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EQUITY RESEARCH JERÓNIMO MARTINS SGPS S.A.:

ALTERNATIVE METHODS TO THE CAPM

BEATRIZ LOBATO CALVÁRIO

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SUPERVISOR:

VICTOR MAURÍLIO SILVA BARROS

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Abstract

The present document is the report of an Equity Research of Jerónimo Martins S.G.P.S., SA (JMT). JMT is international Group based in Portugal with over 230 years of know-how in the food business. This report issues a buy recommendation for EDPR, with a 2023YE price target of €24.9/share, applying a DCF FCFF Sum-of-the-Parts approach to each segment. The valuation comprises an upside potential of 22% from the January 13th, 2023, closing price of €20.4, with medium-low risk. To support this analysis, other valuation methods were used. Also, the valuation was subject to sensitivity analysis to address its risk.

This research work presents an extended chapter aimed at integrating alternative methods to estimate the cost of equity (namely alternative methods to the Capital Asset Pricing Model). Our analysis considers a closer look and consideration towards risks analysis and measures within the valuation model. Three approaches were considered: the Incomplete Replication approach (a method that involves replicating the risk and return characteristics of a benchmark), the Build Up Approach and the Fama French Six-Factor Model. Even though the approaches considered serve as complementary to the CAPM, the overall investment recommendation still holds. Still, the price target is lower in the alternative models when compared to the main valuation, given the current unstable economic situation.

Resumo

O presente documento consiste num relatório de Equity Research sobre a Jerónimo Martins S.G.P.S., SA (JMT). A Jerónimo Martins é um grupo internacional sediado em Portugal com mais de 230 anos de experiência no setor alimentar. Este relatório emite uma recomendação de compra para a EDPR, com um preço-alvo de €24,9 por ação até o final de 2023, aplicando uma abordagem de DCF FCFF Soma das Partes a cada segmento. A avaliação representa um potencial de valorização de 22%, face ao preço de gecho a 13 de janeiro de 2023 de €20.4, com um nível de risco médio-baixo. Para suportar esta análise, outros métodos de avaliação foram utilizados. Além disso, a avaliação foi sujeita a uma análise de sensibilidade para abordar seu risco.

Foi realizada uma abordagem complementar com o objectivo de integrar métodos alternativos para estimar o custo do capital próprio (nomeadamente métodos alternativos ao CAPM). Esta análise tem em consideração a identificação e análise de medidas de risco no modelo de avaliação. Foram consideradas três abordagens: a abordagem de Replicação Incompleta (um modelo que implica a réplica do nível de risco e retorno de uma empresa com base numa referêcnia de mercado), a abordagem Build Up e o Modelo de Seis Fatores de Fama French. No geral, a recomendação de investimento ainda se mantém, embora seja importante entender que as abordagens consideradas são complementares e não sugestões de alternativa ao CAPM. Assim sendo, a recomendação é a de reduzir a exposição do portfolio à JMT, uma vez que o preço-alvo é menor do que na primeira avaliação, dada a atual instável situação do mercado.

Acknowledgements

Disclosures

A significant portion of this report was submitted by a group of students from ISEG, including the candidate, for the 2023 CFA Institute Research Challenge Portuguese Local Final. Upon winning the local final, the same report advanced as the representative report for CFA Society Portugal in the 2023 Southern Europe Sub-Regional Final.

This report is published for educational purposes by Master students at ISEG and is not an investment recommendation. This report must be read with the Disclosures and Disclaimer at the end of it. Appendices that support this report may be obtained from the author upon request.

Index

List of Figures

List of Tables

List of Appendices

Investment Summary	
Price target (2023YE)	€24.9
Upside	+22.0%
Price Close (13/Jan/23)	€20.4
Stock Exchange	Euronext Lisbon
Industry	Food Retail
Ticker (Refinitiv)	JMT.LS
52w Price Range	€17.7 - €23.3
Forward Div. yield	3.7%
Shares Outstanding	629.3 M
Market Cap (13/Jan/23)	€12.8 Bn
Free Float	43.7%

Source: Refinitiv, Team Estimates

Figure 1: Stock evolution (€/sh and volume in milions)
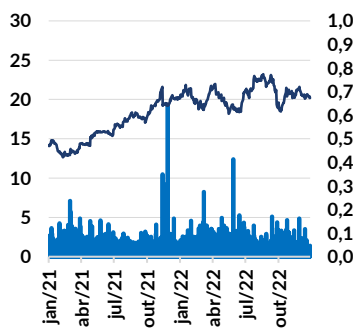
Source: Refinitiv

Figure 2: Number of stores growth by business segment (2017: index 100)
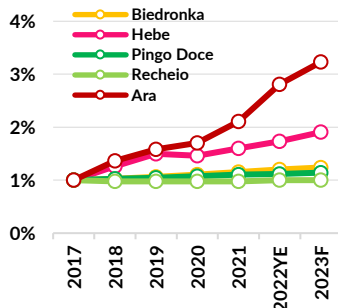
Source: Company Reports

Figure 3: ESG Risk Rating
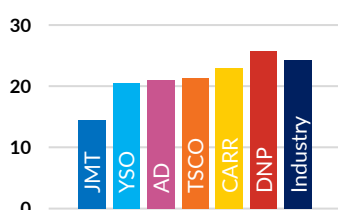
Note: Scores range from 1 to 100. Lower scores indicate lower risk.
Source: Sustainalytics

JMT: Food Retail is at a discount

Jeronimo Martins (JMT) is positioning itself for long-term success. The company has a strong market leadership position in Poland and Portugal and is continuously expanding its operations in Colombia with steady growth in store openings. With sound financials, the company is ready to take the next step.

Investment Summary

We issue a **BUY** recommendation for Jerónimo Martins S.G.P.S., SA (JMT) with a price target of **€24.9/sh** for 2023YE using a DCF sum-of-parts (SoP) approach. The forecasted price implies a 22% upside potential from **January 13th, 2023**, closing price of €20.4/sh (Figure 1). Assessing it as a medium-low risk, this recommendation is based on **(1)** resilient business model, **(2)** strong presence in growing markets, **(3)** family management with long-term perspectives, and **(4)** planned expansion to new markets.

SOLID BUSINESS MODEL

JMT understands the food retail industry unlike any other. Its business model has demonstrated longevity, effectively implemented across multiple generations and international markets.

The company operates through a cost leadership strategy that enables a competitively priced, high-value proposition to consumers, in markets characterized by strong price sensitivity. This is further supported by the flexible supply chain, which delivers a selection of high-quality, fresh products through an extensive network of local suppliers. This strategy is especially visible in Poland and Colombia (c. 71% and 7% of group revenues 2022YE), where >95% and 80% (respectively) of perishables are locally sourced. This flexibility in the supply chain is a core competitive advantage for the group, fundamental for the above-average ROIC, derived from superior capital turnover.

Also, the company has a deep understanding of their consumers, as per its motto "We're locals, wherever we are". Customer loyalty is high in Poland, as the *Biedronka* banner leads by 3.6 times over the second player Lidl (32.4% Q1 2022 vs 9.0%), according to a satisfaction index by Statista.

STRONG PRESENCE IN GROWING MARKETS

Biedronka is the dominant player in Poland, with c.27% market share. In Portugal, the group holds a significant market share of c.23% with *Pingo Doce* and is experiencing growth with *Ara*, in Colombia (with c.8% market share). *Biedronka* is the group's main revenue source (69% 2022YE). The upward trend in growth is supported by opening stores in city centers to attain their proximity strategy (Figure 2:). The increase in population through refugees' movements from Ukraine is mainly in regions where *Biedronka* has a strong presence, with revenues expected to increase c.5% CAGR (2022YE-2030YE).

HoReCa in Portugal has recovered to pre-pandemic levels, and strong branding has led to an increase in 2022Q3 LFL growth, both in *Recheio* (+28%) and *Pingo Doce* (+12%).

In Colombia, a market still dominated by traditional retailers (c. 68% of market share 2021), consumer trends are shifting towards discounter formats. Food inflation and larger scale of retailers are putting pressure on the small mom-and-pop stores (*tiendas de barrio*), providing a growth opportunity for *Ara*, which increased its store count by c. 33% in 2022YE.

FAMILY MANAGEMENT WITH LONG TERM PERSPECTIVE

JMT is a family-owned company (Sociedade Francisco Manuel dos Santos, B.V. owns c.56%) and shown a clear effort to assert their position and reputation in the market. The Board has made ESG a priority, focusing on sustainability and social impact (Figure 3). The company has an overall ESG score of 14.5 (out of 100, low risk), ranking as the 7th least risky company out of 195 considered in the Food Retailers segment (Sustainalytics) and an A score (highest would be 'AAA') by MSCI. The company was able to uphold a conservative financial position, even during the pandemic period. While presenting a similar gearing ratio, JMT is above peers regarding its ability to repay debt (Net Debt/EBITDA of 1.0 vs 2.1 of competitors, 2021YE).

READY FOR EXPANSION

Management's ability to keep a healthy financial position puts the company in an offensive position for an expansion opportunity. A recent press release of JMT suggested an extension of the *Biedronka* banner to Romania. The market is fragmented, and growth prospects may unveil an opportunity to keep increasing and diversifying JMT's revenues. *Profi* and *Mega Image* have been analysts' leading opinions for an acquisition. *Mega Image*'s main shareholder, Ahold Delhaize, detains 49% ownership of JMT's *Pingo Doce*. As such, there is already a business partnership between both companies. The business format of *Mega Image* is aligned with *Biedronka*'s profile of medium-small discounter stores and their strategy of proximity and presence in city centres.

Figure 4: Valuation methods (€/sh)
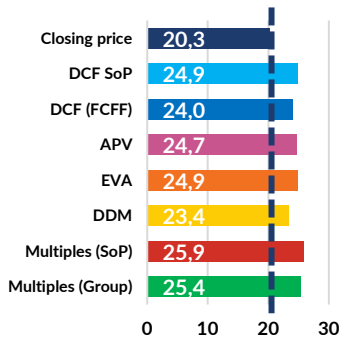
Note: average multiples include EV/EBITDA and EV/EBIT
Source: Team estimates

Figure 5: Sales Distribution 2022e
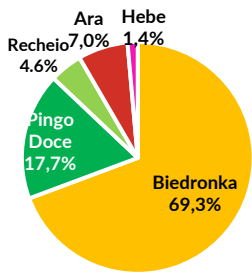
Source: 2022 preliminary results

Figure 6: Market Share Poland (2021YE)
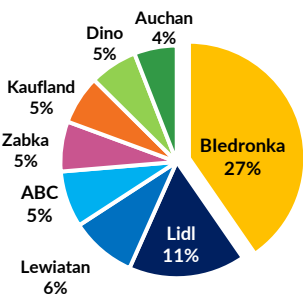
Source: Euromonitor

Figure 7: Market share – Food Retail (Portugal 2021YE)
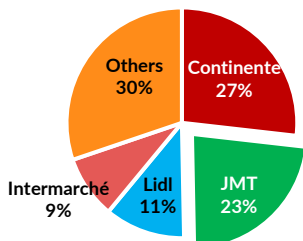
Source: Euromonitor, Team Estimates

Figure 8: Market share – Food Retail (Colombia 2021YE)
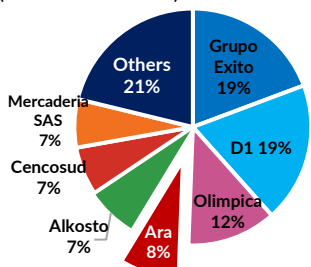
Source: Euromonitor

VALUATION METHODS

The application of a DCF model, based on the FCFF sum of parts (SoP) of business segments, resulted in a price target of €24.9/sh. With a Relative Valuation per geographical segment, employing the SARD approach for selecting peers, the price target is €25.9/sh. Additional valuation methods listed in Figure 4, were considered to triangulate valuations (FCFF for the whole firm; APV, Residual Income/EVA®; DDM; and multiples, by business segment and for the whole group). The capital structure is expected to progress from at 80-20% to 70-30% E/D 2022-30F. A comfortable dividend payout ratio (c. 85%) is assumed.

RISKS TO ACHIEVE THE PRICE TARGET

Macroeconomic factors affect food retailers, despite its non-cyclical nature. Inflation, GDP growth, energy prices, or exchange rates impact JMT's margins. The group estimates energy costs to represent 1.5% of sales in 2023, up from the pre-war 1%. Also, the group has an international scope, with segments in different functional currencies. The exchange rate risk is particularly accentuated in Poland, as JMT highly depends on *Biedronka*'s performance.

The food retail industry is broadly characterized by monopolistic competition environments, where companies fight for market share, and often engage in price wars. Additionally, it faces political risks regarding tax laws, as Portugal and Poland have implemented new specific taxes on retailers.

Business Description

Jerónimo Martins, SGPS, S.A. (JM) is a Portuguese-based company that operates in food distribution, specialized retail and agribusiness sectors in Portugal, Poland, and Colombia. The main business activity is in Poland, with their *Biedronka* banner representing c.69% of sales and c.85% of EBITDA 2022e (Figure 5).

Group History

The group was founded in 1792, but the Portuguese supermarket business started in 1980. The Dos Santos family became shareholders in 1921. In 1949, the group confirmed a joint venture with the multinational Unilever, guaranteeing a presence in manufacturing. The change in management in 1968, and the ambition to be noticed in the modern distribution segment, contributed to an international recognition. Following this vision, the Group expanded to Poland in 1995 and to Colombia in 2013. JMT also diversified operations into specialized retail and agribusiness in Portugal.

Operational segments

Poland | *Biedronka* (Discount Format) represents the main operation of the group with c.27.3% market share (Figure 6). The brand operates through 3.395 stores (2022YE). By 2025, we estimate it reaches about 3.664 stores (+7.9% 2022YE), in line with their proximity strategy. The Polish banner registered +22.7% LFL growth (2022Q3). *Biedronka*'s major mission is to offer selected high-quality products and merchandise at low prices. The focus on perishables and recent consumer trends in Poland (e-commerce is still inexistent, with 1.5% of the market in 2021, by McKinsey) provide the rationale for the proximity stores strategy.

Portugal | Major business segments include *Pingo Doce* (supermarket discounter chain) and *Recheio* (Cash & Carry). Currently at its maturity stage, *Pingo Doce* has registered +11.2% LFL growth (2022YE) to €4.5Bn. The company operates through proximity and neighbourhood stores, with a strong emphasis on perishables. With a total of 472 stores (2022YE), it is the leading supermarket chain in a market with oligopolistic characteristics. *Pingo Doce* and *Continente* (Sonae MC branch) sum together more than 50% of the market (Figure 7). Pingo Doce presents EBITDA margin of 6.0% (2021YE), amounting to €244M. In the group, this figure equates to 15.4% EBITDA contribution.

Recheio is the market leader in the Cash & Carry segment (HoReCa), with an operation of 43 stores, registering a 11.2% LFL (2022YE) to €1.2Bn, recovering to pre-pandemic levels. The Cash & Carry nature yielded a lower EBITDA margin at c.4.7%.

Colombia | JMT's greenfield investment, *ARA*, presents a small store food retailing business, with a major focus on delivering quality local products at lower prices. The banner follows a proximity strategy, with 1093 stores in Colombia (2022YE). In 2021, after a change in management and considering changes in reporting due to IFRS 16, EBITDA was positive for the first time. Still, it was the group's lowest EBITDA margin (2.3%). These results are mainly driven by store expansion and food inflation (27.8% YoY 2022). As for market integration, ARA became the 4th biggest player in the Colombian modern food retail market in 2021 (within 8 years of operations) – see Figure 8. Competition is fierce. The competitor D1 was the fastest grower in the industry, as it reaped first-mover benefits.

Specialized Retail

The group also owns *Hebe* (Health and Beauty) in Poland, *Jeronymo* (Coffee Shops), *Hussel* (Chocolate and Confectionery), and the Agribusiness in Portugal.

The Agribusiness' purpose is to support the food distribution operation in Portugal, by ensuring direct access to the supply sources of strategic products. It operates in four distinct areas: fruits and vegetables, dairy products, livestock farming (angus beef and lamb meat) and aquaculture (sea bass and sea bream). The integration in the value chain has allowed margins in the Portuguese business of JMT to grow from 5.2% 2017 to 5.7% by 2022YE.

Figure 9: Private Brand Suppliers (% local suppliers)

- ■ Weight of Private Brands
- ■ Local Suppliers of Private Brands
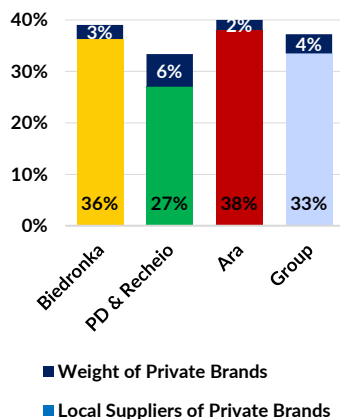
Source: Company Reports

Figure 10: Number of stores Poland

Biedronka	3395
Lewiatan	3200
Dino Polska	2156
Carrefour	901
Lidl	810
Netto	664
Auchan	
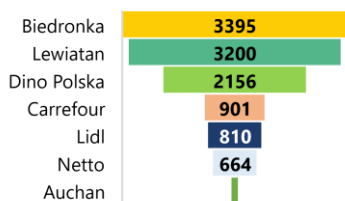
Source: Company Reports

Figure 11: Environmental analysis per €M sales

- ── Tonnes Waste/€M Sales
- ── Tonnes CO2/€M Sales
- ─○─ GJ Energy/€M Sales
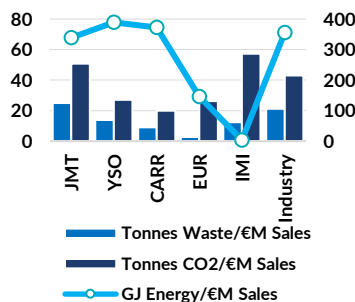
Source: UN Population Forecast

Table 1: Shareholder Structure (2022)

Shareholder	Ownership
Soc. Francisco dos Santos, B.V.	**56%**
Comgest Global Investors, S.A.S.	2%
Black Rock, Inc.	2%
T.Rowe Price Group, Inc.	2%
Others	38%

Source: Company Reports

Figure 12: Board background (%)
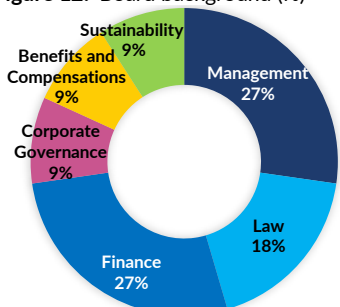
Source: Company Reports

Key Drivers of Profitability

Proximity stores | The pandemic has resulted in a shift in consumer behaviour, with a preference for proximity, as people spend more time working from home.

While consumer behavior shifts, it is crucial to consider a holistic view moving forward. Online and offline are no longer competition, but complementary. JMT's expansion plans, with a major focus on the development of new proximity and convenience formats, are in line with this shift. The unbeatable price-quality ratio, particularly in the Polish market, supports the group's positioning in the market.

The group also promotes a proximity experience through their fast delivery service implemented in Poland (*Biek*), available in the major cities. The policy in place targets less than 15 minutes of delivery.

Demographics| According to the UN Department of Economic and Social Affairs, the Portuguese population is expected to decrease at a -0.3% CAGR in the 2024-2030 period. This contrasts with the remaining geographic areas. Particularly in Poland, until 2023YE, a 3.2M increase is expected due to the war's refugee crisis (+8.5% YoY). Life expectancy is projected to rise, supporting timid albeit consistent growth potential.

Focus on Supply Chain | JMT relies heavily on local suppliers. About 90% of suppliers of private labels are locally based (Figure 9). This focus on private brands is driven by consumer preferences, increasing in recent years. By working closely with local suppliers, JMT also aims to minimize inventory risk and support surrounding communities. This approach has allowed Biedronka to keep prices 15-20% lower than competitors during inflationary times, thanks to strategic sourcing and bulk purchasing. Additionally, the supply chain in Portugal is well-established, with the support of the Agribusiness, which enables to source products internally and reduce dependence on external suppliers.

ESG - Environment, Social and Governance

ESG ratings are proliferating, yet applications of these scores in valuation are mostly from a risk perspective. According to Refinitiv, JMT's ESG score is 85 out of 100. Among 146 companies under the Food and Drug Retailing Companies category, JMT ranks with a solid 4th place. We view ESG as a risk factor that can fluctuate both cash flows, the discount rate and the company's growth potential. However, no relevant harm to JMT is likely, considering its positioning across the food retail industry.

Environmental

JMT's Environmental Protection Policy targets are restructured every 3-4 years, with several institutional standards implemented or in the process. Their most recent pledge, the Porto Climate Pact, escalates their Green House Emission reduction by reducing energy consumption by 10% per thousand Sales until 2023YE. The group's main pledge is carbon neutrality until 2040, meeting international requirements and pledges, but there is room for improvement (Figure 11). So far, they have largely reduced their carbon footprint, with the most considerable effect from Biedronka at c.-82%. The Taxonomy under the new Corporate Sustainability Reporting Directive will add a burden on 'brown' companies, favouring the green. Being at the forefront in ESG will allow JMT not to be penalized in credit spreads for financing purposes.

Social

Following their corporate responsibility strategy, reformulations in the group's private brands are constantly made in fast-moving consumer goods to fight diet-related diseases by lowering levels of salt, fat, saturated fat, and sugars. Since 2015, JMT has been making food donations and in 2021 alone, 21 thousand tonnes of food were donated, primarily for humanitarian aid in Colombia.

Regarding the participation of women in the workforce, JMT is very well positioned. The group employs over 123 thousand people, of which 76% are women. Additionally, 68% of management positions are held by women, 71% of promotions involve women, 30% of the BoD is female, and the group's gender pay equity ratio is 96.5%. Workplace training hours have grown by about 80% since 2019 and 50% since 2020 (337,079 hours provided). The community is also served indirectly by the foundation of the main shareholder, FFMS, which engages with society in a plethora of initiatives.

Governance

Board structure and Model| This is a family firm. The main shareholder is Soc. Francisco Manuel dos Santos, B.V., is controlled by the Soares dos Santos family (56.1% of share capital) and with stable ownership since 2012 (Table 1). The group adopted the Anglo-Saxon governance model, including an Audit Committee and a Statutory Auditor as oversight parties.

Board of Directors | Represented by eleven members (Executive: CEO/Chairman Mr Soares dos Santos), elected for a 3-year term. Since 2018, the company has made an active effort and the percentage of women on the board has increased from 14% to 36%. Currently, it is just above the minimum 1/3 threshold defined by the Portuguese Law on Gender Equality in Boards. Expertise in food retail and background diversity are characteristics of JMT BoD (Figure 12).

Executive Management | The groups C-level executives are all of Portuguese nationality with an average tenure in the company of 21 years of which 40% are female.

Committee on Corporate Governance and Corporate Responsibility (CCGCR) | In collaboration with BoD, the CCGCR focuses on monitoring matters related to the sustainability of the business and ESG. All matters related to the Agribusiness segment, environmental initiatives, employee support programs, and more are considered.

Remuneration policy | The remuneration of directors consists of a fixed component (80k, in 2021) and a variable component linked to performance.

Controversies | In 2022, Pingo Doce was fined for a fixing prices campaign in the amount of €91M, and

Figure 13: Inflation per business segment JMT (%)
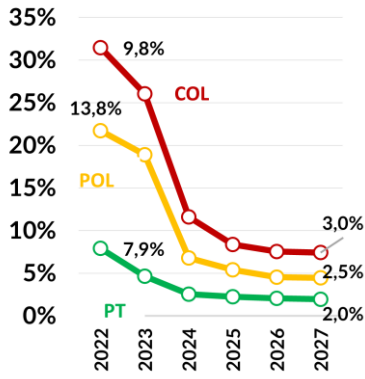
Source: IMF

Figure 14: Brand Loyalty for Polish consumers
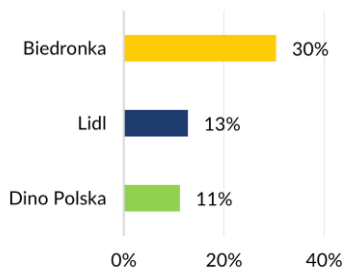
Source: Statista

Figure 15: Total store evolution (thousands)
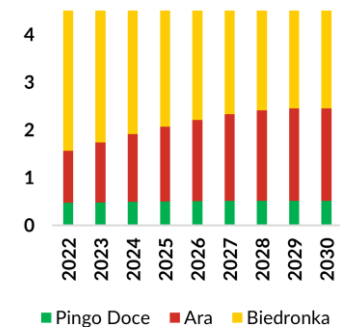
Source: Company Reports

Table 2: Peer List for JMT (SARD approach)

Poland	Lidl
	Carrefour
	Netto
	Eurocash
	Dino Polska
	Auchan
Portugal	Continente
	Auchan
	Lidl
	Aldi
	Mercadona
Colombia	Tiendas D1
	Almacenes Exito
	Olímpica
	Cencosud

Source: Team Estimates

Biedronka was accused of misleading campaigns, and was threatened with €1.5 billion fine. In our valuation, this is a contingent liability with a 5% likelihood despite not having any formality, yet.

