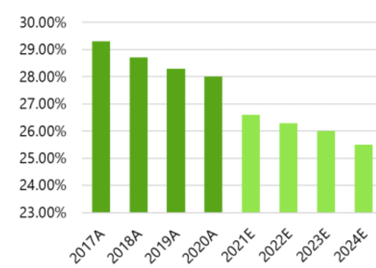
Source: Company Information

Figure 27: Dividends



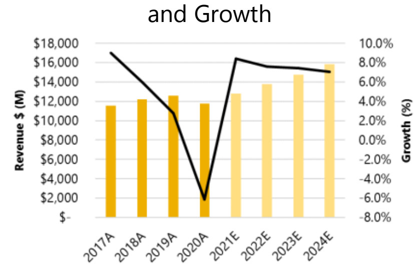
Source: Company Information

Figure 28: SG&A as Percent of Sales



Source: ECL Company Information and Team Estimates

Figure 29: Revenue Forecast and Growth



Source: ECL Company Information and Team Estimates by 4% in FY2022, and in the long run stands to benefit even as inflation normalizes. Our expectation is that this will benefit margins due to the value it brings to customers with a large range of product and service offerings.

Return Analysis

To fully evaluate Ecolab's returns and the factors that contribute, we conducted a 3-factor DuPont analysis to give additional context around the company's Return on Assets (ROA) and Return on Equity (ROE). ROA and ROE both took large downswings in FY2020. The anomaly in performance is attributed to the negative Net Margin as Ecolab struggled to return a profit during the pandemic. Prior to FY2020, Net Margin, ROA, and ROE all had positive momentum following a slight regression in FY2018. This positive momentum has resumed with 3Q2021 TTM ROA of 6.6% and ROE of 18.3%. We expect both ROA and ROE to continue growing with a CAGR of 12% and 8%, repsectively, for the next 3 years *(Figure 31)*. Even though many customers reduced product usage in FY2020, the company remained efficient with its assets and refrained from taking on excess inventory. This is clear as Asset Turnover has continued improving with a CAGR of 2.9% since FY2017. ECL's Equity Multiplier had been decreasing prior to FY2020 as the company looked to deleverage operations. The downward pressure on Ecolabs Equity Multiplier has picked up with a 2.6x multiple through 3Q2021, while we expect it to finish at 2.8x for FY2021 following the Purolite acquisition. The company has been open about its plans to rapidly deleverage following the acquisition by paying off large amounts of debt. The use of leverage, as evident by the disparity in ROA and ROE, is consistent with the company's strategy of using financing activities to sponsor growth by acquistion.

Dupont Analysis

	2017	2018	2019	2020	2021E	2022E	2023E	2024E	Trend
Net Margin	12.5%	11.0%	12.5%	-9.7%	11.1%	12.2%	12.8%	13.2%	
Asset Turnover	0.58x	0.61x	0.60x	0.66x	0.63x	0.70x	0.72x	0.73x	
Equity Multiplier	2.6	2.5	2.4	2.9	2.8	2.5	2.4	2.2	
ROA	7.2%	6.7%	7.6%	-7.0%	7.1%	8.6%	9.2%	9.6%	
ROE	18.8%	16.8%	18.1%	-20.3%	19.8%	21.5%	21.7%	21.4%	
Solvency									
Debt/Equity	95.7%	87.5%	72.8%	107.8%	110.8%	82.4%	73.8%	66.2%	
Debt/EBITDA	3.05	2.86	2.42	3.03	2.85	1.99	1.77	1.59	
Liquidity									
Current Ratio	1.32x	1.27x	1.21x	1.58x	2.00x	1.77x	2.06x	2.38x	
Cash Ratio	0.06x	0.02x	0.03x	0.39x	0.72x	0.41x	0.68x	0.97x	

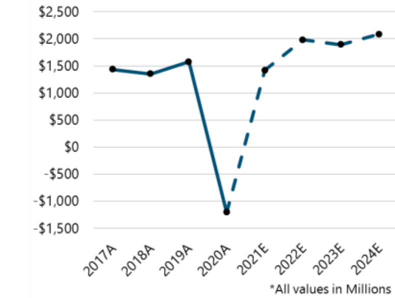
Cash Generation and Utilization

Over time, Ecolab has found ways to generate Free Cash Flow (FCF) as it continues to expand y/y with a 10-year CAGR of 17.8%. We expect FCF growth to continue going forward and estimate the company will generate $1.8B in FY2022, a 28% increase from $1.4B in FY2021. In the years following, we project FCF will continue to grow in-line with historical rates closer to 10% to 17% per year *(Figure 32)*. As mentioned above, Ecolab looks to deploy its residual cash in a variety of value driving ways. CapEx as a percentage of revenue has averaged 5.8% since FY2017 with investments being used to build organic growth. For the TTM from 3Q2021, CapEx is 4.4% of revenue, a 26% decrease from FY2019 as Ecolab looks to manage costs in response to the COVID-19 pandemic. Long-term we forecast this to increase and stabilize at an average of 5% through FY2024 as the company resumes spending practices seen before the pandemic. The company's use of its CapEx reinforces its commitment to future innovation, which we believe will support continued FCF growth in the future.

Capital Structure

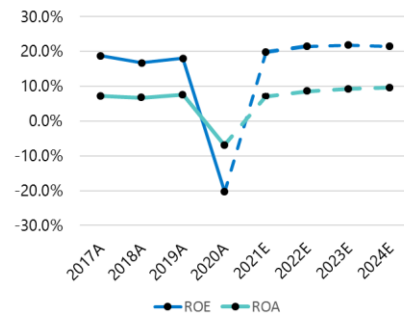
When looking at the solvency of Ecolab, the company has a 3-year average Debt-to-Equity ratio of 89%. Over the last 10 years, this ratio remained below 100%, but rose to 108% in FY2020. This increase in the ratio is largely attributed to a significant decline in equity as the stock price was significantly impacted by negative market sentiment from the COVID-19 pandemic. Between FY2017 and FY2019, the company's Debt-to-Equity ratio declined from 96% to 73% as the company paid down its outstanding debt from $7.3B to $6.4B. In the future, we expect to see a significant change in the debt composition following the acquisition of Purolite. The total value of the acquisition was $3.7B with $800M paid in cash and $2.9B being taken on in the form of long-term debt. We believe this will have a temporary impact on the company's Debt-to-Equity ratio and are confident it will return to historical averages over time based on Management commentary *(Figure 33)*. We also utilized a Debt/EBITDA ratio as another gauge of Ecolab's leverage. The 3-year average is 2.8, peaking during FY2020 at 3.0 due to EBITDA decline. We expect this to remain elevated through 2021 following the recent acquisition, although upon the execution of Ecolab's deleveraging plans we expect a swift decline with the ratio ranging from 1.5 to 2.0 for the next three years. In analyzing the liquidity of Ecolab, we discovered the company had a very solid liquidity position, generating a current ratio of 1.36x on a 3-year average. The company's financial health is clearly a priority for Management as it has continued to keep sufficient capital on hand to meet its short-term financial obligations. We expect to see the company's current ratio rise as it executes further deleveraging and strengthens its cash position following the Purolite acquisition *(Figure 34)*. In terms of the company's cash ratio, Ecolab had a cash liquidity below 0.15x from FY2015 to FY2020. In FY2020, the company's cash ratio experienced a large increase due its debt issuance activity during the year. The elevation in its cash ratio has remained ~0.37x through 3Q2021.

Figure 30: Net Margin



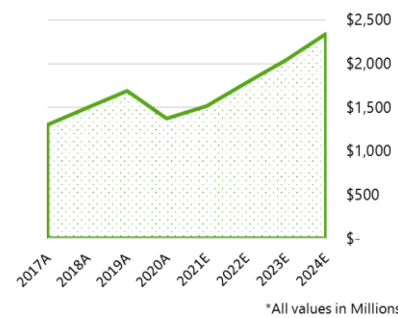
Source: ECL Company Information and Team Estimates

Figure 31: Return on Assets And Return on Equity



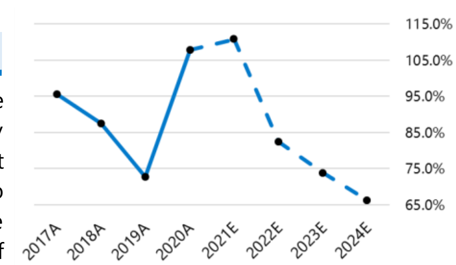
Source: ECL Company Information and Team Estimates

Figure 32: Free Cash Flow Growth



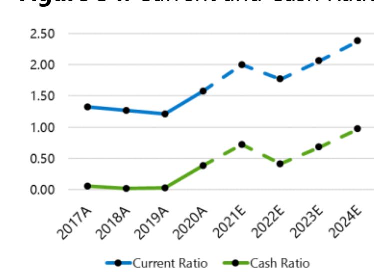
Source: ECL Company Information and Team Estimates

Figure 33: Debt-to-Equity Ratio



Source: ECL Company Information and Team Estimates

Figure 34: Current and Cash Ratio



Source: Company Information

With plans to reduce liabilities and growing cash generation, we expect to see this ratio rise barring any unexpected acquisition or other large cash expenditure. A history of strong financial positioning has enabled the company to continue acquiring attractive opportunities to drive growth without the fear of overleveraging the company's financial position.

Valuation

In valuing Ecolab, we utilized an intrinsic and multiples-based valuation approach to arrive at our 12-month price target of $245, implying (+14%) upside from the closing price on 1/19/2022. We believe our Discontinued Cash Flow valuation approach provides a more accurate representation of the company and its fundamental position and have opted to use it as our primary method *(Appendix K1)*. The primary assumptions we considered were historical performance, macroeconomic and industry outlooks, Management commentary, and Ecolab's ability to capitalize on ESG initiatives. We believe our multiples valuation further supports our primary 7–Year DCF valuation.

