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The future of Waste in North America: Waste Management, Inc. Valuation

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Abstract

The purpose of this Equity Research is to provide a recommendation of Waste Management, Inc.'s company value and target share price to potential investors. For this, different valuation methods were used, which considered the company's past financial information, as well as qualitative information on the company, the industry, and its peers. This individual report contains the first sections of the report, which focuses on the company and the industry overview.

Keywords (up to four)
Waste Management, Residential and Industrial Footprint, Recession-proof, Environmental Sustainability

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This report is part of the Waste Management, Inc. Equity Research report (annexed), developed by João Canatário and Tomás Graça, and should be read has an integral part of it.

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Introduction

The purpose of the joint Equity Research report on Waste Management, Inc. is to perform an equity valuation of the firm with the goal of providing a recommendation on the company value and target share price to potential investors, based on a comprehensive analysis of the business, its competitors, and the industry in which it operates. Considering three different scenarios for the future expected performance of Waste Management, Inc., and the Discounted Cash Flow method, our analysis yields a final recommendation that investors should sell Waste Management's stock, since the target share price is $151,77 for FY2025, which represents a return of 8,7% over the current stock price of $166,26 (December 15th, 2023).

This individual report covers the first sections of the report, which are crucial for a reliable forecast of the future performance of both the company and the respective industry, as well as an accurate valuation. Specifically, it covers the company overview, where it will introduce the Waste Management's history, provide a snapshot of its current main information and position, describe the business model, perform a financial analysis, and reflect on both the share performance and management team. Lastly, it will display an industry overview, which contains an analysis on the industry and introduction of the company's main competitors.

The other sections that are included in the joint report in annex, and in my pair's individual report comprise the forecast of the company's financials, namely the income statement and the balance sheet, and an explanation of all the valuation methods used (DCF and Multiples) and its assumptions, as well as numerous sensitivity and scenario analysis on the main assumptions.

Company Overview

Company History

The history of Waste Management, Inc. (WM) began in 1968 when Wayne Huizenga and Dean Buntrock, along with Larry Beck, initiated a pioneering venture in Chicago. At the time, the waste disposal landscape was far from efficient or environmentally friendly. Landfills were often unregulated, and waste disposal practices were frequently detrimental to the environment.

WM's founders recognized the need for a comprehensive, responsible approach to waste management. They aimed to consolidate and modernize this fragmented industry. The company's initial operations focused on collecting waste from residential and commercial clients, bringing a level of professionalism and efficiency to the sector that was sorely lacking.

The following decades were decades of growth for WM. In the 1970s the focus was on geographic expansion, through the acquisition of smaller waste disposal and collection companies throughout the country. During the 1980s the focus shifted to expanding its service lines, when hazardous waste management and recycling were included. The 1990s, on the other hand, were characterized by more strategic decisions, being examples of this the divestment of non-core assets, refocus on core waste management operations, as well as constant adaption and enforced compliance with the ever-changing environmental regulations, ultimately allowing the company to build trust with all stakeholders.

The 21st century has seen WM intensify its commitment to sustainability and innovation through heavy investments in recycling technology. Working alongside communities and organisations to lessen trash production and encourage recycling have also become WM’s priority, together with reducing greenhouse gas emissions, conserving resources, and fostering a circular economy.

Company Snapshot

Today, WM stands as the American leader in waste management and environmental services. According to company reports, in 2022, WM’s revenue was $19,7Bn, which translated into a 14,1% market share in the U.S.. However, WM ranks 2nd in the global waste management industry, behind global leader Veolia, from France, that in 2022 recorded revenue of $45,9Bn.

Despite its size, WM has been able to grow its business over the years. The company’s revenue increased 10% since 2021, and 32% when considering the 5-year period from 2018 to 2022. When it comes to operational efficiency, WM has been able to keep a strong performance over the years: in 2022, its Gross Margin was 162,4%, and the 5-year average was 161,8%; Net Margin was 11,4% in 2022, above the 11% 5-year average. Size-wise, WM has not been growing the fastest when compared to its peers (data that will be analyzed later in the report), but operationally speaking it has ranked very well among them.

When it comes to financial leverage, WM does not seem to be afraid to take risks, at least when considering the book value of its capital structure. In 2022, its D/E Ratio was 2,19, well above its 5-year average of 1,80. As such, among its peers, WM ranks 1st in the D/E Ratio.

