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Investment Committee Paper – The Leveraged Buyout of Jungheinrich Aktiengesellschaft

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Abstract

Jungheinrich stands as a premier provider of intralogistics solutions, presenting a compelling investment opportunity for a leveraged buyout. The company's ambitious global expansion and the shift from traditional warehouse equipment to advanced automated systems offer substantial value enhancement potential. Significant value can be unlocked by capitalizing on existing growth drivers and integrating future acquisitions, notably the automation specialists Gebhardt and ROFA. These acquisitions not only extend Jungheinrich's global reach but also strengthen its financial profile. The investment is anticipated to generate a money multiple of 3.0x (24.9%), with a highly promising exit scenario through a sale to a strategic investor.

Keywords: Jungheinrich, LBO, Private Equity, Warehouse Automation, Material Handling, Investment Paper, Financial Modelling

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Table of Contents

Section A: Investment Committee Paper – Jungheinrich

1. Company Overview

Jungheinrich, headquartered in Hamburg, Germany, is a leading family-owned provider of innovative and sustainable intralogistics solutions, established in 1953. With over 70 years of experience the company employs around 20,000 people and delivers a comprehensive range of innovative warehouse products, catering to a diverse customer base across various industries, primarily retail and wholesale (45% of revenue), food (8%) and logistics (14%). Its integrated business model spans the entire value chain from the development, production, and sale of material handling equipment to the planning and implementation of automated solutions, the Used-Equipment of used trucks, and a comprehensive service offering. Additionally, Jungheinrich is advancing its conventional forklift business through innovative cloud-based software solutions designed to optimize overall integrated fleet management. This transformation is accelerated through the implementation of Strategy 2025+ in 2020, initiated by the management board of Jungheinrich. The corporate strategy targets an increase in operational efficiency, profitability and a more sustainable business alongside pre-determined KPI's by 2025. It served as a catalyst for Jungheinrich's increased adoption of manufacturing lithium-ion solutions. As a result, Jungheinrich now offers the largest fleet of industrial trucks powered by these batteries, serving customers worldwide.

The company operates twelve specialized production facilities worldwide, tailored to diverse manufacturing processes and product lines. Its robust distribution network includes direct sales and service operations across 42 countries and extends through partnerships to over 80 additional markets, supplemented by e-commerce. Jungheinrich's global presence, innovative capabilities, and focus on customer service established it as a leading intralogistics provider worldwide.

2. Business Model

Jungheinrich’s business can be divided into two main operational segments, namely I) intralogistics (IL) and II) financial services (FS) totaling a revenue of EUR 5,546m. IL can be further split into the segments (i) New Trucks (ii) Short-term Rental & Used-Equipment and (iii) After-sales Services.

The (i) New Trucks business, which contributes 43% of total revenue, includes the development, production, and sale of new material handling equipment such as forklifts, trucks, and automated systems. This segment also encompasses the production and sale of lithium-ion batteries, developed through an existing joint venture (JV) with Triathlon. Revenue from (ii) Short-term Rental and Used-Equipment, accounting for 13% of overall revenue, includes the rental of new and used material handling equipment as well as the sale of refurbished trucks. Complementing these segments, Jungheinrich offers an extensive range of (iii) After-sales Services, which generate 22% of total revenue. These services cover maintenance, repairs, and the supply of spare parts for Jungheinrich products.

Besides IL, II) FS, which also accounts for 22% of total revenue, provides flexible financing and leasing solutions. These financial arrangements include operating and finance leases, which are always combined with maintenance agreements, ensuring long-term customer engagement. Jungheinrich's integrated operational approach highlights its leadership in the intralogistics industry, combining innovative leadership, sustainable solutions, and customer-centric offerings.

3. Financials

<u>Topline Development</u>

Jungheinrich's revenue has experienced significant growth in recent years, despite increasing global challenges, reaching an all-time high of 5,546 EURm in 2023. Since 2019, total sales

have grown steadily at a CAGR of 8%. The New Trucks segment, contributing €2,399m (43%) to total revenue, has achieved a strong 12% CAGR since 2019, driven by rising demand for automation solutions and strategic acquisitions. Other segments including Short-term Rental and Used-Equipment, After-sales Services, and Financial Services have grown at an average CAGR of 6% over the same period. Currently, 80% of Jungheinrich's revenue (2022: 84%) is generated in Europe, with plans for further international expansion under its Corporate Strategy 2025+, focusing on high-growth markets such as North America and the APAC region. Since 2021, sales growth has been fueled by increasing automation demand, while the overall business recovered from affected supply chains, high raw material costs, and a inflationary market environment.

Bottomline development

The adjusted 2023 EBIT margin for IL stood at 10.1% and for FS at 1.5% resulting in an overall margin of 8.4%. In absolute terms, EBIT has grown steadily at a CAGR of 7% since 2019. Historically, the margin has remained consistently between 6-9% during this period, reflecting major impacts from global crises. Primary cost drivers were increased spending for research & development and investments associated with the digital transformation of the organization such as the introduction of SAP 4/HANA. D&A was adjusted for leases from FS to reflect IL D&A, averaging around 3.4% of IL sales.

Cash Flow Development

Between 2019 and 2023, Jungheinrich's Free Cash Flow (FCF) conversion ratio averaged 35%, with notable lows in 2018 (22%) and 2019 (30%) due to elevated working capital demands. Additionally, substantial capital expenditures for expanding lithium-ion battery production, truck capacity, and acquisitions further constrained the conversion ratio which amounted to

56% in 2023 down from 72% in 2022. Impacts from global supply chain disruptions and a €450m inventory build-up driven by material shortages after COVID-19 were normalized.

4. Market and competitive positioning

The material handling market is valued at USD 227.4bn in 2023 and is expected to grow by a CAGR of approximately 6.0% (Fortune Business Insights, 2024) until 2030 driven by shifts in consumer behavior, such as the rise in e-commerce (anticipated CAGR of 9%) and the correlated demand for rapid order fulfillment. Whereas the market is expected to grow steadily, there is a shift in consumer patterns, preferring high-value solutions with broad after-sales service coverage over low-cost alternatives, reducing the anticipated growth of unit sales from 9.7% between 2019 to 2023 to 5.4% until 2029. Therefore, Jungheinrich benefits significantly from its favorable position as premium supplier with an extensive service network.

The forklift and warehouse automation segment both outline substantial growth projections due to the overall transition towards efficient and sustainable solutions. Due to the company's frontrunner position as the only provider to produce 100% electric forklifts, Jungheinrich levers strong market growth from electric forklifts with a CAGR of 7.7% until 2029. Further the company benefits from an automation market CAGR of 17.9% due to their ongoing growth efforts in this segment. Geographically, Jungheinrich mainly operates in the European region (80% of sales) being the largest single-brand intralogistics provider, however recently enhanced its global presence particularly in North America and the APAC region through partnerships and acquisitions. In alignment with the growth targets of Jungheinrich's developed strategy 2025+, the company to further increase their footprint in both markets, which exhibit strong forklift CAGRs of 7.4% and 7.5%, respectively. Projections are mainly driven by industrialization, government incentives and global supply chain transformations.

The competitive landscape of the material handling market comprises key players categorized into broad portfolio providers and specialists, differentiated by their focus on quality versus volume. Jungheinrich positions as a premium provider with a broad portfolio offering mainly competing with KION and Toyota (see Figure 1: Competitive Landscape). Jungheinrich distinguishes itself from direct competitors due to their sole focus on premium products and the complementary services they offer through their global service network. The latter is also the biggest differentiator compared to low- and mid-market providers as it is challenging to replicate a similar coverage. This allows for higher EBIT margins of 7.7% compared to 5.3% within its direct peer group. Jungheinrich's established leadership position in the material handling market mitigates threats from competition due to high entry barriers and switching costs. However, the current shift towards automation poses a risk to Jungheinrich's market share as it is essential to keep up with highly innovative companies introducing new technologies.