Segmentation and Growth

We opted to use a multi-stage and segmented revenue forecast for Ecolab. With a wide moat and diverse array of businesses, we believe further segment analysis was warranted. We anticipate 6.5% growth for Global Industrial (GI), lowering to 5% by 2028, mainly attributed to Ecolab's water operations and strong market positioning. Additionally, we anticipate 10% growth for Global Institutional & Specialty (GIS), lowering to 5% by 2028. This fits our expectations for a recovery in customers as well as further cross-selling opportunities. We anticipate the primary growth driver to be Ecolab's Global Healthcare & Life Sciences (GHLS) segment with the recent acquisition of Purolite, which we expect will pave the way for future growth with opportunities in Biopharma. Due to this, we assumed a 12% short-term revenue growth rate, lowering to 10% by 2028. Lastly, an 8% growth rate for the Other segment, which is lower but driven mainly by growth in CTG and Pest Control. We estimate overall top-line revenue growth to be 7.5% for FY2022 which decreases to 5.5% over the long-term, consistent with Management's expectations of 6% to 8% organic and 2% acquisition related growth. Our terminal growth rate of 2.5% is supported by long-term GDP forecasts and trends in sustainability and healthcare.

Segment Analysis: Ecolab, Inc.					Short -term			Mid-Term			Long-Term	
Period:	FY17A	FY18A	FY19A	FY20A	FY21E	FY22E	FY23E	FY24E	FY25E	FY26E	FY27E	FY28E
Net Sales	**11533**	**12222**	**12562**	**11790**	**12796**	**13755**	**14777**	**15818**	**16860**	**17963**	**18997**	**20066**
% y/y		6.0%	2.8%	-6.1%	8.5%	7.5%	7.4%	7.0%	6.6%	6.5%	5.8%	5.6%
Global Industrial	**5349**	**5689**	**5996**	**5960**	**6345**	**6757**	**7163**	**7592**	**8051**	**8530**	**8960**	**9408**
% y/y		6.4%	5.4%	-0.6%	6.5%	6.5%	6.0%	6.0%	6.0%	6.0%	5.0%	5.0%
% of revenue	*46%*	*47%*	*48%*	*51%*	*50%*	*49%*	*48%*	*48%*	*48%*	*47%*	*47%*	*47%*
Global Institutional and Speciality	**4023**	**4255**	**4412**	**3577**	**3936**	**4290**	**4633**	**4957**	**5257**	**5570**	**5850**	**6143**
% y/y		5.8%	3.7%	-18.9%	10.0%	9.0%	8.0%	7.0%	6.0%	5.9%	5.0%	5.0%
% of revenue	*35%*	*35%*	*35%*	*30%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*
Global Healthcare and Life Sciences	**852**	**916**	**979**	**1189**	**1249**	**1399**	**1566**	**1754**	**1947**	**2162**	**2399**	**2639**
% y/y		7.5%	6.9%	21.5%	5.0%	12.0%	12.0%	12.0%	11.0%	11.0%	11.0%	10.0%
% of revenue	*7%*	*7%*	*8%*	*10%*	*10%*	*10%*	*11%*	*11%*	*12%*	*12%*	*13%*	*13%*
Other	**1207**	**1155**	**1212**	**1093**	**1213**	**1310**	**1415**	**1514**	**1605**	**1702**	**1787**	**1877**
% y/y		-4.3%	4.9%	-9.8%	11.0%	8.0%	8.0%	7.0%	6.0%	6.0%	5.0%	5.0%
% of revenue	*10%*	*9%*	*10%*	*9%*	*9%*	*10%*	*10%*	*10%*	*10%*	*9%*	*9%*	*9%*

Cost Savings and Margin Expansion

With an expanding economic moat and new initiatives in place, we believe Ecolab is primed to capitalize on profit heavy segments of the company's businesses. The cost savings projected by Management, as well as historical improvements over the past 10 years, led us to anticipate a 35 bps improvement per year in SG&A through FY2028. Furthermore, we anticipate that COGS will improve by 50 bps throughout the next several years as consolidation of segments continues following a change in strategy after the divestiture of ChampionX. It's estimated that these changes will help to alleviate $315M in SG&A over the next five years, which we believe will further support our estimations. Historically, SG&A improved from 29.2% in FY2017 to 25.1% for 3Q2021. CapEx has reduced over the past 4 years, moving from 6.8% in 2017 to 4.1% of revenues in 2020. We opted to keep CapEx increased as internal spending returns to historical levels, rising to 6% of revenue for FY2023, but then slowly decline as time goes on to 4% in FY2028.

Discount Rate Calculation

We incorporated a discount rate of 6.35% by computing Ecolab's Weighted Average Cost of Capital (WACC) (Figure X). We utilized the standard Capital Asset Pricing Model (CAPM) to derive a Cost of Equity of 7%. We arrived at this using our assumptions for an increase on the current U.S. 10-Year Treasury bond yield, which we set at 2.5% as our risk-free rate. We also incorporated a market return of 8%, which we derived from a Dividend Discount Model assuming a 6.5% dividend growth rate on the S&P 500. To derive our Beta, we ran a regression on ECL against the S&P500 going back to 1972, which produced a Beta of 0.81. Our Cost of Debt of 1.9% was extrapolated from the weighted yield to worst on Ecolab's outstanding bonds. We then multiplied that by one minus the implied operating tax rate of 20% to get our after-tax Cost of Debt of 1.5% *(Figure 35)*. Our 20% tax rate is based on the average rate which Ecolab has paid over the past three years *(Appendix J)*. Ecolab's overall tax rate fluctuates due to tax credits and foreign tax differentials. Ecolab also receives additional tax credits for Research and Development, and other sustainability initiatives. We believe a 20% tax rate properly reflects historical as well as future tax benefits, despite a new administration.

Figure 35: WACC Calculation

Cost of Capital	
Cost of Equity	**7.0%**
Risk-Free Rate	2.50%
Market Return	8.00%
Beta	0.81
Capital Structure: Equity	89%
Cost of Debt	**1.5%**
Capital Structure: Debt	11%
Tax Rate	20.0%
Weighted Average Cost of Capital	**6.35%**

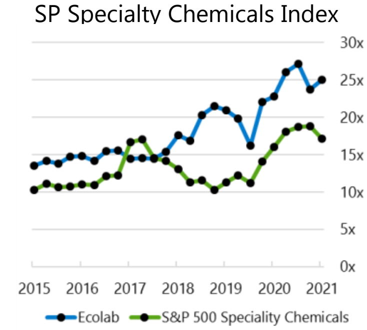
Source: Team Estimates

Figure 36: DCF Valuation

Discounted Cash Flow Valuation	
Terminal Value	**$60,685**
Total Present Value	$77,289
- Debt	$7,951
+ Cash	$2,178
- Underfunded Pension	$1,042
- Non-Controlling Interest	$28
Equity Value	$70,447
Shares Outstanding (M)	288
Implied Share Price	**$245**

Source: Company Information

Figure 37: Historical EV/EBITDA ECL vs. SP Specialty Chemicals Index



Source: FactSet

Figure 38: EV to EBITDA Sensitivity Analysis

EV/ EBITDA Sensitivity		
Multiple	**Price Target**	**Return**
24.00x	*$242.35*	*13%*
27.00x	$287.59	34%
26.00x	$276.28	29%
25.00x	$264.97	23%
24.00x	$253.66	18%
23.00x	$242.35	13%
22.00x	$231.04	8%
21.00x	$219.73	2%
20.00x	$208.43	-3%
19.00x	$197.12	-8%

Source: ECL Company Information

Multiples Valuation

Our primary relative valuation multiple we chose to value Ecolab with was the Enterprise Value-to-Earnings before Interest, Taxes, Depreciation and Amortization (EV/EBITDA). We found EV/EBITDA to be more insightful due to the amount of debt held on Ecolab's balance Sheet. We believe that Ecolab will trade at a higher premium following its most recent acquisition of Purolite, a purchase which the company paid more than 10 times sales to acquire. Additionally, we chose not to use a Price-to-Earnings valuation due to the divestiture in 2020 causing overall earnings to turn negative *(Appendix K2)*. We estimate an EV/EBITDA multiple of 23x for FY2022, with an estimated price target of $245 a share. From an EV/EBITDA standpoint, we estimate ECL trades at a premium when compared to others in the S&P 500 Specialty Chemicals Index, but has done so historically *(Figure 37)*. Thus the higher EV/EBITDA multiple in comparison to peers is warranted. According to our sensitivity analysis, we would need to see a drop to 19x EV/EBITDA to indicate a sell *(Figure 38)*.

Alternative Cases and Risks

We foresee several inherent risks in our model, particularly in our discount rate, sales growth, and SG&A expenses. By applying a sensitivity analysis to both our WACC and overall short-term sales growth, we reached a conclusion that if our FY2022 to FY2024 sales growth dropped 100 bps below our estimates each year, we would have to downgrade our recommendation from a buy to a hold *(Figure 40)*. A sensitivity analysis on our WACC showed that an increase of 20 bps would shift our rating to a hold, and a 70 bps increase would shift it to a sell rating *(Figure 39)*. A Monte Carlo simulation "shocking" our WACC in 25 bps increments showed that out of 10,000 scenarios, there was a 65% chance of a BUY rating, 32% chance of HOLD rating, and a 3% chance of a solid sell rating *(Appendix L)*. If Ecolab fails to capitalize on any cost savings or fails to meet our expected growth rates, we would expect a change in our valuation to reflect the bear case scenario *(Appendix M)*.