WM’s success has not been exclusively extracted from the U.S., since around 4% of the firm’s revenue has come from Canada, thus being an international company. This international feature is very common in the industry, given that most of WM’s main competitors in the U.S.

have operations across borders – most of them in Canada, though there are numerous examples outside North America. Still, despite not having the greatest number of countries under its operation, WM's size comes from its main competitive advantage: its network of landfills, that is the largest one in the U.S.

Business Model

Despite owning the largest network of landfills throughout the U.S. and Canada, which strongly contributes to being North America's leading provider of comprehensive environmental solutions, WM's areas of operation go beyond landfill management and include complementary activities such as collection, transfer, recycling, and other activities classified as "other". An interesting, more organized way to look at WM's value chain is to separate it into 3 parts – waste sourcing, waste processing and other services.

Waste sourcing comprehends the activities that bring waste to the company's landfills, and these are Collection and Transfer. Collection involves picking up and transporting waste and recyclable materials from where it was generated to either a transfer station, a material recovery facility, or a disposal site. This activity is by far the most representative of WM's revenue, weighting 67% of total revenue in 2022, and displaying a growth rate of 13% when compared to 2021. On one hand, for commercial and industrial collection services there are usually three-year service agreements, where the fees depend on collection frequency, type of collection equipment, type and volume of waste, distance to dispose facilities, among other factors, and for which specific steel containers are provided, designed to be mechanically lifted and emptied into a truck or disposal site directly. These services represented 41% and 28% of collection's total revenue in 2022, respectively. On the other hand, for residential collection services, which weighted 25% of collection's revenue in 2022, contracts of three to ten years are signed with municipalities, homeowners' associations, or other entities to guarantee exclusivity rights to service all, or a portion of the homes in an area. While the steel containers logistics is similar to the one used for commercial and industrial collection services, here fees are supported by municipalities through their tax revenues, though in some cases individual monthly subscriptions are arranged directly with households. Because waste cannot be deposited into landfills as it is collected, WM operates Transfer services as well, in which waste collected by their own collection services, but also by other waste haulers (which pay fees based on type and volume of waste, distance to disposal site, among other factors) is then compacted to reduce volume and increase density, to be further transported to disposal sites. By internalizing this service, the company not only retains fees that would otherwise be paid to third parties, but also creates a new revenue stream, that represents 11% of total revenue (2022) – a 3% increase compared to 2021 –, by allowing other waste haulers to deposit the waste they collect. It is important to note, however, that not all the transfer stations operated by WM are owned by them, and for these a lease agreement is usually put in place.

Waste processing activities can be split into Landfill and Recycling activities. As of December 31st, 2022, WM owned or controlled the management of 231 sites. Monetization occurs through the waste haulers that dispose waste directly there. The operation and closure activities performed in landfills include excavation, construction of liner, continuous spreading and compacting of waste, covering waste with earth or other material, and constructing final capping of the landfill. Landfill is the second most representative revenue of WM, having weighted 23% of the total in 2022, which represents an 11% expansion compared to the previous year.

Although some activities overlap with the ones performed in the transfer stations, in landfill these occur in a much larger scale, an, as such, have the ultimate purpose of being recycled. Recycling itself involves using the reusable materials separated from the waste stream for processing and resale, or other disposition – a revenue source strengthened by the minimum-recycled-content mandates passed by some States, incentivizing companies to use more recycled materials. Although of extreme importance, the recycling business line is not yet very expressive in WM's total revenue, having represented 9% of it in 2022, only 1% above the last year's value.

Even though WM's core business is collecting, processing, and recycling waste, it still manages to monetize from other, complementary services included in the "other activities" revenue stream and that represented 12% of total revenue in 2022 – a 14% growth compared to 2021. These services include WM Renewable Energy, wherein projects for the beneficial use of landfill gas are developed, operated and promoted; Sustainable and Environmental Solutions, which include in-plant services, where the company's full-time employees work directly in a client's facilities to provide full-service waste management solutions and consulting services; Strategic Business Solutions, which provides clients streamlined service, enhanced reporting and measurement tools that aim at meeting sustainability objectives and centralized billing and management of accounts; and Expanded Service Offering and Solutions, in which they provide expanded services that are not managed through their Solid Waste Business.