Industry Overview and Competitive Positioning

The Food & Grocery segment is one of the highest-selling categories within the retail industry. Considering a market segmentation of Food, Drinks, Tobacco, and Household consumption, the Food segment accounts for about 73% worldwide. The industry has been showing flexibility regarding consumers preferences, which have been changing since 2019. During the pandemic period, consumers preferences considered product availability, proximity stores and e-commerce.

The post-pandemic reality offers a different set of conditions, allowing for a slight increase in the available income in every country in which the Group operates. The war continues to impact the global economy, contributing to the fragmentation of international trade and investment. Sanctions on Russia after its invasion of Ukraine (Feb.24) pushed energy prices across Europe, increasing costs with a noticeable impact on margins.

Countries reliant on natural gas imports will be affected not only for heating purposes (which account for 30% of energy demand) but also for commodities. Costs of agriculture production, metal extraction and refining, and of renewable energy technologies will be affected the most. Exports from Ukraine will interrupt agricultural production in 2022, prices are forecasted to rise 18% YE 22.

Demand drivers

Disposable Income | Food products are a core need of households, though disposable income drives spending. In 2021, the disposable income of households in Portugal increased by 1.4% (2021 YE) and 4.0% compared to 2020, while in Poland, there was a decrease of 1.6% in 2020-2021YE (Eurostat). The result is explained by the 1.5% growth in compensation of employees from the previous quarter and a 5.6% increase in annual terms.

Promotional Sales | Pricing is an important strategy in the business, especially in Poland, as *Biedronka*'s performance can majorly be explained by its discount format. In Portugal, consumers are characterized as discount seekers (in 2019, sales increased 7.5%, where a particular care for discount campaigns was conducted). Still, *Pingo Doce* and *Recheio* have operations in different formats and don't pose a significant weight in the global company's performance.

Brand recognition | Brand loyalty stand in high demand, as consumers seek a more personal and high-quality experience (Figure 14). Consumers are now more sensitive not only to prices, but also to transparent information and particular products related to market trends. Related to brand recognition, the Group also considers Retail media as an important incentive to increase profitability. JMT applies about 0.5% of its other operating costs into advertising.

Supply drivers

Change in Market Dynamics | The European food retail market particularly considers three main trends: inflation, lower volumes, and polarization of the consumer. Labour costs have also increased, affecting the supply chain resilience. 83% of retailers considered investment in recruiting and employee retention (Deloitte 2022). Salary is not the only concern anymore. Flexibility, corporate culture, and diversity are highly valued.

Supply chain | In line with the Group's strategic vision of business independence, JMT considers not only its own production and distribution units, but also complementary business acquisitions (acquisition of a 10.1% stake in a Norwegian sustainable salmon production company, acquisition of two-thirds of the share capital of Moroccan company Mediterranean Aquafarm, etc.). Control over the supply chain goes in line with JMT's environmental care principle, and several marks regarding carbon footprint, energy and plastic consumption and local supplier policy are deemed.

Freshness meets proximity | Biedronka and Pingo Doce are the chains with most store counts in their respective markets, with Ara expecting a doubling in their store count by 2030YE. The groups deep rooted presence in neighbourhoods and city centres allows consumers to have everyday access to a fresh variety of products, supplied by the groups extensive local suppliers' network.

Peers

In Poland, main competitors are the German discounter Lidl, Kaufland, Dino and Auchan (market shares of 11.0%, 4.6%, 4.5% and 4.0%, respectively), also presenting a discount format.

In Portugal, *Sonae MC* poses as the main competitor to *Pingo Doce*, through the *Continente* chain. Both brands have over 50% market share, and all other food retail brands stand for a significantly lower percentage. Continente presents higher revenues and number of stores when compared to Pingo Doce. Moreover, Sonae considers a diversification strategy at a national level, with a current focus on e-commerce, representing a threat for JMT's future market share.

As for Colombia, D1, a private hard discount retailer, competes both in proximity (neighborhood stores) and in price, being ARA's biggest competitor. Another major competitor is Grupo Exito, a multi-format retailer supported by the French multinational Casino-Guichard Perrachon, also present in Brazil. However, Colombia is still dominated by the disorganized traditional format where the "Tiendas de Barrio" represented 68% as of 2021 of the grocery retailer industry, being a big growth opportunity.

Figure 17: European markets' willingness to pay premium prices
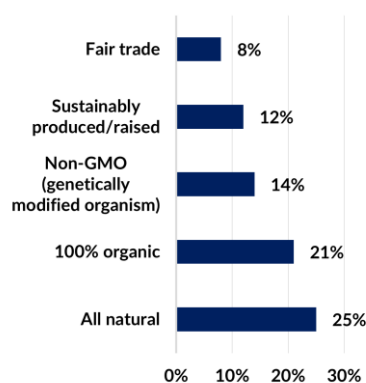
Source: Euromonitor | Survey

Figure 18: PESTLE Analysis
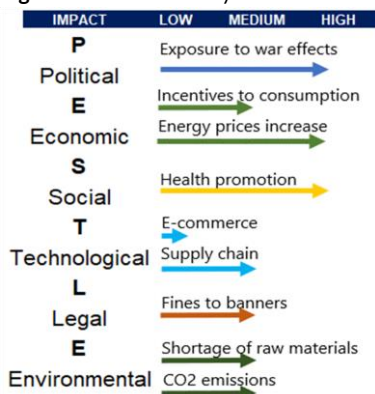
Source: Team Estimates

Figure 19: Porter's 5 Forces
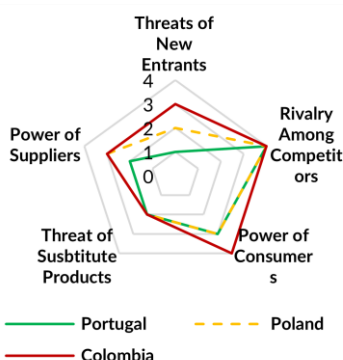
Source: Team Estimates

**** Using the intrinsic value of Pingo Doce

Source: Team Estimates

Table 4: JMT SoP's Price Target

EV to P	Value	(%) EV
Poland	€16,298	84.7%
Portugal	€3,382	17.6%
Pingo Doce	€2,546	13.2%
Recheio	€835	4.3%
Colombia	€1,391	7.2%
Others, adjustments	€-1,838	-9.6%
Total Enterprise Value	**€19,233**	**100.0%**
Non-op assets*	€1,337	7.0%
Debt**	€-3,333	-17.3%
Contingent Liabilities***	-€340	-1.8%
Non-Controlling (49% EV of PD)****	-€1,248	-6.5%
Equity Value	**€15,649**	**81.4%**
Price Target	**€24.9**	

*Cash + Investments
**All Financial Debt including Lease Liabilities
***Includes all contingent liabilities with 50% likelihood, except for the possible litigation with the Polish Office of Consumer Protection that applies over 10% of Biedronka's sales

Trends

Health concern | The quality of products has become an increasingly important factor for consumers when purchasing. When considering experiences, consumers tend to prefer products and services related to quality (63%), sustainability (37%), health (33%), privacy (26%) and time (20%) (Euromonitor, 2021b; EY, 2020). The trend causes a problem for middle tier products, as those with less disposable income are pushed by inflation to cheaper products (McKinsey, 2022).

Green initiatives | According to a study regarding sustainable initiatives, 68% of Portuguese would be willing to pay higher prices for services or products from brands focused in sending a positive message regarding social and environmental issues. Responsible practices within the Food and Agribusiness sector will be needed, as there is an expected global population growth of almost 10 billion people in 2050, and an increase of food demand of over 50% (Deloitte, 2020).

The upcoming category for retailers is alternative proteins, aligned with healthier consumption patterns. Food system makes up for about 34% of the total greenhouse-gas emissions globally, most of it coming from meat and dairy, areas that can still be affected in the JMT Agribusiness.

Energy influence over consumption | According to the Dutch bank estimates, the share of energy in the total cost of food manufacturers in the EU has risen from 2% (2019YE) to 7.5-10% (2022YE). Energy intensive sectors considered a rise of up to 30% of their production costs (in the expense segment of energy bills). Suppliers will increase prices due to higher energy costs. Furthermore, the Food Retail segment is highly competitive, in which companies present lower profit margins due to price negotiations (typically 1-3%, according to EuroCommerce), and company's absorption capacity is low.

The fact that there is no guarantee of appropriate gas storage on the long term provides an incentive to an alternative energy strategy transition (such as renewables).

Competitive Positioning – Porter's 5 Forces Framework

Threat of New Entrants – LOW | The discount format is a highly capital-intensive industry that requires high levels of investments to enter the market. The companies operating in this segment have acquired economies of scale by developing and controlling efficient supply chains, increasing the barriers of entry. Newcomers would have to develop their own supply chains, enter at a grand scale, and compete in price with existing players. Upfront investments like marketing, inventory and physical assets are key to enter and gain market share, putting even more pressure to the thin margins.

Rivalry Among Competitors – HIGH | Rivalry among existing players is intense and applied in the form of price competition, marketing, and physical proximity to cluster of clients. In Portugal, market maturity and low growth forces companies to compete against each other for market share. Given the capital intensity of the industry, exit barriers are high, forcing companies to stay and compete through price and accept losses in periods of high inflation. The industry's lack of differentiation in their products, and customers' low switching costs makes marketing expenses a necessity to not lose market share. For JMT, peers in Poland, Portugal and Colombia are strong players with a solid financial capacity.

Power of Consumers – MODERATE | Recent macroeconomic conditions have increased the already high price sensitivity in the consumers, given the high fraction food represents in their budget. Low switching costs and recent changes in consumer behaviour, including a tendency towards healthier food habits, discounts, and proximity preference have increased the power of buyers, forcing prices down, increasing the companies' fixed costs, directly affecting the industry's overall profit.

Threat of Substitute Products – LOW | The threat of substitute products in the Food Retail business is very low. However, companies must stay attentive and have flexible supply chains to shift to new consumer trends like organic and healthy food. Food retailers should be service oriented and prepared to get through to costumers through multiple channels including the new growing online trend.

Power of Suppliers – MODERATE Food Retailers are in need of constant and diversified stock keeping units, therefore the relationship between supplier's is key to properly mitigate logistics costs. However, given the scale of food retailers, the bargaining power against suppliers is extremely high. JMT was able to secure its business supply in Portugal by inserting an Agribusiness sector. In Poland and Portugal, the company has a long-term perspective with its suppliers, helping them with technology, quality control and financing to develop a profitable and mutually beneficial relationship.

Macroeconomic Snapshot for the Valuation

Poland | The economy is characterized by a steady growth in recent years (4.3% GDP growth 2013-2019YE), being the 37th country on parity adjusted GDP per capita, with an expected growth on real GDP by 2.4% CAGR 2022-2030YE. It is feeling the effects of the war, in both energy prices and refugee influx (3.5M Ukrainians expected to have entered Poland). Population will vary in the short term but remain in current values in 2030. The country is energetically independent, with local coal production (71% 2022YE). Polish consumers are becoming more price sensitive, with low adherence to e-commerce (1.5% in 2021YE), justifying the increase in market share of proximity discounter formats.

Portugal | The economy with the 3rd highest Debt to GDP ratios in Europe (119% 2022YE), Portugal has experienced a slow growth in the past decade (1.2% real GDP growth 2014-2021YE). The population of c.10M is expected to decrease at a -0.3% CAGR 2022-2030YE, due considerably to emigration. It is undergoing a period of higher inflation (7.8% 2022YE, 4.7% 2023YE), but is expected to stabilize between 2-2.5% 2024YE. Portugal is dependent on imported energy, with 74% of total consumption coming from

Figure 20: FCF & Revenue forecast JMT (billion)
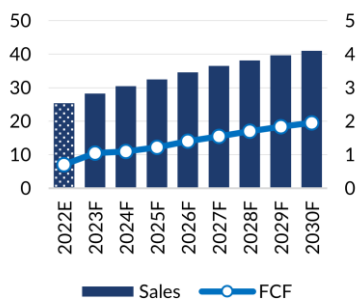
Source: Team estimates

Figure 21: Population growth rate per country (2018: base 100)
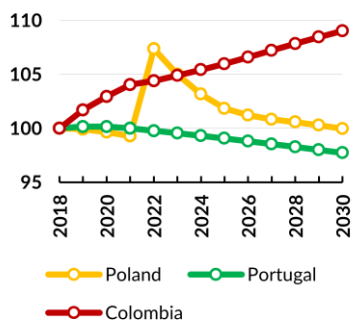
Source: UN

Figure 22: GDP growth per country
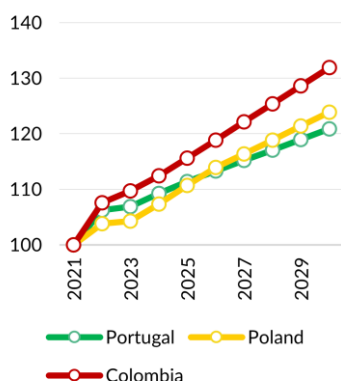
Source: IMF 2022

Figure 23: Forecasted LFL
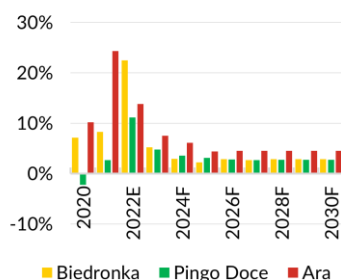
Source: Team estimates

Figure 24: EBIT margin & FCF Poland
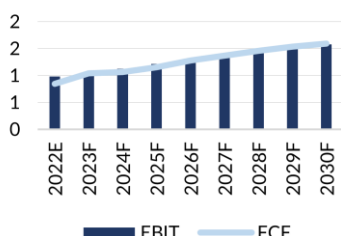
Source: Team estimates

imports, and 31% coming from renewable sources. Consumers have become price-sensitive since the sovereign debt crisis and pay attention to promotional campaigns.

Colombia | Being one of the fastest-growing countries (3% CAGR 2013-2022YE, 2.3% more than the region) in Latin America, with still high expectations. (3% real GDP CAGR 2022-2030YE). The country is dealing with high inflation rates (13.2% 2022YE, 7.1% 2023YE), driven by exchange rates (-7% CGAR COP/EUR growth 2018-2022YE) and high growth, with consequences further increased by the country's inequality level (most unequal in Latin America, 2022). Colombia is characterized by the diversity of cultures and consumer preferences between its 5 regions, and its social disparity within cities and rural areas. The basket of goods in each region is quite diverse, and some areas are lacking infrastructure, lowering the benefits of scale of large retailers, in a country still dominated by mom-and-pop stores (c. 68% of market share 2021).

Valuation

DCF: A Sum-of-Parts Approach (SoP)

Jeronimo Martins is valued using the Discounted Cash Flow (DCF) method, focusing on separating its presence by business units and using a FCFF sum-of-parts (SoP) approach as a regional aggregate. The Weighted Average Cost of Capital (WACC) was calculated using a hybrid approach, considering the specific risks of each geographical segment. This method reveals a 2023YE target of €24.9/sh, excluding the potential side effects of a likely expansion. Romania is the probable expansion direction, and viable targets are *Mega Image* and *Profi*. Through a real options valuation approach to deal with uncertainty, a successful deal is estimated to add up to €1.1/sh or €0.3/sh to our base price target, respectively, yet with relevant uncertainty. Additional methods are used to triangulate our base-case valuation, including the FCFF for the whole company, APV, DDM, EVA, and multiples.

Forecasts of financial statements are sensitive to the economic dynamics of each geographical location. Revenue forecasts were constructed using a hybrid, top-down approach, that mainly depends on the macroeconomic forecasts specific to each country the company operates in. The main variables affecting revenue growth are inflation (*infl*), real GDP growth (*GDP*), the elasticity of demand to income (*θ*), population growth (*pop*), forex changes (*ΔFx*), the forecasted number of stores and average m^2 per store (*sqm*), for each business unit. The main formulation is:

(1) $LFL_n = (1 + infl) \times (1 + GDP \times \theta) \times (1 + pop) \times (1 + \Delta Fx)$
(2) $Sales_n = Sales\ p/sqm_{n-1} \times (1 + LFL_n) \times average\ total\ sqm$

Appendix 5 expands on the micro-forecasting of revenues per segment.

CAPEX is split between maintenance and expansion. It is estimated to increase from €584M in 2021YE to €1035M in 2022YE. This is primarily due to increased store openings (CAPEX for *ARA* stands at €205M 2022YE, up from €76M 2021YE) and refurbishment efforts in Portugal and Poland. Each banner's cost per revamp and cost per new store was computed considering inflation and forex changes. Also, the number of stores per banner was forecasted using each banner's growth estimates in each market, with the store count growth gradually decreasing to 0% in 2030YE. The number of revamps and store closures was calculated considering historical averages.

The NWC and its changes reflect the historical components of JMT's cash conversion cycle, and it's split per segment is according to each segment's share of revenues in the JMT.

Valuation by geographical segments

Riding the Polish Wave | Accounting for c.71% of revenues and 85% of EBITDA in 2022E, the Polish segment is the leading cash-generating powerhouse of the Group. It accounts for 84.7% of the group's EV (Table 4).

Influenced by the war in Ukraine, LFL revenue growth in Poland for 2022E is expected to be +22.5%, mainly driven by the refugee crisis (3.5M Ukrainians expected to have entered Poland) and the inflation surge (expected CPI growth of 11% CAGR in 2020-2023YE). Notably, inflation benefits retailers that can sustain lower margins, particularly the discounter formats, by driving out their competition and consolidating their market share. *Biedronka*'s turnover per store is expected to grow at 4% CAGR 2022YE-2030YE, reaching €7.1M by 2030. We estimate a non-stop increase in store count for *Biedronka*. Despite the opening's slowdown in 2022 due to increased uncertainty, we estimate growth to start at +3% in 2023 and slowly decrease towards no growth in 2030 (reaching 3825 stores). With these assumptions, turnover is expected to increase at 5.6% CAGR 2022YE-2030YE, reaching €27.1B (2030 YE).

As coal accounts for 71% of Poland's energy production, it is one of the EU countries least affected by fluctuations in natural gas prices caused by Russian sanctions. Still, electricity price in Poland has been quite volatile, and the group is fully exposed to spot prices. It is a not negligible expense, growing from 1% in 2021 to 1.2% of sales in 2022, and partially responsible for the decrease in the EBITDA margin from 9.2% to 8.6%. In 2023, the energy costs forecast represents 1.5% of sales, and this effect fades in time, bouncing back in 2028 to 1% of sales (the pre-war level). Another notable item is the Polish Retail Tax, standing at 0.8% of sales between PLN 17M and PLN 170M, and 1.4% for sales above PLN 170M (c. EUR 35M). The impact of this tax is estimated to be c.€243M in 2022 alone. The Retail Tax in Poland exerts a negative effect on JMT's equity value of -€3.1Bn, or -€4.9/sh.

The health and beauty retailer Hebe's revenues were severely impacted by the pandemic (-€14M or -5.4% from 2019 to 2020YE), but has restored its growth path, selling €358M in 2022YE (+€80M YoY or +28.8%).

Figure 25: HoReCa evolution vs Recheio revenues
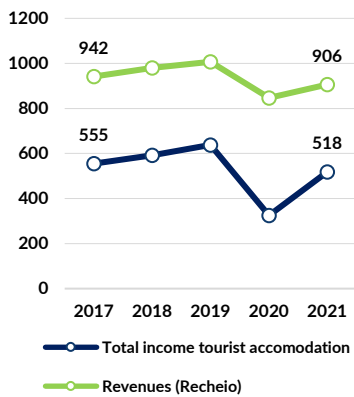
Source: Team estimates

Figure 26: EBIT per segment (%)
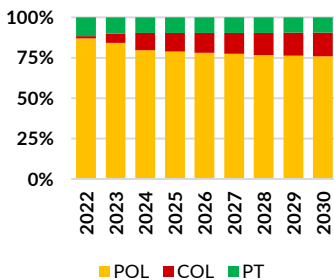
Source: Team estimates

Figure 27: Ara's EBITDA evolution
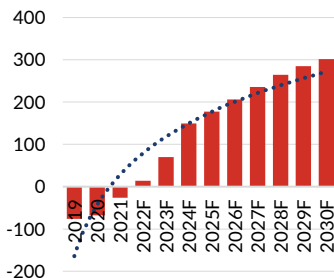
Source: Team estimates

Table 5: JMT SoP's Contribution to Price Target

Segment	WACC	Terminal Growth	Contribution to Price Target
Portugal	6.8%	1.0%	17.6%
Poland	10.4%	2.0%	84.7%
Colombia	17.2%	2.5%	7.2%
Others	10.9%	2.0%	-9.6%

Source: Team estimates

We expect the banner to modestly increase its share in the group's revenues from 1.4% in 2022 to 1.9% by 2030YE. Hebe benefits from synergies with Biedronka. EBITDA margin (9.0% 2021YE) is very similar to Biedronka (9.2% 2021YE), and we expect it to remain like this.

The Portuguese mature market | The Portuguese segment has been losing relevance in the group's revenues, dropping from 31% in 2015 to 24% in 2021. The impact of macroeconomic events was felt throughout JMT's operations, resulting in lower-than-anticipated sales growth for this geographical segment. Sales growth forecast is set to be 4% CAGR 2022-2030YE, lower by 160 bps than our estimates for Poland. The segment is mature yet yields less than half of Biedronka's EBIT margins throughout the forecasted period.

Pingo Doce remains the leader in the supermarket format, with c.23% market share of food retail, motivated by its strong distribution network. Store count growth is set to start at 2% in 2023, lower than pre-pandemic levels due to market saturation, and is expected to decrease towards zero growth by 2030YE. CAPEX will steadily increase at 1.5% CAGR for the 2022-2030YE period, considering essentially a few store openings and refurbishments. The average m2/store is forecasted to decrease at -0.4% per year until 2026YE, remaining stable until 2030YE, in line with recent trends and proximity efforts. New stores are expected to be smaller and in neighborhoods of large cities (like Lisbon and Porto).

Recheio, the Cash & Carry segment, is set to have a stable store count for the upcoming years. With 1 new store in 2022 in Cascais (one of the most touristic regions in the country), the segment may have reached its optimal capacity. Revenues are influenced by the HoReCa channel, which experienced a LFL drop of -15.8% in 2020. Yet, it is expected to surpass the 2019 levels in 2022e. LFL growth rates are forecasted to be like the ones for *Pingo Doce*, as tourism is expected to grow at a pace aligned with the country's GDP growth rate.

We estimate *Pingo Doce* and *Recheio* to contribute for 13.2% and 4.3% of group's EV, respectively (Table 4).

In Colombia, be Regional | Following its inception in 2013 and having learned from Colombian clientele, *ARA* developed a flexible supply chain to deliver different product mixes to its diverse customer base in each region.

Negative figures have been tormenting *ARA* since the start of the greenfield operation, though these are now fading away. The year 2021 brought the first positive EBITDA margin ever at 2.4%. In 2022Q3, it improved the EBITDA margin to 3.3% and it is estimated to reach the industry average of 8.7% by 2024YE (accounting for added energy costs, margin is set at 8.3% in 2024 - see Appendix 5). The forecasts indicate that *ARA* will gradually reach the industry's EBIT margin of 5.7%, though no sooner than 2024. The convergence will be driven by achieving a larger scale and better brand recognition.