Risks

COVID-19 (R1) - COVID-19 has put significant pressure on the Foodservice, Hospitality, and Travel industries which has affected Ecolab's Global Institutional and Specialty (GIS) business segment. During periods of weaker economic activity, Ecolab's cleaning and sanitizing products, water treatment, and process chemicals haven't been utilized due to decreased consumer activity from COVID-19 restrictions. The virus remains uncertain and cannot be predicted posing a threat to Ecolab's business. Prolonged economic weakness could reduce consumer spending and would negatively affect demand for Ecolab's products and services. We question if Travel and Hospitality services will ever be back to its pre-pandemic popularity and are aware of how that will affect Ecolab's Global Institutional & Specialty (GIS) business. Ecolab's Health Care & Life Sciences (GHLS) segment has seen significant growth throughout COVID-19, and we predict it will continue to grow due to increased cleansing protocols.

Management Turnover (R2) – Mr. Doug Baker, former Ecolab CEO since 2007, stepped down from his role on Jan. 1st, 2021 and was replaced by Mr. Christophe Beck, former COO of Ecolab. As Ecolab looks to grow its business, Management turnover can cause potential uncertainty towards the growth, development and profitably goals of the company. Even though Christophe has been a part of the company since 2008, a new CEO can bring unpopular change, push the company in a new direction and affect employee morale. In addition, CFO Dan Schmechel has announced that he will step down at year-end. Mr. Scott Kirkland, formerly the Corporate Controller, has been promoted to the new CFO position as of Jan. 1st, 2022. We believe it is beneficial to have internal employees promoted but are aware of the potential risks it also brings.

Purolite Acquisition (R3) - Acquisitions are a part of Ecolab's strategy and are a viable option to grow its product base and market share going forward. Ecolab has acquired various companies to maintain its market share among a fragmented industry. Integration of these acquisitions could negatively impact profitability and shareholder value if not transitioned appropriately. Recently, Ecolab acquired Purolite for $3.7B bringing inherent risk to Ecolab if it does not recognize the possible revenue gains in the next few years. Ecolab paid 10x Price/Sales for Purolite, spending $3.7B for a company with revenues of $400M. This is a much higher price when compared to previous acquisitions, like Laboratories ANIOS, a transaction in which Ecolab paid closer to 4x Price/Sales.

Legal & Regulatory (R4) - Ecolab's largest Environmental, Social, and Governance (ESG) risk is related to the environmental impact of its products. The company is subject to numerous laws and regulations relating to its chemicals, labor laws, and anti-corruption laws. Chemicals are subject to heavy regulation and have the potential of being banned if products don't comply with industry standards. A violation to these laws can affect operating cash flows along with current and future customer opportunities. Changes to labor and employment laws can also have an effect on Ecolab and expose the company to potential legal risk along with financial risks. The company does not rely on one single product, so we anticipate if specific chemicals were to be banned, we see it having a minor effect on the overall business.

Strategic (R5) - Ecolab has significant non-U. S operations that exposes the company to global economic risks. Approximately 48% of its net sales are outside the United States providing risks in international operations. These risks include exchange control and currency restrictions, tariffs, trade barriers, and changes in prices of raw materials. We also acknowledge Ecolab faces the threat of numerous global, regional, and local competitors. Its ability to compete and separate the company from competitors depends on its high pricing powers, razorblade business model, and the quality of its products. The threat we see is the foreign currency risk, which can negatively impact profits *(Figure 43)*. Ecolab currently uses net investment hedges to manage the company's currency risks associated with its foreign operations.

Figure 39: Weighted Average Cost of Capital Sensitivity

WACC	Price Target	Percent Change
5.75%	$ 295	37%
5.95%	$ 276	28%
6.15%	$ 259	21%
6.35%	**$ 245**	**14%**
6.55%	$ 231	8%
6.75%	$ 218	1%
6.95%	$ 207	-4%

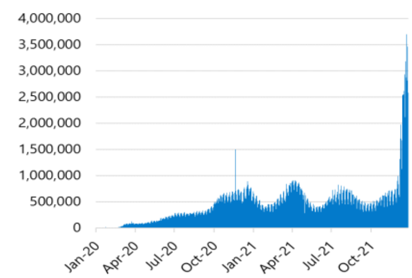
Source: Company Information

Figure 40: 2022 – 2024 Sales Growth Sensitivity

2022E- 2024E Sales Growth	Price Target	Percent Change
+300 bps	$264	23%
+200 bps	$257	20%
+100 bps	$253	18%
Base Case	**$245**	**14%**
-100 bps	$236	10%
-200 bps	$228	6%
-300 bps	$220	2%

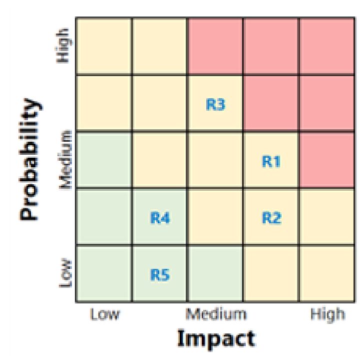
Source: Team Estimates

Figure 41: Global Daily New COVID–19 Cases



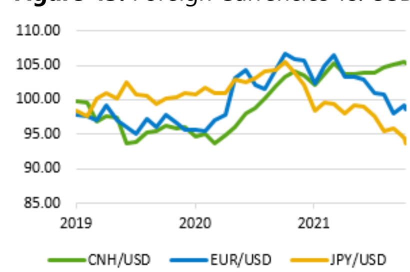
Source: Humanitarian Data Exchange

Figure 42: Risk Matrix



Source: Team Estimates

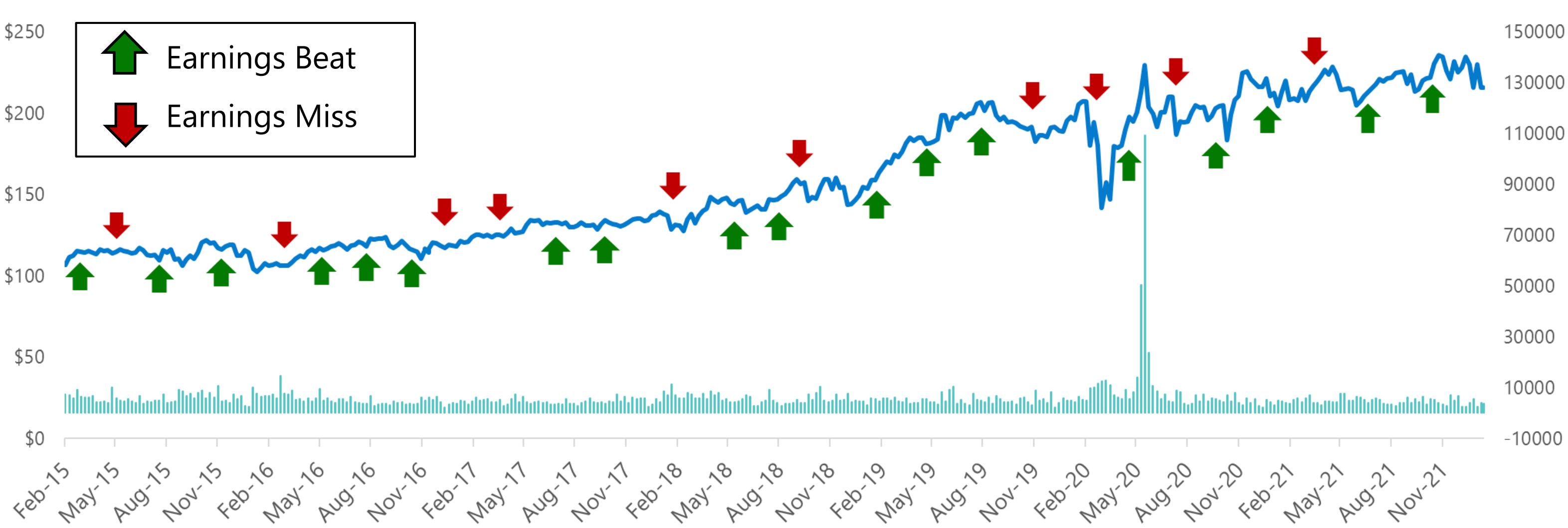
Figure 43: Foreign Currencies vs. USD



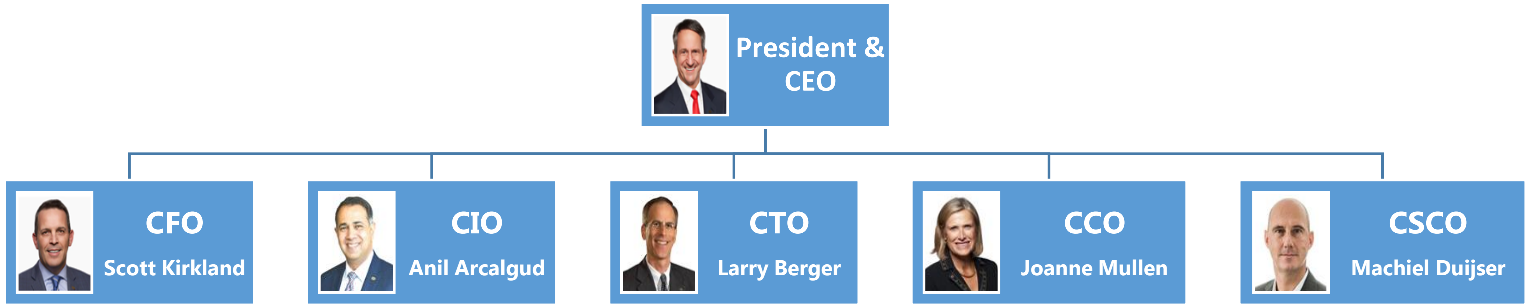
Source: FactSet

Appendix

Appendix A: Trading History



Appendix B: Executive Management



Name	Position	Appointed	Company Tenure	Education	Work Experience
Christophe Beck	President, Chief Executive Officer & Director	2021	15 Years	• Master's degree in Engineering, Swiss Federal Institute of Technology	• Executive Vice President & President of the Golabl Industrial Group at ECL • Senior Executive & Nestle
Scott D. Kirkland	Chief Financial Officer	2022	17 Years	• Bachelor's degree in Accounting, University of Northern Iowa	• Senior Vice President and Corporate Controller at ECL • Senior Vice President for ECL's Energy segement
Anil Arcalgud	Chief Information Officer & Executive VP	2017	13 Years	• Bachelor's degree in Electronics, St. Joseph's College in Bangalore India	• Led Ecolab's Global Business Services • Director of Finance at Motorola Inc
Larry L. Berger	Chief Technical Officer & Executive VP	2008	14 Years	• Bachelor's degree in Engineering Chemistry, State University of New York - Stony Brook • Master's and Doctorate degree in Materials, Science and Engineering, Cornell University	• Senior leadrship roles in Global Technology, Technical Operations, and Business Development at Dupont
Joanne Jirik Mullen	Chief Compliance Officer	2013	9 Years	• Bachelor's degree, College of St. Catherine • Doctorate degree, William Mitchell College of Law	• Associate General Counsel Employment and Compliance at ECL • Director at St. Catherine University (Minnesota)
Machiel Duijser	Chief Supply Chain Officer & Executive VP	2020	2 Years	• Master's degree in Physics Engineering, Swiss Federal Institute of Technology	• Chief Supply Chain Officer at Reckitt Benckiser Group • Vice President of Worldwide Engineering for Amazon