5. Investment Thesis

Jungheinrich is a well-suited candidate from the perspective of a financial investor due to its leading market position and growing international presence. Its reputation as a quality and premium provider of intralogistics solutions, along with its frontrunner status in lithium-ion technology, is supported by partnerships with niche companies possessing high technological know-how. This makes it a suitable investment with significant value-add opportunities, creating a leading warehouse solutions provider. Furthermore, the company differentiates itself through a strong financial profile and its sustainability leadership. Additionally, Jungheinrich's continuous investment in R&D and ambitious growth targets provide a positive outlook for realizing significant growth by leveraging its robust sales network.

The rationale behind the acquisition is to accelerate the transformation of Jungheinrich's product portfolio towards a comprehensive automation solutions platform complementing the current core business of manufacturing and selling electric forklift trucks.

Value Driver

This is achieved by focusing on three distinct value drivers: Organic Growth, Inorganic Growth and Deleveraging. The first lever increases both top-line revenue and bottom-line profitability by leveraging Jungheinrich existing positioning and improve margins through operational improvements. Secondly, inorganic growth is accomplished through targeted add-ons acquisitions of automation specialists with a global footprint. Finally, Jungheinrich's robust cash generation enables quick repayment of its Term Loan A facility ahead of the official schedule.

Organic growth is primarily driven by the increasing adoption of automation solutions and increasing demand for electric forklifts. Both markets experience significant growth and account for the highest share of generated revenue of Jungheinrich. Besides the growth of the product markets, Jungheinrich further benefits from increasing internationalization, particularly in NA and the APAC region. Its recent acquisition of Storage Solutions, a leading American intralogistics provider, the American-based joint venture with Rocrich and the recent set up of experience centers in Asia represent an excellent value creation platform to build upon. The company's leading reputation for sustainability among its peers will be strengthened through several initiatives including more transparent reporting and bonus payments being tied to sustainability targets. Regulatory pressure to reduce supply chain emissions will drive enterprise decision-making, favoring the adoption of sustainable solutions and positively impacting Jungheinrich's top-line (McKinsey, 2022).

The New Trucks Business is forecasted to rise by EUR 1,351m until 2029 driven by an increased share of automation solutions (EUR 496m), further electrification of company fleets (EUR 434m), expand existing international locations (EUR 399m) and additional revenues from Jungheinrich's reputation as a sustainable leader (EUR 21m) (see Figure 2: Topline Development). Furthermore, margins are anticipated to increase through digital transformation processes, namely "DEEP" and "N-Ex-T". Opex are reduced through digitalization of administrative structures, while the modernization of existing production plants lowers cost of goods sold. Research and development budgets will be hiked to 4.0% of revenue in 2029 from 2.2% in 2023. Additional spending is offset by 40% from expected production improvements. Overall, the EBIT margin is projected to increase by 2.5%, reaching EUR 424m by 2029, driven by EUR 88m in Opex savings, EUR 152m in COGS reductions, and additional EBIT improvements (EUR 184m) attributed to other non-distributable EBIT-effects (see Figure 3: Bottomline Development).

The next value driver regards inorganic growth, with the primary target of increasing the warehouse automation share of the group's revenue and extending Jungheinrich's geographical presence in strong growth markets. After an initial screening of several target opportunities evaluated on their operational similarity, geographical presence and financial profile, Gebhardt and ROFA, have been identified as most suitable. Besides their strong growth trajectory and focus on warehouse automation, both companies generate sustainable margins and over 35% of revenue outside of Europe strengthening Jungheinrich's global footprint. The acquisitions are valued at an EV/EBIT multiple of 19.7x based on relative valuation. Whereas Gebhardt has a purchase price of EUR 423m, ROFA has a purchase price of EUR 598m. The assumed investment timeline refers to an acquisition of ROFA at the beginning of 2026 and Gebhardt in the beginning 2027. Besides the realization of synergies and increased sales through additional customer bases, Jungheinrich benefits from an indirect uplift in valuation due to it's increasing

warehouse automation share, leading to a multiple expansion. Overall, the add-on acquisitions will contribute additional revenues of EUR 1,125m and an EBIT of EUR 114m in 2029.

Lastly, leveraging Jungheinrich's strong cash flow performance, the group can secure a larger Term Loan A facility with flexibility for early repayments. This reduces interest costs, strengthens financial stability, and accelerates the repayments for Term Loan A which are completed ahead of the schedule in 2029. This directly enhances IRR and MOIC, maximizing investor returns.

6. Valuation

For valuing Jungheinrich, several valuation methods were applied, resulting in a weighted valuation multiple used to determine the effective purchase price at entry. An intrinsic valuation was conducted using the DCF method, while a sum-of-the-parts valuation was applied based on public trading multiples and precedent transactions to account for the differences in Jungheinrich's operational segments. For the CCA, different peer groups were derived, considering material handling providers, automation solutions provider, rental and used-equipment businesses and after-sales services companies. These peer groups were weighted against the segment's contribution to the group's overall revenue to derive a weighted EV/Revenue, EV/EBITDA and EV/EBIT multiple. Overall, the CCA results in 1.5x EV/Revenue (24B) with an implied EV of EUR 6,495m, 10.9x for EV/EBITDA (24B) with an implied EV of EUR 6,553m, 14.2x for EV/EBIT (24B) with an implied EV of EUR 6,420m, and 0.9x for P/B implying an equity value of EUR 134m.

For the precedent transactions, the same approach as for the public peers was used. Due to a low amount of disclosed multiples, the time period has been extended to ten years and disregarded the financial services segment for the sum-of-the-parts approach. The computed weighted medians amounted to 1.3x EV/Revenue with an implied EV of EUR 7,408m, 10.4x

EV/EBITDA with an implied EV of EUR 6,247m and 14.9x EV/EBIT implying an EV of EUR 6,711m. Since the FS division has higher similarities to the business model of financial institutions, characterized by different capital structures and less comparable financial metrics, the price-to-book ratio (P/B) was applied for valuation purposes. The average P/B multiple from the global banking industry amounting to 0.9x (McKinsey, 2023) was applied on the equity book value of the FS division. The DCF was applied utilizing Jungheinrich's current state of growth without any impact of the planned value creation initiatives. The forecasted cash flows were discounted at a WACC of 8.2%. For the terminal value, three methods were used, namely the Gordon Growth Method (GGM), exit EBIT-multiple derived from public peers and an exit EBIT-multiple from precedent transactions. The EBIT multiple has been deemed the most accurate valuation metric as it accounts for D&A directly linked to Capex. This approach prevents the potential overstatement of a company's profitability operating in a capital-intensive industry. The respective approaches yielded EV's of EUR 5,465m considering the GGM, EUR 6,633m using CCA, and EUR 6,876m based on CTA multiples at exit.

The final EV has been calculated by a weighted multiple conducted on the previously mentioned methodologies to assess the value of Jungheinrich's IL segment. The weights were determined based on Jungheinrich's current standing as a mature company with stable cash flows, and the availability of applicable data to most accurately reflect the company's true value (see Figure 4: Entry Valuation EV). In total, the weighted EV results at EUR 6,355m, which implies an entry EV/EBIT multiple of 14.1x. The effective purchase price further considers the value of the FS segment, which amounts to EUR 134m totaling EUR 6,489m at entry.