ARA stores skyrocketed until 2022. Stores count doubled in just 4 years, yet preserving suitable room to grow, as consumers increasingly shift towards discounter formats. Even with the group's heavy investments in store openings, we estimate that store growth will start at 15% in 2023, and gradually decrease to a portfolio of about 1936 stores by 2030. LFL top-line growth is expected to be at 5.2% CAGR2022-2030YE, higher than Portugal and Poland due to higher GDP growth expectations and positive population growth. The population will increase along with purchasing power, both relevant drivers for revenue growth in our model.

According to our model, *ARA* contributes 7.2% of group's EV, 66% more than Recheio.

Others, Consolidation and Adjustments | This is a cost center. Includes business with reduced materiality, holding companies and group consolidation adjustments. Our estimate is to contribute negatively with -9.6% of the group's EV.

Discount Rate and terminal growth | JMT operates in three main geographical segments where market risk, regulatory frameworks, and economic cycles vary significantly. Subsequently, a specific **cost of equity** (Ke) was calculated for each region using the standard CAPM approach. Betas were computed through the pure-play technique using data from more than 50 food retail companies, grouped into JMT geographical operations. The cost of equity for Portugal, Poland, and Colombia yields results at c.7.5%, 11.9% and 21.2%, respectively. Due to the limited information on the interest payment structure of the group, the cost of debt (Kd) was computed using the normalized Central Bank rates and added an implied normalized credit risk spread using historical data to account for the country-specific credit spread of JMT. The cost of debt is expected to reach higher values in the mid-term period 2023-2025YE, and then to reduce to c.4% 2027-2030YE. **Capital structure** will evolve, and we estimate it reaching to 70%/30% Equity vs Debt ratio in 2030YE. Most debt is composed of capital leases (25% 2030YE of the capital structure), while the financial debt weight amounts to 5% 2030YE. **Terminal growth rate** is expected to be 2%, 1%, and 2.5% in Poland, Portugal and Colombia, respectively (Table 5). The growth was defined considering the company's reinvestment and macroeconomic prospects in each geographical location.

Alternative Valuation Methodologies to Triangulate Results

FCFF for the whole company | The base approach considers a SoP of each EV. We also looked to consolidated figures and considered a FCFF and WACC (c. 10.6%) as a whole. This approach yields an estimated equity value of €15.1Bn or €24.0/sh, further supporting the base approach to valuing JMT.

Dividend Discount Model | JMT's dividend strategy is centered around 40-50% of net income, adjusted for lease liabilities and RoU effects. However, the company does not apply cash management strategies, as the main shareholder does that by itself. This implies extraordinary dividends throughout the years. As such, we establish a dividend payout ratio of 85%, leaving enough room for expansion, since the cash balance never

Figure 28: ROE & ROIC
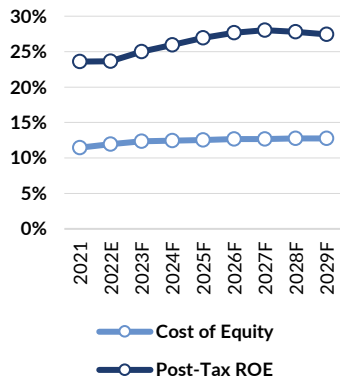
Source: Team estimates

Figure 29: Cash availability for debt repayment
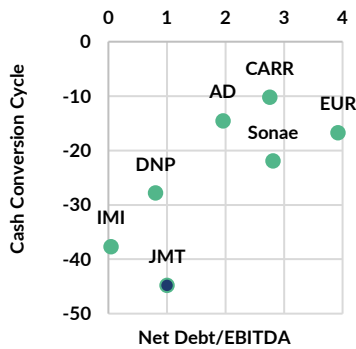
Source: Team estimates

Figure 30: Effects of possible expansion to Romania
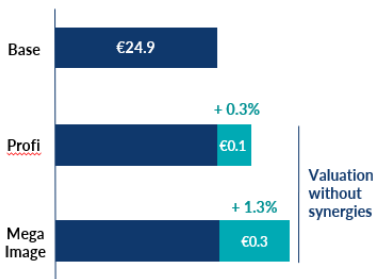
Source: Team estimates

Figure 31: EPS & DPS
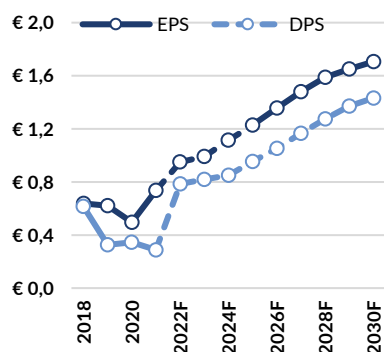
Source: Team estimates

goes below €1.3Bn. Given this strategy, we valued JMT through a standard DDM model, yielding a price target of €23.4/sh, in line with our buy recommendation justified in the FCFF SoP approach.

APV | To further support our recommendation, we performed the APV valuation method. The unlevered cost of equity was computed using EBIT-weighted figures, and the tax shileds were obtained with the weighted cost of debt considering country specific risks. This alternative method also provides a buy recommendation at €24.7/sh.

Residual Income | We drawn the model from the EVA® approach using the forecasted difference between JMT's ROIC and WACC for 2024-2030YE, and the invested capital forecasts. WE estimated JMT price target of €25.0/sh, aligned with other valuation approaches.

Relative Valuation | JMT profile makes it challenging and inaccurate to be priced against close competitors. Therefore, the relative valuation was based on a sum of parts (SoP) approach, considering different peers for different geographical segments. Peers were triaged considering geographical locations, size, and operating segments. A list of 58 peers was gathered, with companies from Europe, the Americas, and Oceania using the sum of absolute rank differences (SARD) approach. The approach used for performing the multiples analysis provided 6 publicly listed companies with similar risk-adjusted cash flow patterns and growth potential, for the Portuguese, Polish and Colombian segments (See Appendix 12). Employing an average of Enterprise Value multiples (EV/Revenues and EV/EBITDA) and JMT figures by geographic segments, and summing the resulting equity values, it is estimated a price target of €25.9/sh, which aligns with the buy recommendation under all previous models (Appendix 13).

Alternatively, JMT was also valued as a whole, with the SARD approach yielding 6 different peers, using an average of EV/Sales, EV/EBITDA, EV/EBIT and EV/FCF, yielding a price target of €25.4/sh.

Expansion ahead: The Romanian Scenario

Romania, the 7th most populous nation within the EU, has had GDP levels growing consistently above 3.0% since 2013, except for the pandemic year of 2020 (-3.7%). Yet, GDP quickly recovered in 2021. Inflation is also a macro constraint in the country. The current war affects the forecasted inflation levels for Romania (expected 11.9% 2022YE and 8.5% 2023YE). As for the grocery market, traditional retail still accounts for about 45% of sales, and there is room for proximity chains to grow.

JMT's CEO already disclosed that expanding Poland's largest food retailer is seriously on the table. Moreover, Romania would be a potential new market, and the group is considering the purchase of a retail chain currently operating. We consider the acquisition of the banners *Mega Image* or *Profi* as possible targets, due to a business model focused on proximity and discounter format. There is also a common shareholder between *Pingo Doce* and *Mega Image* – the Dutch multinational Ahold Delhaize.

Mega Image | The banner is the largest supermarket chain in Romania, with over 800 stores and operations in the convenience format Shop & Go.

Profi | Operating units focus on standard, city, and local formats, to satisfy consumer's needs, with over 1600 stores.

Both targets were valued using the Real-option Expanded DCF method, with real options being valued both with Binomial models and the Black-Scholes model. **Real options valuation** was implemented to extract added value in the acquisition case, assuming an acquisition date in 2025, with Mega Image adding €1.1/sh and Profi €0.3/share to JMT's share price.

Financial Analysis

For further details please refer to Appendix 4

Strong Profitability and Solid Cash Flows | JMT's key strength is its proficiency in generating cash flow. Group's EBIT (4.0% margin 2022YE) has demonstrated a steady upward trend, with a +8.5% CAGR 2016-2021YE. This trend is anticipated to continue in the future with an expected +12% CAGR 2022-2030YE. Two main factors drive this effect: **1)** a consolidated position in the Polish market, with increasing revenues (+5.6% CAGR 2022-2030YE); **2)** *ARA* attaining scale benefits with its proximity strategy, with higher operational margins (from -2.4% 2021YE to +5.7% 2030YE) and more stores (from 1093 2022YE to 1936 stores 2030YE).

Biedronka presents an unbeatable price-quality ratio, allowing to increase an already high market share, from 24.1% in 2016YE to 27.3% in 2021YE. Combining turnover with stores expansion, the banner registered an EBIT increase of +10.3% CAGR 2016-2021 to an EBIT margin of 5.9% in 2021. This is above competitors like *Carrefour* and *Eurocash*, but below *Dino Polska* (respectively 2.6%, 0.4% and 7.7%, 2021YE). Yet, energy inflation and the retail tax should hamper margins shortly. The Polish segment's operating margin is expected to decrease -70 bps to 5.2% in 2023YE. This effect should gradually fade, reaching 5.7% in 2030YE.

The Portuguese segment booked +2% revenues CAGR 2016-2021YE, in line with the country's low growth and inflation during this period. Both *Recheio* and *Pingo Doce* managed the pressure of negative basket inflation in 2021, accompanied by a low food inflation rate (0.7%). EBIT is expected to reach €197M for *Pingo Doce* and €38M for *Recheio* by 2030YE (+5% CAGR 2022-2030YE), backed by the country's full tourism recovery. Operating margins are lower than *SONAE MC* (5.2% 2021YE), though the competitor operates mainly throughs hypermarkets. The JMT's Agribusiness, which diminishes inventory and supply chain risk, will continue to grow and supply the Portuguese segment, providing another stabilization factor for its margins.

Figure 32: Cost of equity vs ROE
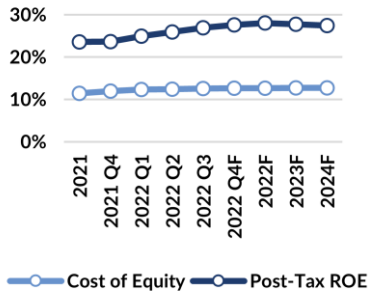
Source: Team estimates

Figure 33: Value Creation for Shareholders
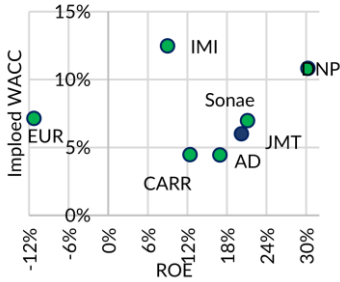
Source: Team estimates

Figure 34: Risk & Return (Altman Z-score)
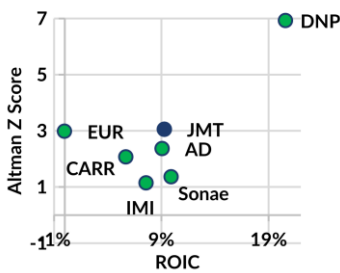
Source: Team estimates

Figure 35: Risk Matrix
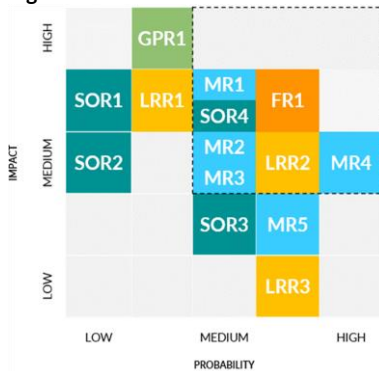
Source: Team estimates

Figure 36: Exchange rate evolution
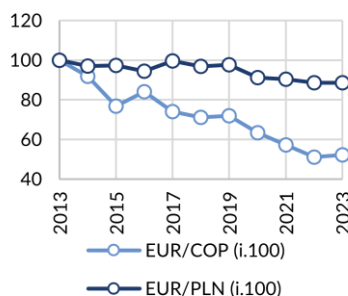
Source: European Central Bank

ARA just turned its first positive EBITDA in 2021. Also, the Colombian banner's Free Cash Flow (FCF) is estimated at €-148M in 2022, penalized by significant expansion CAPEX (€224M). We estimate FCF to reach €335M by 2030, further improving the group's cash generation capabilities. This is mainly due to CAPEX decreases (after the strong store count growth phase), and the expectation for margins to converge to the main competitors' average of 5.7% (*D1* and *Grupo Exito* 2021YE).

Outperforming ROIC and ROE Driven by Higher Efficiency | JMT's operates through lower operating margins than competitors (JMT 3.9% vs 4.7% 2021YE). Yet, ROE (23.7% 2022YE) is among the highest when compared to close competitors (15.6%) and the industry average (11.8%). ROE is highly influenced by ROIC, as financial leverage is not amplifying shareholder's return. The group's solid business knowledge and supply chain focus enable it to achieve an invested capital turnover of 4.4x 2022YE. This is higher than the larger Portuguese competitor *SONAE MC* (2.1x 2021YE), relevant competitors in Poland, such as *Carrefour* (2.7x 2021YE) and *Dino Polska* (3.2x 2021YE), and relatively higher than the industry average (3.0x 2021YE). The capital turnover is a clear characteristic of cost leadership, yet it is not at the expense of a relevant margin gap compared to competitors. All in all, ROIC is expected at 17.9% 2022YE, while competitors like SONAE and Carrefour lag behind at 8.3% and 9.8%. The strategy is paying-off.

Solid Financial Position | JMT has made the strategic decision to prioritize financial stability by maintaining a solid balance sheet. Net debt to EBITDA of 1.0x (2021YE) is half the industry average (2.4x) and JMT operates with excess cash holdings. The current ratio of 0.6x (2021YE), lower than the competitors' average of 0.8x, is driven by JMT's efficiency in managing its working capital. The company's average cash conversion cycle between 2019-2021 is negative at -45 days. Over the same period, the competitors' exhibit -22 days.

The ability to cover interest payments has increased from 4.4x in 2019YE to 5.5x in 2021YE (but lower than competitors' average of 7.5x 2021YE). The expectation is to reach 6.6x in 2030. More than 80% of interest charges are relative to capital leases, as it is the primary driver of leverage (2022YE leases account for c. 83% of total debt). This further emphasizes JMT's financial conservativeness in uncertain times, allowing the group to be well-positioned to tackle economic uncertainty, and expand. The Altman Z-score (below 1.8 suggests financial trouble, while above 3 financial stability, Figure 25) comparison proves JMT's strong financial stability with a 3.1 score. This is above competitors like *Carrefour*, *Ahold Delhaize*, and *SONAE MC*, while still achieving one of the highest ROE.

Returning Value to Shareholders | In the current market uncertainty, JMT has increased cash holdings (173% increase between 2018-2021 to €1.5B) and still be able to return value to investors in the form of high dividend payouts. The 5Y average trailing dividend yield was 3.1%, with an average payout of 70.2%. Apart from exceptional dividends, the company's dividend policy is 40-50% of net income, lower than the industry average of 62% (2021YE). This is done to maintain a financial buffer, following JMT's conservative approach to the balance sheet. Considering regular and extraordinary dividends, an 85% payout ratio is forecasted, allowing the group to maintain cash holdings of at least €1.3B throughout the forecasted period. Further assurance of returning value is evidenced by the EVA® model, as ROIC (c.14%) is larger than and WACC (c.11%) throughout the period. Also, JMT's ROE of 24% 2022YE contrasts with the implied Ke of c.12%, weighted by the EBIT of each business.

***Biedronka's* banner dependence |** JMT is highly dependent and sensitive to *Biedronka's* performance. The Polish banner represents 84% (€1.5Bn 2022YE) of the group's EBITDA, and any unfavourable macroeconomic indicators (e.g., exchange rate and GDP decline) can greatly affect the JMT's EBTIDA margins and price target. According to our estimates, a negative parallel shift of -0.75% in Polish real GDP decreases the price target by 3.5% or €0.9/sh. Moreover, the inflationary period and the willingness to gain, or at least keep market leadership by absorbing part of the costs, will negatively impact *Biedronka's* operating margin in 2023 (-30 bps from 2022 level, -75 bps vs. 2021).

Investment Risks

For further details please refer to

Appendix 14

Financial Risk | Earnings diversification (FR1)

The company relies heavily on Biedronka, which generates 69% of its revenues and 86% of EBITDA (2021YE), with the highest operating margin at 5.93%. The Portuguese market is mature, and the Colombian segment has yet to reach scale, making the company's profitability highly sensitive to changes in the Polish economy. **Mitigation:** In response to the current crisis, the company has decided to absorb inflation costs to maintain market share and consumer loyalty, causing EBIT margins to decrease by 46 basis points to 5.47% (2022YE). To diversify revenue sources, the company is focusing on rapidly growing markets such as Colombia (+1000 stores) and possibly Romania in the future.

Market Risk | Exchange Rates (MR4)

Given its international profile, JMT receives 77.7% of its total revenues in foreign currency (70.7% in Zlotys and 7% in Colombia Peso), exposing the company to the constant depreciations against euro (-1.4% CAGR EUR/PLN, -8.2% CAGR EUR/COL, 2013-2022YE). Overall, currency translation losses for JMT accounted for - €79M between 2016-2021YE and we expect PLN and COL to continue depreciating (-1.8% CAGR, -1.4% CAGR, 2022-2030YE, respectively). **Mitigation:** To mitigate the risk of currency fluctuations, JMT has implemented two key strategies: using currency derivatives and obtaining funding that corresponds to the currencies of the projects it invests in, effectively acting as a natural hedge.

Market Risk | Inflation and Decrease in Purchasing Power (MR1)

Figure 37: Monte Carlo (MC) Simulation
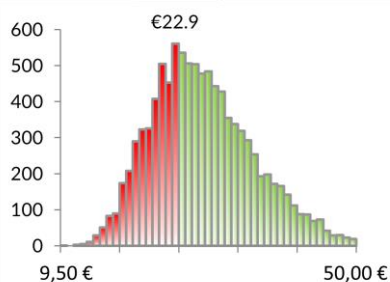
Figure 38: MC Sensitivity

EUR/ZLO	50,5%
Real GDP	24,9%
Rf	-10,6%
EBIT PL	6,3%
EUR/COL	4,0%
g	1,5%
EBIT CO	0,9%
Inflation	0,7%
Pop gr	0,6%
EBIT PT	0,2%
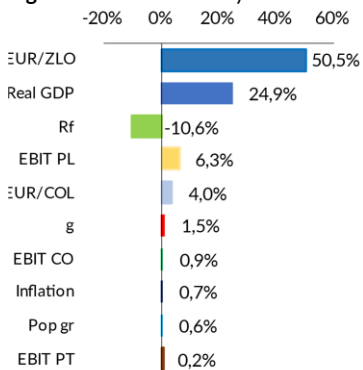
All the markets where JMT operates are going through high inflationary periods, and in Poland, the biggest market, salary increases (13.9% 2021YE) did not match the soaring inflation rates (16.6% 2022YE). Food inflation in Poland, Portugal and Colombia all surpassed 20%. Colombia recorded the highest increased with 27.1% 2022YE, followed by Poland 21.5% 2022YE. Food and beverages represent around 20% of total expenditure of the average polish household expenditure and 17.4% 2021YE in Portugal. These increased prices affect gravely consumers' budgets. Given the high competition in the food retail market, and customers low switching costs, JMT cannot pass all the costs to consumers without risking losing market share, obliging the group to absorb costs. **Mitigation**: Across markets and all the group's banners JMT has decided to reduce margins to keep market shares, maintaining its position as price leader and relying on turnover as a driver for ROE and ROIC.

Strategic & Operational Risk | Supply Chain Disruptions (SOR4)

Discounters rely heavily on supply chain efficiency to achieve scale and consequently lower prices. Any disruption along the chain increases costs and the damages the group's profitability, which is highly dependent on turnover. The pandemic, the conflict in Ukraine, and the following economic fallout, contributor for national strikes, have all constrained the supply chain environment. **Mitigation**: The Group focuses on having state of the art Transportation Management Systems, that enables fast and efficient routes, and JMT's Private brands represent around 40% of the group's sales. In Portugal, Agro-Alimentar was created to secure the assortment of diaries, livestock farming and fish. These strategies allow for better control and assurance of product availability and quality.

Risks to Price Target | Key assumptions were tested using scenario analysis, sensitivity analysis and Monte Carlo simulation. A further robustness test to our price recommendation.

Scenario analysis

To better grasp the effects of each input in the valuation, we performed scenario and sensitivity analysis, and a Monte-Carlo simulation.

In the Blue/Grey-Sky scenario, we stressed EBIT margins' variations, along with the RFR, terminal growth rates, and Real GDP shifts.

We conclude that a +0.5% (+9.8% or +€2.4/sh) or -0.5% (-9.8% or -€2.4/sh) variation of all countries' real GDP growth rates impacts valuation more than the other stressed variables. The Blue-Sky scenario (+21.0% or +€5.2) implies a combination of several positive impacts like a +0.5% shift in EBIT margins, real GDP and g, and -0.15% RFR. The Grey-Sky scenario (-18.0% or -€4.5) implies the opposite combination of factors.

Monte Carlo simulation

With the use of a 10,000 trials Monte Carlo simulation to further support our risk analysis, in 65% of cases a buy recommendation (price target > €22.93/sh), with a mean of €26.2/sh and median of €25.31/sh.

Sensitivity analysis

With the following sensitivity analysis, we can understand the effects of shifts in the terminal growth rate, the GER 10Y yield, which is the base for all countries' RFRs (can be understood as WACC variations too), and the EBIT margins off the group. We can understand that the price target is more sensitive to EBIT margins. A decrease in EBIT margin of -0.75% impacts the price target in -€7.3/sh (or -29.3%).

We conclude that the most sensitive variable to the price target is margins, and specially the Poland's EBIT margin, which by itself can cause a -22.3% change in price target with a -1.5% shift in margin. This compares to a -4.8% variation in the price target if only the Portuguese EBIT margin shifts -1.5%. (Appendix 15).

		EBIT margins shift						RFR (GER 10Y yield)					
		-1.5%	-0.75%	0%	0.75%	1.5%		1.0%	1.65%	2.15%	2.65%	3.15%	3.50%
g shift	-1.0%	€ 16.0	€ 19.3	€ 22.7	€ 26.1	€ 29.5		€ 25.7	€ 23.9	€ 22.7	€ 21.6	€ 20.6	€ 19.9
	-0.5%	€ 16.7	€ 20.2	€ 23.7	€ 27.2	€ 30.7		€ 27.0	€ 25.1	€ 23.7	€ 22.5	€ 21.4	€ 20.7
	0%	€ 17.6	€ 21.2	€ 24.9	€ 28.5	€ 32.2		€ 28.5	€ 26.3	€ 24.9	€ 23.5	€ 22.3	€ 21.5
	0.5%	€ 18.5	€ 22.3	€ 26.2	€ 30.0	€ 33.8		€ 30.2	€ 27.8	€ 26.2	€ 24.7	€ 23.3	€ 22.5
	1.0%	€ 19.7	€ 23.6	€ 27.6	€ 31.6	€ 35.6		€ 32.3	€ 29.5	€ 27.6	€ 26.0	€ 24.5	€ 23.5

Figure 39: Scenario Analysis

Investment Summary	
Price target (2023YE)	€24.9
Upside	+22.0%
Price Close (13/Jan/23)	€20.4
Stock Exchange	Euronext Lisbon
Industry	Food Retail
Ticker (Refinitiv)	JMT.LS
52w Price Range	€17.7 - €23.3
Forward Div. yield	3.7%
Shares Outstanding	629.3 M
Market Cap (13/Jan/23)	€12.8 Bn
Free Float	43.7%

Source: Refinitiv, Team Estimates

Figure 40: Stock evolution (€/sh and volume in milions) - extension
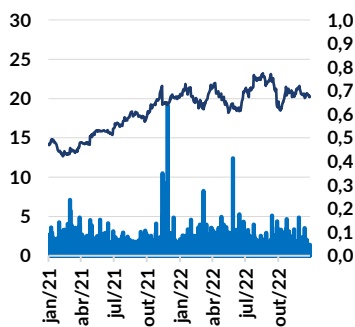
Source: Refinitiv

Figure 41: Valuation methods - extension
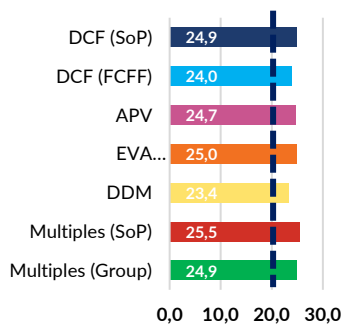
Note: average multiples include EV/EBITDA and EV/EBIT
Source: Team estimates

Figure 42: Eurozone—Contribution of food prices to overall inflation (pp)

■ Services ■ Goods ■ Food ■ Energy

Source: Refinitiv, Allianz Research

JMT: Unleashing the Potential of Alternative Pricing Models

Jeronimo Martins (JMT) is positioning itself for long-term success. The company has a strong market leadership position in Poland and Portugal and is continuously expanding its operations in Colombia with steady growth in store openings. With sound financials, the company is ready to take the next step.