Source: Company Information

Appendix C: Porters Six Forces Model

Porters Six Forces Model
Bargaining Power of Suppliers
• Raw materials account for approximately 50% of revenue in the chemical industry (IBISWorld), and can dampen profits if company price increases are not effective. • Commodity materials are purchased from a variety of vendors, including around the world, therefore limiting risk associated with supply concentration. • Specialty chemicals available from select vendors may make it more costly to acquire certain raw materials. • Raw material suppliers rely heavily on chemical manufacturers for profit, with high switching costs provided by undifferentiated materials may switch with minimal consequences.
Bargaining Power of Buyers
• Customers have limited power switching services with the total cost savings provided by Ecolab and long-term commitment programs such as ECL science Certified. • Long-term customer relationships can increase difficulty in switching in high volume consumption businesses, for fear of product shortages in business operations. • Large corporate customers risk loss of reputation if switching from reputable businesses if searching for cheaper alternatives. • Backward integration from customers in highly unlikely due to the heavy capital investment associated not only with chemicals, but the technology that Ecolab provides as well.
Threat of Substitute Products
• Cheap or low quality products are likely to be used in emerging or developing economies. • Countries with less stringent environmental regulations, such as china, can pursue cheaper and less quality products from other companies. • Full service offerings in environmental management are becoming more prominent, an area Ecolab already has expertise. • Buyers may purchase substitute products, but may lose the reputation associated with using Ecolab and the complimentary offerings such as water and energy management.
Threat of New Entrants
• Strict US regulation in chemicals will discourage new competitors from spending heavy amounts of R&D to compete in a saturated industry. • New entrants will face heavy capital requirements to create differentiated products which attempting to steal market share in a mature industry. • Niche companies will be faced with acquisition by large companies looking to fill gaps in product offerings.
Rivalry among existing competitors
• The industry is very fragmented, as 86% of chemical manufacturing businesses have less than 100 employees. • The chemical industry is in a state of consolidation with large corporations acquiring in a fragmented competitive space. • The largest competitors in the industry specialize in certain areas and risk poor ventures if going outside its specialty. • Most competitors are small focusing on regional companies are small and have single few locations.
Complements
• Acquisitions of complementary businesses do not necessarily lead to increased profit if not properly integrated or create synergies within the business. • High switching costs from customers are created from the combination of complementary technology and products. • Large mature players are looking for compliments to its service offerings to maintain large scale market share.

Source: Team Analysis

Appendix D: SWOT

S — Strengths

- **Exceptional Customer Service:** Best-in-class service and brand trust are sought by customers willing to pay a premium to protect their brand reputation
- **Scale:** Skilled global labor force that operates in 170 countries.
- **Natural World Conservation:** Global leader in water, energy, and waste conservation
- **High Switching Costs:** Complementary offerings of environmental management to Ecolab's chemical business provide high switching costs to customers.
- **Strong Financial Position:** Over the past 5 years, Ecolab has maintained a clean balance sheet and its ability to produce stable free cash flow for new ventures

W — Weaknesses

- **Developed Markets:** Limited growth opportunities in developed markets such as the U.S and Europe
- **Niche Products:** Gaps in Ecolab's product line may lead to niche companies stealing market share
- **Management:** Recent changes in executive leadership positions
- **Acquisitions:** High capital requirements associated with acquisition strategy.

O — Opportunities

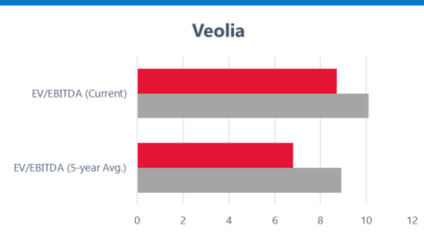
- **Water Insecurity:** Growing concerns over water scarcity creates demand for water solutions.
- **Green Policy:** Green initiatives represents an ecological need, where Ecolab has years of expertise
- **Complements:** Complementary services to chemicals provide new growth organically with cross selling
- **New Market Growth:** Purolite brings new competencies in water and introduces a new opportunities in Biopharma
- **Sanitation Trends:** Consumer awareness around cleanliness allows Ecolab to capture new market growth in sanitizing solutions in developed markets (Metric)
- **Fragmented Landscape:** Fragmented competition opens the door for more acquisitions and cross selling opportunities

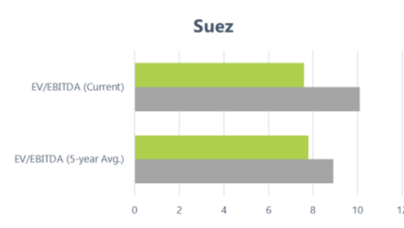
T — Threats

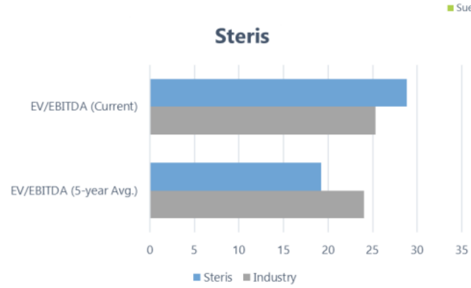
- **COVID-19 Mandates:** Ongoing pandemic variants may impose new government-mandated shutdowns, reducing the number of chemicals sold
- **Increased Regulation:** Increased environmental regulation may threaten existing product lines and profitability
- **Loss of Property Rights:** Possible loss of intellectual property may lead to loss of market share in countries like China
- **Geopolitical Strain:** Increased tension in international trade and geo-political factors can limit growth in growing markets
- **Macroeconomic Weakness:** Prolonged inflation and lower GDP growth may deter corporations from paying for Ecolab's premium services

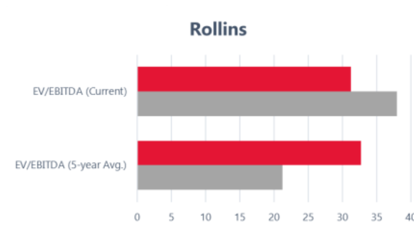
Source: Team Analysis

Appendix E1: Competitor Multiples & Veolia Business Segment









Appendix E2: Peer Comparison

Revenue Growth %	2017A	2018A	2019A	2020A	Sep '21 LTM	5-Year Average	Trend
Ecolab	5%	6%	3%	-6%	7%	3%	
Industry	**3%**	**5%**	**5%**	**-4%**	**3%**	**2%**	
Veolia	3%	5%	5%	-4%	6%	3%	
Suez	3%	10%	4%	-5%	1%	3%	
Industry	**3%**	**5%**	**5%**	**-4%**	**3%**	**2%**	
Diversey	N/A	N/A	-2%	0%	-1%	-1%	
Industry	**4%**	**3%**	**2%**	**3%**	**10%**	**4%**	
Steris	-1%	6%	9%	3%	27%	9%	
Industry	**10%**	**10%**	**5%**	**6%**	**18%**	**10%**	
Rollins	6%	9%	11%	7%	11%	9%	
Industry	**9%**	**7%**	**6%**	**-23%**	**32%**	**6%**	
Operating Margin %							
Ecolab	16%	14%	15%	15%	14%	15%	
Industry	**14%**	**14%**	**12%**	**10%**	**14%**	**13%**	
Veolia	6%	6%	6%	4%	6%	5%	
Suez	6%	6%	6%	3%	7%	6%	
Industry	**6%**	**6%**	**6%**	**4%**	**6%**	**6%**	
Diversey	N/A	-3%	3%	2%	N/A	1%	
Industry	**19%**	**19%**	**19%**	**20%**	**19%**	**19%**	
Steris	14%	16%	18%	20%	16%	17%	
Industry	**16%**	**17%**	**16%**	**15%**	**21%**	**17%**	
Rollins	18%	17%	16%	17%	19%	17%	
Industry	**13%**	**15%**	**18%**	**11%**	**7%**	**13%**	
Net Margin %							
Ecolab	13%	11%	13%	-11%	9%	7%	
Industry	**9%**	**11%**	**10%**	**5%**	**10%**	**9%**	
Veolia	2%	2%	3%	1%	3%	2%	
Suez	2%	2%	2%	0%	3%	2%	
Industry	**3%**	**2%**	**3%**	**1%**	**4%**	**2%**	
Diversey	N/A	-9%	-4%	-1%	N/A	-5%	
Industry	**13%**	**13%**	**12%**	**15%**	**15%**	**14%**	
Steris	9%	10%	13%	14%	7%	11%	
Industry	**13%**	**9%**	**12%**	**14%**	**17%**	**13%**	
Rollins	11%	13%	10%	12%	19%	13%	
Industry	**18%**	**10%**	**13%**	**11%**	**0%**	**11%**	
ROE %							
Ecolab	19%	17%	18%	-20%	17%	10%	
Industry	**20%**	**24%**	**16%**	**7%**	**17%**	**17%**	
Veolia	5%	7%	12%	2%	10%	7%	
Suez	6%	6%	6%	-6%	14%	5%	
Industry	**10%**	**10%**	**12%**	**2%**	**18%**	**10%**	
Diversey	N/A	N/A	N/A	N/A	N/A	N/A	
Industry	**25%**	**26%**	**28%**	**34%**	**30%**	**29%**	
Steris	8%	9%	12%	12%	5%	9%	
Industry	**11%**	**8%**	**11%**	**11%**	**15%**	**11%**	
Rollins	29%	34%	27%	30%	34%	31%	
Industry	**31%**	**19%**	**27%**	**23%**	**1%**	**20%**	
ROIC %							
Ecolab	11%	10%	10%	7%	9%	9%	
Industry	**10%**	**14%**	**10%**	**4%**	**10%**	**10%**	
Veolia	2%	3%	4%	1%	3%	2%	
Suez	2%	2%	2%	-2%	3%	1%	
Industry	**3%**	**3%**	**4%**	**60%**	**5%**	**3%**	
Diversey	N/A	N/A	N/A	-1%	N/A	-1%	
Industry	**14%**	**14%**	**14%**	**17%**	**16%**	**15%**	
Steris	6%	6%	9%	8%	3%	6%	
Industry	**7%**	**5%**	**7%**	**7%**	**10%**	**7%**	
Rollins	29%	34%	21%	21%	27%	26%	
Industry	**16%**	**10%**	**14%**	**9%**	**0%**	**10%**	