7. Leveraged Buyout

Sources and Uses

Total sources amounted to EUR 6,651m divided between EUR 3,756m in equity (56.5%) and EUR 2,895m in debt (43.5%). The debt structure includes several senior tranches with Term Loan A accounting for EUR 467m (0.8x EBITDA), Term Loan B for EUR 747m (1.2x EBITDA), and Term Loan C for EUR 747m (1.2x EBITDA). While TLA is amortized over five years with the option of early repayment, TLB and TLC are structured as bullet loans with the principal due in 2030 and 2031, respectively. The interest rates on the debt were determined through a comparative benchmarking of bond issuances. Since Jungheinrich has not been assigned a specific credit rating, the bond issuances from comparable companies, which together are equivalent to a BBB- rating, were used as benchmarks. Based on these underlying credit ratings, the spread for a comparable bond with a maturity of 7 years was determined to be 132 bps. This spread was then added to the 6-month EURIBOR rate of 300 bps, resulting in a total interest rate of 432 bps for TLA. For TLB and TLC, additional spreads of 25 bps and 50 bps were applied, resulting in interest rates of 457 bps and 482 bps, respectively. The final element of the debt structure includes a second lien with an interest rate of 675 bps, totaling EUR 934m and a bullet repayment in 2032. The equity is made up of EUR 622m in ordinary equity and EUR 3,134m in subordinated loans (fixed return instrument) with a hurdle rate of 8%. Whereas 96.5% (EUR 600m) of ordinary equity comes from institutional investors, management contributes EUR 22m (3.5%). The sweet equity was valued at 2 times the annual remuneration of management personnel, which is relatively low, but reasonable for a low-tenure management board. In addition to the potential for equity appreciation, the management team is further incentivized through performance-related compensation. This is strategically aligned

with the achievement of specific financial targets and the proportion of automation's contribution to overall revenue.

The total uses of funds amount to EUR 6,651m. The largest portion, EUR 3,706m, is attributed to the equity purchase price. An additional EUR 2,919m is allocated for the refinancing of existing debt, while EUR 170m covers provisions for pensions. Excess cash of EUR 306m is deducted, reflecting a reduction in available liquidity. The enterprise value of EUR 6,489m is based on FY24B EBIT of EUR 452m and an EV/EBIT multiple of 14.1x. Transaction-related fees total EUR 130m (2.0%) covering financial advisory fees, due diligence expenses and legal expenses. Additional financing fees amount to EUR 32m (0.5%) (seeFigure 5: Sources and Uses). The financing structure for Jungheinrich's leveraged buyout has been strategically designed with substantial headroom in covenants to mitigate risk, particularly considering uncertain economic conditions. This defensive approach ensures that financial pressure on the company remains minimal even if the economic situation worsens or cash generation falls below projections outlined in the defensive downside case. The evaluation encompasses the Cash Cover with a minimum of 1.0x, the Interest Cover and the Net Debt/EBITDA ratio with substantial headroom of 20% headroom. Throughout the investment period, all ratios exceed the minimum threshold emphasizing Jungheinrich’s underlining strong financial position and capacity for managing substantial debt obligations.

8. Exit Returns

At the planned exit in 2029, Jungheinrich is forecasted to reach an enterprise value of EUR 13,617m and a total SOTP value of EUR 13,930m driven by an EBIT of EUR 879m and a blended EV/EBIT multiple of 15.5x. This translates to a money multiple (MM) of 3.0x and an internal rate of return (IRR) of 24.9%. The management’s portion of the proceeds is projected at EUR 244m, equivalent to an MM of 11.2x.

Breaking down the returns, organic topline growth emerges as the largest driver, contributing 1.0x MOIC, while EBIT margin improvements and cash generation add 0.3x and 0.1x, respectively. Inorganic topline growth from targeted acquisitions contributes an additional 0.1x, with margin improvements from these acquisitions adding another 0.2x. Furthermore, multiple expansion, primarily attributed to increased automation revenue, contributes 0.05x to the overall return profile (see Figure 6: Value Creation). Notably, the company's focus on digitalization and sustainability plays a key role in driving both revenue and profitability enhancements. Furthermore, add-on acquisitions provide an additional growth lever by harnessing automation synergies and improving cost efficiencies within the Jungheinrich platform. Even the downside case excluding add-ons still demonstrates reasonable potential, achieving a money multiple of 2.2x and an IRR of 16.6%.

9. Exit Options

By the divestment in 2029, three primary exit strategies for Jungheinrich have been outlined: a sale to a strategic buyer, a secondary sale to a financial investor, or an initial public offering. Among these, a sale to a strategic buyer emerges as the most favorable option. Key industry players such as Toyota Industries, KION, and Mitsubishi are viewed as potential acquirers, given their robust financial standing and strategic expansion goals. Notably, KION appears especially well-suited as a buyer, considering its established interest in enhancing its presence in warehouse automation, a synergy evident from its EUR 3bn acquisition of Dematic in 2016. This move could significantly bolster KION's market position by integrating Jungheinrich's operations. Conversely, a sale to a financial investor currently appears less viable, attributed to the recent contraction in buyout activity due to monetary tightening. Nonetheless, forecasts predict a resurgence in deal activity by 2029, spurred by favorable macroeconomic shifts and potential interest rate reductions. The industrial sector's ongoing digital transformation makes

it increasingly appealing to prominent private equity firms like Blackstone or KKR, known for their substantial acquisition capabilities. The option of pursuing an IPO, though impacted by recent economic headwinds, is anticipated to regain traction as market conditions normalize. For Jungheinrich, a cross-listing strategy encompassing major exchanges such as the NYSE, Börse Frankfurt, and TSE could optimize exposure and leverage regional advantages.

10. Due Diligence

The due diligence process is a critical element in the detailed analysis of a potential investment. It provides essential validation of the assumptions regarding the initial conditions of a company, the anticipated increase in value over the investment period, and the future prospects at the time of exit. This rigorous examination ensures a more accurate and reliable foundation for investment decisions. The authors have outlined the critical aspects of the company's due diligence, encompassing commercial, financial, operational, sustainability, legal, and tax dimensions. This examination particularly focuses on analyzing the markets, their growth drivers, the company's positioning, and its financial highlights. Moreover, the actual sustainability practices of the target company are scrutinized to assess how they measure up to typical industry standards. Future risks are also evaluated from a legal standpoint to ascertain the company's risk profile. Another significant component of due diligence involves the analysis of value creation factors. Specifically, this includes examining sales growth, adaptation to industry standards, efficiency enhancements, and their effects on earnings through further operational interventions. In the context of the acquisitions, a thorough analysis of the primary targets, ROFA and Gebhardt, is crucial to ensure they align with the ambitious growth levers in the geographical segment and the automation of the product portfolio.

Section B: Individual Parts

Individual Part I: Nicolas Jasken – Financial Modeling

1. Introduction

Financial modeling is a crucial in corporate finance, allowing for the analysis of past performance and projection of future outcomes. By combining historical data with forward-looking assumptions, financial models help stakeholders evaluate profitability, solvency, and growth potential. The foundation of financial modeling lies in the integration of the three primary financial statements: the profit and loss (P&L) statement, the cash flow statement, and the balance sheet.

In the context of leveraged buyouts (LBOs), financial modeling becomes even more critical. An LBO involves acquiring a company with a significant proportion of debt financing, necessitating precise forecasting of cash flows, debt repayment capacity, and potential investor returns. This section delves into the application of financial modeling techniques, focusing on the specific case of Jungheinrich AG's acquisition.

In this project, the financial model developed for Jungheinrich AG was instrumental in evaluating operational dynamics and financial feasibility under an LBO framework. By simulating different scenarios, the model provided insights into debt structuring and long-term profitability. Key aspects of the financial modeling process are outlined below.

2. Revenue Forecast

As many elements on the income statement and balance sheet are tied to revenue, precise forecasting is crucial for Jungheinrich's financial planning. This revenue projection relies on

sound assumptions and careful analysis to accurately forecast growth without overstating or understating future revenues. Jungheinrich’s revenue projection is based on growth trends in its identifiable markets and anticipated gains in market share within these sectors. Market segmentation aligns with Jungheinrich's three operational divisions, New Trucks (split in Material Handling and Warehouse Automation), Short-term Rental and Used Equipment and After-Sales Services. Projected compound annual growth rates (CAGRs) for these product categories derive from comprehensive market reports, broker outlooks and historical development, resulting in an overall estimated CAGR for Jungheinrich’s Intralogistics segment of 12.2% from 2024 to 2029 (please refer to the market analysis section for detailed projections). Jungheinrich is expected to see robust annual market growth, particularly in its electric forklift and warehouse automation sectors. The electric forklift market, where the company holds a leadership position with a complete 100% electric vehicle portfolio, is forecasted to experience a CAGR of 8% through 2029. Similarly, the warehouse automation market, including advanced robotics and AI-driven logistics solutions, is poised for rapid expansion with a CAGR of 23% over the same period. This growth is underpinned by increasing demands for efficient, sustainable logistics solutions and Jungheinrich's strategic initiatives to integrate cutting-edge technology in its product offerings.