Update status

We issue a **BUY** recommendation for Jerónimo Martins S.G.P.S., SA (JMT) with a price target of **€24.9/sh** for 2023YE using a DCF sum-of-parts (SoP) approach. The forecasted price implies a 22% upside potential from **January 13th, 2023**, closing price of €20.4/sh (Figure 40). Assessing it as a medium-low risk, this recommendation is based on (1) resilient business model, (2) strong presence in growing markets, and **(3)** family management with long-term perspectives. Our additional valuation methods support this recommendation (Figure 41).

This extended chapter aims to explore alternative methods to the Capital Asset Pricing Model (CAPM) to enhance Jerónimo Martins valuation precision. By examining and applying alternative valuation methods, alongside a comparison of their outcomes, this research project provides a comprehensive understanding of their strengths and limitations in valuing companies in the food retail industry. The initial section of this study considers an economic analysis as well as future expectations for the European and Polish markets, particularly during the second half of 2023. It further assesses the CAPM and identifies potential issues the model may pose for firm valuation. Subsequently, three alternative methods, namely a Risks analysis-based model – Incomplete Replication Approach (a method that involves replicating the risk and return characteristics of a benchmark), a Build Up approach, and the Fama French Six-Factor Model, are evaluated. Each method is accompanied by a literature review, a detailed methodology, presentation of results, and an examination of their limitations. The report concludes with a comparison of price targets for Jerónimo Martins' Polish segment achieved through each valuation model, followed by an overall analysis of the impact of each of the models in the company's price target.

The first version of this report was finished on January 13th, 2023. Since then, the economic condition at a global level has taken a turn. The year of 2022 ended with a European expansional fiscal stance, a somewhat favorable situation in the labor market and continuous large inflow of displaced people from Ukraine, resultant of the on-going conflict. Attending to the ECB projections of projected inflation "too high for too long", interest rates were raised by 50 basis points in March 2023, to ensure the "timely return of inflation to the 2% target". As such, the expected inflation considers the following evolution: 5.3% in 2023, 2.9% in 2024 and 2.1% in 2025 (ECB, March 2023).

Economic growth in the last quarter has visibly weakened, mainly due to the elevated inflation and tighter financial conditions. A low real income joined by a low savings rate contributed to pressure private consumption. Expectations for 2023 consider a positive GDP growth of up to 2.7% in 2024, as forecasts ponder over a relief on inflation and the normalization of the economic situation (European Commission, June 2023).

The Harmonized Index of Consumer Prices (HICP) – inflationary measure that tracks consumer price inflation based on the spending patterns of consumers in each EU country, weighted according to that country's share of aggregate consumer spending - reached a peak of almost 17% in Q1 2023, mainly due to the increased prices of commodities, rising production costs and demand pressures. Despite governmental measures applied to limit the increase in gas and electricity prices, energy price inflation is expected to remain elevated, considering the phasing-out of tax breaks on energy in the beginning of the current year. Even so, a string wage growth, an expansionary fiscal stance and some easing in the labor market will contribute to a decrease in inflationary pressures, resulting in a decrease of the HIC inflation to 4.2% in Q4 2024 (European Commission, May 2023).

As for the Food Retail and Consumption industry, in accordance with previous forecasts, consumers feel the impact of rising food prices as a result of the ongoing Russian invasion of Ukraine and are even worried as to food shortages. According to the Allianz Trade report published in April 2023, rises in price have been registered in most food categories, particularly in animal products (55% of consumers saying they have seen significant price increase in red meat, 52% in fish, and 51% in dairy). Moreover, speculation persists as to how these increases may be unfairly distributed, enabling food retailers and manufacturers to make extra profit. In March 2023, food, alcohol, and tobacco inflation rose again to 15.4%, and food prices are expected to remain high for at least another quarter before a rapid normalization sets in. Expected overall inflation in

11

Figure 43: Eurozone – Food Inflation 2022YE
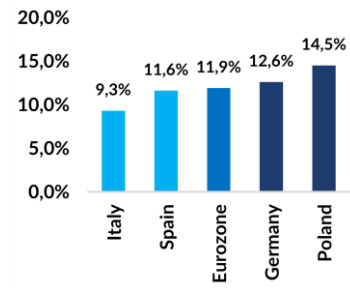
Source: Refinitiv, Allianz Research

Figure 44: European grocery CEO's expectations regarding the market

- Become better (6p.p. vs 2022)
- Remain the same (10 p.p. vs 2022)
- Become worse (-16 p.p. vs 2022)
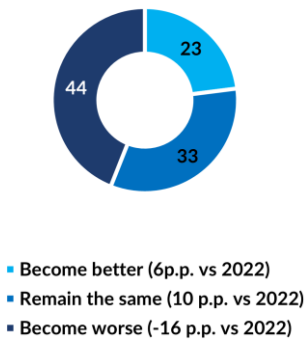
Source: McKinsey report

Figure 45: Net intent of consumers towards grocery shopping 2023 vs 2022

- Poland - European Average
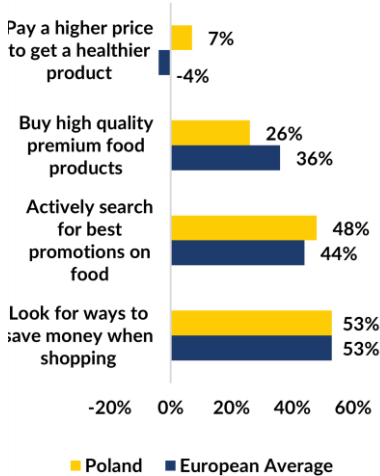
Source: McKinsey report

Figure 46: E-commerce Revenue Development Europe (€B)
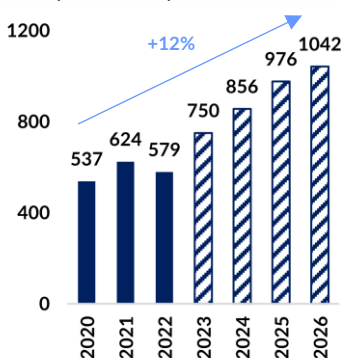
Note: Excluding Russia and Ukraine
Source: eCommerce DB, Statista

Europe is of 5.6% (2023) and 2.6% (2024), and food inflation will contribute almost one-third to these measurements in the current year.

Even so, food inflation considers a cross-country dispersion, mainly felt in the Eastern Europe region (Figure 43). Said dispersion is consequence of (1) retail market structure, (2) consumption habits and (3) imports dependence from Ukraine.

Countries with above-average discounter presence report above-average inflation, as a price increase is expected to evolve at a faster pace when compared to other brands where costs are more flexible (advertising, promotional expenses). Moreover, discounters' business formats present a higher market share in Central and Eastern Europe compared to Southern Europe (Allianz Trade, 2023). As for consumption, processed foods typically take into consideration a greater share of energy and packaging costs. Therefore, it makes sense to assume that countries with above-average consumption (such as the UK, Germany, and Nordic countries, when compared to the rest of the European region), present above-average inflation. Additionally, the current conflict still presents a more intense effect in Eastern countries regarding food imports, as well as a higher dependence from Ukraine's resources.

Europe – expectations for H2 2023
Consumer confidence is expected to return as inflation eases, but given its prolonged effect, the industry is still cautious. A McKinsey survey of European grocery CEOs for market conditions shows that 44% expectancy of worse conditions in comparison to 2022 (Figure 44). When asked, the survey participants mostly described 2023 as "Changing/Uncertain" and "Challenging/ Difficult". Key themes of the year will be rising costs and margin pressure, downtrading, and an increased focus on private labels. Given the consumer research conducted, and the market characterization in the Business Description topic of the first part of this report, it is possible to sum up this year's major trends will be mainly focused on strengthening private-label brands, manage profitability for future investments and investment plans for future growth.

In 2023, the prioritization of cost savings in food expenditure persists among consumers across varying income levels. In an effort to meet financial obligations, consumers intend to reduce spending on premium, healthy, and sustainable products. However, even in the event of an improvement in market conditions, it is highly likely for shoppers to continue to gravitate towards private labels and discount retailers, as these categories have garnered a considerable degree of satisfaction. Notably, in 2022, a notable correlation emerged between the development of market share and consumers' perception of the attractiveness of private labels. This trend is expected to endure throughout 2023 (McKinsey, April 2023).

The industry has been pressured in margins and costs, consequence of the peak in energy and other food producer prices in the third quarter of 2022. Although the impact of these circumstances takes time to manifest in food processor prices and subsequently consumer prices set by grocery retailers, addressing this issue remains a top priority for grocery leaders. Additionally, the industry anticipates an increasing need for investments to drive sustainability, digitalization, IT improvements, and automation. According to the recent Food Retail report presented by McKinsey (April 2023), an estimated cumulative additional investment of €70 billion to €125 billion will be required between 2023 and 2030. This represents a 25 to 50% increase relative to current investment levels. As grocery brands seek to secure these investments, the cost of raising capital is expected to rise. Consequently, an accelerated pursuit of economies of scale within the grocery sector is expected. Larger players in the industry are likely to adopt additional intensive merger and acquisition strategies or establish broader partnerships, recognizing the value of such approaches during times of turmoil. Conversely, smaller players are anticipated to explore alternative means of achieving scale, such as engaging in bundle purchasing, joining franchising networks, or forming partnerships to facilitate joint investments.

Regarding future growth prospects, it is anticipated that e-commerce will regain momentum and follow a long-term trajectory (Figure 46). Importantly, e-commerce is not necessarily perceived as a direct competitor to discounters and other traditional retail channels by consumers. This is due to the distinct value propositions offered by online and offline channels, influenced by different advertising formats. Across Europe, major industry players are either introducing or expanding their retail media businesses, which are poised to become significant drivers of the grocery industry's earnings before interest and taxes (EBIT). Retail media provides targeted advertising opportunities and contributes to overall profitability. The European retail media market reached a valuation of approximately €10 billion in 2022 and is expected to grow to around €21 billion by 2025, indicating substantial expansion potential (Mckinsey, 2023).

Poland – economic situation & Food Retail | Given that Biedronka is JMT's main business activity, a closer look at the economic situation in Poland is of the essence. In February 2023, the retail sales sector experienced a notable decline, indicating a decrease in demand that surpassed the projection provided by the Central Bank. According to the statistical office, there was a substantial 5.0% decrease in retail sales during February, following a previous decline of 0.3% in January. This outcome contrasts with the forecasted decline of 1.4%. Inflation played a significant role in this scenario, leading to a consecutive decline in food sales for the second time in March. This decline in food sales made a considerable contribution to the overall contraction in the GDP (Figure 47).

The expansion of franchise stores is on the rise, with the Eurocash Group as a prominent competitor for Biedronka. Eurocash operates in both the wholesale and retail sectors (Discount Retail Consulting, March 2023). In response to the substantial inflationary pressures, Poland has implemented tax reductions on a wide range of goods, including fuel and fertilizer, aiming to assist consumers. However, this year, the country had to reinstate higher taxes on gasoline in compliance with regulations mandated by the European

Figure 47: Inflation rate evolution in Poland
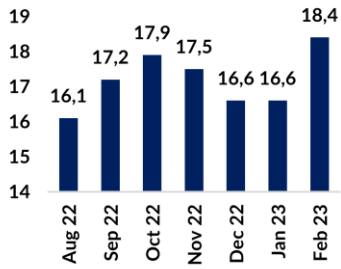
Source: McKinsey report

Figure 48: Biedronka LFL (%)
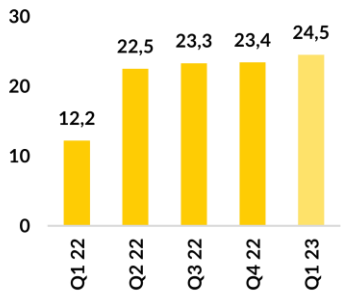
Source: McKinsey report

Figure 49: Hebe LFL (%)
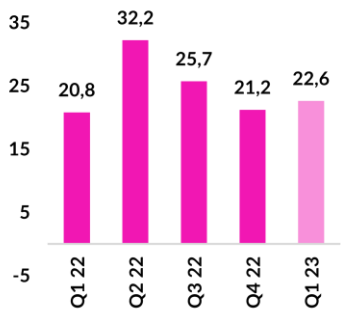
Source: McKinsey report

Commission. It is worth mentioning that essential food items have been granted a zero percent value-added tax (VAT) exemption and continue to be exempt from VAT, a decision approved by Brussels.

Despite a decline in inflation levels from 16.1% in March to 14.7% in April, there are discussions regarding the potential extension of the Zero VAT on Food policy until 2024 if a substantial decrease is not observed. The decision to extend the measure will be evaluated once the forecasting data for 2024 becomes available. It is anticipated that this extension may result in an annual loss of budget income amounting to 10 billion zlotys, or €2.2 billion (Reuters, 2023).

Given the prevailing circumstances, the prioritization of food prices assumes even greater significance for consumers. Luís Araújo, the Chief Executive Officer (CEO) of Biedronka, emphasized the utmost importance of the low-price policy within the Discount Retail Chain. Moreover, Araújo stressed the necessity of ongoing vigilance in monitoring price disparities to ensure that the price escalation on store shelves remains below the inflation rate of food prices in the Polish market. According to the CEO, "It is price perception that drives sales, which is why maintaining the position of the cheapest chain on the Polish market is our main priority.". In the context of Biedronka, a consistent practice is employed to compare their lowest price with prevailing market prices (Discount Retail Consulting, 2023).

"In our case, we always compare our lowest price with the market price, if in a given week we have, for example, a 2+1 promotion, we include a promotional price in the basket, not a regular one. What matters is how much the consumer will actually pay for the goods." The core issue lies in the actual amount the consumer will pay for the goods. The manager further asserts that this strategic approach has contributed to some extent in mitigating food price inflation in Poland. However, precisely quantifying the magnitude of this contribution poses challenges. Araújo suggests that, if Biedronka were to have followed market trends in this regard, the increase in food prices could have been at least three percentage points higher.

Capital Asset Pricing Model for Cost of Capital (& Alternatives)

As stated in the first part of the report, the valuation of Jerónimo Martins was performed using the DCF method, both in each business unit and in the business as a whole. The discount rate considered for this method was the Weighted Average Cost of Capital (WACC), computed considering the specific risks of each geographical segment. In order to compute the average cost of all the capital the company uses to finance its operations, both the cost of equity capital and the cost of debt capital were assessed.

The estimation of the cost of equity capital was facilitated by the implementation of the CAPM. This widely used financial model provides an estimate of the expected return on equity for a company, based on the level of systematic risk associated with the company's stock. However, despite its widespread use, the effectiveness of the CAPM remains subject to debate within the industry. Goyal-Welch (2008), Ibbotson (2006) and others have highlighted its narrow focus on the expected return of a company, which may not accurately reflect the required return in a valuation context. In fact, the two terms are not synonymous, despite common misconceptions to the contrary found in some literature. The model's assumptions and predictions are unrealistic when compared to the actual market, as it assumes that all investors (1) have homogeneous expectations in regard to expected return, volatility, and correlations for every security, (2) have the capacity to lend and borrow capital at a risk-free rate of interest; (3) can short any asset, as well as hold fractions of one, (4) consider the same period of time to invest and (5) care only for the expected return and volatility of their investments (Fernandez, 2015).

Still, there are various reasons for its prevalence in application. Despite its imperfections, the CAPM is a widely deliberated and favored approach in practice, as evidenced by its extensive use (e.g., Fortune 500 firms use the CAPM to estimate their cost of equity) (Berk Jonathan & Van Binsbergen Jules, 2017). Moreover, it enables an easy computation of the beta factor, presented in every practitioner's book, which are also present in the CFA exam. It is an essential element to defend the valuation and support the analyst estimates.

Nevertheless, there is a consensus that certain assumptions of the model are senseless, such as the assumption of homogeneous expectations, even though all valuation models necessarily involve unrealistic simplifications. Specifically, the estimation of the market risk premium (MRP) and beta have been identified as problematic. The most frequent mistake in calculating these parameters is the use of historical industry data or the average of betas from similar companies. Further discussion on these estimation issues will follow.

The CAPM of Sharpe (1964), Lintner (1965) and Mossin (1966) assumes that the expected return for a security is a function of three variables: the expected beta, the expected market return and the risk-free rate. Additionally, based on the model's assumptions, the return of an asset must be positively linear with its calculated beta. The model's formula can be expressed as: $E(Ri) = Rf + MRP\ E(\beta i)$, where $E(Ri)$ represents the expected return on asset i, $E(\beta i)$ is the expected market beta of the asset, Rf denotes the expected return on a "zero-beta" portfolio, and MRP is the market risk premium, equal to $E(Rm) - Rf$, where $E(Rm)$ is the expected return of market portfolio. However, subsequent work has suggested that the model's expectations are not in line with actual market behavior, leading to the consideration of multiple portfolio-based factors.

Table 8: Net intent of consumers towards grocery shopping 2023 vs 2022

CAPM	Real World
Homogeneous expectations	**Heterogeneous expectations**
All investors have equal expectations about asset returns	Investors **DO NOT** have equal expectations about asset returns
Investors only care about expected return and volatility of their investments	Investors also care about jumps, crashes and bankruptcies
All investors use the same beta for each share	Investors use different betas (required betas) for a share
All investors hold the market portfolio	Investors hold different portfolios
All investors have the same expected market risk premium	Investors have different expected market risk premia and use different required market risk premia
The market risk premium is the difference between the expected return on the market portfolio and the risk-free rate	The market risk premium is **NOT** the difference between the expected return on the market portfolio and the risk-free rate

Source: Fernandez (2015)

Table 6: Key points CAPM – Calculated betas

Problems with calculated betas
Historical data bias
Sensitivity to time period
Lack of precision
Limited scope of factors
Inability to capture non-linear relationships
Chnages in company-specific risks Dependence on market efficiency assumption
Sensitivity to benchmark choice
Limited applicability to non-traded assets

Source: Fernandez (2009)

Table 7: Key points CAPM – Market Risk Premium

Problems with Market Risk Premium
Sensitivity to input variables
Reliance on historical data
Uncertainty in risk-free rate estimation
Dependence on the choice of market index Lack of consideration for non-systematic risks
Potential model misspecification
Sensitivity to market conditions

Source: Fernandez (2009)

Figure 50: Market Risk Premium used by 150 Textbooks

Source: Fernandez (2009)

Problems with calculated betas | Considering the model, the expected beta of a company is determined by the market and is typically estimated through a regression analysis of historical data. As such, it is crucial for investors to carefully consider this "market beta." However, it should be noted that the concept of a "market beta" is not well-defined and poses significant challenges to estimation.

Several well-known issues arise when estimating betas, including the dependence of beta values on the chosen stock index as a market reference, the historical period used for estimation, and the type of return (e.g., monthly, quarterly) utilized in the calculation. Furthermore, beta values can vary significantly on a daily basis and have limited correlation with stock returns. In fact, Fernandez and Bermejo (2009) conducted an analysis of the annual stock returns between 1989-2008 of the Dow Jones companies, comparing the correlations of returns using two scenarios: (1) beta times the market return (β Rm); and (2) the market return alone (Rm) (where the market return is defined as the return of the S&P 500) assuming $\beta = 1$ for all companies. They found that the second correlation was higher than the first for all but two companies, suggesting that a beta value of 1 may present a stronger correlation with stock returns than calculated betas for many companies.

Damodaran (2001) and others acknowledge that individual company betas exhibit substantial variation, while betas for a portfolio of companies within a particular industry, or industry betas, display relatively lower variability. As a result, it has been proposed to use the calculated beta of an industry. Nevertheless, it is essential to note that despite the lower variance in industry betas compared to company betas, industry betas still exhibit significant variability, and relying solely on them may lead to substantial errors.

Problems with the Market Risk Premium | The assumption that the MRP is a constant parameter among investors and characteristic of the market is another issue detailed. Fernandez (2009) reviewed several textbooks on corporate finance and valuation by renowned authors, including Damodaran and Copeland, and found that the recommended values for the MRP range from 3% to 10% (Figure 50). Furthermore, more than 30% of these books present different MRPs on various pages, as there is no clarification on which concept of MRP is being addressed: historical, expected, implied, or required equity premium (investor's required risk-free rate subtracted from the incremental return of a diversified portfolio). While the relationship between these four concepts is debatable in academia, it is widely accepted that the Historical Equity Premium (HEP) is not a reliable estimator of the Estimated Equity Premium (EEP) since future results may not necessarily be equivalent to historical data.
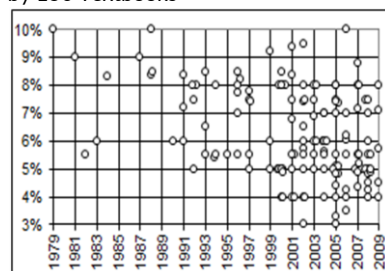
Incomplete Replication (Risks analysis approach)

The initial alternative model under consideration emphasizes a more suitable approach for incorporating risk into the valuation process. Gleißner and Ernst (2019) emphasize that market imperfections challenge the applicability of the CAPM in determining the cost of capital, suggesting that risk analysis, Monte Carlo simulation, and the approach of incomplete replication are more suitable methods to compute a risk-adjusted cost of capital.

Whereas the CAPM provides a systematic risk-based framework for company valuation and considers unrealistic assumptions (such as a perfect capital market), the motivation for using incomplete replication in company valuation is to capture the essential risk factors and return drivers of a benchmark company without necessarily replicating it entirely. This approach acknowledges that achieving a perfect replication of a company's risk profile may be challenging or impractical. Incomplete replication allows for a more

Figure 51: Certainty Equivalence Method in Company Valuation

$$Value(\widetilde{CF_1}) = \frac{CE(\widetilde{CF_1})}{1+r_f} = \frac{E(\widetilde{CF_1}) - \lambda_{CE} \cdot R(\widetilde{CF_1})}{1+r_f}$$

Source: Gleißner and Ernst (2019)

Figure 52: Valuation Equation

$$Value_0(\widetilde{CF_A}) = \frac{E(\widetilde{CF_A}) - \rho_{AM} \cdot \sigma(\widetilde{CF_A}) \cdot \frac{E(\widetilde{r}_m) - r_f}{\sigma(\widetilde{r}_m)}}{1+r_f} =$$

$$= \frac{E(\widetilde{CF_A}) - \lambda \cdot \sigma(\widetilde{CF_A}) \cdot \rho_{AM}}{1+r_f}$$

Source: Gleißner and Ernst (2019)

Figure 53: Cost of Capital

$$c = \frac{1+r_f}{1 - \lambda \cdot \frac{\sigma(\widetilde{CF_A})}{E(\widetilde{CF_A})} \cdot d} - 1 = \frac{1+r_f}{1 - \lambda \cdot V \cdot d} - 1$$

Source: Gleißner and Ernst (2019)

focused selection of comparable companies or assets that exhibit similar characteristics, enabling a more tailored and accurate valuation that considers the unique risk profile of the company being assessed. Information regarding risk analysis, financing restrictions and insolvency risks is contemplated within the model.

The incomplete replication follows the same approach as the one conducted in the initial valuation - based on the DCF model, where the company value is determined considering the expected free cash flows (derived from a planning calculation). These cash flows are subject to "suitable capitalization interest rate" Gleißner and Ernst (2019). It is in this discount factor estimation that the major difference is observed between the CAPM and the incomplete replication approach.

The original valuation model observes a *risk premium method*: $c = Rf + Rcf$, in which a risk premium (Rcf) is added to the risk-free rate (Rf), resulting in a discount rate to be applied to the expected cash flows. However, the risk factor to be incorporated in future cash flows, representing the deviation extent from the expected value, can also be accounted for using the *certainty equivalence method*. In this method, a risk discount variant is directly applied into the future cash flows (Figure 51). This factor represents the degree of risk aversion or tolerance of the investor. Attending to the methods' formula, λCE expresses the additional return per unit of risk that an investor would require to invest in the alternative investment opportunity under consideration (capital market).