Source: Company Information

Appendix E3: Veolia Revenue by Segment

VEOLIA	2016	2017	2018	2019	2020	2021E	3Q21	Estimated 5-Year CAGR
Water	€ 11,138	€ 11,114	€ 10,894	€ 11,142	€ 10,900	€ 10,413	€ 7,810	-1%
Growth	-	0%	-2%	2%	-2%	-4%	-	
Waste	€ 8,401	€ 9,040	€ 9,599	€ 10,167	€ 9,673	€ 10,908	€ 8,181	4%
Growth	-	8%	6%	6%	-5%	13%	-	
Energy	€ 4,851	€ 4,971	€ 5,418	€ 5,880	€ 5,437	€ 5,821	€ 4,366	3%
Growth	-	2%	9%	9%	-8%	7%	-	
Total	€ 24,390	€ 25,125	€ 25,911	€ 27,189	€ 26,010	€ 27,143	€ 20,357	2%
Average Growth	-	3%	4%	6%	-5%	5%	-	2%

Appendix E4: Competitor Summaries

Global Industrial

Ecolab has an 11% share of the $60B Market with 45% exposure N.A. and 55% ONA. Focused on their proprietary Net Zero Program, ECOLAB 3D, and eROI by Ecolab to deliver environmental value to Heavy Water, Light Water, and Food & beverage industries.

Veolia offers a premium lineup of proprietary water technologies that apply to Water Treatment, Water Waste, and Water Recycle. Veolia reduces production costs to similar industries through High Purity Water Systems, Filtration, Clarification/Flotation, Biological Wastewater, and Evaporation.

Suez recent merger with Veolia will spin off new SUEZ taking with it €7B in operations and assets. The company will retain growth prospects to allow for innovation but will lose the larger part of their business in areas like the Americas, Western Europe, and Australia. The biggest loss will come from their highest growth segment: Water Technology Solutions.

Global Institutional & Specialty

Ecolab has a 10% share of a $50B+ Market opportunity with 70% of revenue exposure in N.A. and 30% ONA. Focused on implementing proprietary ECOLAB Science Certified program and eROI by Ecolab program to increase value position in People Health, Planet Health, and Business Health

Diversey has a strong exposure to European Markets with 39% of revenues exposed compared to 30% in NA. Diversey estimates the market to be ~$46B in which they are either the #1 or the #2 player in the 80 countries they serve. Diversey's 2020 revenues accounted for 76% Institutional and 24% Food & Beverag

Global Healthcare & Life Sciences

Ecolab has a 5% share of a $27B Market with the majority of the exposure in Healthcare. 50% sales in Healthcare are exposed to Europe and 40% to NA. Using eROI process Ecolab delivers Surface Disinfection, Instrument Reprocessing, Protective Barriers for RAS, and Low Residue Programs to reduce time, increase safety, and reduce operating costs for customers.

15% of Diversey's revenues come from Healthcare and Pharma. The majority of those revenues come from their Healthcare business where they provide Infection Prevention & Chemical Cleaning Care. Pharma provides Cleaning Products, Water Treatment, and Services.

Steris operates in a business that is expected to have tremendous growth in the next few years. Potential for downside is limited with healthcare companies still demanding cleaning solutions in a particularly inelastic business.

Other

Ecolab has a 6% share of a $14B+ Global Market. As a global leader, Ecolab continues to drive value through their innovation and 5000+ field sales associates. Strong track record and market expansion following recent health and food trends will foster continued growth.

Rollins focus as a business is on the reliance of exceptional customer service to drive retention. The company has 15,616 employees and their belief is that the quality of those employed are their biggest asset. Recent acquisition activity has resulted in split growth opportunities; therefore, strategy will require success inorganic growth positions.

Appendix F: Ecolab Organic and Inorganic Growth

Ecolab Summation of Net Sales	2016	2017	2018	2019	2020	2021 LTM	Trend
Volume	(1.0%)	3.0%	4.0%	1.0%	(9.0%)	2.0%	
Price Changes	0.0%	1.0%	2.0%	3.0%	2.0%	2.0%	
Acquisitions & Divestitures	1.0%	1.0%	0.0%	1.0%	2.0%	1.0%	
Foreign Currency Translation	(3.0%)	0.0%	0.0%	(2.0%)	(1.0%)	3.0%	
Net Sales Growth	**(3.0%)**	**5.0%**	**6.0%**	**3.0%**	**(6.0%)**	**8.0%**	

Source: Company Information

Appendix G1: Consolidated Income Statement

Period:	FY19A	1Q20A	2Q20A	3Q20A	4Q20A	FY20A	1Q21A	2Q21A	3Q21A	4Q21E	FY21E	1Q22E	2Q22E	3Q22E	4Q22E	FY22E	FY23E	FY24E
Sales	12562	3021	2686	3019	3065	11790	2885	3163	3321	3428	12796	3245	3353	3517	3641	13755	14777	15818
Cost of Sales	7046	1720	1636	1770	1780	6906	1712	1844	2017	1799	7371	1843	1904	1998	2068	7813	8334	8842
Gross Profit	**5516**	**1300**	**1050**	**1249**	**1285**	**4885**	**1173**	**1319**	**1304**	**1629**	**5425**	**1402**	**1448**	**1519**	**1573**	**5942**	**6443**	**6976**
Selling, General and Adminstrative Expenses	3551	908	789	803	810	3310	863	853	832	848	3397	850	878	921	954	3604	3820	4034
Operating Income (EBIT)	**1845**	**376**	**192**	**411**	**416**	**1395**	**297**	**448**	**466**	**781**	**1992**	**552**	**570**	**598**	**619**	**2338**	**2623**	**2942**
Interest Expense	221	48	59	135	48	290	52	46	76	68	242	65	67	70	73	275	296	316
Other Expense	77	15	15	15	10	56	17	-3	13	13	41	15	15	15	15	60	60	0
Pretax Income (EBT)	**1732**	**343**	**148**	**292**	**378**	**1161**	**263**	**400**	**402**	**726**	**1791**	**502**	**518**	**543**	**561**	**2123**	**2387**	**2626**
Income Tax Provision	321	47	14	42	73	177	66	86	74	131	357	100	104	109	112	425	477	525
Net Income (Continuing Ops.)	**1443**	**296**	**134**	**249**	**305**	**984**	**197**	**314**	**329**	**595**	**1433**	**401**	**414**	**434**	**449**	**1699**	**1910**	**2101**
Earnings per Share	**4.87**	**1.00**	**0.44**	**0.85**	**1.06**	**3.35**	**0.67**	**1.08**	**1.12**	**2.05**	**4.93**	**1.38**	**1.43**	**1.50**	**1.56**	**5.89**	**6.67**	**7.39**
Diluted Shares Outstanding	**293**	**293**	**292**	**288**	**289**	**289**	**289**	**289**	**289**	**288**	**288**	**288**	**287**	**286**	**286**	**286**	**284**	**282**
EBITDA	**2620**	**575**	**390**	**620**	**623**	**2208**	**513**	**653**	**673**	**951**	**2789**	**763**	**788**	**826**	**856**	**3233**	**3642**	**4049**