3. Cost of Goods Sold (COGS)

Jungheinrich’s COGS primarily include the direct expenses related to the manufacturing of its products. These costs are directly tied to revenue generation and include costs for material, as well as salaries of employees who are directly involved in the production process. In the financial model, COGS are forecasted as a percentage of sales to reflect their close relationship with revenue (variable cost base).

Across the period of ’24 to ’29 the COGS are expected to grow at a CAGR of 10.3%, c. 2pp shy to the overall revenue growth due to executed margin expansions and the inclusion of

synergies due to the acquisition of two add-ons within the buy and build strategy for Jungheinrich. Consequently, Jungheinrich is able to increase its gross profit margin from 31.9% in 2024 to 34.5% at exit in 2029.

Within the bank and investment case, it was assumed COGS would be able to be reduced/increased by 0.2% organically and 0.5% for the add-ons, for the bank case synergies were kept flat and for the investment case a higher increase estimated.

4. **Operating Expenses (OPEX)**

Operating expenses at Jungheinrich encompass the costs related to the company's everyday operations that extend beyond direct manufacturing. These include selling, general, and administrative expenses (SG&A) as well as research and development (R&D), which are essential for the continuous support and expansion of the business, as Jungheinrich is amongst the leading innovators in this business area being the first one in Europe to serve a fully electric fleet.

SG&A expenses, which cover overhead costs, are allocated across various business units based on their revenue contributions. In the downside scenario, SG&A expenses are assumed to be 0.5% above the investment case opex, aligning with the historical average excl. Covid-19 period, suggesting a steady overhead cost during the projection period. In the investment scenario, SG&A is projected to decrease by c.5 percentage points, reflecting improvements in cost management and operational efficiencies.

Investment in R&D is crucial for fostering innovation, particularly as Jungheinrich aims to establish itself as a leader in the fields of warehouse automation and robotics services. The investment thesis allocates R&D spending Intralogistics division at 2.8% in 2024 of revenue and 4.0% of its sales in 2029, which is an increase of 1.2pp over the historical average.

These heightened R&D investments are benchmarked against industry peers for high-growth MedTech firms, and are expected to drive substantial value. Operational enhancements are

anticipated from the integration of key R&D hubs and the strategic acquisition of talent from companies like Rofa and Gebhardt. Additionally, the effectiveness of these innovations will be monitored through key performance indicators, ensuring that R&D efforts align with corporate goals and market demands.

5. EBITDA/EBIT Calculation

EBITDA and EBIT are commonly used metrics in finance to give an indication of a company's operational profitability by isolating earnings from the non-operational effects of capital structure, financing activities, and other accounting influences. This is crucial for investors and analysts as it strips away the financial engineering elements to reveal the core earnings from business operations alone.

EBITDA is particularly valued because it offers a starting point for reconciling free cash flow, which is vital for assessing the firm's cash generation efficiency. Before diving deeper into the income statement items that fall below EBITDA, it is essential to project the balance sheet accurately. This projection enables well-informed assumptions regarding depreciation, which is influenced by tangible asset values and capital expenditures, and amortization, which depends on the valuation of intangible assets. Additionally, the interest expenses accounted in EBITDA calculations are determined by the company's debt financing strategies.

When modeling EBITDA, normalization adjustments to cater to non-operating factors that may skew the understanding of operational performance were included such as variable remuneration costs, PPA and transaction costs for acquisitions (see QoE in Appendix 1 for more details). Furthermore, EBITDA was also adjusted for IFRS 16 leases that relate to the Financial Services business. Due to better comparability and a more common usage, Adjusted EBIT was used as the main metric in this model due to its inclusion of the significant impact of D&A in this sector to the same extent for all peers. The adjusted EBIT margin for Intralogistics is

expected to reach 11.6% at exit in 2029, implying an increase of 1 percentage point up from 10.4% in 2024.

6. Working Capital

Working capital is crucial for assessing the liquidity and operational efficiency of Jungheinrich, involving the management of trade receivables, inventories, and trade payables—key components that directly impact cash flow. Trade receivables cover revenues not yet collected from customers, inventories include raw materials and finished goods awaiting sale, and trade payables encompass amounts due to suppliers.

Jungheinrich's operational efficiency and forecasting of trade working capital (TWC) are analyzed using days sales outstanding (DSO), days inventories outstanding (DIO), and days payables outstanding (DPO). These metrics reveal the average duration that cash remains engaged in business operations—from collecting payments from customers to inventory turnover and settling accounts with suppliers. Evaluating these metrics against total sales or cost of goods sold (COGS) and annualizing the results provide insights into the cash conversion cycle (CCC). This cycle measures the time span from initial expenditure on raw materials to the collection of sales revenue.

During the COVID-19 pandemic, Jungheinrich effectively managed its resources, incl. negotiating extended payment terms with suppliers to enhance its financial flexibility. This strategic decision, along with the implementation of management efficiency systems and increased market power due to company growth, contributed significantly to reducing the CCC. The CCC decreased from 87 days in 2017 to 80 days in 2023 and is expected to further decline to approximately 50 days by the end of the current business plan due to the implementation of efficient working capital management measures and a stronger market position, thereby enhancing Jungheinrich's liquidity and financial stability.

7. Depreciation and Capital Expenditures

In the context of Jungheinrich, property, plant, and equipment (PP&E) are essential components of the company's operational infrastructure. The forecasting of PP&E is managed through a detailed fixed asset schedule, which incorporates assumptions about capital expenditures (capex) and depreciation to determine the end-of-period PP&E balance.

It is crucial to differentiate between Jungheinrich's owned assets and those included in its leasing business, which are technically client assets. Historically, depreciation and amortization (D&A) for all assets averaged about 9% from 2015 onward. However, to accurately reflect the depreciation of owned assets, these figures have been adjusted to exclude leased assets, resulting in an average D&A rate of 3.4%. Going forward, this rate is expected to remain consistent based on the asset schedule.

Capital expenditures have also been adjusted and differentiate between maintenance, expansionary, and merger and acquisition (M&A) capex. Historically, total capex averaged approximately 4%, a healthy ratio in relation to depreciation.

The methodology for treating depreciation and amortization is designed to maintain a consistent link between the balance sheet and the income statement, ensuring accurate reflection of non-cash expenses on Jungheinrich's financial performance. This approach is essential for maintaining strict financial control and ensuring clear financial reporting, which are crucial for making well-informed strategic decisions.

8. Acquisitions

The financial forecasts for ROFA and Gebhardt were derived using methodologies consistent with those applied to Jungheinrich, maintaining uniformity across all financial models. Revenue and cost projections for both acquisitions were based on historical data, market forecasts, and broker outlooks. Operating within the warehouse automation sector, ROFA and Gebhardt's forecasts aligned with the industry's projected CAGR. Following their full integration, they leveraged Jungheinrich's superior cost structures, enhancing efficiencies notably in COGS and

SG&A. Synergies from these integrations resulted in reductions of up to 1.6 percentage points in COGS and modifications of up to 1.5 and 0.8 percentage points in SG&A for each entity, respectively.

This strategy was essential to maintain financial transparency and to prevent undue leverage from impacting Jungheinrich's balance sheet. Assets and liabilities from these acquisitions were meticulously integrated using detailed fixed asset schedules, with working capital adjustments calculated as percentages of respective sales.