In regard to what methodology is being considered exactly, it is important to mention that the article from which we are considering the discount variant estimation presents a section in which the authors proceed to derive a valuation equation and cost of capital equation from a risk analysis using incomplete replication. The authors firstly derive the valuation equation (Figure 52) and use said equation to derive the cost of capital equation (Figure 53). However, "even if an appraiser wishes to follow the traditional CAPM valuation approach, he or she should aggregate the valuation-relevant information on the risks of uncertain cash flows CFf to an appropriate risk measure. This is made possible by the "risk discount variant" of CAPM, whose risk measure is based on the correlation between future cash flows and the market return." (Gleißner and Ernst ,2019). Therefore, the only equation considered for the present study is the one in Figure 53, which will act as a risk-specific discount factor to the expected cash flows estimated in the DCF model.

These equations were derived without the need to make the unrealistic assumptions conducted in the CAPM. The method presents only a few, and less restrictive assumptions:

(1) "Two cash flows at the same time have the same value if they match the expected value and the risk measure chosen by the valuation subject", meaning that the valuation subject is indifferent between two cash flows that have the same expected value and risk level.
(2) "For the subject of the valuation, a risk-free investment with an interest rate rf and a risk-bearing investment option with an uncertain return R(Rm) (e.g., a broad empirical market portfolio) are available as alternative investment opportunities". The risk-free investment is assumed to have a known and constant rate of return, while the risk-bearing investment option is assumed to have an uncertain return that depends on market conditions and other factors. This assumption allows the valuation subject to compare the investment being valued to alternative investments with different levels of risk and return.

This methodology considers that $(CF) = x + y$, in which the amount of capital x invested in the market portfolio and the amount of y invested in the risk-free investment is exactly enough that the risk of this portfolio corresponds to the risk of the uncertain cash flow CF. The article discusses the concept of deriving the valuation equation, with an aim to determine concrete valuation equations and derive the market price of risk. The derived valuation equation is in Figure 53; where λ represents the excess return per unit of risk, V is the coefficient of variation capturing the cash flow risk relative to expected cash flow, and d is the risk diversification factor indicating the proportion of risks the investor bears. The degree of risk diversification, d, can be estimated by considering the correlation of the company's earnings (or earnings growth) with the earnings of all companies in the market index. It implicitly follows from simulation-based risk aggregation.

The equation can be used to calculate the cost of equity or the weighted average cost of capital (WACC) depending on the chosen definition of cash flows (flow to equity or operating free cash flow). This method eliminates the need for complex calculations involving the cost of equity and cost of debt, and the appropriate weighting of these components, as the discount is applied directly into the cash flows estimated. To guarantee reliable results, it is of the essence to identify and quantify the involved risks. Gleißner and Ernst (2019) highlight the different risk measures other than the standard deviation considered in the CAPM, better suited to describe the actual risk in a company. There is a particular focus on risk analysis and aggregation using Monte Carlo Simulation.

In terms of risk analysis, the first step consists of the identification and categorization of risks. The article considers a structured approach to identify different types of risks, including strategic risks (risks related to the company's potential for success), operational planning and budgeting risks (risks arising from uncertain planning assumptions), and performance risks (risks identified through critical discussions in workshops).

Moreover, it is important to interpret these risks in an aggregated overall risk scope, not individual. This aggregation of quantified risks can be conducted in simulations such as the Monte Carlo. Aggregating risks involves examining the effects of these risks on future earnings, cash flows, financial indicators, credit agreements, and enterprise value, as well as considering a multiple-year period to identify serious crises.

Figure 54: Probability of Insolvency

$$P = \frac{0.265}{1 + e^{-0.41 + 7.42 \cdot equity\ ratio + 11.2 \cdot ROCE}}$$

Source: Gleißner, 2017a, pp. 336- 338

Figure 55: Company Valuation Equation

$$Value_0(\widetilde{CF_A}) = \frac{E(\widetilde{CF_A})}{1+c}$$

Source: Gleißner and Ernst (2019)

Figure 56: Market Price of Risk

$$\lambda = \frac{Market\ Risk\ Premium}{\sigma(\tilde{r}_m)} = \frac{E(\tilde{r}_m) - r_f}{\sigma(\tilde{r}_m)}$$

Source: Gleißner and Ernst (2019)

Figure 57: Monte Carlo Simulation

Source: Gleißner and Ernst (2019)

Table 9: Incomplete Replication Approach – Factor Estimation

Data summary IR	
Risk free rate (Rf)	6.8%
Market Risk Premium (MRP)	7.0%
Coefficient of Variation (V)	0.5
Risk diversification factor (d)	0.03
Market Price of Risk (λ)	2.8
Risk-adjusted cost of capital	12.0%
Price Target	**21.2 €**

Source: Team estimates

The use of the Monte Carlo Simulation for this model will help determine suitable risk measures for evaluating a company's risk-adjusted return requirements.

Among several risks to be considered, the article pays particular attention on the impact of insolvency risk on company valuation, an overlooked factor in valuation practice, despite its significant effects on the value of a company. The probability of insolvency, denoted as 'p', influences the expected value of cash flows and their development over time. It is crucial to consider the probability of insolvency directly when determining the expected values in the detailed planning phase. This means incorporating scenarios where there is no return to the owners due to insolvency.

Valuation practice sometimes evaluates an insolvency scenario separately to account for the possibility of insolvency. However, this approach may have limitations. The estimated probability of insolvency is often inconsistent with ratings and planning, and it is often overlooked that insolvency can occur in any year, resulting in numerous insolvency scenarios. In the long term, insolvency becomes a scenario with a high probability. When calculating the terminal value (TV) in the continuation phase, the probability of insolvency ('p') and the growth rate ('g') must be considered. The formula for the company value in the continuation phase is expressed in Figure 55, where E(CF) represents the (conditional) expected values of cash flows, *c* is the risk discount variant (discount rate) and *p* is the probability of solvency.

It's worth noting that while the probability of insolvency influences the valuation, it is not considered as part of the cost of capital. The probability of insolvency is distinct from the discount rate used in the valuation calculations. Alternative approaches alongside the Monte Carlo simulation can provide a more precise assessment of risks and dependencies, including those related to insolvency. However, pragmatic solutions, such as the simplified terminal value formula, are commonly used due to their practical advantages.

Methodology and Discussion of Results
Considering the estimate future cash flows already computed in the first part of the present study, the estimation of this discount factor will firstly take into account the probability of solvency to be applied. As stated in Figure 54, the estimate of this probability is based on financial ratios, namely the equity ratio and the return on capital employed. Incorporating these measures allows insights into the financial health and stability of the business. Although this probability is computed on a yearly basis, it will only be applied to the terminal value.
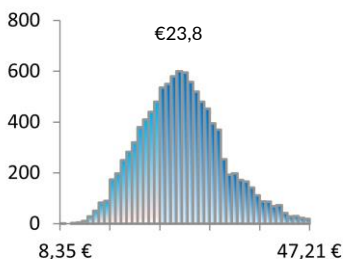
As for the cost of capital estimation, the formula in Figure 53 is considered. The risk-free rate assumed is the same as the one estimated for the Polish segment in the first part of the report (6.8%). Afterwards, the market price of risk λ is estimated according to Figure 56, in which the market risk premium considered is the same as the one computed initially for the Polish segment, and the standard deviation of the market index attends to the chosen index WIG 20 (in order to consider an index with companies of a similar profile as Biedronka's as much as possible.

For the estimation of the coefficient of variation V, a Monte Carlo Simulation is performed. Given that the subject of valuation for this specific part of the report is JMTs' Polish segment (namely Biedronka and Hebe), the risk factors considered into the simulation are only related to the Polish market conditions (population growth, currency change, EBIT level, risk-free rate, growth prospects, etc.). Moreover, the risk diversification factor d is estimated considering the correlation of the (trend-adjusted) earnings or earnings growth of the company with the earnings of all companies in the market index. This because the suggestion in the article is that the risk diversification factor can be derived implicitly from simulation-based risk aggregation when exogenous risk factors are considered independently to capture systematic, cross-company risk. Based on the CAPM assumptions, this risk factor aligns with correlation between the company's returns (JMTs' entire business scope, not just Polish focused) and the return on the market portfolio (in this particular case, the WIG 20 Index was selected). All factors considered (Table 9), the cost of capital estimated is 12.0%, corresponding to the earnings risks. The price per share for Polish segment under this model is **€21.2/sh**. Further details related to the estimation can be found on Appendix 16 and Appendix 17.

Limitations
The approach discussed is highly influenced by market dynamics, subject to short-term fluctuations, and it may not reflect the fundamental value of the business segment. It requires a thorough analysis and consideration of the company's specific circumstances, industry dynamics and future projections to ensure reliable results. Moreover, the fact that this approach is more adequate to value existing options for action in the preparation of business decisions might influence the actual results, which might not correctly translate the full risk exposure the company is subject to. The risks considered are focused on the Risk Analysis elaborated in the first part of the report, but focused on the Polish scope of business, therefore, for the current approach, a more thorough research and analysis would potentially provide a greater level of result accuracy. Moreover, due to lack of publicly available data, most of the company returns considered in this incomplete replication approach translate returns of JMTs' entire business segments, and not the required Polish segment. Another influencing factor is related to the market portfolio considered. The deliberation of a different market index other than the WIG20 Index would provide different factors of estimation.

Build Up Approach

The Build-up approach is an alternative method to estimate equity costs, in which the expected rate of return is estimated as the sum of the risk-free rate and the company-specific risk premium (CSRP):

$$c = Rf + \beta \times (Rm - Rf) + Rs1 + Rs2 + \ldots + Rsn$$

where *c* is the cost of equity obtained, *Rf* is the risk-free rate, (*Rm- Rf*) is the market risk premium and *Rs1*, *Rs2*, *Rsn* are the types of specific risk included as adjustment. The company-specific risk premium is computed on the base of finance behavior theory. All stakeholders of the entity determine their interest based on the rate of return to ensure that such an investment gives more utility than the substitute investment. The model takes a closer look at the investors' concerns and risks to be presented, according to the company's profile.

Methodology and Discussion

The model, in a similar approach as the CAPM, firstly assumes the determination of the risk-free return rate, as it follows the assumption that each investment should generate a return rate at least equal to the risk-free rate (Hawawini & Viallet, 2011, p. 278). As such, the same risk-free rate value is used for this method as it was for the main model (updated for the delivery date of the second part of the report). The determination of the beta coefficient and the market risk premium follow the same process, although there the literature does highlight a lack of agreement as to the quantification of investors' expectations of their risk aversion.

As for the other component and considering both key risk areas in the Food Retail industry and the five areas of company-specific risks identified by J.H.Schilt, the following five areas of company-specific features of activity will be observed for the computation of the specific risk premium in adjustment to the discount rate (Table 10). Each area represents a risk premium with a possible scale of 0%-1% (from a perspective of non-occurring risk to high probability of occurrence). The risk assessment was also supported by A. Damodarans' research and benchmarks comparison to representatives of the food retail industry listed. Other studies were consulted as to the adequate percentage each of these areas should represent, without established conclusions. As such, J.H.Schilt study is the base for the company-specific risk factors.

Industry and Market Dynamics are the first area to consider regarding company-specific risks. The Retail (Grocery and Food) is not a particularly risky industry (considering a European scope). In accordance with A. Damodaran, the industry's beta is around 0.84, compared to the average level of 1.04 in all other industries. The industry with the highest and lowest beta are Semiconductor Equipment (beta of 1.81) and Tobacco (beta of 0.39), respectively. Let us assume that the highest beta corresponds to the highest risk premium attributed (1%), and the suggested value for the Food Retail risk premium is of about 0.5%. The business in Poland remains affected by Food inflation, keeping the pressure in the consumer's household purchasing power, so the economic situation supports the risk level attributed to the industry.

As for management quality, and considering the company's profile, the majority of ownership is focused on Soc. Francisco Manuel dos Santos B.V., controlled by Pedro Soares dos Santos. The board of directors is experienced, with and average tenure of 8.2 years, and a member average of 62 years old. Within the board of directors, Andrzej Szlezak is responsible for the operations in Poland. Over the last 3 years, only 1 new director joined the board (Natalia Olynec), so insufficient board refreshment might pose as a risk. The company's history supports good board decisions and a strategy centered in the long-term perspective of the business. In terms of succession, there are no clear plans, so the company may face disruptions if key executives or board members retire. Due to the lack of diversification and major focus in a sole shareholder, risk premium in this area equals 0.5%.

In order to measure the company's financial risk, several ratios were selected and compared with peers. As the premium consists of 5 ratios, each will have a representation of 0-5%, later on adjusted to the company-specific range. The peers considered as comparison for the Polish segment are the same as the ones selected in SARD approach conducted in the first part of the report, namely Dino Polska SA (Poland), Axfood AB (Sweden), Kesko Oyj (Finland), Metro Inc (Canada), Sprouts Farmers Market Inc (USA) and Atacadao SA (Brazil). It is also necessary to consider that for this particular analysis, the performance of the company will be analyzed for the totality of the business (including the operations in Portugal and Colombia), as there is not enough public information to accurately value the Polish segment alone, for the ratios presented. Even so and considering that over 75% of JMT's operations are focused on Poland, the following benchmark considerations still hold value.

The first ratio considered is the return on total assets, a key ratio to assess the company's profitability. On a general level, the higher the ratio value, the more efficient is the company's generating profit process, although it is imperative to check peers' performance. Attending to
Table 14, Jerónimo Martins average ROA is lower than peers. Over the last three years, the company registered a ratio of 7.9%, compared to the benchmark average of 11.7%, hence the attribution of a 1.34% risk premium value.

Return on equity is particularly used for comparing the performance of companies in the same industries, as it provides investors with an insight as to how efficiently the company is handling the capital provided by them. On a general level, 15-20% are good indicators to present. On a similar level as the previous ratio, JMT holds an acceptable ratio level, although not at the same level as the peers selected, hinting of a possible

Table 10: Company specific risk premium (representation)

Company-specific risks	
Industry and Market dynamics	0-1%
Management quality	0-1%
Financial Performance	0-1%
Competitive Positioning	0-1%
Other factors	0-1%
Total	0-5%

Source: J.H.Schilt, Own estimates

Table 11: Company specific risk premium – Factor Description

Company-specific risks	
Industry and Market dynamics	Peers strategy, economic challenges, consumer preferences, regulatory changes and compliance, etc.
Management quality	Board & employees characteristics (gender, performance, satisfaction levels, etc.), board experience, track record, decision-making capabilities
Financial Performance	Compared specific ratios with benchmarks - ROA, Inventory turnover, Debt-to-Equity ratio, ROE, EBITDA Margin.
Competitive Positioning	Branding strategies, possible unique products, intellectual property, dominant market position.
Other factors	litigations and public view of the brand, politics and charges, cybersecurity factors, regulatory compliance, environmental factors

Source: J.H.Schilt, Team analysis

Figure 58: Debt to Equity and Current Ratio – JMT (PL) & Peers
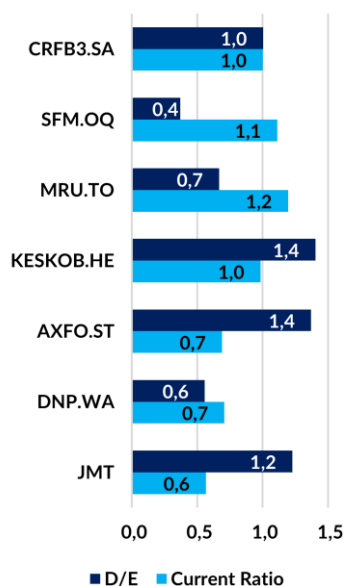
Source: Team estimates

Figure 59: EBITDA Margin – JMT (PL) & Peers
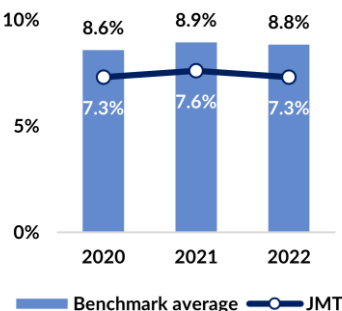
Source: Team estimates

Table 12: Company specific risk premium – Factor Estimation

Company-specific risks	
Industry and Market dynamics	0.5%
Management quality	0.5%
Financial Performance	0.5%
Competitive Positioning	0.3%
Other factors	0.3%
Total	2.0%

Source: J.H.Schilt, Team analysis

Table 13: Data Summary Build Up Approach

Data summary BU	
Risk free rate (Rf)	6.8%
Market Risk Premium (MRP)	7.0%
Beta factor	0.73
Company specific risk premium (CRSP)	2.0%
Cost of Equity (ke)	13.9%
Cost of Debt	6.0%
Price Target	20.9 €

Source: Team estimates

sign of management weakness or poor investment opportunity. Therefore, a 0.3% risk premium value is considered.

The current ratio was selected to attend to the liquidity part of the financial results, namely to the company's ability to respect short-term obligations. Still, a company with a high current ratio isn't necessarily positive since this may occur due to lack of effective cash and inventory management. Given the results presented, both the benchmark average and JMT present a low value, which may signal liquidity issues. Still, it means assigning a top-level value of the range, namely 0.7%.

JMT debt-to-equity ratio shows that the company has more debt than equity, implying a higher level of financial leverage and potentially greater financial risk. Given the nature, food retail typically operates with lower profit margins and faces severe competitive pressure. Therefore, the common aim of such companies involves a conservative capital structure with lower levels of debt (which is more explicit in the benchmark average value). Even so, Biedronka particularly is a larger and well-established brand in the market, and it is not uncommon for companies with such a profile to present a higher debt-to-equity ratio. Still, following a conservative approach and bearing in mind peers, a 0.2% value is attributed to this area.

Finally, JMT's EBITDA margin is slightly lower than the one from the benchmark average, meaning either that the company's operating expenses might be relatively higher compared to peers, or the revenue generation is relatively lower. Even so and considering the challenge of admitting an adequate value for the ratio in the food retail industry, it typically presents a 2-6% range. Therefore, no risk premium is set in this matter. Based on the analysis of five key ratios, a financial risk premium of 1.5% was determined (Table 14).

Table 14: Financial Performance

Specification	JMT	Benchmark Average	Specific risk premium
ROA	7.9%	11.7%	1.3%
ROE	19.4%	26.0%	0.3%
Current Ratio	0.6	0.9	0.7%
D/E	1.2	0.9	0.2%
EBITDA margin	7.4%	8.8%	0.0%
Total			2.5%

Source: Own estimates

As for JMT's competitive positioning in Poland, Biedronka is the main player in the discount format segment, and Hebe's focus on the digital channel have allowed for a 29.5% sales increase (from Q1 22 to Q1 23). In terms of strategy, the Polish segment has always given priority to offering the lowest possible prices in the market, and this strategy is their differentiating factor. For the beginning of 2023, Biedronka has strengthened its position in terms of pricing and commercial initiatives, widening the difference between the inflation of its product range and the overall food inflation in the country. These efforts were acknowledged by the consumers, and an increase in sales volume is expected. Given the brand's ability to gain market share in such a complex economic situation as the current one and the established line of business, the risk premium in this area equals 0,25%.

Specific risk factors in the JMT's polish segment entail litigations and public view of the brand, regulatory and cybersecurity compliance factors. The regulatory committee has already applied a number of fines on Biedronka in recent years and a problem has been highlighted regarding the way prices are presented on the labels, as this procedure might not be in accordance to the European Omnibus Directive, in which "(...), all retailers and shops must show the lowest price of a given item from the last 30 days next to the products on promotion" (European Union, Poland, 2023). Moreover, there has been a new development as to the "anti-inflation" campaign, and the Polish regulator has fined the Portuguese company in about €36M for inducing their consumers in error, considering "conditions, benefits and availability" (Expresso, June 2023). Nonetheless, Jerónimo Martins has already contested the fines presented and the company the undergoing situation to be somewhat controlled. Still, these sanctions can be considered a stand-alone act in Poland. For cybersecurity measures and considering any default that could potentially affect the day-to-day operations, the company has made it a priority as of 2021, to enhance employee training and awareness. Moreover, the public perceives Biedronka and Hebe as dependable and attractive brands, given the company's strategy for minimum price delivery and product quality delivery. Considering these factors, the risk premium to be attributed in these areas is 0.25%. In total, the company specific risk premium presents a value of 2.0% (Table 12). Considering the specific factors, the estimated return on equity is of 19.7%. All elements observed, the model reaches a price target for the Polish segment of **€20.9/share**. Further details related to the estimation can be found on Appendix 18 to Appendix 21.

Limitations

The build-up approach, when considered as an alternative to the Capital Asset Pricing Model (CAPM), has several limitations. Firstly, it is a subjective model that requires analysts to make judgments regarding company-specific risk factors. Since these assumptions can vary among analysts, it introduces the potential for inconsistencies and biases in the estimated cost of equity. Determining the appropriate factors and

assigning accurate risk premiums for each factor can be subjective and challenging, leading to potential errors. Furthermore, the build-up approach heavily relies on factors that may not fully capture systematic market risks. It may not adequately consider the broader dynamics of the market and fails to account for the impact of systematic risks on the cost of equity. While efforts are made to reduce subjectivity by incorporating the risk-free rate, market risk premium, and beta factor obtained from the initial CAPM approach, complete elimination of subjectivity remains challenging. Another limitation is the relatively limited empirical evidence supporting the accuracy and reliability of the build-up approach. This lack of empirical validation makes it more difficult to justify its practical use in estimating the cost of equity.

Carhart Six-Factor Extension Model

The subsequent model under consideration as an alternative is a multifactor model that incorporates additional factors beyond systematic risk. This extension to a six-factor model aims to reconcile the Fama-French five-factor model with the momentum factor introduced in Carhart's four-factor model (Carhart, 1997). By encompassing multiple factors, this model offers a diversified framework for estimating expected returns and facilitates the incorporation of a broader spectrum of risks, thereby potentially enhancing the accuracy of estimation.

Due to the limitations outlined earlier to the assumptions of the CAPM and its failure to consider behavioral factors and asset differentiation, there emerged a need for the development of multifactor linear models that do not rely on assumptions regarding investor risk aversion and rationality. In response to this, the Fama-French three-factor model was introduced in 1992, with an aim to better explain the cross-section of stock returns and provide more accurate estimates of expected returns. As widely recognized, this model incorporates the market risk factor, as well as the size factor and the book-to-market factor. The equation representing the Fama-French three-factor model is as follows:

$$Ri - Rf = \beta mrt * (Rmrt - Rf) + \beta smb * SMB + \beta hml * HML + \varepsilon i$$

where Rf represents the rate on a risk-free asset such as government bonds, βmrt measures the sensitivity of an asset's return to market movements, (Rm - Rf) is the market risk premium, representing the excess return of the market over the risk-free rate, SMB captures the expected return difference between a well-diversified small-cap portfolio and a well-diversified large-cap portfolio, βsmb is the factor coefficient, HML is the expected return difference between the well-diversified highest book-to-market and the well-diversified lowest book-to-market portfolio, and βhml is the respective factor coefficient.

Carhart developed an extension to the model in 1997, with the introduction of an extension that incorporated the momentum factor, determined as the expected return difference between the previous period's highest return stocks and lowest return stocks. The momentum effect refers to events in which stocks that have performed well in the past continue to outperform, while stocks that have performed poorly continue to underperform on the long run.

$$Ri - Rf = \beta mrt * (Rmrt - Rf) + \beta smb * SMB + \beta hml * HML + \beta rmw * RMW + \varepsilon i$$

Carhart (1997) research demonstrated that the momentum factor had a significant impact on stock returns, even after accounting for the market risk, size, and value factors. It was demonstrated that stocks exhibiting positive momentum (recent winners) tended to continue their outperformance in the short term, while stocks displaying negative momentum (recent losers) tended to continue underperforming. The inclusion of the momentum factor in the Fama-French model provided a more comprehensive framework for understanding asset pricing, capturing an additional important factor influencing stock returns, extending beyond the considerations of market risk, size, and value factors.