Appendix G2: Consolidated Balance Sheet

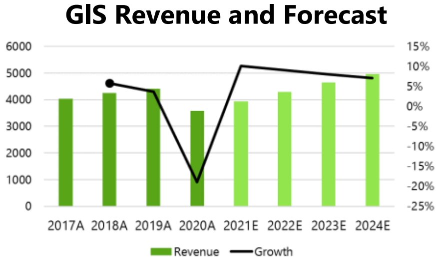
Period:	FY19A	1Q20A	2Q20A	3Q20A	4Q20A	FY20A	1Q21A	2Q21A	3Q21A	4Q21E	FY21E	1Q22E	2Q22E	3Q22E	4Q22E	FY22E	FY23E	FY24E
Assets																		
Cash and Cash Equivalents	119	1662	1369	1035	1260	1260	1189	1402	898	2219	2219	1478	1128	1246	1373	1373	2336	3491
Accounts Receivable	2382	2856	2256	2321	2274	2274	2272	2331	2384	2471	2471	2488	2542	2638	2731	2731	2892	3051
Inventories	1082	1530	1229	1288	1285	1285	1347	1419	1378	1271	1271	1331	1360	1411	1461	1461	1559	1629
Other Current Assets	295	390	313	349	298	298	342	336	327	327	327	327	327	327	327	327	327	327
Current Assets of Discontinued Ops.	951	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Current Assets	**4828**	**6437**	**5166**	**4992**	**5117**	**5117**	**5150**	**5487**	**4987**	**6288**	**6288**	**5624**	**5357**	**5622**	**5892**	**5892**	**7113**	**8497**
Property, plant, and equipment, net	3228	3203	3139	3146	3125	3125	3079	3078	3070	3182	3182	3255	3330	3409	3491	3491	3868	4172
Operating Lease Assets	467	454	440	434	424	424	413	392	377	377	377	377	377	377	377	377	377	377
Goodwill	5569	5556	5760	5958	6007	6007	6120	6172	6126	6126	6126	6126	6126	6126	6126	6126	6126	6126
Intangible Assets	2928	2877	3019	3023	2977	2977	2967	2925	2890	3605	3605	3499	3390	3276	3158	3158	2648	2139
Other Long-term Assets	516	530	558	544	476	476	481	479	477	477	477	477	477	477	477	477	477	477
Long-term Assets of Discontinued Ops.	3333	3283	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Assets	**20869**	**22340**	**18082**	**18097**	**18126**	**18126**	**18208**	**18534**	**17926**	**20054**	**20054**	**19358**	**19058**	**19287**	**19521**	**19521**	**20609**	**21787**
Liabilities																		
Accounts Payable	1075	1042	1088	1108	1161	1161	1128	1213	1237	1153	1153	1290	1318	1368	1416	1416	1535	1655
Accrued Payroll	566	481	408	456	469	469	458	430	453	453	453	453	453	453	453	453	453	453
Income Taxes	137	127	110	53	96	96	52	49	68	68	68	68	68	68	68	68	68	68
Operating Lease Liabilities	346	246	319	311	301	301	291	274	263	263	263	263	263	263	263	263	263	263
Other Current Liabilities	1111	1169	1087	1241	1189	1189	1190	1171	1118	1118	1118	1118	1118	1118	1118	1118	1118	1118
Short-term Debt	381	1035	535	247	17	17	24	17	19	19	19	19	19	19	19	19	19	19
Current Liabilities of Discontinued Ops.	362	404	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Current Liabilities	**3977**	**4503**	**3547**	**3417**	**3233**	**3233**	**3143**	**3154**	**3158**	**3074**	**3074**	**3211**	**3239**	**3288**	**3337**	**3337**	**3455**	**3575**
Long-term Debt	5973	6744	6752	6668	6669	6669	6686	6709	5932	7932	7932	6932	6432	6432	6432	6432	6432	6432
Postretirement Benefits	1084	1067	1056	1081	1226	1226	1208	1047	997	997	997	997	997	997	997	997	997	997
Deferred Income Taxes	537	538	577	581	484	484	527	567	589	589	589	589	589	589	589	589	589	589
Other Long-term Liabilities	270	334	260	301	312	312	324	321	289	289	289	302	315	328	341	341	393	445
Long-Term Liabilities of Discontinued Ops.	302	294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Liabilities	**12143**	**13479**	**12192**	**12048**	**11925**	**11925**	**11888**	**11797**	**10964**	**12881**	**12881**	**12030**	**11572**	**11634**	**11695**	**11695**	**11866**	**12038**
Shareholder's Equity																		
Common Stock	360	361	362	362	363	363	363	363	364	364	364	364	364	364	364	364	364	364
Additional Paid-in Capital	5907	6018	6155	6177	6235	6235	6286	6333	6400	6240	6240	6143	6044	5939	5831	5831	5556	5250
Retained Earnings	9994	10137	7968	8080	8243	8243	8299	8473	8660	9032	9032	9282	9541	9811	10092	10092	11285	12598
Accumulated (Loss/Income)	-2090	-2114	-1990	-1946	-1994	-1994	-1915	-1711	-1734	-1734	-1734	-1734	-1734	-1734	-1734	-1734	-1734	-1734
Treasury Stock	-5485	-5580	-6640	-6659	-6680	-6680	-6741	-6750	-6756	-6756	-6756	-6756	-6756	-6756	-6756	-6756	-6756	-6756
Total Shareholder's Equity	**8685**	**8822**	**5855**	**6015**	**6167**	**6167**	**6292**	**6709**	**6934**	**7145**	**7145**	**7299**	**7458**	**7624**	**7797**	**7797**	**8714**	**9721**
Noncotrolling Interest	41	39	35	35	35	35	28	27	28	28	28	28	28	28	28	28	28	28
Total Equity	**8726**	**8861**	**5890**	**6049**	**6202**	**6202**	**6320**	**6736**	**6962**	**7174**	**7174**	**7327**	**7486**	**7653**	**7825**	**7825**	**8743**	**9750**
Total Liabilities and Equity	**20869**	**22340**	**18082**	**18097**	**18126**	**18126**	**18208**	**18534**	**17926**	**20054**	**20054**	**19358**	**19058**	**19287**	**19520**	**19520**	**20609**	**21787**

Appendix G3: Consolidated Statement of Cash Flows

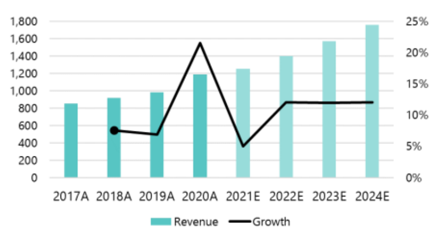
Period:	FY19A	1Q20A	2Q20A	3Q20A	4Q20A	FY20A	1Q21A	2Q21A	3Q21A	4Q21E	FY21E	1Q22E	2Q22E	3Q22E	4Q22E	FY22E	FY23E	FY24E
Net Income w/ Noncontrolling Interest	1443	284	166	249	285	984	197	314	329	591	1429	397	410	430	445	1682	1893	2084
D&A	775	199	198	209	208	813	215	205	207	170	797	211	218	229	237	894	1020	1107
Stock Comp	84	27	26	11	17	82	31	28	14	17	89	23	23	25	25	96	103	111
Deferred Taxes	-22	-2	-23	8	-29	-46	43	-3	13	0	53	13	13	13	13	52	52	52
Δ NWC	-118	-193	-36	-103	122	-209	-171	-44	51	-64	-227	60	-55	-97	-95	-187	-140	-110
Pension expense (contributions)	-163	-12	-5	-5	-7	-29	-20	7	-9	0	-21	0	0	0	0	0	0	0
Restructuring Charge	30	-11	-12	14	17	8	-4	-12	-19	0	-35	0	0	0	0	0	0	0
Debt Refinancing	0	0	0	77	0	77	0	0	29	0	29	0	0	0	0	0	0	0
Other	18	16	-45	-128	219	61	4	8	8	0	20	0	0	0	0	0	0	0
Cash used for operations - Discontinued Ops	374	64	118	118	-182	118	0	0	0	0	0	0	0	0	0	0	0	0
Cash Flow from Operations	**2421**	**372**	**387**	**452**	**650**	**1860**	**295**	**503**	**623**	**714**	**2135**	**704**	**609**	**599**	**625**	**2538**	**2929**	**3244**
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Investing Activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capital Expenditures	-731	-148	-103	-112	-127	-489	-102	-144	-178	-197	-621	-178	-184	-193	-200	-757	-887	-902
Sale of PPE	8	1	1	1	3	5	0	0	12	0	12	0	0	0	0	0	0	0
Divestitures	7	0	55	0	61	116	0	0	0	0	0	0	0	0	0	0	0	0
Acquisitions	-391	-2	-485	0	0	-487	-88	-2	-120	-800	-1010	0	0	0	0	0	0	0
Other	-21	-5	8	-438	432	-3	-2	-10	-4	0	-17	0	0	0	0	0	0	0
Cash used for investing - Discontinued Ops	-70	-12	443	443	-431	443	0	0	0	0	0	0	0	0	0	0	0	0
Cash from Investing	**-1199**	**-166**	**-81**	**-106**	**-62**	**-415**	**-192**	**-155**	**-291**	**-997**	**-1635**	**-178**	**-184**	**-193**	**-200**	**-757**	**-887**	**-902**
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financing Activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Debt Issued	0	764	5	1087	0	1856	0	0	294	2900	3194	0	0	0	0	0	0	0
Debt Repaid	-401	-300	0	-1270	0	-1570	0	0	-1018	-900	-1918	-1000	-500	0	0	-1500	0	0
Net Issuances of CD and NP	-252	958	-503	-289	-231	-66	6	-7	2	0	1	0	0	0	0	0	0	0
Common Stock Issued	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Common Stock Repurchased	-354	-95	-10	-20	-22	-146	-62	-9	-7	-177	-255	-119	-123	-129	-133	-505	-379	-417
Dividends Paid	-553	-146	-138	-139	-139	-561	-147	-140	-140	-218	-645	-147	-152	-159	-165	-622	-701	-771
Debt refinancing	0	0	0	-77	0	-77	0	0	-29	0	-29	0	0	0	0	0	0	0
Employee Stock Options	187	83	105	11	42	242	20	20	54	0	94	0	0	0	0	0	0	0
Other	26	0	-5	8	-21	-18	-1	0	4	0	4	0	0	0	0	0	0	0
Cash used for financing - Discontinued Ops	-3	1	-2	-2	-2	-2	0	0	0	0	0	0	0	0	0	0	0	0
Cash From Financing	**-1350**	**1266**	**-547**	**-690**	**-371**	**-342**	**-183**	**-135**	**-841**	**1604**	**445**	**-1266**	**-775**	**-288**	**-298**	**-2627**	**-1079**	**-1188**
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FX	20	4	-52	10	8	-30	10	1	5	0	15	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Change in Cash	-107	1476	-293	-334	225	1074	-71	213	-505	1321	959	-741	-350	118	127	-846	963	1155
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beg Cash - Continuing Ops	243	119	119	119	243	119	1260	1260	1260	1260	0	0	0	0	0	0	0	0
Beg Cash - Discontinued Ops	51	68	68	68	68	68	0	0	0	0	0	0	0	0	0	0	0	0
Beg Cash - Overall	294	186	1662	1369	1035	186	1260	1190	1402	898	1260	2219	1478	1128	1246	2219	1373	2336
End Cash - Continuing Ops	119	1552	1369	1035	1260	1260	1190	1402	898	0	0	0	0	0	0	0	0	0
End Cash - Discontinued Ops	68	110	0	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0
End Cash - Overall	186	1662	1369	1035	1260	1260	1190	1402	898	2219	2219	1478	1128	1246	1373	1373	2336	3491
Operating cash flow	2421	372	387	452	650	1860	295	503	623	714	2135	704	609	599	625	2538	2929	3244
Capex	-731	-148	-103	-112	-127	-489	-102	-144	-178	-197	-621	-178	-184	-193	-200	-757	-887	-902
Free Cash Flow	**1690**	**224**	**284**	**340**	**523**	**1371**	**193**	**360**	**445**	**517**	**1514**	**526**	**425**	**406**	**425**	**1781**	**2042**	**2343**