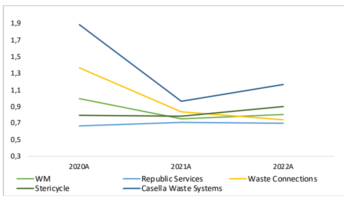
It is also worth mentioning that WM records Intercompany activities, i.e., services that it provides to third parties but within the company, as a revenue, though naturally with a negative sign. In 2022 this item represented -22% of total revenue, suggesting that WM takes full advantage of the services it offers to itself.

Financial Analysis

To assess the company's financial health and performance, we conducted a comprehensive financial analysis, exploring liquidity and solvency, computing activity ratios, as well as a profitability analysis. For a more complete perspective on WM's financial position within the industry, we compared its results against industry peers.

We will start by decomposing the different ratios of the liquidity analysis, with the first one being the current ratio. When analysing WM's current ratio over the past three years, we observe the following trends (Figure 1): in 2020, WM had a current ratio of 1, which can be seen as a balanced liquidity position. The current ratio declined to 0,75 in 2021, a decrease that was due to a 15% increase in current liabilities and a 13% decrease in current assets. In 2022, the current ratio improved to 0,81. While still below 1, this represents a positive trend compared to the previous year. It indicates that WM made efforts to strengthen its liquidity position by increasing current assets more than the increase in its current liabilities. The fluctuation in WM's current ratio from 2020 to 2022 suggests that the company has been actively managing its liquidity. Investors and analysts should consider the nature of WM's business when interpreting the current ratio, as it is a capital-intensive industry, and fluctuations in the current ratio can be influenced by factors such as investments in equipment and facilities. When compared to its peers, WM has shown its competitiveness regarding this ratio, once it is among the three companies with the higher current ratio average since 2020, along with Waste Connections and Casella Waste Systems. Since neither WM nor all its peers (besides Casella Waste Systems) hold inventories as part of its core business operations, its current assets consist mainly of cash

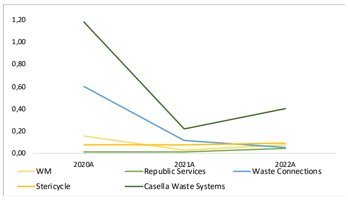
Figure 1 – Current Ratio Evolution, 2020-2022



Source: Company Reports

and accounts receivable, meaning that the current assets and quick assets are essentially the same. Consequently, the Current Ratio and the Quick Ratio yield identical values when computed.

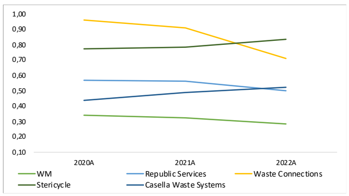
Figure 2 – Cash Ratio Evolution, 2020-2022



Source: Company Reports

The final liquidity ratio, the Cash Ratio (Figure 2), is a critical liquidity metric. In 2020, WM had a Cash Ratio of 0,16, that declined to 0,03 in 2021, due to an increase in current liabilities and a decrease in cash. In 2022, the Cash Ratio improved to 0,08, given an increase in cash. Compared to its competitors, WM's performance over the 3-year span can be seen as being somewhere in the middle. Casella Waste Systems and Waste Connections, although also facing decreasing result, have realized better ratios than WM, as can be seen in figure 2.

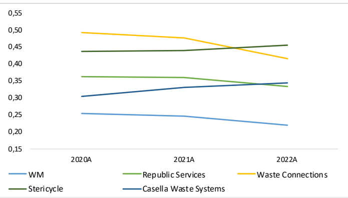
Figure 3 – Solvency Ratio Evolution, 2020-2022



Source: Company Reports

Now, we will focus our attention to WM's solvency analysis. WM's Solvency Ratio (Figure 3) has displayed a decreasing trend over the past three years. In 2020, WM had a Solvency Ratio of 0,34, which indicates that, even though it is below 1, the company demonstrated a relatively healthy financial position, indicating a substantial asset base to address long-term obligations. The solvency ratio declined slightly to 0,32 in 2021. In 2022 it decreased further to 0,28, given the decrease in equity and an increase in liabilities. In summary, the evolution of WM's Solvency Ratio from 2020 to 2022 reflects a declining trend, nevertheless, it ensures that WM is still able to meet its long-term financial obligations, though less comfortably each year. WM's peers, over this 3-year span, have shown relative superiority compared to WM, with Waste Connection and Stericycle being the ones with higher solvency ratios, at 0,86 and 0,8, respectively, over the past 3 years.