Further empirical research, such as the work by Novy-Marx in 2012, indicated that even with the consideration of the three-factor model, there was still limited explanatory power regarding expected returns, particularly concerning the high expected returns of low profitability companies with significant investments. To address this limitation, Fama and French introduced an extension to the model in 2015, incorporating two additional factors: profitability and investment.

$$Ri - Rf = \beta mrt * (Rmrt - Rf) + \beta smb * SMB + \beta hml * HML + \beta rmw * RMW + \beta cma * CMA + \varepsilon i$$

Empirical findings regarding multifactor asset pricing models have demonstrated that the five-factor model, which includes the profitability and investment factors alongside the three original factors, outperforms the three-factor model, at least in the US market (Fama French, 2015). Regarding the momentum factor, Fama and French (2016) found it to have little effect when added to the other five factors. In the context of the Polish capital market, Dezméri and Nagy (2022) focused their study on the multifactor models, given the significant attention given to these models in the literature review. They highlighted how the Polish market is one of the most liquid stock markets in Central Europe and was recently upgraded from an "emerging" to a "developed" stock market, which is likely to attract increased attention from academia and researchers. The study aimed to explore how this process of rapid maturing could potentially impact liquidity, informational efficiency, and the validity of multifactor asset pricing, among other factors.

The study's conclusion highlights the significant impact of incorporating the momentum factor into the multifactor asset pricing model. This inclusion not only improves the model's explanatory power but also strengthens the statistical significance of the coefficients. By adding the momentum factor (UMD), the

Table 15: Carhart Six-Factor Extension Model – Factor Description

Carhart Six-Factor Extension Model	
Market Risk (Rmrt)	Excess return of the overall market compared to a risk-free rate of return.
Size (SMB)	Historical outperformance of small-cap stocks relative to large-cap stocks.
Value (HML)	Historical outperformance of value stocks compared to growth stocks
Profitabilty (RMW)	Historical outperformance of companies with high profitability compared to low profitability
Investment (CMA)	Historical outperformance of companies with conservative investment policies compared to aggressive investment policies
Momentum (UMD)	Tendency of stocks that have performed well in the past to continue performing well in the future.

Source: Fama French 2015, Carhart 1997

Table 16: Carhart Six-Factor Extension Model – Factor Estimation

| FF6 Factors		Coefficients
Mkt-RF	7.0%	0.00425301
SMB	-1.1%	-0.00706719
HML	-0.6%	-0.00254489
RMW	1.4%	0.00420621
CMA	-1.2%	0.0051234
WML	3.0%	0.00116851
Cost of Equity	11.9%	
Cost of Debt	6.0%	
Price Target	24.5 €	

Source: Fama French 2015, Carhart 1997

Table 17: Differences between Pure Investment Theorical Methods and Risk-Value Methods

Pure Investment Theorical Methods
Investment is analyzed based on intrinsic value and potential returns
Emphasis on fundamental analysis
Primarily use of DCF models (NPV, IRR)
Assume investors are rational and make decision based on maximizing returns and minimizing risks
Do not explicitly incorporate risk measures or uncertainty into the analysis

| Risk-Value Methods |
| --- |
| There is incorporation of risk analysis and risk management principles into the valuation |
| Explicit consideration of risk factors, volatility, and downside protection in decision-making |
| Include approaches such as Modern Portfolio Theory, Multi-Factor Models and Risk Parity strategies |
| Consider the trade-off between expected returns and associated risks |
| Employment of quantitative techniques (Value at Risk, Conditional Value at Risk, etc.) for potential losses estimate |

Source: Gleißner and Ernst (2019)

Figure 60: Models Adjustments and Impact
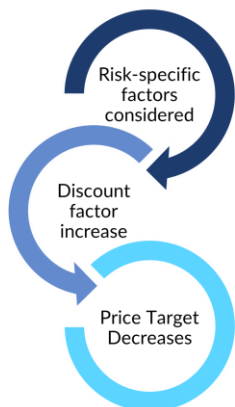
Source: Team analysis

Figure 61: Price target following alternatives
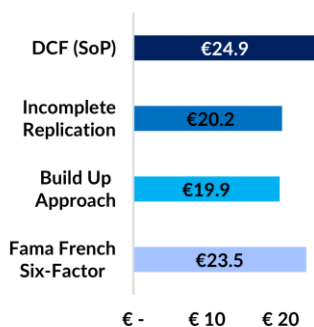
Source: Team estimates

behavior of all pricing factors, including size and profitability, aligns more closely with the empirical tests conducted on developed markets using the FF5 model. The loadings of most factors in the model exhibit a combination of positive and negative signs. However, the momentum effect consistently displays a positive sign and exerts the most pronounced influence. This finding indicates that, within the context of the Polish market, momentum remains the most influential risk factor in asset pricing. Given the study's conclusions, the current research also employs the multifactor asset pricing model, taking into account the momentum factor.

$$Ri - Rf = \beta mrt * (Rmrt - Rf) + \beta smb * SMB + \beta hml * HML + \beta rmw * RMW + \beta cma * CMA + \beta umd * UMD + \varepsilon i$$

Methodology and Results
The data collection for this study spanned from the beginning of 2018 until April 2023. The market risk factor, risk-free rate, and beta used in the analysis were consistent with those employed in the Capital Asset Pricing Model (CAPM). The additional factors considered in the study, namely size, value, profitability, investment, and momentum, were sourced from Kenneth R. French's data. It is worth noting that these factors represent a European scope rather than specifically focusing on the Polish market due to data availability limitations. The computed excess return was then assumed as the cost of equity and utilized to estimate the WACC. The resulting price target for the Polish segment using this methodology was €24.5 per share, representing a decline of approximately 5% compared to the originally achieved price target of **€25.9/sh.** for this specific business segment. Further details related to the estimation can be found on Appendix 22 to Appendix 24.

Limitations
Firstly, it is crucial to recognize that the factors and their associated coefficients used in the model are not specifically representative of the Polish market, but rather of the broader European market. This discrepancy arises due to the limitations of available public data, which primarily cover the European scope. Furthermore, it is important to note that the company returns considered in the analysis are not solely focused on JMT's Polish segment. Instead, they encompass the overall performance of the entire company. This limitation arises from the data availability, as only such comprehensive data was accessible for analysis. Additionally, it is essential to conduct further research to examine the classification of the market, particularly regarding whether the categorization as a "developed" or "emerging" market significantly affects any of the factors included in the model. This examination would help gain a deeper understanding of the potential impact of market classification on the factors and their respective coefficients. These considerations highlight the need for caution and potential adjustments when applying the obtained price target to the specific context of JMT's Polish segment. Further analysis and refinement of the model may be necessary to account for these limitations and tailor the estimates more accurately to the targeted market.

Conclusion

The Capital Asset Pricing Model (CAPM) encounters significant challenges and limitations, hence the exploration of alternative methods for estimating the cost of capital. Three alternative models are examined: the Replication Approach, the Build-Up Approach, and the Carhart six-factor extension model. Each of these models specifically considers the Jerónimo Martins Polish segment, which consists of Biedronka and Hebe. The selection of methods considered the analysis of the company value both by pure investment theoretical methods and risk-value methods (Table 17). It is important to note that these models should be considered as complementary to the initial company valuation conducted, and not as alternative, considering their limitations and the need for further research on their factors.

The Replication Approach offers a flexible valuation method that incorporates risk analysis, Monte Carlo simulation, and the method of incomplete replication. It surpasses the standard deviation in risk measurement and enables a comprehensive evaluation of risks in company valuation. However, this approach requires a reliable risk identification and quantification method, which might be a subjective process. The limitations of risk identification, publicly available market data, and the aforementioned factors may have contributed to the obtained results. The Build-Up Approach estimates the cost of equity as the summation of the risk-free rate, market risk premium, and company-specific risk premiums. It considers investors' concerns and the risks associated with the company's profile. It follows subjectivity in determining company-specific risk factors and may not fully encompass systematic market risks. Relying heavily on analysts' judgments, it presents the possibility of inconsistencies and biases in estimating the cost of equity. These methods provided the lowest price target for the business segment valued, and an extensive integration of the Build-Up Approach into the entire group could provide a company value that would influence the investor decision for a Buy to a Hold position. Finally, the Carhart six-factor extension model further develops the traditional CAPM by incorporating additional factors such as size, value, profitability, investment, and momentum. This model provides a diversified framework for estimating expected returns and encompasses a broader range of risks. Nevertheless, limitations include reliance on data availability, as the considered factors may not specifically represent the Polish market, and the absence of empirical validation to ascertain accuracy and reliability.

The initial recommendation considering these approaches still holds, although an exposure reduction to the portfolio is advised. It is important to realize the effect of the approaches in the overall valuation: the values obtained are lower than the estimated in the initial recommendation, given that they represent additional risk factors to be implemented within the valuation. Moreover, the current economic situation (particularly in Poland) considers an unusual conflict, and those risks are also observed in the models.

Appendices

Appendix 1 | Statement of Financial Position

CONSOLIDATED BALANCE SHEET (€M)	2020	2021	2022YE	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Tangible assets	**3817**	**3993**	**4506**	**4949**	**5384**	**5794**	**6168**	**6502**	**6786**	**7020**	**7195**
Intangible assets	**757**	**757**	**854**	**938**	**1021**	**1099**	**1169**	**1233**	**1287**	**1331**	**1364**
Investment property	9	8	8	8	8	8	8	8	8	8	8
Right-of-use assets	2167	2248	2417	2617	2831	3054	3285	3520	3753	3983	4206
Biological assets	3	5	6	7	7	8	8	9	9	9	10
Investments in joint ventures and associates	6	13	13	13	13	13	13	13	13	13	13
Other financial investments (avaliable0for0sale)	1	2	19	19	19	19	19	19	19	19	19
Trade debtors, accrued income and deferred costs	70	57	136	152	163	174	185	195	204	213	220
Deferred tax assets	163	175	175	175	175	175	175	175	175	175	175
Total non-current assets	**6994**	**7256**	**8134**	**8877**	**9622**	**10343**	**11031**	**11673**	**12255**	**12770**	**13209**
Inventories	974	1108	1323	1472	1586	1689	1798	1894	1980	2058	2126
Biological assets	5	7	8	9	10	11	11	12	13	13	13
Income tax receivable	17	23	23	23	23	23	23	23	23	23	23
Trade debtors, accrued income and deferred costs	393	479	552	614	662	706	752	793	829	862	891
Cash and cash equivalents	1041	1493	1257	1294	1287	1289	1366	1467	1600	1762	1965
Total current assets	**2434**	**3111**	**3164**	**3414**	**3569**	**3720**	**3951**	**4189**	**4446**	**4719**	**5019**
Total assets	**9428**	**10368**	**11298**	**12291**	**13191**	**14063**	**14982**	**15863**	**16700**	**17489**	**18228**
Share capital	629	629	629	629	629	629	629	629	629	629	629
Share premium	22	22	22	22	22	22	22	22	22	22	22
Own shares	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6	-6
Other reserves	-129	-140	-140	-140	-140	-140	-140	-140	-140	-140	-140
Retained earnings	1491	1773	1877	1987	2153	2325	2515	2712	2910	3085	3258
Non-controlling interests	249	254	263	268	276	283	292	301	310	318	326
Total shareholders' equity	**2257**	**2532**	**2645**	**2760**	**2933**	**3113**	**3312**	**3518**	**3725**	**3908**	**4089**
Borrowings	364	347	273	298	323	348	371	392	412	429	444
Lease liabilities	1897	1993	2141	2313	2496	2689	2890	3097	3306	3516	3725
Employee benefits	70	70	70	70	70	70	70	70	70	70	70
Provisions for risks and contingencies	33	34	34	34	34	34	34	34	34	34	34
Deferred tax liabilities	66	66	66	66	66	66	66	66	66	66	66
Total non-current liabilities	**2430**	**2511**	**2585**	**2782**	**2991**	**3207**	**3432**	**3660**	**3889**	**4116**	**4340**
Borrowings	160	113	242	265	287	308	329	348	365	381	394
Lease liabilities	377	394	423	457	494	532	571	612	654	695	736
Trade creditors, accrued costs and deferred income	4154	4771	5355	5981	6440	6856	7291	7678	8021	8342	8622
Income tax payable	50	47	47	47	47	47	47	47	47	47	47
Total current liabilities	**4741**	**5325**	**6068**	**6750**	**7267**	**7743**	**8238**	**8685**	**9087**	**9465**	**9799**
Total shareholders' equity and liabilities	**9428**	**10368**	**11298**	**12291**	**13191**	**14063**	**14982**	**15863**	**16700**	**17489**	**18228**

Appendix 2 | Income Statement

CONSOLIDATED INCOME STATEMENT (€M)	2020	2021	2022YE	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Sales	19293	20889	25365	28246	30451	32456	34562	36438	38112	39637	40972
Cost of Sales	**-15047**	**-16366**	**-19974**	**-22226**	**-23945**	**-25503**	**-27139**	**-28592**	**-29885**	**-31059**	**-32083**
Cost of goods sold ond materials consumed	-15025	-16156	-19720	-21945	-23644	-25184	-26800	-28237	-29515	-30676	-31689
Changes in inventories of finished goods and work in progress	3	7	9	10	11	11	12	13	13	14	14
Net cash discount and interest paid to suppliers	23	-17	30	33	36	38	40	43	45	46	48
Electronic payment commissions	-42	-47	-49	-55	-59	-63	-67	-71	-74	-77	-80
Other supplementary costs	-6	-153	-243	-269	-288	-305	-324	-340	-353	-366	-377
Gross Profit	**4246**	**4523**	**5391**	**6019**	**6507**	**6953**	**7423**	**7846**	**8228**	**8579**	**8889**
Distribution and Administrative Costs	**-3559**	**-3682**	**-4329**	**-4899**	**-5263**	**-5594**	**-5934**	**-6236**	**-6501**	**-6777**	**-7020**
Supplies and services	-751	-758	-992	-1190	-1252	-1302	-1352	-1389	-1414	-1471	-1521
Advertising and Rents costs	-113	-126	-172	-192	-207	-221	-235	-248	-259	-269	-279
Staff costs	-1751	-1864	-2162	-2407	-2595	-2766	-2945	-3105	-3248	-3378	-3492
Transportation costs	-201	-233	-271	-302	-325	-347	-369	-389	-407	-423	-437
Depreciation and amortization of tangibles and intangibles assets	-418	-425	-425	-479	-526	-573	-616	-656	-692	-722	-747
Depreciation of right-of-use assets	-316	-320	-318	-342	-370	-401	-432	-465	-498	-531	-564
Profit/loss tangible & intangible assets and others	-9	44	11	12	13	14	15	16	17	17	18
Other Operating Profits/Losses	**-51**	**-34**	**-36**	**-41**	**-44**	**-47**	**-50**	**-52**	**-55**	**-57**	**-59**
Losses from organizational restructuring programs	-16	-14	-13	-15	-16	-17	-18	-19	-20	-21	-22
Employees exceptional recognition	-19	-19	-23	-26	-28	-30	-31	-33	-35	-36	-37
Operating Profit (EBIT)	**636**	**807**	**1026**	**1079**	**1200**	**1312**	**1439**	**1558**	**1672**	**1745**	**1810**
Net Financial Costs	**-180**	**-154**	**-171**	**-186**	**-196**	**-207**	**-216**	**-226**	**-242**	**-257**	**-273**
Net loans interest expense	-23	-18	-36	-41	-39	-37	-33	-29	-31	-32	-34
Leases interest expense	-127	-130	-137	-148	-160	-172	-185	-199	-214	-228	-243
EBT	**459**	**652**	**855**	**893**	**1004**	**1106**	**1222**	**1332**	**1430**	**1487**	**1537**
Income Tax	-136	-168	-231	-241	-271	-299	-330	-360	-386	-402	-415
Net Income	**323**	**484**	**624**	**652**	**733**	**807**	**892**	**972**	**1044**	**1086**	**1122**

Appendix 3 | Cash Flow Statement

CONSOLIDATED CASH FLOW STATEMENT (€M)	2020	2021	2022YE	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Net results	312	463	597	624	701	772	854	930	999	1039	1073
Non-controlling interests	11	21	27	28	32	35	39	42	45	47	49
Income tax	136	168	231	241	271	299	330	360	386	402	415
Depreciations and amortisations	734	745	743	821	897	973	1048	1121	1190	1253	1310
Net financial costs	180	154	171	186	196	207	216	226	242	257	273
Operating cash flow before changes in working capital	1378	1555	1769	1901	2097	2286	2487	2679	2861	2997	3120
Inventories	14	-148	-217	-151	-115	-104	-110	-97	-87	-79	-69
Trade debtors, accrued income and deferred costs	23	-4	-152	-78	-60	-54	-57	-51	-45	-41	-36
Trade creditors, accrued costs and deferred income	205	527	583	625	459	417	435	386	343	321	280
Cash generated from operations	1623	1931	1983	2297	2381	2544	2756	2917	3073	3198	3295
Income taxes paid	-174	-174	-231	-241	-271	-299	-330	-360	-386	-402	-415
Cash flow from operating activities	**1449**	**1756**	**1752**	**2056**	**2110**	**2245**	**2426**	**2557**	**2686**	**2796**	**2881**
Acquisition of tangible and intangible assets	-514	-584	-1035	-1006	-1044	-1061	-1061	-1053	-1030	-999	-955
Others	25	-32	-16	1	1	1	1	1	1	2	2
Cash Flow from Investing	**-488**	**-617**	**-1051**	**-1005**	**-1043**	**-1059**	**-1060**	**-1052**	**-1028**	**-998**	**-953**
Loans interest paid	-28	-22	-35	-40	-38	-36	-32	-28	-29	-31	-32
Leases interest paid	-127	-130	-137	-148	-160	-172	-185	-199	-214	-228	-243
Net change in loans	-146	-40	56	47	47	46	44	41	37	33	28
Leases paid	-274	-286	-310	-337	-364	-393	-422	-452	-481	-509	-536
Dividends paid:	-232	-198	-511	-538	-559	-628	-693	-767	-837	-902	-942
To common shareholders	-217	-181	-493	-514	-535	-601	-663	-733	-801	-863	-901
Non Controlling Interests	-15	-17	-18	-23	-24	-27	-30	-33	-36	-39	-41
Cash flow from financing activities	**-807**	**-676**	**-937**	**-1015**	**-1074**	**-1183**	**-1289**	**-1405**	**-1525**	**-1637**	**-1724**
Net changes in cash and cash equivalents	153	463	-236	37	-7	3	77	101	133	161	203
Cash and cash equivalents at the end of period	**1041**	**1493**	**1257**	**1294**	**1287**	**1289**	**1366**	**1467**	**1600**	**1762**	**1965**

Appendix 4 | Key Financial Ratios

Financial Analysis	2020	2021	2022YE	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Activity											
Inventory turnover	15	16	16	16	15	15	15	15	15	15	15
DIO (Days of Inventory Outstanding)	24	24	22	23	24	24	24	24	24	24	24
DSO (Days Sales Outstanding)	9,22	8,73	8,81	9,39	9,54	9,59	9,60	9,64	9,68	9,71	9,74
DPO (Days Payable Outstanding)	101	100	93	93	95	95	95	96	96	96	97
DPO (short term)	80	77	72	74	75	75	75	76	76	76	76
WC	-3 165	-3 393	-3 757	-4 142	-4 532	-4 852	-5 165	-5 470	-5 746	-6 002	-6 240
Fixed asset turnover	3	3	3,4	3,5	3,4	3,4	3,4	3,3	3,3	3,3	3,3
Total asset turnover	2	2	2,3	2,4	2,4	2,4	2,4	2,4	2,3	2,3	2,3
Liquidity											
Current ratio	0,5	0,6	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
Quick ratio	0,3	0,4	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Cash ratio	0,2	0,3	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
CCC	-46	-45	-41	-41	-42	-42	-42	-42	-42	-42	-42
Solvency											
Debt											
Debt-to-IC	0,6	0,5	0,5	0,5	0,5	0,6	0,6	0,6	0,6	0,6	0,6
Debt-to-equity	1,3	1,2	1,1	1,2	1,2	1,2	1,3	1,3	1,3	1,3	1,3
Net Debt-to-EBITDA	1,4	1,0	0,9	1,0	1,0	1,1	1,1	1,1	1,1	1,1	1,1
Coverage											
Interest Coverage	4,3	5,5	6,0	5,8	6,1	6,3	6,6	6,9	6,9	6,7	6,6
Profitability											
Return on Sales											
Gross profit margin	22%	22%	21%	21%	21%	21%	21%	22%	22%	22%	22%
Operating profit margin	3%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Net profit margin	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%
Return on Investment											
ROA	6,6%	8,2%	9,5%	9,2%	9,4%	9,6%	9,9%	10,1%	10,3%	10,2%	10,1%
ROIC	6,2%	9,3%	11,2%	11,0%	11,6%	11,9%	12,3%	12,6%	12,7%	12,5%	12,2%
ROE	14,4%	20,2%	23,7%	23,4%	25,1%	26,1%	27,2%	28,0%	28,4%	28,0%	27,7%
Dividend related											
Div payout	72%	41%	82%	82%	76%	78%	78%	79%	80%	83%	84%

Appendix 5 | Financial Statements Assumptions

Balance Sheet Assumptions	Unit	2022YE	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	Note
Operating Assets											
PP&E	%NFA	57,9%	58,1%	58,2%	58,2%	58,0%	57,7%	57,3%	56,9%	56,3%	PP&E computed per banner, split into maintenance and expansion.
Right-of-use Assets	%NFA	31,0%	30,7%	30,6%	30,7%	30,9%	31,3%	31,7%	32,3%	32,9%	RoU new contracts grow in accordance to rent expections, mainly affected by inflation
Intangible Asstes	%NFA	11,0%	11,0%	11,0%	11,0%	11,0%	10,9%	10,9%	10,8%	10,7%	Intangibles CAPEX grows at PP&E growth rate
Trade receivables	DSO	10	10	10	10	10	10	10	10	10	Average 2016-2021, Sales base
Inventories	DIO	24	24	24	24	24	24	24	24	24	Average 2016-2021, COGS base
Biological Assets	€M	14	16	17	18	19	21	21	22	23	Growing at the same rate as inventories
Income Tax Receivable	€M	23	23	23	23	23	23	23	23	23	Assumed constant due to lack of information needed

Non-Operating Assets	Unit										Note
Deferred tax assets	€M	175	175	175	175	175	175	175	175	175	Assumed constant due to lack of information needed
Investments + Assets available for sale + Derivatives	€M		33	33	33	33	33	33	33	33	33	Assumed constant due to lack of information needed
Operating Liabilities											
Payables	DPO	99	99	99	99	99	99	99	99	99	Average 2016-2021, COGS base
Income Tax Payable	€M	47	47	47	47	47	47	47	47	47	Assumed constant due to lack of information needed
Non-Operating Liabilities											
Lease Liabilities	€M	2 564	2 770	2 990	3 220	3 461	3 709	3 959	4 211	4 462	L. Liab.(n) = LL(n-1) - Lease amortization(n) + Lease renewal(n). The renewals grom in accordance with rent expectations, in line with RoU
Borrowings	%NCA	6,3%	6,3%	6,3%	6,3%	6,3%	6,3%	6,3%	6,3%	6,3%	2021 Percentage of Non-Current Assets, growing along with CAPEX
Current	%Total Borrowings	47%	47%	47%	47%	47%	47%	47%	47%	47%	2016-2021 average, in line with 2022Q3
Non-Current	%Total Borrowings	53%	53%	53%	53%	53%	53%	53%	53%	53%	2016-2021 average, in line with 2022Q3
Provisions	€M	34	34	34	34	34	34	34	34	34	Assumed constant due to lack of information needed
Employee Benefits	€M	70	70	70	70	70	70	70	70		Assumed constant due to lack of information needed