Appendix H: Segment Forecasts

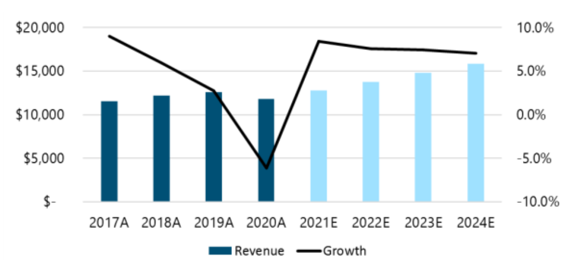
GIS Revenue and Forecast



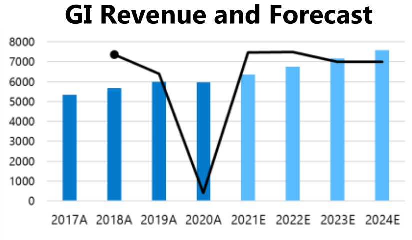
GHLS Revenue and Forecast



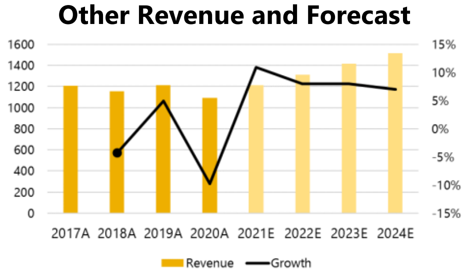
Net Revenue and Forecast



GI Revenue and Forecast



Other Revenue and Forecast



Appendix I: ESG Scorecard & Peer Comparison

Environment	32.50 / 35.00
Total Environmental Impact	35.00
Carbon Footprint Management	32.00
Clean Products and Technology	28.00
Sustainablility Targets and Commitments	35.00
Social	**25.75 / 30.00**
Community Relations and Human Rights	30.00
Ocupational Health and Safety	20.00
Gender and Minority Representation	23.00
Fair and Equal Pay	30.00
Governance	**32.5 / 35.00**
Board of Directors	30.00
Management and Shareholder Alignment	35.00
Executive Compensation	30.00
Financial and Corporate Transparency	35.00
Overall ESG Impact Score	**90.75**

Company	CDP Climate Score	MSCI ESG Rating	RobecoSaM
Global Specialty Chemicals Median	6	A	46
Ecolab vs. Median	**Leading**	**Leading**	**Above Average**
Ecolab Inc.	8	AAA	96
Veolia Environment	7	A	98
Suez	7	A	72
STERIS PLC	2	AA	64
Rollins Inc.	0	A	11
Diversey Holdings	--	--	--

*Ecolab is one of the top sustainability companies in the world, consistently ranking as one of the top ESG firms in the Specialty Chemicals industry. The company remains highly trusted by its shareholders given the transparency laid out by management. We chose to grade Ecolab on our own scale representing Environmental, Social, and Governance strengths while also looking at other competitor's grades. We believe that Ecolab succeeds at chasing Environmental and Governance success, but has some work to do when it comes to the Social aspect.

Appendix J: Tax Reconciliation

Ecolab Tax Reconciliation

Period:	2016	2017	2018	2019	2020
Statutory Federal Tax Rate	35.0%	35.0%	21.0%	21.0%	21.0%
Transition Tax		-9.1%	4.2%	-0.2%	
State and Local Taxes	0.9%	0.4%	1.2%	1.8%	0.4%
Foreign Tax Rate Differential	-8.0%	-7.4%	-15.5%	5.5%	-1.3%
Domestic Manufacturing Reduction	-2.0%	-2.2%			
Tax Credits - Research and Development	-1.1%	-1.0%	-1.0%	-1.0%	-1.1%
Change in Valuation Allowance	-0.7%	0.2%	10.3%	-8.2%	0.6%
Excess Stock Benefits		-2.3%	-1.7%	-2.4%	-4.9%
Other, net	0.5%	0.3%	1.7%	0.2%	0.5%
Effective Tax Rate	24.6%	13.9%	20.2%	16.7%	15.2%
Assumed Operating Tax Rate	**33%**	**32%**	**21%**	**22%**	**20%**

Tax Rate Sensitivity

Rate	Price Target	Upside
20% (Base)	**$245**	**13.8%**
17%	$254	18.2%
18%	$251	16.8%
19%	$248	15.3%
20%	$245	13.8%
21%	$241	12.4%
22%	$238	10.9%
23%	$235	9.4%

*Due to the volatility of Ecolab's effective tax rate through foreign operations in addition to changing tax laws, we performed a tax reconciliation to find the overall operating tax rate. Assumptions in this rate include Federal, State and Local, as well as Research and Development Credits for consistency.

Appendix K1: Discounted Cash Flow Valuation

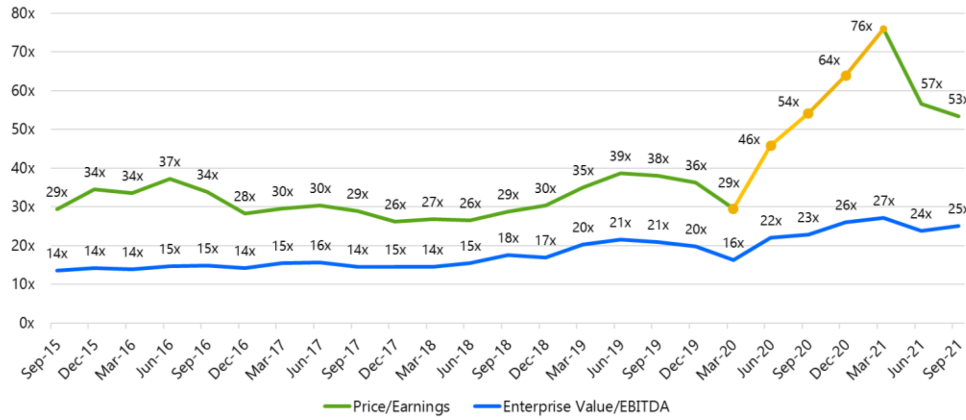
ECL: Enterprise DCF Valuation

Forecast Year	FY21E	FY22E	FY23E	FY24E	FY25E	FY26E	FY27E	FY28E	Terminal
Period	0.25	1.25	2.25	3.25	4.25	5.25	6.25	7.25	7.25
Operating Income	$1,991.78	$2,338.43	$2,622.87	$2,942.11	$3,279.31	$3,646.39	$4,027.29	$4,434.69	
Tax Rate	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	
NOPAT	**$1,593.43**	**$1,870.75**	**$2,098.30**	**$2,353.69**	**$2,623.45**	**$2,917.12**	**$3,221.84**	**$3,547.75**	**$3,636.60**
D&A	$797.18	$894.11	$1,019.59	$1,107.25	$1,180.21	$1,221.45	$1,329.77	$1,364.52	
Δ NWC	-$226.57	-$139.77	-$139.77	-$109.90	-$98.80	-$98.11	-$74.63	$19.80	
Capex	-$620.63	-$756.55	-$886.60	-$901.61	-$893.59	-$862.20	-$835.85	-$802.66	
FCF	**$1,543.41**	**$1,868.54**	**$2,091.52**	**$2,449.42**	**$2,811.28**	**$3,178.25**	**$3,641.12**	**$4,129.42**	
PV Factor	*0.98*	*0.93*	*0.87*	*0.82*	*0.77*	*0.72*	*0.68*	*0.64*	*0.64*
DCF	**$1,519.85**	**$1,730.21**	**$1,821.12**	**$2,005.48**	**$2,164.40**	**$2,300.92**	**$2,478.72**	**$2,643.38**	**$60,597.65**

Enterprise Value:	**$77,261.73**
+ Cash and Cash Equivalents:	$2,219.01
- Debt and Debt Equivalents:	$7,950.50
- Undefunded Pension:	$1,041.70
- Non-Controlling Interest:	$28.30
Market Value:	**$70,460.24**
Diluted Shares Outstanding:	288.13
Estimated Value Per Share:	$245
Current Share Price:	$214.80
Misvaluation:	14%