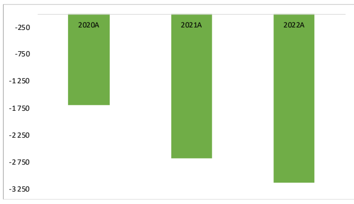
Figure 4 – Financial Autonomy Ratio Evolution, 2020-2022



Source: Company Reports

Following the declining trend was also the Financial Autonomy Ratio (Figure 4). The evolution of WM's Financial Autonomy Ratio from 2020 (0,25) to 2022 (0,22) indicates an increasing reliance on external financing sources. Compared to its peers, we can see that WM has been performing significantly below it comes to financial autonomy. Waste Connections and Stericycle are, again, the best performing companies between WM peers, having displayed, in 2022, ratios of 0,71 and 0,83, respectively.

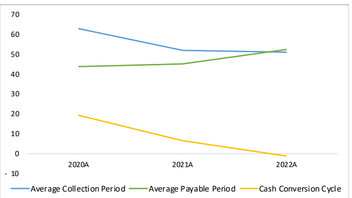
Figure 5 – Net Working Capital Evolution, 2020-2022



Source: Company Reports

Considering the Net Working Capital (Figure 5), we can also see a declining trend over the years. In 2020, WM's Net Working Capital was -\$1 684M, -\$2 678M in 2022, and finally -\$3 129M in 2022. Having a negative Net Working Capital is not always a negative sign, as it may simply suggest that a company collects money much faster than it pays its suppliers, hence having lower accounts receivable (current asset) and higher accounts payable (current liability), especially if the company does not carry a lot of cash or inventories and/or does not have a lot of short-term liabilities. This seems to be WM's case, as its current assets are not very representative and have been relatively stable, while the accounts payable and landfill and environmental remediation are far more representative and have been growing at a faster pace. Consequently, WM's Net Working Capital becoming more negative each year suggests that the company's bargaining power with both clients and suppliers has been increasing, and also that the activities related with the management and mitigation of environmental pollution and degradation caused by disposal may have become more expensive.

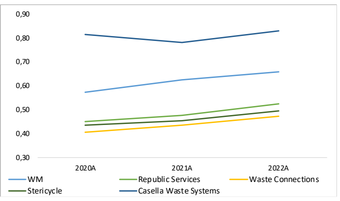
Figure 6 – Cash Conversion Cycle Evolution, 2020-2022



Source: Company Reports

Screening now through WM activity ratios, we can start by remembering what was said above regarding the firm's inventories. Since WM has no inventories in their core operation, meaning that the Average Holding Period is zero, the Cash Conversion Cycle (Figure 6) only includes the Average Collection Period and Average Payable Period. From 2020 to 2022, the Collection Period decreased from 63 days to 51 days. On the other hand, the Payable Period increased form 44 days in 2020 to 53 days in 2022. That being said, the Cash Conversion Cycle went from 19 days in 2020 to -1 days in 2022, confirming the hypothesis that WM's bargaining power with clients and suppliers increased, in fact, as it is able to collect cash before having to pay its suppliers. In this metric, WM is particularly well position among its main competitors. Only Waste Connections displayed a better result in 2022 (-4), while all the other displayed positive values, with Stericycle being ranked 3rd with 10 days.

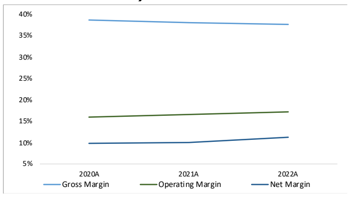
Figure 7 – Asset Turnover Evolution, 2020-2022



Source: Company Reports

Analysing now the Asset Turnover (Figure 7), which measures the efficiency of the company in generating revenue from its assets, it has shown a noticeable trend over the past three years, once this ratio has evolved from 0,57 in 2020 to 0,66 in 2022. This change can be attributed to the higher increase in revenues compared to the increase in assets from 2020 to 2022. The increasing Asset Turnover Ratio from 2020 to 2022 indicates that WM has been progressively more effective in using its assets to generate revenue. When compared to its peers, it is possible to see in figure 7 that WM has a higher Asset Turnover than most of its competitors. Only Casella Waste Systems has a higher one, which was 0,83 in 2022.