ROFA was acquired at the beginning of 2026 with an Entry Enterprise Value (EV) of €517.7m, leading to the creation of €356.6m in goodwill, against a book value of net assets at €160.8m. Gebhardt followed in 2027 with an Entry EV of €474.9m, creating €403.7m in goodwill from a net asset value of €71.1m. Both acquisitions adhered to the same EV/EBIT multiple derived from the CCA and CTA. These investments highlight the strategic intent and financial implications of the acquisitions of ROFA and Gebhardt, underscoring their crucial roles in supporting Jungheinrich's expansion strategy

9. Debt Schedule

To accurately model Jungheinrich's financing and repayment strategies, detailed repayment schedules for each financing source are maintained. These schedules detail both interest and principal payments over time and account for the accumulation of payment-in-kind (PIK) interests, with the closing balance for each period adjusted by principal repayments and any accrued PIK interest.

Jungheinrich's debt portfolio features several distinct types of loans. Term Loan A, the only amortizing loan, spans five years with an increasing amortization rate: starting at 15%, rising to 20% in 2026E and 2027E, and reaching 25% thereafter. The interest rate on this loan combines the 6-month EURIBOR rate at 3.006% with an additional spread based on peer benchmarking, reflecting a BBB- equivalent S&P rating.

Additionally, Term Loan B, with a six-year term, and Term Loan C, over seven years, are structured with bullet payments at the end of their terms, carrying interest rates of 4.57% and 4.82%, respectively. The financing arrangement also includes a Second Lien with an eight-year term at 6.76% interest and a Subordinated Loan, also for eight years, at 8.00%.

PIK interest is strategically used to manage liquidity and defer certain interest payments by accruing them directly to the outstanding debt balance, thus aiding cash flow management especially for capital expenditures. This type of interest is calculated annually and added to the debt balance, avoiding immediate cash outflows.

All interest payments, from cash payments to PIK accruals, are aggregated under interest expenses on the income statement, affecting earnings before tax (EBT). The investment structure further comprises ordinary equity and a subordinated shareholder loan, with the latter accruing PIK interest at an 8% annual rate. This ensures that the compounded PIK interest, alongside the principal, is repaid before distributing any proceeds from ordinary equity upon the company's exit.

10. Finishing Income Statement and Balance Sheet

The completion of Jungheinrich's income statement begins with the calculation of interest expenses. From adjusted EBITDA, extraordinary expenses, depreciation, and interest are subtracted to determine the earnings before tax (EBT). A consistent tax rate of 30% is applied to compute the tax liability, from which net income is derived.

Finalizing the Balance Sheet:

The balance sheet is completed by methodically linking various components. Working capital items are first incorporated from the working capital schedule. PP&E calculations involve subtracting annual depreciation from and adding capital expenditures to the previous period's balance. A similar approach is used for intangible assets, where annual amortization is added to the initial balance along with any new intangible additions.

The ending balances for debt instruments are meticulously linked from the debt schedules to ensure accuracy. Other non-current assets and liabilities are generally kept constant. This structured approach ensures that all financial statements are interconnected and accurately reflect the company's financial status at the end of each accounting period.

11. Cash Flow Statement

The cash flow statement is a critical component of Jungheinrich's financial model, capturing all cash inflows and outflows and adjusting for non-cash items. The operating activities section highlights cash generated or used in the company's core business operations.

The process starts with adjusted EBITDA from the income statement, representing initial cash inflow, followed by adjustments for changes in net working capital (NWC). Increases in working capital assets indicate cash outflows, as funds are tied up in these assets, while decreases suggest inflows, such as from selling inventory or collecting receivables. Changes in liabilities directly affect cash reserves: increases boost cash, while decreases reduce it. Together, these adjustments from earnings and changes in assets and liabilities form the total operating cash flow.

Historically, Jungheinrich's operating cash conversion rate has ranged from 50-80%, with an average around 70%. Over the investment period, enhancements in NWC, spurred by improved operational efficiencies, are expected to push cash conversion rates above 90%. The EBITDA minus Capex ratio also stabilizes above 70%, reflecting a solid reinvestment efficiency.

Investing activities include spending on PP&E, intangibles and acquisition-related outlays. These figures are directly tied to their respective financial schedules.

To determine cash available before financing, investing cash flows are subtracted from operating cash flows. This total is then adjusted for any drawdowns and repayments from acquisition facilities, estimating the cash available for debt service. Cash interest payments are deducted (excluding PIK interest, which does not affect cash flows), resulting in the net cash

available for debt repayment. After all debt repayments are accounted for, the sum of operating, investing, and financing cash flows - added to the previous year's ending cash balance - provides the closing cash balance for the period, which is linked to the balance sheet, completing the financial model.

12. Closing Remarks

The financial model serves as a quantification tool of the investment thesis for Jungheinrich. It is important to recognize that any financial model forecasting a company's future is inherently based on a set of assumptions. These assumptions are formulated through careful analysis of historical data and expert insights, yet they do not guarantee absolute accuracy in predicting future events. Instead, the model is designed to project possible outcomes under various scenarios - management case (best), investment case (base case), and bank case (worst).

These projections enable lenders and the investment committee to make informed decisions about the viability of investing in Jungheinrich's buyout. Additionally, the model allows for the testing of different assumptions to assess their impact on potential returns. By examining how sensitive the model's outcomes are to changes in underlying assumptions, stakeholders can better understand the risks and opportunities associated with the investment, facilitating a more robust decision-making process.

Individual Part II: Jacob Daub – Valuation

1. Introduction Valuation Methods

The valuation process regards a critical milestone within the private equity process since it determines the economic value of a business based on the company's past, present and future financials as well as underlying market drivers. The resulting intrinsic / fair market value essentially influences investment decisions and the overall success of acquiring an asset from the perspective of an investor. Valuations are primarily based on two distinct methods: The relative valuation and the intrinsic valuation model. Relative valuations regard the benchmarking of pre-defined financial metrics of comparable companies to derive at the value of the underlying asset. Since it is assumed that similar assets should be valued on the same note, relative valuations are a strong indicator of the current market's perception. Most commonly, these relative valuations are based on comparable public companies (CCA) and comparable transactions (CTA). Besides the relative valuation, the second approach approximates the inherent value of a company by projecting future cash flows and discounting them to the present value. In that sense, it is most commonly referred to the discounted cash flow model (DCF) and the dividend discount model (DDM). While DCF's consider projected cash flows, the DDM values projected dividend payments, most suitable for financial institutions. Both valuation methodologies result in an overall value, either the Equity Value (EqV) or the Enterprise Value (EV). The EqV assesses the value of the company's core assets and disregards any value attributable to debt holders. Conversely, the EV measures a company's total value by accounting not only for the companies EqV but also for debt-like items, further acknowledging any cash or equivalents. Essentially, the EV derives the value of a company's core assets, available to debt and equity holders, providing a more accurate assumption of the true economic value of a company. For the valuation of Jungheinrich, the CCA, CTA and DCF

has been utilized. While the CCA offers an instant market context by capturing a snapshot of how similar companies in the industry are traded, the CTA takes into account actual market transactions, including control premiums paid by acquirers. These premiums reflect the additional value the buyer gains from gaining control over the company's operations, strategic direction, and the potential to realize synergies through integration. Lastly, the DCF has been included. Given Jungheinrich's mature business operations, characterized by stable cash flows and moderate growth rates, the DCF methodology outlines a particularly suitable methodology. Moreover, Jungheinrich is expected to sustain its operations into the foreseeable future, supported by its well-established market positioning and robust business model, reinforcing the applicability of the Going Concern assumption. The valuation methods employed focus exclusively on determining the EV of the Intralogistics segment, as the FS division operates under a distinct business model that is not suitable for the DCF approach in use. Given that the FS segment shares similar characteristics to financial institutions, which complicate the application of a DCF model, it has been valued separately. For this purpose, a relative valuation was conducted by applying an industry benchmark valuation to Jungheinrich's FS segment.