Income Statement Assumptions	Unit	2022YE	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	Note
Revenues											
Poland	€M	17 940	19 845	21 275	22 548	23 945	25 128	26 137	27 067	27 901	See appendix
Portugal	€M	5 657	6 057	6 352	6 622	6 862	7 097	7 337	7 567	7 785	See appendix
Colombia	€M	1768	2344	2824	3287	3755	4213	4639	5004	5286	See appendix
Operating Costs											
Cost of Goods Sold	% Revenue	-77,7%	-77,7%	-77,6%	-77,6%	-77,5%	-77,5%	-77,4%	-77,4%	-77,3%	Starting at 2021 level and reaching 2019-2021 average
Other cost of sales	€M	-254	-281	-301	-319	-338	-355	-369	-382	-394	2016-2021 average rate (excluding Retail tax); Includes the new Polish Retail tax for the different levels of Revenue.
Advertising costs	% Revenue	-0,6%	-0,6%	-0,6%	-0,6%	-0,6%	-0,6%	-0,6%	-0,6%	-0,6%	2016-2021 average rate
Staff costs	% Revenue	-8,5%	-8,5%	-8,5%	-8,5%	-8,5%	-8,5%	-8,5%	-8,5%	-8,5%	2016-2021 average rate
Transportation costs	% Revenue	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	-1,1%	2016-2021 average rate
Others	% Revenue	-0,04%	-0,04%	-0,04%	-0,04%	-0,04%	-0,04%	-0,04%	-0,04%	-0,04%	2016-2021 average rate. Includes short-term rents and Other profits/losses
Supplies and services	% Rev + overcharge	-3,9%	-4,2%	-4,1%	-4,0%	-3,9%	-3,8%	-3,7%	-3,7%	-3,7%	
Except Energy	% Revenue	-1,2%	-1,5%	-1,4%	-1,3%	-1,2%	-1,1%	-1,0%	-1,0%	-1,0%	2016-2021 average rate, plus a gradually fading overcharge reflecting the company's expectations
Energy	% Revenue	-2,7%	-2,7%	-2,7%	-2,7%	-2,7%	-2,7%	-2,7%	-2,7%	-2,7%	2016-2021 average rate
D&A of Tangibles and Intangibles	% PP&E(n-1)	-425	-479	-526	-573	-616	-656	-692	-722	-747	2019-2021 average depreciation rate (8.9%)
Depreciations of RoU Assets	% RoU(n-1)	-318	-342	-370	-401	-432	-465	-498	-531	-564	2020-2021 average depreciation rate (14.2%)
Net Financial Costs											
Loans interest expense	€M	-35	-40	-38	-36	-32	-28	-29	-31	-32	Forecasted Cost od Debt, see Appendix xx
Leases interest expense	€M	-137	-148	-160	-172	-185	-199	-214	-228	-243	5.8% (Incremental Borrowing rate used in 2019-2021)
Income Tax											
Income Tax	€M	-231	-241	-271	-299	-330	-360	-386	-402	-415	27% is the tax rate computed using the Tax Reconciliation method

Revenues, sqm and Stores	Unit	2022E	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	Note
Poland											
Biedronka											
Real GDP Growth	%	3,8%	0,5%	3,1%	3,4%	3,3%	2,5%	2,5%	2,5%	2,5%	IMF world economic outlook Oct 2022, (database).
Elasticity of Demand to Income	#	0,52	0,52	0,52	0,52	0,52	0,52	0,52	0,52	0,52	"A meta-analysis of the price and income elasticities of food demand", Working Paper SMART – LERECO N°19-03, 2019
Inflation rate	%	13,8%	14,3%	4,3%	3,2%	2,5%	2,5%	2,5%	2,5%	2,5%	IMF world economic outlook Oct 2022 page 134, (database).
Population growth	%	8,1%	-2,2%	-1,8%	-1,3%	-0,6%	-0,4%	-0,3%	-0,3%	-0,3%	UN Projections, Department of Economic and Social Affairs, Jul/2022
LFL growth ecl. Forex	%	25,5%	12,0%	4,1%	3,6%	3,6%	3,4%	3,6%	3,6%	3,6%	(1+GDPgrowth*elast.)*(1+infl.)*(1+pop.growth)-1

											Notes
EUR/ZLO	%	-2,4%	-6,0%	-1,1%	-1,4%	-0,7%	-0,7%	-0,7%	-0,7%	-0,7%	Futures market projections until 2024. From 2025, differences between expected inflation of currency and Eurozone inflation.
LFL growth incl. Forex	%	22,5%	5,2%	3,0%	2,2%	2,9%	2,7%	2,8%	2,8%	2,8%	(1+LFLexcl.Forex)*(1+EUR/ZLO)-1
Area per store	thousand SQM	0,70	0,71	0,72	0,72	0,73	0,73	0,73	0,73	0,73	Growing (or decreasing depending on each banner's historic, and aligned with market estimates) at the CAGR 2015-2022YE until 2026YE, stabilizing after.
Number of stores	#	3 395	3 497	3 587	3 664	3 727	3 775	3 808	3 825	3 825	2022 is having in mind Q3 2022 growth. From 2023 is CAGR 2017-2022.
Total area	thousand SQM	2 374	2 473	2 566	2 651	2 728	2 763	2 787	2 800	2 800	Area per store * Number of stores
Sales per thousand SQM	€M	7,6	8,0	8,3	8,4	8,7	8,9	9,2	9,4	9,7	Sales per thous. SQM(n)=Sales per thous. SQM(n-1) *(1+LFL growth inc. Forex) Sales(n)=Sales per thous. SQM(n) * Average Area (beginning and year end)
Biedronka's Sales	€M	17 582	19 429	20 796	22 008	23 341	24 468	25 434	26 329	27 136	
Hebe's Sales	€M	358	416	479	539	604	659	703	739	765	-
Portugal											
Pingo Doce	€M	4 499	4 820	5 071	5 301	5 504	5 702	5 904	6 095	6 273	Remark: SQM per store decreses until 2026 at the -0.39% CAGR 2015-2022, stabilizing after. In line with proximity strategy.
Recheio	€M	1 158	1 237	1 281	1 321	1 358	1 394	1 432	1 472	1 512	-
Colombia											
Ara	€M	1 768	2 344	2 824	3 287	3 755	4 213	4 639	5 004	5 286	Remark: SQM per store decreses until 2026 at the -0.28% CAGR 2015-2022, stabilizing after. In line with proximity strategy.

Appendix 6 | SWOT analysis

Strengths
- Strong banners in each business segment (market leadership and economies of scale).
- High focus in ESG: listed company in over 100 international sustainability indices
- Strong cash flows solid position to seek financing for possible expansion projects.

Weaknesses
- Group performance is highly dependence of Biedronka banner.
- High competition and weakening of the Colombian peso have affecting Ara's profitability.
- Lack of investment in e-commerce.

Opportunities
- Romania poses as a feasible and most likely expansion for the Group.
- Strong presence in the Latin American region with big distribution centers opens the possibility to expand operations.
- Possible synergies between business segments through web applications.

Threats
- Entrance of Mercadona, the Spanish supermarket chain, in the Portuguese market.
- Litigations in Poland namely fines of 10% of revenues accounting almost 1.4 billion euros).
- War in Ukraine has made energy costs soar in Europe where JMT was hedged up until June.

Appendix 7 | Jerónimo Martins CAPEX

CAPEX (in '000 000)	2022	2023	2024	2025	2026	2027	2028	2029	2030	CAGR 22-30
Poland										
Biedronka										
CAPEX Revamping	373	419	445	464	483	500	515	529	541	4,7%
# stores reburbished	307	320	330	338	346	352	356	359	361	2,1%
% stores refubished	9,4%	9,4%	9,4%	9,4%	9,4%	9,4%	9,4%	9,4%	9,4%	-
Cost per revamp	1,2	1,3	1,3	1,4	1,4	1,4	1,4	1,5	1,5	2,6%
CAPEX Expansion	93	75	71	65	58	49	41	31	20	-17,4%
# stores closed	26	27	28	28	29	29	30	30	30	2,1%
% store closings	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	0,8%	-
Stores beginning Year	3250	3395	3497	3587	3664	3727	3775	3808	3825	2,1%
# new stores	171	129	118	105	92	77	63	47	30	-19,5%
# stores	3395	3497	3587	3664	3727	3775	3808	3825	3825	1,5%
Capex per new store	0,5	0,6	0,6	0,6	0,6	0,6	0,6	0,7	0,7	2,6%
Intangibles and Inv.Property	144,2	135,4	133,2	133,7	132,6	130,4	126,4	122,0	116,0	
Total CAPEX	**611**	**629**	**649**	**663**	**673**	**679**	**682**	**682**	**677**	**1,3%**
Hebe Total CAPEX	**17**	**19**	**20**	**21**	**22**	**22**	**22**	**21**	**20**	**2,0%**
Pingo Doce Total CAPEX	**155**	**170**	**173**	**177**	**177**	**178**	**177**	**177**	**174**	**1,4%**
Recheio Total CAPEX	**29**	**29**	**29**	**30**	**30**	**30**	**30**	**31**	**31**	**0,9%**
Ara Total CAPEX	**224**	**159**	**172**	**170**	**160**	**143**	**119**	**88**	**53**	**-16,6%**
Total Group CAPEX	**1035**	**1006**	**1044**	**1061**	**1061**	**1053**	**1030**	**999**	**955**	**-1,0%**

CAPEX is computed per banner. In each banner, we look at historical rates of store closures, and store refurbishments to forecast the future closures and number of refurbishments. The number of new stores is calculated having in mind historical store count growth and future prospects for each banner within each market. The cost per revamp and per opening is forecasted adjusting the latest average costs* per revamp and new store, according to forecasted inflation and the FOREX differences per country.

*Company states that opening new stores or revamping existing one's costs practically the same. However, the number of refurbishments on the reports accounts for complete refurbishments, although the company also renovates other existing stores. This makes the cost per revamping appear significantly larger.

Appendix 8 | WACC assumptions

JMT's presence in several countries, with different risk levels and required returns, limits the estimation of the true consolidated WACC. Due to this, multiple approaches were applied: 1) Estimating discount rates and WACC for each geographical segment, 2) Estimating WACC on a Group level & 3) Estimating WACC as a SoP for the cost of equity and using group cost of debt and tax levels to come up with a reasonable WACC. The method used was the first mentioned, where the outputs for WACC per goegraphical operation is displayed in the figure below.

WACC, per geography	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Portugal	7,0%	7,0%	6,9%	6,8%	6,8%	6,7%	6,7%	6,7%	6,6%	6,6%
Poland	10,8%	10,8%	10,6%	10,5%	10,4%	10,3%	10,2%	10,2%	10,2%	10,2%
Colombia	18,2%	18,1%	17,8%	17,6%	17,3%	17,2%	17,0%	16,8%	16,6%	16,6%
Consolidated WACC	**10.4%**	**10.8%**	**11.1%**	**11.0%**	**11.0%**	**10.9%**	**10.8%**	**10.8%**	**10.8%**	**10.8%**

Cost of Equity (Ke)| The Capital Asset Pricing Moel (CAPM: Ke = RFR + ß * ERP) was the method chosen to compute Ke. JMT's cost of equity is achieved by summing each country's weighted cost of equity on its EBIT contribution.

	Cash/Value (avg.)	D/E (avg.)	β Unlevered (avg.)
Portugal	13,4%	1,4	0,4
Poland	3,8%	0,26	0,5
Colombia	9,4%	1,1	0,8

Betas | The Betas used to calculate the cost of equity were estimated using the pure-play method (sample of more than 50 Food Retailers that operate in the same geographical areas as JMT). Collecting levered betas for peers and estimating an average was the first approach. From there they were delevered using the sum of the capital structure, according to each peer's capital structure and statutory tax rates. Adjustment for cash were also made using peers book values. Lastly, re-levering was applied using the capital structure for each forecasted year.

RFR and MRP | Both rates were derived from the "Survey: Market Risk Premium and Risk-Free rate used for 88 countries in 2022" (2022, Fernandez), and assumed to be the best proxies for current market estimates of future required rates.

Cost of Debt (Kd) | Cost of debt was estimated by looking at the Implied Credit Risk spread of the company and adding it to the RFR to obtain a cost of debt attributable to each geographical location the group operates in.

WACC, Hybrid approach	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Cost of Equity									
EBIT Weighted Ke	11,5%	12,0%	12,3%	12,5%	12,6%	12,7%	12,7%	12,8%	12,8%
Cost of Debt									
Cost of Debt	7,4%	7,7%	6,8%	5,7%	4,8%	3,9%	3,9%	3,9%	3,9%
Tax rate	25,3%	25,3%	25,3%	25,3%	25,3%	25,3%	25,3%	25,3%	25,3%
Lease rate	7,8%	8,2%	7,8%	7,3%	7,2%	7,2%	7,2%	7,2%	7,2%
Target Weights									
Equity Weight, mkt value	80,6%	79,4%	78,1%	76,8%	75,5%	74,2%	73,0%	71,9%	70,8%
Lease Liabilities	16,1%	17,1%	18,2%	19,3%	20,4%	21,5%	22,5%	23,6%	24,6%
Debt Weight	3,2%	3,5%	3,7%	3,9%	4,1%	4,3%	4,4%	4,5%	4,6%
WACC Output	**10.3%**	**10.7%**	**10.8%**	**10.7%**	**10.7%**	**10.6%**	**10.5%**	**10.5%**	**10.4%**

Appendix 9 | Terminal Growth Rate

Operating in three geographical segments, estimates show JMT will stabilize its growth in each segment. FCF is forecasted to grow perpetually at a constant rate for the terminal period. The Stable Growth Model and the PRAT Model were used as an initial approach. However, the values derived overestimated the terminal growth rate. JMT's revenues depend on macroeconomic variables, such as food consumption, which historically follows GDP growth, hence the forecasted real GDP growth rate for each segment was used as a proxy of the terminal growth rate.

Portugal	Colombia	Group
2%	3%	2%

PRAT model	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Net Income	624	652	733	807	892	972	1 044	1 086	1 122
Dividends	511	538	559	628	693	767	837	902	942
Avg. Equity	2 490	2 527	2 598	2 769	2 953	3 127	3 320	3 515	3 710
Sales	25 365	28 246	30 451	32 456	34 562	36 438	38 112	39 637	40 972
Avg. Assets	10 833	7 653	8 068	8 624	13 140	14 077	14 946	15 776	16 605
Ratios									
Div. Payout	81,9%	82,5%	76,3%	77,8%	77,6%	78,8%	80,2%	83,1%	83,9%
Retention	18,1%	17,5%	23,7%	22,2%	22,4%	21,2%	19,8%	16,9%	16,1%
ROE	0,25	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Profit margin	0,02	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Asset turnover	2,34	3,7	3,8	3,8	2,6	2,6	2,6	2,5	2,5
Equity multiplier	4,35	3,0	3,1	3,1	4,5	4,5	4,5	4,5	4,5
Growth	**4,55%**	**4,5%**	**6,7%**	**6,5%**	**6,8%**	**6,6%**	**6,2%**	**5,2%**	**4,9%**

Appendix 10 | FCFF Valuation per business segment

Portugal, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	5 657	6057	6352	6622	6862	7097	7337	7567	7785	
Pingo Doce	4 499	4820	5071	5301	5504	5702	5904	6095	6273	
Recheio	1 158	1237	1281	1321	1358	1394	1432	1472	1512	
EBITDA	322	328	351	372	393	413	434	448	461	
EBIT	132	123	135	148	160	173	186	192	197	
Pingo Doce	105	98	108	118	128	139	150	154	159	
Recheio	27	25	27	29	32	34	36	37	38	
Tax rate	22,5%	22,5%	22,5%	22,5%	22,5%	22,5%	22,5%	22,5%	22,5%	
Taxes	40	37	41	45	49	53	57	59	61	
Pingo Doce	31	29	32	36	39	42	45	47	48	
Recheio	7	7	7	8	9	9	10	10	10	
NOPAT	92	86	94	103	111	120	129	133	137	
(+) D&A and provisions	166	176	187	199	208	218	229	239	249	
(-) Changes in NWC	(48)	-85	-59	-53	-53	-46	-41	-38	-33	
(-) CAPEX	184	199	203	207	206	209	207	208	205	
FCFF	122	148	138	147	166	176	191	202	214	3480
Pingo Doce	88	107	99	107	123	131	144	153	164	2662
Recheio	35	43	40	42	45	47	49	51	52	848
WACC	7,1%	7,0%	6,9%	6,8%	6,8%	6,7%	6,7%	6,7%	6,6%	6,6%
Enterprise value	2 546 €	g = 1%								

Poland, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	17940	19845	21275	22548	23945	25128	26137	27067	27901	
EBITDA	1539	1746	1893	2029	2179	2312	2431	2517	2595	
EBIT	982	1027	1122	1212	1311	1401	1483	1536	1576	
Tax rate	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%	
Taxes	187	195	213	230	249	266	282	292	300	
NOPAT	795	832	909	981	1062	1134	1201	1244	1277	
(+) D&A and provisions	526	577	627	676	726	773	816	856	892	
(-) Changes in NWC	-152	-279	-198	-179	-186	-164	-145	-137	-120	
(-) CAPEX	628	648	669	684	695	701	704	703	697	
FCFF	845	1039	1064	1153	1280	1370	1458	1534	1592	17868
WACC	10,8%	10,8%	10,6%	10,5%	10,4%	10,3%	10,2%	10,2%	10,2%	10,2%
Enterprise value	16 298 €	g = 2%								

Colombia, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	1 768	2344	2824	3287	3755	4213	4639	5004	5286	
EBITDA	55	141	234	276	319	362	404	435	460	
EBIT	14	70	150	177	207	236	264	285	301	
Tax rate	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%	35,0%	
Taxes	5	25	52	62	72	83	93	100	105	
NOPAT	9	46	97	115	134	153	172	185	196	
(+) D&A and provisions	52	68	83	99	114	130	145	158	169	
(-) Changes in NWC	(15)	-33	-26	-26	-29	-28	-26	-25	-23	
(-) CAPEX	224	159	172	170	160	143	119	88	53	
FCFF	(148)	-12	34	70	117	167	224	280	335	2122
WACC	18,25%	18,1%	17,8%	17,6%	17,3%	17,2%	17,0%	16,8%	16,6%	16,6%
Enterprise value	1 391 €	g = 2.5%								

Others, consolidation adjustments, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
EBITDA	(112)	-124	-134	-143	-152	-160	-168	-175	-180	
EBIT	(156)	-173	-187	-199	-212	-224	-234	-243	-252	
Tax rate	27,0%	27,0%	27,0%	27,0%	27,0%	27,0%	27,0%	27,0%	27,0%	
Taxes	(39)	-44	-47	-50	-54	-57	-59	-61	-64	
NOPAT	(116)	-130	-140	-149	-159	-167	-175	-182	-188	
FCFF	(116)	-130	-140	-149	-159	-167	-175	-182	-188	-1961
WACC	10,4%	10,8%	11,1%	11,0%	11,0%	10,9%	10,8%	10,8%	10,8%	10,8%
Enterprise value	-1 838 €	g = 2%								

Appendix 11 | Residual Income Model

	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
NOPAT	711	710	700	693	678	658	619	582	
Capital charge	595	586	563	540	518	494	471	446	
Economic Value Added®	116	124	138	153	161	164	148	135	1579
Equity Value	12 825								
Price target	24,70	g = 2%							

Appendix 12 | Peers Selection for Relative Valuation Purposes

The selection of the Peers was conducted through a Sum of Absolute Rank Differences (SARD) approach developed by Knudsen et al. (2017). The differential financial drivers selected, as recommended by the paper, were ROE (3y avg.), Debt/EBIT (3y avg), Current Market Cap, Revenue Growth 2019-2023 (Refinitiv Mean Estimate), EBIT margin (3y avg) and CFO/Revenues (3y avg). The pool of potential peers is comprised of companies in the Food Retail Industry (TRBC Name, Refinitiv), excluding those without physical retail stores or with Market Capitalization lower than €100M, and only including those with operations in Europe, Americas and/or Oceania.

The pool of companies was compared to each of JMT's geographical segments, and thus arriving at a final peer group of six companies, which minimized the SARD, for Portugal, Poland, and Colombia, as presented below.

Portugal				Poland				Colombia			
SARD Peers adjusted Rank	Ticker	Company Name	Country	SARD Peers adjusted Rank	Ticker	Company Name	Country	SARD Peers adjusted Rank	Ticker	Company Name	Country
1	B4B.DE	METRO AG	Germany	1	DNP.WA	Dino Polska SA	Poland	4	GENC.PA	Rallye SA	France
2	SBRY.L	J Sainsbury PLC	United Kingdom	2	AXFO.ST	Axfood AB	Sweden	7	EUR.WA	Eurocash SA	Poland
3	EUR.WA	Eurocash SA	Poland	5	KESKOB.HE	Kesko Oyj	Finland	7	USFD.N	US Foods Holding Corp	Poland
7	MTS.AX	Metcash Ltd	Australia	6	MRU.TO	Metro Inc	Canada	10	PFGC.N	Performance Food Group Co	United States of America
8	GENC.PA	Rallye SA	France	8	SFM.OQ	Sprouts Farmers Market Inc	United States of America	11	SMU.SN	SMU SA	Chile
9	CARR.PA	Carrefour SA	France	9	CRFB3.SA	Atacadao SA	Brazil	11	IMI.CN	Almacenes Exito SA	Colombia

Appendix 13 | Peers Selection for Relative Valuation Purposes

The relative valuation was conducted with a Sum of Parts (SoP) perspective, by addition of the equity value of each of JMT's geographical segments. The multiples were computed using Trailing Twelve Months (TTM) information, using the specific peer group for each segment as a result of the SARD approach. The calculation of the equity value was done for Price Multiples (P/E, P/B and P/S) and for Enterprise Value Multiples (EV/Sales, EV/EBITDA). Since the relative valuation is conducted by SoP, and the segments have individually attributable debt, EV Multiples are more appropriate for the estimation of the Price Target. As such, by means of an average of the EV Multiples' result of Equity Value, and by adding each segment, a price target of €25.02 was achieved.

	P/E	P/B	P/S	Average Equity Value	EV/Sales	EV/EBITDA	Average Equity Value
Portugal Peers	9,47	1,28	0,13	415 210 423,17 €	0,36	6,07	981 254 074,79 €
Poland Peers	17,68	3,18	0,77	9 306 675 743,58 €	0,91	10,88	15 217 036 616,87 €
Colombia Peers	20,61	1,23	0,19	98 067 847,33 €	0,38	8,29	77 050 613,34 €
			Price Target	15,60 €		Price Target	25,86 €

	P/E	P/B	P/S	Average Equity Value	EV/Sales	EV/EBITDA	Average Equity Value
Portugal Peers	9,47	1,3	0,1	€415,210,423	0,4	6,1	981,254,075
Poland Peers	17,68	3,2	0,8	€9,306,675,744	0,9	10,2	14,686,196,440
Colombia Peers	20,61	1,2	0,2	98,067,847	0,4	8,3	77,050,613
			Price Target	€ 15,60		Price Target	€ 25,02

Appendix 14 | Risk Matrix

Market Risk | Energy Costs (MR2)

Energy prices spiked after the war, exacerbated by Europe's dependance on Russian energy sources. The increase was more notoriously in Poland, where Coal and Oil represent 70% 2021YE of total energy output. The Polish Government put a cap in electricity (693 zloty per MWh for up to 90% of average energy use), coal (2,000 zloty per tonne) and gas prices (200.17 zloty per MWh). Current prices were around 4 times higher in 2022. However, these measures applied only to households and special industries where Biedronka c.a 61% of the group's total energy consumption) do not qualify and is fully exposed. Energy costs will increase 50 basis points from 1% in 2021YE to 1.5% 2023YE of the total groups revenues amounting to €423M 2023YE. We expect energy costs to gradually decrease to the groups historic average of 1%. **Mitigation:** JMT had already planned implemented adaptation measures before the current energy cost increase. In Portugal long-term contracts hedged the group until June 2021 and in Poland with cost reduction strategies in place, energy consumption had been reduced by 11% for every €1,000 in revenues. Since 2016 the group has been investing €215M in water and energy consumption management to ensure maximum efficiency along the supply chain. JMT is also purchasing from renewable sources to power their banners in Portugal, by acquiring RECS certificates (Renewable Energy Certificate System).

Market Risk | Interest Rates (MR5)

The European Central bank has raised interest rates by 250 basis points since July 2022. Currently Interest rates are at Deposit facility 2%, Main Refinancing Options 2.5% and the marginal lending facility by 2.75%. ECB is expected to continue the steady increase until inflation returns in the medium-long term to the targeted 2%. Given the new debt incurred for expansion and the increase in the new 12- month EURIBOR to 3.37%, we expect the groups interest expenses to double to €32M by 2022YE. **Mitigation**: Following Jeronimo Martins financial stability policy, Debt to Assets (including financial leases) has remained at around 29%. Most of the company's financing source is equity-based and given market uncertainty cash holdings have increased from €0.6B to €1.5B from 2016YE-2021YE. Jeronimo Martins is prepared to weather the current crisis.