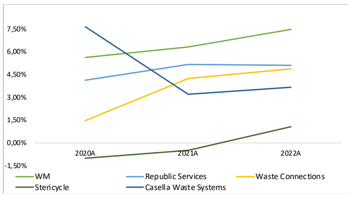
Figure 8 – Profitability Evolution, 2020-2022



Source: Company Reports

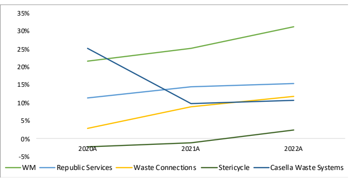
The last analysis we will be performing in this section of the report is the profitability analysis, where we will first look at WM's margins. The Gross Margin (Figure 8) measures the profitability of the company's core operations, and it has shown a discernible trend over the past three years. In 2020, WM had a gross margin of 38,6%. By 2022 the gross margin had declined to 37,6%. This small decrease can be explained by the fact that during this period WM increased its revenues substantially, around 29,4%, but its gross profit increased at a slower pace, at 26%. On the other hand, WM's Operating Margin (Figure 8) has demonstrated an increasing trend over the past three years. In 2020, WM's Operating Margin was 16%, which then increased to 17,1% in 2022. The increasing Operating Margin reflects WM's capacity to operate more efficiently and effectively in its core business activities. We then later conducted our analysis concerning WM's Net Margin (Figure 8), Return on Assets (Figure 9) and Return on Equity (Figure 10). The first has displayed a prominent trend over the past three years, growing on every year since 2020, where it was 9,8%, to 11,4% in 2022, which has allowed WM to position itself, along with Waste Connections and Republic Services, at the top of the comparable group. Such evolution reveals a positive trend in the company's ability to manage expenses and improve profitability. The second reflects WM's ability to generate profits relative to its total assets. The figures show the same momentum described above, since WM's Return on Assets has increased during this three-year period, from 5,6% in 2020, to 7,5% in 2022. The third, Return on Equity, is a gauge of a WM's profitability and how efficient the company is at converting its equity financing into profits. The evolution of WM's Return on Equity from 21,6% in 2020 to 31,3% in 2022, which was mainly given due to the substantial increase in net income during this period, of almost 50%, and combined with increased leverage, signifies a remarkable upward trend in the company's ability to generate substantial returns for its shareholders. Such result is particularly important, since Return on Equity is one of the most important metrics, being the first one that investors tend to look at when performing their own diligence on a company.

Figure 9 – Return on Assets Evolution, 2020-2022



Source: Company Reports

Figure 10 – Return on Equity Evolution, 2020-2022



Source: Company Reports

All in all, WM's financial performance seems positive. Liquidity-wise, there is room for improvement, and the numbers show efforts put into this direction. Solvency is WM's most sensitive area, as it is becoming increasingly dependent on external financing. Contrarily, the activity ratios suggest an increase in bargaining power with clients and suppliers, and a better conversion of accounts receivable and assets into revenue. Lastly, the company has been doing a great job in improving its efficiency and in converting its assets and equity into profits.

Share Performance

Two decades after being founded, in 1968, WM had its Initial Public Offering on June 2nd, 1988, and has been listed on the New York Stock Exchange under NYSE:WM ever since. Throughout time, WM's stock has experienced moments of continuous growth, mainly from 1988 to 1997, where it grew exponentially (2028%), but also moments where the stock fell sharply, as it was the case between 1998 and 2000, when it fell 77%. This decline arose from an accounting scandal, that affected the shareholders' confidence and trust on the company. The appointment of a new CEO in 1997 was the company's first effort to minimize the damages and accelerate the recovery period, as he immediately ordered a review of the accounting practices, ending up restating the company's books for the period. The stock recovery lasted until 2008, where, amid the global economic and financial crisis and consequent economic uncertainty and reduced industrial activity that led to a slowdown in waste generation, WM's operations came out weakened. The stock price naturally translated the weaker operations, as well as the generally lower investor activity, having then decreased 43% by March 2009. The following decade was positive for WM's stock, as it grew consistently within this time frame.