Relative Valuation Methods. The relative valuation approach has incorporated the CCA and CTA, both approaches being similar due to Jungheinrich's segmental split. Since the company strictly segments its intralogistics business, and subsegments, from its financial services division, a sum-of-the parts valuation based on public peers and prior transactions, seem most suitable. This is a common approach for valuing unrelated divisions, due to their significant differences in valuation.

2. Relative Valuation Method

Comparable Company Analysis

The CCA encompassed 38 public peers, which were segmented into comparable groups for each division of Jungheinrich, with data extracted from Bloomberg (BBG). The peer groups

were created distinguished by Material Handling providers (15 peers), Warehouse Automation providers (5 peers), After-Sales Service providers (8 peers) and Rental & Used Equipment companies (10 peers). Material Handling (MH) and Warehouse Automation (WA) providers were utilized to value the new trucks business by applying a weighted contribution of each segment to overall revenue from new trucks. The comparable companies for MH (such as KION, Toyota or Mitsubishi) and WA (such as AutoStore, Ocado and Kardex) were selected via their direct competitive positioning to Jungheinrich. For the remaining segments, companies with business models that align with the operational activities of rental, refurbishment, and after-sales services were included, even if they do not operate within the intralogistics market. This approach seems sufficient due to the similarities in core operations making valuation metrics more applicable. For analysis, the considered multiples (EV/Sales, EV/EBITDA and EV/EBIT) ranges considered the year(s) in scope (1-year looking forward, Budget year and LTM trailing). To properly reflect the segmental contribution to overall revenue as an estimate for the size of each division, the respective multiples were weighted accordingly and considered budget year multiples for valuation purposes (see 4. Weighted Valuation). The segmental median budget year EBITDA-multiples amount to 8.4x (MH; LTM: 7.6x), 16.8x (WA; LTM: 18.4x), 11.8x (After-Sales Services; LTM: 10.5x) and 7.0x (Rental and Used-Equipment; LTM: 7.0x). With regard to EBIT, the segmental median multiples amount to 10.1x (MH; LTM: 12.2x), 19.7x (WA; LTM: 20.6x), 14.1x (After-Sales Services; LTM: 12.7x) and 15.4x (Rental and Used-Equipment; LTM: 16.3x). Sales multiples have been disregarded since valuations of mature companies prioritize measuring operational profitability for more accurate benchmark comparisons. Generally, WA commands a premium valuation to all other segments driven by its robust growth projections, scalability, and profitability, which render investments in these companies highly attractive to investors.

Conversely, MH is assigned lower valuations relative to other sectors, primarily due to the industry's maturity, capital-intensive operations, and cyclical nature, all of which dampen investor interest. Overall, the sum-of-the-parts approach amounts to a weighted EBITDA-multiple of 10.9x with an implied EV of EUR 6,553m and EBIT-multiple of 14.2x implying an EV of EUR 6,420m. The respective valuation multiples were calculated by assigning different weights to each business segment. The New Truck Business segment, which includes MH and WA, accounts for 53.6% of the weight. Within this segment, MH makes up 60.2% and WA comprises 39.8%. The After-Sales-Services segment contributes 29.0%, and the Rental & Used-Equipment segment represents 17.4% of the total weighting.

Comparable Transactions Analysis

For the precedent transactions, the same structural approach has been followed by segmenting transactions into the different business fields. The transaction data was extracted from Mergermarket. Following the approach of the CCA, the transactions were split into Material Handling providers (13 transactions), Warehouse Automation providers (13 transactions), After-Sales Service providers (16 transactions) and Rental & Used Equipment companies (30 transactions) with earliest temporal deal consideration in 2015. The time span has been advanced to approximately 10 years due to an increased deal activity in the years between 2015 and 2020 and reduced frequency of transactions in recent years. Although extending the time period could impact the validity of valuation multiples due to fluctuating economic cycles, a comprehensive sense check has confirmed consistent valuations throughout the period, indicating a high degree of reliability in these figures. The EBITDA-multiples amount to 11.2x (MH), 14.3x (WA), 8.2x (After-Sales) and 8.0x (Rental), whereas the EBIT-multiples amount to 15.1x, 19.8x, 11.9x and 13.2x respectively. Overall, the-sum-of-the-parts valuation based on CTA has a weighted EBITDA-multiple of 10.4x and EBIT-multiple of 14.9x implying EV's of EUR 6,247m and EUR 6,710m respectively.

3. Intrinsic Valuation Method

Discounted Cash Flow model

The intrinsic valuation for Jungheinrich was established using the DCF model, which required projecting future cash flows until 2032 based on a set of conservative assumptions. These assumptions were conservatively estimated to reflect stable growth and consistent performance without any performance-enhancement from any initiatives by financial investors. Consequently, revenue growth was forecasted moderately at 7.0%, aligning with the average growth rate of each segment since 2019 until 2025. The EBIT margin was maintained at a constant 9.2%, mirroring the average since 2019. After applying a marginal tax rate of 30% the NOPAT has been calculated. After adjusting for depreciation and amortization (D&A) steady at 3.4% of sales, capital expenditures (Capex) fixed at 4.1%, and a 5 percentage point improvement in net working capital (NWC) according to broker consensus, the unlevered free cash flows were calculated. The critical final step in the DCF revolves around discounting the derived unlevered free cash flows back to their present value to account for the time value of money. This is usually done using the WACC, which represents the expected return that the company must generate to satisfy both its debt and equity investors. To derive the cost of equity, the CAPM has been utilized, which incorporates the risk-free rate, the company risk profile expressed by beta and the market risk premium. The risk-free rate was set at 2.4%, based on the yield of the 10-year German government bond as reported by BBG. Considering the current macroeconomic instability, the interest rates on government bonds are subject to potential fluctuations, either increasing or decreasing, thus impacting the accuracy of this value depending on the timing of the assessment. The company's beta was calculated by benchmarking the WACC against public peers within the material handling industry (15 peers) and warehouse automation sector (5 peers). In the process of benchmarking betas, it is crucial to unlever the beta to eliminate the effects of the company's capital structure. This adjustment

allows for an assessment of the inherent risk, independent of the company's capital structure. Since a higher debt proportion escalates the overall risk of a company due to fixed interest obligations regardless of business performance, isolating this risk from the capital structure is essential. It allows for an accurate assessment of the risk associated with the company's operations and operating market environment. This approach provides a reliable basis for determining Jungheinrich's unlevered beta, with the median of its public peer group amounting to 0.83. The relevering process accounts for Jungheinrich's specific capital structure and provides a precise estimate of the company's actual risk. Consequently, a levered beta of 1.47 was determined by applying the German tax rate of 30%, to account for the tax shield and a debt-to-equity ratio of 1.10 reflecting the company's capital structure. Lastly, the market risk premium, recorded at 8.3% (MR: 10.7%; rf: 2.4%), was sourced from BBG. This regards all necessary components for calculating the cost of equity through the CAPM, which amounts to 14.5%. The cost of debt was calculated considering the effective after-tax interest rate of 2.3%. Ultimately, all components have been assembled, resulting in a WACC of 8.2%, calculated applying the standard formula. The respective formula calculates the overall expected return rate by weighting the cost of debt according to the proportion of leverage and the cost of equity according to the proportion of equity. By applying the WACC to the forecasted cash flows, the PV's were calculated, representing one of the two essential components of Jungheinrich's EV. Since companies are expected to generate cash flows beyond the forecasted period, a Terminal Value (TV) is also calculated to capture the value of these far-in-the-future cash flows. The TV is valued in the final year of the projection in 2032 and was calculated using three distinct methods: Gordon's Growth Model (GGM), an EBIT-multiple based on comparable transactions (CTA), and an EBIT-multiple derived from trading peers (CCA). The growth rate in the Gordon model is conservatively set at 2%, reflective of the average nominal GDP changes between 2015 and 2030, as reported by BBG. For the other methods, exit multiples of 14.2x (CCA) and