Legal & Regulatory Risk | Taxes on Retail (LRR2)

Governments have been increasing taxation on retailers. JMT has experienced an increase in retail taxes in the three core markets. The Polish Government has the lowest statutory tax rate of 19% of net income, however, they recently passed a legislation in 2021, standing at 0.8% of sales between PLN 17M and PLN 170M, and 1.4% for sales above PLN 170M per month. Additionally, the corporate tax rate in Colombia was adjusted in 2022 from 31% to 35%. In Portugal, the Government will tax by 33% the returns of companies higher than their four-year average by 20%, from big retailers and energy suppliers. **Mitigation**: Retail taxes are not expected to impact the Portuguese segment, as forecasts points to a profit growth below the threshold of 20% over the last 4 years average (only applies in 2022 and 2023). Part of the costs of the tax in Poland are shifted towards the consumers, albeit at expectedly lower rates than competitors.

Strategic and Operational Risk | Loss of Market Share (new competition) (SOR1)

The emergence of new competitors who have the ability to capture market share from JMT's banner may pose a threat to the group's market position. **Mitigation:** the company provides premium quality products at highly competitive prices and invests significantly in loyalty programs, specifically in Poland, in order to strengthen customer retention. Additionally, there are expansion plans to diversify the revenue streams and reduce reliance on a single brand.

Strategic and Operational Risk | Product Contamination (SOR2)

More than a margins risk, product contamination can have an impact on the company's reputation and consequence loss of market share. Mitigation: the company has a major focus on quality in their products, not only through they Distribution Centers, and well as their Agrobusiness segment, with proper metrics as to product delivery and standards.

Geo-Political Risk | War escalation (GPR1)

The ongoing conflict in Ukraine has had a significant impact on JMT's operations in Poland, exerting pressure on margins and creating uncertainty for future investments in the region. Despite a potential increase in sales stemming from an influx of Ukrainian immigrants, the rising costs of raw materials and services are likely to negatively impact JMT's profitability. **Mitigation**: Poland is currently fighting over the release of €35Bn with the European commission, but this will be a risk to consider while it lasts.

Legal & Regulatory Risk | Litigation (LRR1)

Jeronimo martins has been accused of price fixing and fined with around €Bn in 2022 in Portugal, and with €1.46B in 2021 in Poland (yet to be officialized), for a possible misleading advertisement to consumers, and others. If settled, the litigation will affect JMT's price target in about €0.6/sh. **Mitigation**: the management has expressed strong opposition to the fines, stating that the evidence used to support the decision was collected in a subjective and inadequate manner. As a result, the company plans to appeal the decision.

Strategic and Operational Risk | Cybersecurity (SOR3)

Ransomware attacks in Big Companies have increased. JMT database controls efficiently discounts, product mix, supplier output and needs. Any attack on JMT can affect the day-to-day operations in the whole supply chain

Legal & Regulatory Risk | ESG Regulation (LRR3)

ESG regulatory framework will change and affect the whole European area and the risks from the uncertainties regarding the ESG regulation may affect even well scored companies in ESG like JMT. **Mitigation**: the company is well positioned ESG wise, with presence in multiple indices related to sustainability and several initiatives related to social ventures.

Appendix 15 | Sensitivity and Monte Carlo

The Monte Carlo simulation was performed using 10,000 trials, with the assumptions used in the following table:

Paremeter	Expected Value	Standard Deviation	Minimum	Maximum	Distribution	Comment
Population growth change	0%	0.20%	-	-	Normal	-
Real GDP change	0%	2.10%	-	-	Normal	std according to polish real gdp growth (last 20 years)
Inflation change	0%	0.86%	-	-	Normal	std polish inflation
EBIT margin POL change	0%	0.47%	-	-	Normal	-
EBIT margin PT change	0%	0.38%	-	-	Normal	std of the past ebit margins, except colombia, which is the forecasted
EBIT margin COL cahmge	0%	1.61%	-	-	Normal	-
EUR/ZLO change	0%	6.30%			Normal	5Y monthly average
EUR/COL change	0%	13.60%			Normal	5Y monthly average
Risk-Free Rate	2.15%	0.81%	-	-	Lognormal	std is monthly 5y average
Terminal growth (g) change	0%	-	-0.5%	0.5%	Uniform	-

The following sensitivity analysis further illustrates the polish EBIT margins relevance for the price target, as well as the relevance of the ZLO/EUR exchange rate differences:

EUR/ZLO shifts

€ 24,87	-2%	-1%	0%	1%	2%
-2%	€ 21,5	€ 22,9	€ 24,5	€ 26,2	€ 28,1
-1%	€ 21,6	€ 23,1	€ 24,7	€ 26,4	€ 28,2
0%	€ 21,8	€ 23,3	€ 24,9	€ 26,6	€ 28,4
1%	€ 22,0	€ 23,5	€ 25,1	€ 26,8	€ 28,6
2%	€ 22,2	€ 23,7	€ 25,3	€ 27,0	€ 28,9

EUR/COL Shifts

Poland's EBIT margin shifts

€ 24,87	-2,25%	-1,5%	-0,75%	0%	0,5%
-1,5%	€ 15,42	€ 18,16	€ 20,91	€ 23,68	€ 25,53
-0,75%	€ 16,00	€ 18,74	€ 21,50	€ 24,27	€ 26,13
0%	€ 16,57	€ 19,32	€ 22,09	€ 24,87	€ 26,72
0,75%	€ 17,14	€ 19,90	€ 22,67	€ 25,45	€ 27,31
1,5%	€ 17,71	€ 20,48	€ 23,26	€ 26,04	€ 27,90

Portugal's EBIT Shifts

Appendix 16 | Incomplete Replication Approach – Factors

The following tables present the values estimated for the computation of the discount factor applied to the Polish segment cash flows. The risk free rate (Rf), market ris oremium (MRP) and the beta factor are the same as the estimated factors in the CAPM (performed in the first part of the report). The coefficient of variation V is obtained from the Monte Carlo Simulation performed, the risk diversification factor d is equal to the correlation between Jerónimo Martins returns along the last 5 years and the returns of the market portfolio considered (in this case, the WIG20 Index), the lambda factor is equal to the market risk premium divided by the standard deviation of the market portfolio and the probability of insolvency p considers the Equity ratio and Return on Capital Employed and is estimated according to Figure 54.

Incomplete Replication Approach	
Risk free rate (Rf)	6,8%
Market Risk Premium (MRP)	7,0%
Coefficient of Variation (V)	0,5
Risk diversification factor (d)	0,03
Market Price of Risk (λ)	2,8
Risk-adjusted cost of capital	12,0%
Price Target	**21,2 €**

Years	2 016	2 017	2 018	2 019	2 020	2 021	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
FCFF Poland	446	376	303	845	973	1 093	845	1 039	1 064	1 153	1 280	1 370	1 458	1 534	1 592
Equity ratio	32,5%	33,0%	30,8%	25,9%	23,4%	24,2%	24,4%	38,2%	81,1%	75,9%	75,2%	23,4%	22,9%	22,3%	22,2%
ROCE	29,9%	28,8%	29,1%	33,3%	28,4%	33,7%	8,9%	6,6%	11,2%	11,6%	0,0%	38,8%	39,9%	42,2%	43,4%
p	99,9%	99,9%	99,8%	99,9%	99,7%	99,8%	97,8%	98,9%	100,0%	100,0%	99,8%	99,9%	99,9%	99,9%	99,9%
c'	12,0%														

Appendix 17 | Incomplete Replication Approach – FCFF Valuation

Poland, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	**17940**	**19845**	**21275**	**22548**	**23945**	**25128**	**26137**	**27067**	**27901**	
EBITDA	1539	1746	1893	2029	2179	2312	2431	2517	2595	
EBIT	**982**	**1027**	**1122**	**1212**	**1311**	**1401**	**1483**	**1536**	**1576**	
Tax rate	19,00%	19,00%	19,00%	19,00%	19,00%	19,00%	19,00%	19,00%	19,00%	
Taxes	187	195	213	230	249	266	282	292	300	
NOPAT	795	832	909	981	1062	1134	1201	1244	1277	
(+) D&A and provisions	526	577	627	676	726	773	816	856	892	
(-) Changes in NWC	-152	-279	-198	-179	-186	-164	-145	-137	-120	
(-) CAPEX	628	648	669	684	695	701	704	703	697	
FCFF	845	1039	1064	1153	1280	1370	1458	1534	1592	17868
Discount variant	12,0%	12,0%	12,0%	12,0%	12,0%	12,0%	12,0%	12,0%	12,0%	12,0%
Enterprise value	**13 345 €**	g = 2%								
Price Target	**21,2 €**									

Appendix 18 | Build Up Approach - Description of each Company Specific Risk Premium and Percentage

	Company-specific risks	Risk premium
Industry and Market dynamics	Peers strategy, economic challenges, consumer preferences, regulatory changes and compliance, etc.	**0.5%**
Management quality	Board & employees characteristics (gender, performance, satisfaction levels, etc.), board experience, track record, decision-making capabilities	**0.5%**
Financial Performance	Compared specific ratios with benchmarks - ROA, Inventory turnover, Debt-to-Equity ratio, ROE, EBITDA Margin.	**1.5%**
Competitive Positioning	Branding strategies, possible unique products, intellectual property, dominant market position.	**0.25%**
Other factors	litigations and public view of the brand, politics and charges, cybersecurity factors, regulatory compliance, environmental factors	**0.25%**
Total		**2.0%**

Appendix 19 | Build Up Approach – Financial Performance Description

The following section presents the financial ratios selected for the estimation of the Peers Financial Performance, in order to estimate the risk premium value for Jerónimo Martins. The ratios consider the company in its full performance, and not the Polish segment on its on, due to lack of data available.

Average last 3Y									
Financial Ratio	JMT	DNP.WA	AXFO.ST	KESKOB.HE	MRU.TO	SFM.OQ	CRFB3.SA	Benchmark Average	Specific risk premium
ROA	7,9%	17,3%	12,8%	9,1%	10,0%	13,1%	7,9%	11,7%	1.3%
ROE	19,4%	31,4%	42,1%	22,8%	13,1%	31,4%	15,4%	26,0%	0.3%
Current Ratio	0,6	0,7	0,7	1,0	1,2	1,1	1,0	0,9	0.7%
D/E	1,2	0,6	1,4	1,4	0,7	0,4	1,0	0,9	0.2%
EBITDA margin	7,4%	9,7%	8,4%	10,0%	9,7%	7,8%	7,2%	8,8%	0.0%
Total									2.5%

The next tables present a descriptive balance of each of the ratios selected, considering an average of the last 3 years of activity.

Financial Ratios	2018	2019	2020	2021	2022	Average 3 Y
Dino Polska SA						
ROA		14,7%	16,9%	16,1%	19,0%	17,3%
EBIT	101	131	189	225	332	
Total Assets	767	1 023	1 224	1 564	1 922	
ROE		28,8%	33,0%	30,2%	30,9%	31,4%
Net income	72	96	145	177	242	
Total Equity	283	382	498	670	897	
Current ratio	0,6	0,6	0,7	0,7	0,7	0,7
Current assets	193	267	333	433	578	
Current Liab	322	439	457	656	787,68	
D/E		0,7	0,7	0,6	0,4	0,6
Total debt	194,6	268,9	323,8	321,9	380,9	
ST Debt & current portion of LT debt	34,8	69,3	57,1	86,3	147,1	
LT Debt	159,8	199,6	266,6	235,6	233,9	
Total Equity	282,6	381,6	497,9	669,9	897,3	
EBITDA margin	9,2%	9,5%	10,2%	9,5%	9,3%	9,7%

Financial Ratios	2018	2019	2020	2021	2022	Average 3 Y
Axfood AB						
ROA		15,3%	13,3%	12,5%	12,5%	12,8%
EBIT	199	219	234	262	306	
Total Assets	1 206	1 648	1 875	2 309	2 569	
ROE		36,6%	42,4%	44,2%	39,6%	42,1%
Net income	151	156	182	212	222	
Total Equity	446	405	455	504	620	
Current ratio	1,0	0,7	0,8	0,6	0,7	0,7
Current assets	633	516	642	730	759	
Current Liab	627	714	821	1 174	1144,05	
D/E		0,6	1,3	1,4	1,4	1,4
Total debt	11,1	524,8	568,9	778,9	830,5	
ST Debt & current portion of LT debt	5,1	131,2	118,0	306,4	167,2	
LT Debt	6,0	393,6	450,9	472,6	663,3	
Total Equity	446,0	404,9	454,8	503,7	619,6	
EBITDA margin	5,8%	8,7%	8,7%	8,7%	7,9%	8,4%

Financial Ratios	2018	2019	2020	2021	2022	Average 3 Y
Kesko Oyj						
ROA		6,2%	6,9%	10,3%	10,3%	9,1%
EBIT	376	413	464	702	742	
Total Assets	6 367	6 899	6 642	6 966	7 474	
ROE		16,3%	20,0%	24,2%	24,1%	22,8%
Net income	158	339	433	572	610	
Total Equity	2 021	2 141	2 189	2 530		
Current ratio	1,0	1,0	1,0	1,0	1,0	1,0
Current assets	2 180	2 235	2 198	2 495	2 786	
Current Liab	2 114	2 175	2 263	2 541	2796,5	
D/E		1,4	1,3	1,0	1,9	1,4
Total debt	2 700,3	3 037,3	2 616,3	2 295,1	2 418,2	
ST Debt & current portion of LT debt	542,9	521,0	495,3	478,0	580,7	
LT Debt	2 157,4	2 516,3	2 121,0	1 817,1	1 837,5	
Total Equity	2 021,1	2 140,8	2 189,3	2 529,5	0,0	
EBITDA margin	8,1%	8,4%	9,0%	10,5%	10,4%	10,0%

Financial Ratios	2018	2019	2020	2021	2022	Average 3 Y
Metro Inc						
ROA		9,5%	10,1%	10,1%	9,8%	10,0%
EBIT	512	712	819	899	951	
Total Assets	7 292	7 644	8 624	9 171	10 177	
ROE		12,0%	13,1%	13,2%	13,1%	13,1%
Net income	1 125	476	529	545	611	
Total Equity	3 776	4 120	3 955	4 327	5 026	
Current ratio	1,2	1,1	1,3	1,1	1,1	1,2
Current assets	1 280	1 442	1 606	1 664	1 658	
Current Liab	1 091	1 296	1 195	1 483	1482,79	
D/E		0,5	0,6	0,7	0,7	0,7
Total debt	1 771,4	1 841,7	3 021,0	3 079,5	3 130,2	
ST Debt & current portion of LT debt	9,0	295,9	179,2	397,0	223,7	
LT Debt	1 762,5	1 545,9	2 841,8	2 682,6	2 906,5	
Total Equity	3 775,9	4 120,2	3 954,5	4 327,0	5 026,2	
EBITDA margin	7,0%	8,0%	9,4%	10,0%	9,6%	9,7%

Financial Ratios	2018	2019	2020	2021	2022	Average 3 Y
Sprouts Farmers Market Inc						
ROA		10,3%	14,5%	11,8%	12,9%	13,1%
EBIT	199	201	343	287	351	
Total Assets	1 465	2 437	2 298	2 571	2 869	
ROE		25,8%	40,6%	26,4%	27,3%	31,4%
Net income	134	134	252	207	249	
Total Equity	515	521	722	844	978	
Current ratio	1,1	0,9	0,9	1,1	1,3	1,1
Current assets	292	347	382	499	630	
Current Liab	271	373	406	452	488,11	
D/E		1,0	0,6	0,3	0,3	0,4
Total debt	507,2	492,3	214,1	229,4	242,9	
ST Debt & current portion of LT debt	6,5	0,7	0,8	1,0	1,0	
LT Debt	500,7	491,7	213,3	228,4	241,9	
Total Equity	515,2	520,8	721,7	844,4	977,8	
EBITDA margin	6,6%	6,1%	8,0%	7,6%	7,7%	7,8%

Financial Ratios	2018	2019	2020	2021	2022	Average 3 Y
Atacadao SA						
ROA		9,2%	8,5%	8,1%	7,2%	7,9%
EBIT	803	835	769	704	922	
Total Assets	8 241	9 969	8 170	9 305	16 315	
ROE		7,8%	16,8%	19,1%	10,2%	15,4%
Net income	387	230	459	493	321	
Total Equity	2 929	2 997	2 477	2 697	3 583	
Current ratio	1,1	1,1	1,0	1,1	0,9	1,0
Current assets	4 022	4 918	4 006	4 870	7 556	
Current Liab	3 763	4 452	3 897	4 592	8259,52	
D/E		0,6	0,8	0,9	1,3	1,0
Total debt	1 471,8	2 313,9	2 098,7	2 728,7	5 249,2	
ST Debt & current portion of LT debt	1 045,8	1 363,3	1 300,2	1 804,9	3 866,6	
LT Debt	426,0	950,7	798,5	923,8	1 382,5	
Total Equity	2 928,5	2 997,4	2 476,6	2 697,1	3 583,1	
EBITDA margin	7,7%	7,9%	7,7%	7,3%	6,5%	7,2%

Financial Ratios	2018	2019	2020	2021	2022	Average 3 Y
JMT						
ROA		8,6%	6,6%	8,2%	8,8%	7,9%
EBIT	587	706	636	807	976	
Total Assets	6 660	9 752	9 428	10 368	11 845	
ROE		19,8%	14,4%	20,2%	23,7%	19,4%
Net income	430	421	323	484	607	
Total Equity	2 016	2 229	2 257	2 532	2 585	
Current ratio	0,5	0,5	0,5	0,6	0,6	0,6
Current assets	1 961	2 410	2 434	3 112	3 917	
Current Liab	4 187	5 046	4 741	5 325	6525	
D/E		0,9	1,3	1,2	1,2	1,2
Total debt	639,0	3 117,0	2 798,0	2 847,0	3 148,0	
ST Debt & current portion of LT debt	-	-	-	-	662,0	
LT Debt	-	-	-	-	2 486,0	
Total Equity	2 016,0	2 229,0	2 257,0	2 532,0		
EBITDA margin	5,5%	7,7%	7,3%	7,6%	7,3%	7,4%

Appendix 20 | Build Up Approach – WACC Outputs

WACC Poland BU	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Cost of Equity									
Risk-free rate	6,8%	6,8%	6,8%	6,8%	6,8%	6,8%	6,8%	6,8%	6,8%
Market premium	7,0%	7,0%	7,0%	7,0%	7,0%	7,0%	7,0%	7,0%	7,0%
Beta	0,73	0,73	0,73	0,73	0,73	0,73	0,73	0,73	0,73
CSRF	2,01%	2,01%	2,01%	2,01%	2,01%	2,01%	2,01%	2,01%	2,01%
Cost of Debt									
Cost of Debt	7,4%	7,4%	7,4%	7,4%	7,4%	7,4%	7,4%	7,4%	7,4%
Tax rate	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%	19,0%
Lease rate	7,8%	7,8%	7,8%	7,8%	7,8%	7,8%	7,8%	7,8%	7,8%
Target Weights									
Equity Weight, mkt value	80,6%	79,4%	78,1%	76,8%	75,5%	74,2%	73,0%	71,9%	70,8%
Lease Liabilities	16,1%	17,1%	18,2%	19,3%	20,4%	21,5%	22,5%	23,6%	24,6%
Debt Weight	3,2%	3,5%	3,7%	3,9%	4,1%	4,3%	4,4%	4,5%	4,6%
WACC Output	12,6%	12,6%	12,6%	12,4%	12,4%	12,3%	12,2%	12,2%	12,1%

Appendix 21 | Build Up Approach – FCFF Valuation

Poland, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	17940	19845	21275	22548	23945	25128	26137	27067	27901	
Taxes	187	195	213	230	249	266	282	292	300	
NOPAT	795	832	909	981	1062	1134	1201	1244	1277	
(+) D&A and provisions	526	577	627	676	726	773	816	856	892	
(-) Changes in NWC	-152	-279	-198	-179	-186	-164	-145	-137	-120	
(-) CAPEX	628	648	669	684	695	701	704	703	697	
FCFF	845	1039	1064	1153	1280	1370	1458	1534	1592	17868
WACC		12,6%	12,6%	12,6%	12,4%	12,4%	12,3%	12,2%	12,2%	12,1%
Enterprise value	13 143 €	g = 2%								
Price Target	20,9 €									

Appendix 22 | Carhart Six-Factor Extension Model – Factors Data

The following table presents the regression conducted with Jerónimo Martins returns and the factors extracted from Kenneth R. French, namely Market Risk (MRP), Size (SMB), Value (HML), Profitability (RMW), Investment (CMA) and Momentum (WML), between 2018 and April 2023. The difference in the decimal's places from the rest of the data serves to understand the actual coefficient and factors values.

						Fama French Six-Factor Model						
Risk-free rate	MRP	MRP Coefficient	SMB	SMB Coefficient	HML	HML Coefficient	RMW	RMW Coefficient	CMA	CMA Coefficient	WML	WML Coefficient
6,8%	0,07	0,73	-0,01	-0,01	-0,01	0,00	0,01	0,00	-0,01	0,01	0,03	0,00

Appendix 23 | Carhart Six-Factor Extension Model – WACC Outputs

WACC Poland FF6	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Cost of Equity									
Risk-free rate	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%	6.8%
Market premium	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Beta	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
SMB	0.00008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HML	0.00001	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CMA	-0.00006	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WML	0.00003	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cost of Debt									
Cost of Debt	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%	7.4%
Tax rate	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%
Lease rate	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%
Target Weights									
Equity Weight, mkt value	80.6%	79.4%	78.1%	76.8%	75.5%	74.2%	73.0%	71.9%	70.8%
Lease Liabilities	16.1%	17.1%	18.2%	19.3%	20.4%	21.5%	22.5%	23.6%	24.6%
Debt Weight	3.2%	3.5%	3.7%	3.9%	4.1%	4.3%	4.4%	4.5%	4.6%
WACC Output	11.0%	11.0%	10.9%	10.9%	10.9%	10.8%	10.7%	10.7%	10.7%

Appendix 24 | Fama French Six Factor Model – FCFF Valuation

Poland, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Revenues	17940	19845	21275	22548	23945	25128	26137	27067	27901	
Taxes	187	195	213	230	249	266	282	292	300	
NOPAT	795	832	909	981	1062	1134	1201	1244	1277	
(+) D&A and provisions	526	577	627	676	726	773	816	856	892	
(-) Changes in NWC	-152	-279	-198	-179	-186	-164	-145	-137	-120	
(-) CAPEX	628	648	669	684	695	701	704	703	697	
FCFF	845	1039	1064	1153	1280	1370	1458	1534	1592	17868
WACC		11.0%	11.0%	10.9%	10.9%	10.9%	10.8%	10.7%	10.7%	10.7%
Enterprise value	15 408 €	g = 2%								
Price Target	€24.5									

Appendix 25 | Model Consolidation – JMT Overall Price Target

The following tables present the present value of the free cash flows obtained from each of the approaches considered – Incomplete Replication (IR), the Build Up Approach (BU) and the Fama French Six Factor Model (FF6). Moreover, the present value of operations is detailed for each model, as well as the overall JMT Price Target considering the effect of each of the models into the company valuation.

Poland, €M	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F	TV
Normalized FCFF	1 173	1 280	1 388	1 495	1 602	1 710	1 817	1 925	2 032	
PV FCFF (IR)	0	0	984	979	1005	987	965	928	880	9551
PV FCFF (BU)	0	0	979	972	996	978	958	921	875	9400
PV FCFF (FF6)	0	0	993	997	1 033	1 025	1 014	983	941	11357

	IR	BU	FF6
PV Operations	16 280	16 078	18 343
Non-Op Assets		1337	
EV	17 616	17 414	19 680
Total Debt and Debt equivalents		3673	
Noncontrolling interests		1248	
Equity Value	12 696	12 494	14 759
Price Target	20,2 €	19,9 €	23,5 €

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Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	0%≤	>0% & ≤10%	>10% & ≤20%	>20% & ≤45%	>45%
Medium Risk	-5%≤	>-5% & ≤5%	>5% & ≤15%	>15% & ≤30%	>30%
Low Risk	-10%≤	>-10% & ≤0%	>0% & ≤10%	>10% & ≤20%	>20%