Figure 11 – Share Price Evolution, 2018-2023

Source: Bloomberg

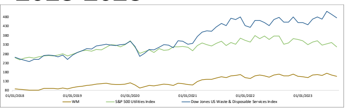
Having summarized WM's stock evolution since its IPO in 1988, it is now crucial, from a valuation point of view, to see what happened in the past five years, not only to WM's stock, but also to its peers and market indices, so that we can properly assess the performance of the firm against its competitors and the market. Over the past five years, one can see, from Figure 11, a global pandemic starting in 2020, resulting in a massive decrease in industrial activity negatively affecting the industry, creating uncertainty among investors, which resulted in periods of high volatility in the markets. Nevertheless, over the past five years WM demonstrated a solid average annual Return of 10,6%, with a standard deviation of 21,2%. WM's Sharpe Ratio, a measure of risk-adjusted performance, stood at 49,8% (Table 1). In comparison to its peers, WM's performance is noteworthy. Waste Connections showed a slightly higher average return of 11,8% with a marginally lower standard deviation of 20,9%, resulting in a Sharpe Ratio of 56,6%. Casella Waste Systems exhibited a higher average return of 21,7%, but with increased volatility as reflected in a standard deviation of 31,7%, yielding a Sharpe Ratio of 68,5%. Republic Services delivered a commendable average return of 13,6% with a standard deviation of 21,2%, resulting in a Sharpe Ratio of 64%. In contrast, Stericycle faced challenges, realizing a negative average return of -7% accompanied by higher volatility, as indicated by a standard deviation of 35,4%, leading to a negative Sharpe Ratio of -19,6%. WM's consistent performance, marked by a favourable balance of return and risk, positions it competitively within the waste management industry. Having tested WM's performance against its peers, it is now time to test it against the market. From Figure 12, it is perceivable that, in the past 5 years, WM's stock path has followed a similar trend when compared to indices such as S&P500 Utilities Index and the Dow Jones US Waste & Disposable Services Index, in moments of uncertainty and doubt such as the COVID-19 pandemic, and more recently amid the inflation struggle that has been affecting the world economy.

Table 1 – Returns, Std. Deviation and Sharpe Ratio of the Comparable Group

	Waste Management	Waste Connections	Casella Waste Systems	Republic Services	Stericycle
Avg. Annual Returns	10,6%	11,8%	21,7%	13,6%	-7,0%
Standard Deviation	21,2%	20,9%	31,7%	21,2%	35,4%
Sharpe Ratio	49,8%	56,6%	68,5%	64,0%	-19,6%

Source: Calculations & Bloomberg Data

Figure 12 – Share Price & Indices Evolution, 2018-2023



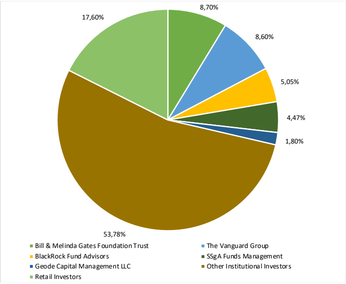
Source: Bloomberg

To conclude, since its IPO, WM's stock journey has demonstrated resiliency in the face of adversity. WM has demonstrated its steadiness over the last five years, generating a strong average annual return of 10,6%. WM's success is notable in the waste management business due to its competitive stance and favourable return/risk ratio when compared to its peers.

Throughout a market that is erratic due to unforeseeable world events, WM consistently performs well.

Shareholder Structure

Figure 13 – Breakdown of Shareholder Structure, 2022



Source: Company Reports

With a market cap of $63,99Bn and 403M shares outstanding, stands out in the waste management industry with its distinctive shareholder structure (Figure 13), primarily dominated by institutional investors. Institutional ownership plays a pivotal role in shaping WM's corporate landscape, as these large financial entities collectively control a commanding 82,4% of the company's outstanding shares, surpassing ownership concentrations seen in most of its industry peers.

Institutional ownership encompasses the holdings of prominent financial institutions such as mutual funds, pension funds, and investment firms in publicly traded companies. Waste Management has garnered significant attention from institutional investors for several compelling reasons. As a leading force in waste management and environmental services, the company offers a stable and dependable investment opportunity. Its consistent revenue streams, unwavering commitment to sustainability, and essential role in waste management make it an appealing choice for institutional portfolios. Among the notable institutional investors in WM, the current top three owners in 2023 are as follows: Bill & Melinda Gates Foundation Trust with a 8,7% stake in WM; The Vanguard Group, Inc. holds a 8,6% stake; and BlackRock Fund Advisors with a 5,1% stake. The presence of these institutional owners enhances the company's credibility in the market, providing added motivation to create value and stimulate growth for the benefit of shareholders. However, it may also lead to occasional pressures and conflicts.

To grasp WM's shareholder structure, it is important to understand the different purposes and roles played by institutional and insider ownership. Institutional ownership involves significant investments from large financial entities, influencing decisions based on financial performance. On the other hand, insider ownership comprises shares held by company-affiliated individuals, reflecting confidence in WM's future.