14.9x (CTA) were utilized. The TV amount to EUR 4,201m using GGM, EUR 5,370m employing an EBIT multiple from the CCA, and EUR 5,612m based on CTA. The discrepancies reflect typical gaps since multiples include the public perception of a company and are usually valuing intangible characteristics such as brand value resulting in a premium. To derive at the EV from the DCF, these TV's are discounted and added to the sum of cash flows resulting in EUR 5,465m (GGM), EUR 6,633m, and EUR 6,876m, respectively. In each method used, the TV constitutes a large portion of the overall EV (GGM: 76.9%; CCA: 80.9%; CTA: 79.6%). This significant share is attributable to the company's strong cash flow generation and a business model that is bolstered by sustainable long-term objectives. To assess the impact of changes in expected return, growth rates or valuation multiples, several sensitivity analyses have been conducted. These showcase minimal variation across the methods employed, with the most notable dispersion in EV observed in the GGM. Adjusting the multiple at a constant WACC by 1.0x results in a dispersion of less than EUR 400m. Conversely, reducing the terminal growth rates by 1% leads to a decrease of over EUR 600m in enterprise value. Despite these modest adjustments, the overall valuation remains notably stable (see Figure 8: Sensitivities).

4. Weighted Valuation

To derive the final EV for Jungheinrich, the three methods have been equally weighted to determine their overall impact on the valuation each amounting to 1/3. This seems like a suitable approach since Jungheinrich fulfills most characteristics to be sufficient for each methodology. The DCF method has been used since Jungheinrich outlines strong, predictable, and recurring cash flows, complemented by a long-term strategic plan and a moderate growth rate. These factors provide a robust foundation, enhancing the reliability of the valuation. In contrast, fast-growing companies pose risks to valuation accuracy, often incurring negative cash flows due to substantial capital investments and operating expenses, coupled with significant growth rates

that result in a large proportion of the company's value being captured in the TV. This reliance on long-term growth assumptions, which are challenging to predict and highly sensitive to future market conditions, poses a threat to DCF valuations. Within the DCF framework, all TV methods have been assigned to the same overall impact of 11.1%. Using both growth rates and valuation multiples to determine terminal value in a DCF model enhances accuracy by balancing internal forecasts with external market conditions. This combination not only aligns the valuation with current industry standards but also mitigates the risk of biases in growth assumptions. Within the CCA, different weights have been determined based on the applicability to Jungheinrich. While the EBITDA-multiples (LTM and 1-year forward-looking) contribute 5.8% and 2.5% respectively, EBIT-multiples, which are more critical in a capital-intensive industry like Jungheinrich's, are assigned 15.0% and 10.0%. These differences highlight the relevance of each metric in the valuation process. The CTA weighting follows a similar approach by allocating 13.3% to the EBITDA-multiple and the remaining 20% to the EBIT-multiple. Although, the CTA incorporates a robust set of transactions, there is a risk of incomplete comparability somewhat diminishing its applicability to Jungheinrich, outlining significant size and market positioning. The impact of Sales-multiples has been neglected in the weighted valuation of all methodologies since they disregard the operational profitability. As Jungheinrich operates in a capital-intensive industry characterized by a high cost and expense structure, Sales-multiples seem less appropriate. By applying the weighted contributions across all valuation methodologies, the resulting EV for Jungheinrich's intralogistics segment is estimated at EUR 6,355m implying an EBIT-multiple of 14.1x. (see Figure 4: Entry Valuation EV). Since the FS division operates under a business model similar to financial institutions, the price-to-book ratio (P/B) has been applied for valuation purposes. For the valuation, the global banking industry average of 0.9x (McKinsey report, 2023) has been applied to the book value of the FS segment of Jungheinrich implying a valuation of EUR

134m resulting in an overall value of EUR 6,489m with an EqV of EUR 3,706m after accounting for debt like items. The value seems rather applicable to current market perceptions as it indicates similarity to past transactions, which prove the actual purchases prices paid by acquirers. Therefore, valuing Jungheinrich on the referred methodologies and metrics seems appropriate for approximating an implied economic value and purchase price.

5. Football Field

The football field chart offers a comprehensive visualization of various valuation methodologies, presenting key trends and consistencies across different financial metrics. This chart distinctly showcases how the valuations, with their respective ranges, converge around the determined EV of EUR 6,355m (Intralogistics), suggesting a strong consensus among different analytical approaches. The median EBIT-based valuations calculated from all methodologies fall between 12.1x and 15.8x, clearly indicating the robustness of the overall implied EBIT multiple of 14.1x. Only the DCF outlines some discrepancies, such as undervaluing the company due to conservative growth projections (GGM: 12.1x) or overvaluing it due to a strong reliance on actual purchase prices from past transactions explained by higher valuations of purchased companies (CTA: 14.7x). The CTA metrics generally indicate a premium compared to public peers, reflecting the control premiums acquirers often pay. Significantly larger discrepancies were found for the revenue-based multiples ranging from 11.3. to 25.3x, which focus less on operating profitability and are therefore disregarded in the valuation. Relative valuation methods, considering factors like brand recognition, add significant perceived value, while intrinsic methods like the DCF focus more on tangible assets and cash flows. Overall, the football field chart confirms the robustness of Jungheinrich's EV, encompassing it within each valuation range and illustrating the influence of brand equity on market perceptions through the relative valuation. For further proof, a sense check has been applied by valuing Jungheinrich only on the most comparable

metrics, being the EBIT-multiple, from public peers, covering the most applicable market perceptions. The resulting EV of this approach has proposed a a similar valuation, confirming the reliability (see Figure 9: Football Field).

6. Closing Remarks

The valuation of Jungheinrich represents a critical component of the investment process, providing a detailed understanding of the company's value through various methodologies. This valuation incorporates CCA, CTA, and DCF, each offering distinct advantages and confronting specific limitations, therefore, being adjusted to the considered weight. CCA provides real-time market comparability with direct competitors and businesses that operate similar models, making it invaluable for benchmarking against industry peers. However, its reliance primarily on public company data can be limiting when assessing private aspects of Jungheinrich's operations. CTA offers insights into actual transaction prices paid by buyers, showcasing real market dynamics, yet it often faces limitations due to a scarcity of directly comparable transactions that precisely reflect Jungheinrich's unique value. The DCF stands out for its assumptive foundation, capturing the intrinsic value of Jungheinrich based on projected future cash flows and its adaptability to various scenarios. This method's strength lies in its comprehensive approach, however, is susceptible to inaccuracies due to the complex assumptions required. Since all methods encounter some benefits and drawbacks, together, these valuation techniques create a robust framework that enables a nuanced assessment. With respect to Jungheinrich, the valuation is perceived as favorable, reflecting significant upside potential. This is primarily due to strategic drivers expected to substantially increase the financial performance and valuation at exit, which significantly enhance the returns for the investors.

Individual Part III: Fabio Schiller – Capital Structure

1. Introduction

The concept of capital structure is fundamental in corporate finance as it directly influences a firm's financial stability, cost of capital, and overall valuation. Capital structure refers to the proportionate mix of debt and equity financing that companies use to support their operations, and expansion while reflecting their risk profile. Achieving an optimal capital structure is critical to minimizing the cost of capital while maintaining financial flexibility and shareholder confidence (Satyanarayana and Rao 2024). This balance is especially relevant in leveraged buyouts, where financial leverage is employed to enhance returns on equity. The importance of capital structure is amplified in capital-intensive industries such as intralogistics and warehouse automation, where asset heavy companies rely heavily on long-term investments to sustain technological advancements and meet rising demand. (Axelson et al. 2013).