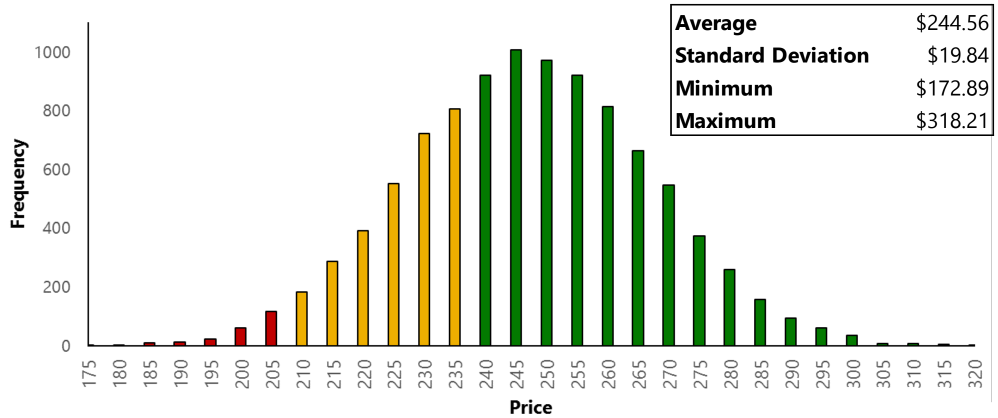
Appendix K2: Multiples Valuation and Trading History

Enterprise Value to EBITDA Valuation	
EV/EBITDA Multiple	*23.00x*
FY2022E EBITDA	$3,233
Enterprise Value	**$74,348**
FY2022E Total Debt	$6,451
FY2022E Cash	$1,373
Market Value	**$69,271**
FY2022E Diluted Shares	286
Estimated Value per Share:	**$242**
Current Price per Share:	$214.80
Misvaluation:	**13%**



*The Yellow areas of the P/E represent TTM multiples calculated with EPS from continuing operations. Ecolab had negative earnings for the TTM prior to Q2 2020 due to the divestiture of ChampionX. We instead used EV/EBITDA as we felt it better represents how it trades with peers, without the sudden spike in Price to Earnings.

Appendix L: Monte Carlo Simulation

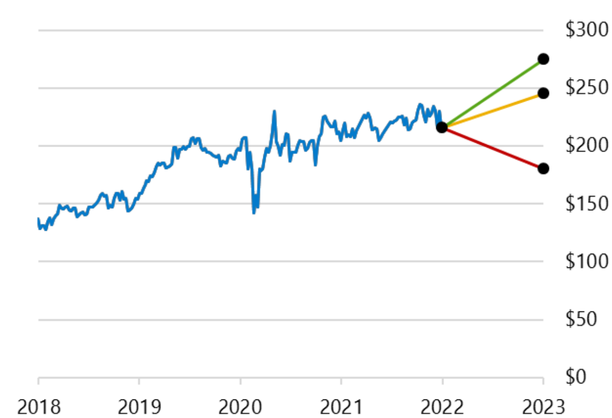


Average	$244.56
Standard Deviation	$19.84
Minimum	$172.89
Maximum	$318.21

We applied a Monte Carlo simulation to view the possible outcomes of ECL's stock price by altering our Weighted Average Cost of Capital (Discount Rate) by a standard deviation of 1%. This simulation is in-line with our DCF Valuation at a mean price of $244.56. We noticed a 65% probability that our model would return to us a target above 10% upside, or $240 a share. On the other hand, we found only a 3% chance of a target price with 10% downside, which we would indicate as a sell. There was a 32% chance of a target in between 10% downside and 10% upside, which we would classify as a hold.

Appendix M: Scenario Analysis

Scenario Testing			
Inputs	**Base**	**Bear**	**Bull**
Global Industrial Sales Growth	7%	4%	8%
Global Institutional and Speciality Sales Growth	10%	5%	12%
Global Healthcare and Life Sciences Sales Growth	12%	8%	15%
Other Growth	8%	5%	10%
Cost of Goods Sold to Sales	58%	60%	56%
Selling, General and Adminstrative to Sales	27%	30%	25%
Operating Tax Rate	20%	22%	18%
Target Price	**$245**	**$180**	**$275**
Misvaluation	***14%***	***-16%***	***28%***



*Our cases were based on changing 2022E to 2024E (Short-term) assumptions for different income statement metrics in our DCF.

Bear Case: Our bear case assumes that a number of short-term catalysts prove to be less fruitful than expected for Ecolab. For one, we assume increased COVID restrictions would lead towards slower than expected Institutional growth, at 6%. Purolite still provides growth, but cross-selling opportunities are not realized, resulting in lower growth at 8%. Additionally, competition in the Industrial segment from the likes of Veolia and Suez combining leads to Ecolab losing customers due to efficiency, lowering growth to 4%. Cost of Goods Sold increases to 60% of sales as Institutional pricing increases do not work as intended, combined with increased raw material inflation. The other segment sees consistent growth, but demand for Colloidal Silica is soon captured by competitors. A possible change in tax laws in the US and abroad causes the tax rate to increase to 22%. We calculated a price target of $180, representing 17% downside.

Bull Case: In this scenario, Ecolab fully realizes the consolidation that started with the separation of ChampionX in 2020, further decreasing SG&A expenses to 25% of sales. Purolite provides even stronger growth at 15%, as needs for its services increase with new technologies such as MRNA vaccines and treatments. Water demand increases as further regulations cause companies to rely on Ecolab's services, boosting the Industrial segment to short-term growth of 8%. Pricing actions work as intended, easing Cost of Goods Sold to 55% of sales. Tax changes lead toward Ecolab benefitting from new sustainability tax credits. We arrived at a price target of $275, representing 27% upside from last close.

Appendix N: Valuation Assumptions

Discount Rate and Price Target Assumptions		
Input	**Value**	**Reasoning**
Capital Structure (Debt)	11%	Calculated using ECL's current debt from Q3 2021 plus an additional $2.5B in debt related to the Purolite Acquisition, which was previsouly announced to be funded with $800 million in cash and $2.5B in debt during Q4 2021.
Capital Structure (Equity)	89%	Calculated using current Market Capitalization.
Risk-Free Rate	2.50%	We opted to use a normalized risk-free rate due to the lower yields on the 10yr Treasury Bond. We assumed a 2.5% risk-free rate as the 10-year treasury bondreturns to a more normalized level (Duff and Phelps).
Market Return	8.00%	Our Market Return was derived using a Dividend Discount Model of the S&P 500 Index, with an assumed dividend growth rate of 6% (Weighted Recency Average) and a current price of $4600.
Cost of Equity	7.00%	Standard Capital Asset Pricing Model (CAPM)
Cost of Debt	1.52%	Calculated the yield to worst on Ecolab's bonds and multiplied by operating tax rate.
Beta	0.81	Derived from Capital Asset Pricing Model following a regression of Ecolab's returns since 1972.
Tax Rate	20.00%	Performed a tax reconciliation to determine ECL's operating tax rate.
Terminal Growth Rate	2.50%	OECD estimates for World GDP Growth
Income Statement Assumptions		
Input	**Value**	**Reasoning**
GI Sales Growth	6.50%	We anticipate 6.5% growth for GI in the sort-term, lowering to 5% by 2027, mainly attributed to Ecolab’s water operations and strong market positioning worldwide.
GIS Sales	9.00%	We expect GIS grow at 9% for the next year, with the return of customers during COVID-19 , increased product volume, and new cross-selling oppurtunities presented with the acquisiton of Purolite. Growth will lower to 5% by 2027.
GLHS Sales	12.00%	We expect GLHS to experience 12% growth in the short-term, considering the new oppurtunities and addresable market that Purolite brings to the table with innovative technologies for purification. Reduces to 10% by 2028
Other Sales	8.00%	We anticpate other sales to grow at 8% in the short-term, following a recovery similar to GIS, in addition to new growth prospects in collodial silica and the expansion of the pest control business. Lowers to 5% in 2028.
COGS to Sales	57.00%	50 bps Improvement on 5 year average, incorporating predicted savings from consolidation of segments and pricing power.
SG&A to Sales	27.00%	30 bps improvement from 5 year average, attributed to cost savings from ChampionX plan, in addition to historical improvements.
Interest Expense to Sales	2.00%	3 year average
Share Repurchase Ratio	37.00%	3 year average
Dividend Payout Ratio	30.00%	3 year average
Balance Sheet Assumptions		
Input	**Value**	**Reasoning**
Days Sales Outstanding	71	3 Year Average
Days Inventory Outstanding	65	3 Year Average
Days Recievables Outstanding	60	3 Year Average
Cash Flow Statement Assumptions		
Input	**Value**	**Reasoning**
Capital Expenditures to Sales	5.00%	In-line with 3 year average for 2022. Increases to 6% in 2023E following the acqusition of Purolite, as capital expenditures have historically rose following acquisitions. Slowly decreases to 4.5% by 2028E following this increase.
Depreciation/Amortization to Sales	6.50%	3 Year Average
Stock Compensation Expense	1.00%	3 Year Average

Appendix O: Works Cited

1) Allied Market Research
2) America News Hour
3) Bloomberg Terminal
4) CMS.gov (Centers for Medicare and Medicaid Services)
5) Ecolab, Inc. Company Management
6) FactSet Research Systems, Inc.
7) Ecolab, Inc. (10-K, 10-Q, 8-K, Investor Presentations, Conferences, Proxy Statement, Product Brochures, Services.)
8) FRED (Federal Reserve Economic Data)
9) IBIS World Reports
10) NYU Stern School of Business
11) Statista
12) WhiteHouse.gov
13) World Bank
14) Worldwildlife.org
15) Duff & Phelps, Normalized Risk Free Rate
16) Organization for Economic Cooperation and Development
17) Standard & Poors Capital IQ
18) U.S. Department of the Treasury
19) Humanitarian Data Exchange – COVID 19 Daily Cases
20) Grand View Research