In conclusion, the shareholder structure of WM in 2022 was dominated by institutional investors, as institutional investors hold 82,4% of the outstanding shares, with the remaining 17,6% being held by retail investors. This reflects WM's strong allure as a stable and socially responsible investment choice within the Environmental Services industry.

Management Team

WM's management team is composed by nine members, which are all over forty years old, and with decades of experience in the utilities sector, having had leadership positions across relevant companies and industries. James C. Fisher Jr., the current Chief Executive Officer (CEO) is in position since 2016, and prior to that he was the company's Chief Financial Officer (CFO) between 2012-2016. Additionally, he held several key positions within the company, such as Senior Vice President for the Company's Eastern Group. The two other Executive Vice Presidents – John Morris and Devina Rankin – also accumulate functions as Chief Operating Officer (COO) and Chief Financial Officer (CFO), respectively, having performed other key positions within the group over the last twenty years.

When assessing the management team's impact on WM's valuation, it is evident that their extensive industry expertise and history with the company contribute positively to its strategic vision. The separation of the Chairman and CEO roles in 2004 reflects a commitment to corporate governance. However, it is noteworthy that Fisher, while not independent, remains a Board member. The Board counts with eight other members, after Thomas H. Weidemeyer reached the retirement age set in Waste Management's Corporate Governance Guidelines, then abandoning its Non-Executive Chairman position. It was decided that the Board would not have any additions. The retention of Kathleen M. Mazzarella as the successor to the Non-Executive Chairman position further signifies a strategic choice based on her leadership experience and governance expertise, aligning with the company's strategic vision.

All in all, over the past years, WM performance has been showing positive signs, with its revenues and margins increasing at a good pace. This, combined with an also higher ROE, demonstrate that WM Management Team has been taking the correct moves in guiding WM's strategy and vision for the future.

Industry Overview

Industry Analysis

In today's world, the waste management industry is seen as one of the most pivotal industries in society. It incorporates a varied range of services and activities aimed mainly at collection, transportation, disposal, and recycling of waste materials. At its core, the industry's main goal is to minimize as much as possible the environmental and public health externalities of waste while maximizing waste and resource recovery and sustainability. Companies in this industry are used to handle various types of waste, such as solid waste, hazardous waste, industrial waste, and recyclables. Their operation can be visually seen as a triangle, focusing both on environmental protection, public health, resource management.

Given the heavy focus on waste reduction and recycling, the industry has been promoting responsible waste disposal practices and recycling initiatives. By doing this, the industry aims to divert waste from landfills and incinerators, resulting in resource conservation and a reduced strain on disposal facilities. The fact that sustainability now plays a vital role in the sector business decisions has led to an increasing investment which have already resulted in innovations in waste-to-energy technologies, composting, and in the development of more efficient recycling processes. Also, the companies in this industry must always stay up to date with the regulation and environmental standards to guarantee compliance and protect the environment.

According to Statista, the global waste management market was valued at $1 293Bn in 2022, with the revenue of waste management services in the United States surpassing $140Bn. It is projected to experience a compound annual growth rate (CAGR) of 5,4% from 2023 to 2030, where its size is expected to reach $1 959Bn. Due to the lockdown during the COVID-19 pandemic, waste generation from the commercial and industrial sectors reduced as companies and offices were closed, entirely or in part. However, garbage in urban areas from populated areas grew. The elevated operational and procurement expenses associated with waste management solutions are poised to exert an impact on market growth. The industry has two main key drivers that will keep shaping its future. On one hand, strict government rules, such as the Resource Conservation and Recovery Act and the Waste Shipment Regulation, are anticipated to push the industry and enhance this service, always striving for better practices.

On the other hand, the technological advances that shorten the life cycle of electronic products, that increases e-waste.

It is also worth mentioning that the strict regulatory environment is not the only barrier to break into this industry, since the significant capital investments play a determinant role as well. The industry is capital-intensive as mentioned before, and hence there are significant barriers to entry when it comes to investment in technology and equipment. Additionally, the labor factor is also a crucial point, incurring substantial costs in wages. The transportation of waste also contributes to high costs, encompassing both collection and transportation expenses to recycling facilities or landfills.

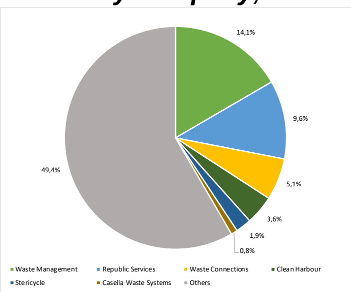
The market is predominantly controlled by a few major players, which boast substantial customer bases and goodwill. This dominance acts as a deterrent to new entrants, as they would likely face significant capital costs due to the sophisticated nature of processing technologies. Consequently, the threat of new entrants is expected to be reduced, thereby constraining competition within the market.

Finally, there seems to be strong bargaining power against both customers and suppliers, as well as a low threat of substitute products and services, making this industry relatively attractive, though hard to get in, favouring the already established players.

Competition

Given the increasing importance of the waste management industry to the modern society due to the urgency in turning the world's economy more circular and find ways to properly dispose all types of waste, it would be likely that the number of competitors would grow throughout time to try to capitalize from the increase in market size, would it not be for the strong barriers of entry and relative maturity of its players. So far in the U.S., where the industry is the most developed, the market is fairly concentrated (Figure 14), and in 2022 it was led by WM with 14,1% of market share, followed by Republic Services with 9,6%, Waste Connections with 5,1%, Clean Harbour with 3,6%, Stericycle with 1,9%, Casella Waste Systems with 0,8%, and other smaller competitors representing the remaining 49,4% of the market.

Figure 14 – U.S. Market Share by company, 2022



Source: Company Reports and Statista

As such, one can describe the industry as an oligopoly, given that there are a few representative players with bargaining power over suppliers and customer, as well as strong barriers of entry.

- Republic Services

Republic Services is the second largest player in the industry with a market share of 9,6%, being renowned for its long-standing presence in it having been created in 1996. It is headquartered in Phoenix, Arizona, and operates in the U.S. and Puerto Rico. In 2022, it amounted $13,5Bn in revenue, which represents a 20% growth compared to 2021, and a 35% growth compared to its size in 2018. Operationally speaking, in 2022 its Gross Margin was 29,3%, while its Net Margin was of 11%. When it comes to capital structure, the company's D/E Ratio was of 1,2 in 2022.

- Waste Connections

Waste Connections, founded in 1997, is currently headquartered in Ontario, Canada. Like WM, its operations are in the U.S. and Canada. It is the third largest player in the market, having registered a 5,1% market share in 2022. In the same year, Waste Connections recorded a revenue of $7,2Bn, which is a 17% increase compared to 2021, and a 46% compared to its size in 2018. In 2022, the company's Gross Margin was 29,3% and the Net Margin was 1%. Lastly, its capital structure is characterized by a D/E Ratio of 0,98.

- Stericycle

Stericycle, the fifth largest player in the market, was established in 1989 and is headquartered in Bannockburn, Illinois. Its operations are spread across 21 countries, being some examples the U.S., Canada, Ireland, the Netherlands and Spain. In the U.S. market, its market share was 1,9% in 2022, having recorded revenue of $2,7Bn – a 2% increase compared with 2021, but a 22% decrease compared with 2021. Its Gross and Net Margins were, respectively, 37,9% and 2,1%, in 2022, while the D/E Ratio was 0,60.

It is also important to highlight the fact that Stericycle focuses on healthcare waste management and compliance solutions, having a unique focus on managing medical and hazardous waste for healthcare facilities, pharmaceutical companies, and various industries.

- Casella Waste Systems

Casella Waste Systems was founded in 1975 and is headquartered in Rutland, Vermont. It operates in seven states of the U.S., having a 0,8% market share (2022). It registered revenue of $1Bn, a 22% expansion compared to 2021, and 64% growth rate compared to 2018. Its Gross Margin was 21,6%, its Net Margin was 4,9%, while the D/E Ratio was of -1,1.

Recalling the Company Snapshot section, WM had, in 2022, Gross Margin of 37,6%, Net Margin of 11,4%, and a D/E Ratio of 2,19. When it comes to operational efficiency, WM is among the three top performers (Stericycle with 37,9% and Republic Services 29,3%), though in third place, but still very further the two other competitors (Casella Waste Systems 21,6% and Waste Connections 29,3%). Analysing the Net Margin, the competitors' performance is less dispersed, and WM is the second most efficient in converting revenue into profit, only behind Waste Connections (11,6%). Lastly, regarding the book value perspective of the capital structure, WM seems to be using much more leverage than its peers, as its D/E Ratio of 2,19 is much superior to the second ranked competitor (Waste Connections 0,98), which may put the company in a more sensible position compared to the rest of the industry.