This section examines the capital structure of the acquisition target Jungheinrich, active in the intralogistics sector, which provides automation solutions, material handling equipment, and after-sales services. By combining theoretical frameworks and company-specific data, this analysis sheds light on the strategic use of debt and equity to fund operations, achieve growth targets, and enhance valuation. For that the subsequent section will first cover the definitions and significance of capital structure, examine the trade-offs between debt and equity financing, calculate the cost of debt and equity, and determine Jungheinrich's Weighted Average Cost of Capital (WACC) in relation to industry standards and financial objectives.

2. Overview of Capital Structure

Capital structure is a methodical way to represent the mix of equity and debt financing that firms use to optimize financial resources. While equity capital refers to capital raised by issuing

stocks to investors on public capital markets, debt capital describes funds borrowed from lenders, mainly financial institutions, that must be repaid within a given time with interest. The proportion of debt relative to equity significantly impacts a company's cost of capital, risk exposure, and ability to generate returns. Further, so called hybrid financing instruments such as convertible bonds blend the characteristics of both debt and equity. The traditional theory of capital structure (trade-off theory) argues that a firms ideal capital structure is a trade-off between the gains of using debt financing, such as lower cost of capital and tax benefits, and the use cost of debt financing such as higher financial risk and bankruptcy costs when cash flows become insufficient to meet repayment obligations (Satyanarayana and Rao 2024).

In private equity acquisitions, capital structure decisions are particularly relevant because they rely on leveraged buyouts. In such cases, debt financing increase equity returns, provided that the cost of debt remains manageable, and cash flow generation supports debt repayments. For companies operating in the intralogistics sector, it is inherent that substantial upfront capital investments are required to support technological innovation, equipment production and research and development efforts in e.g. automated warehouse solutions (Axelson et al., 2013). Jungheinrich, as a leading intralogistics firm with ambitions to become a leading warehouse automation player, adopts a strategic mix of debt and equity to finance its expansion while staying competitive in their core industry.

Jungheinrich's capital structure reflects its emphasis on leveraging debt for growth while aligning equity contributions to mitigate financial risks. The company's Net Debt/EBITDA ratio stands at 2.79x, which is higher than the industry average of 1.81x. This elevated leverage aligns with the overall idea that manufacturing companies with stable contract based cashflows are more likely to rely on debt financing since they can service the interest and repay the principle more consistently than e.g. technology startups characterized by nascent business models and

volatile cash flows (Hasler 2019). Stable revenue streams from material handling equipment and after-sales services further bolster Jungheinrich's ability to manage its capital structure effectively.

3. Comparing Debt and Equity Financing

As mentioned above, debt and equity financing represent two fundamental approaches to raising capital, each with its own implications for risk, ownership, and cost. Debt financing involves raising funds through loans, bonds, or other credit instruments, with the main advantage being the tax deductibility of interest payments. However, debt introduces fixed repayment obligations that increase financial risk, especially in periods of economic downturn or cash flow instability. Conversely, equity financing entails raising funds through the issuance of shares, which avoids fixed repayments but dilutes ownership and typically demands higher returns to compensate shareholders for the risks they bear (Axelson et al. 2013). In addition to the risk aspect, a company's capital structure will also be influenced by its growth prospects as company with high growth potential may be more inclined to use equity to fund their growth so as not to give away ownership and thereby control over their operations (Yu 2024).

Therefore, the choice between debt and equity financing is dependent on various factors, such as the company's growth stage, industry conditions, and cost of capital. In the European debt market, investment-grade bonds currently yield stable returns, with BBB-rated bonds averaging a yield of below 4% as of Q3 2024 (Bloomberg, 2024). In contrast, speculative-grade bonds carry higher yields due to increased default risks, reflecting investor caution in high-leverage scenarios (van Binsbergen and Yang 2010). In general, the current debt market shows a robust leveraged finance issuance in Europe including leveraged loans and high-yield bonds, reaching €75 billion in Q3 2024, a 63% jump from €46 billion in Q3 2023. High-yield bonds contributed €33 billion, up 92% year-on-year.

Jungheinrich's debt profile reflects its strategic position in the investment-grade category, with an anticipated credit rating of BBB-. The company has secured favourable debt terms, including a 132 basis point spread over Euribor for its Term Loan A and a weighted average cost of debt of 2.3% after tax. By accessing moderate-cost financing, Jungheinrich can pursue acquisitions and capital investments without excessive strain on its cash flows. Equity financing, while costlier, remains integral to Jungheinrich's capital structure. The company's equity contribution amounts to 48% of total funding, ensuring sufficient financial stability to support operations and growth initiatives. Furthermore, the inclusion of sweet equity incentives, accounting for 6% of ordinary equity, aligns management interests with shareholder value creation and incentivizes long-term performance (Yu 2024).

4. **Optimal Capital Structure**

Theoretical perspectives on optimal capital structure provide valuable insights into how firms balance the costs and benefits of debt and equity financing. According to Modigliani and Miller (1958), in a frictionless market, capital structure does not influence firm value. However, the introduction of taxes, financial distress costs, and agency conflicts necessitates a balance between debt and equity (Brusov, Filatova, and Orekhova 2023). The trade-off theory posits that firms aim to optimize their capital structure by balancing the tax benefits associated with debt against the costs of financial distress. For firms like Jungheinrich, which operate in capital-intensive industries, debt financing offers a valuable tax shield while supporting growth initiatives (Satyanarayana and Rao 2024). Nevertheless, excessive leverage can amplify default risks, particularly when market conditions deteriorate.

The pecking order theory suggests that firms prefer internal financing, followed by debt, and resort to equity as a last option. Jungheinrich's financing strategy aligns with this theory, as the company prioritizes debt over equity to minimize the weighted average cost of capital (WACC)

and preserve shareholder value (Satyanarayana & Rao, 2023). The company's weighted average cost of capital stands at 8.2%, with a balanced mix of 52% debt and 48% equity target derived from the historical total debt / equity backwards looking to 2015.

Although there is no universal optimal capital structure, Koller et al. (2010) propose a three-step methodology for identifying a company's target capital structure. The process begins by estimating the firm's current capital structure based on market valuations. This preliminary structure is then evaluated against comparable companies in the same industry to ensure its reasonableness. Adjustments are made if needed, particularly if industry benchmarks suggest an alternative mix. Finally, the firm's management strategies—both explicit and implicit—are reviewed to assess their alignment with long-term financial goals. This step also considers the purpose of the valuation, such as mergers or strategic investments, which can influence the choice of a target structure.

Building on this framework, the selection of an optimal capital structure also involves analyzing key metrics, such as the debt-to-equity ratio. Companies operating in industries with stable cash flows may opt for higher leverage to capitalize on tax benefits, while firms in volatile markets might adopt conservative ratios to mitigate financial distress risks. For Jungheinrich, its balanced capital structure aligns closely with industry norms, as standards in the intralogistics and warehouse automation sector influence Jungheinrich's capital structure decisions. Competitors typically maintain moderate leverage to support ongoing investments in automation and digital solutions. Jungheinrich's ability to generate stable cash flows from material handling equipment, rental services, and after-sales support mitigates its financial risk despite higher leverage relative to peers.

5. Cost of Debt

The cost of debt is a critical component of the capital structure, as it directly influences a firm's weighted average cost of capital (WACC) and its financial risk. It represents the effective interest rate that a company has to pay on its borrowed capital, adjusted for tax benefits. This calculation accounts for the tax-deductibility of interest expenses, which serves as a significant incentive for firms to use debt financing (Li n.d.). You can estimate a public company's cost of debt by analyzing its bond ratings and yields. Bond ratings, issued by credit rating agencies like Moody's or Standard & Poor's, evaluate the company's creditworthiness. Meanwhile, bond yields represent the returns investors earn from holding the company's bonds (Damodoran 2015). This means that a company with higher credit rating is considered to bear less default risk resulting in a lowered cost of debt than a company with a lower credit ranking.

Jungheinrich's weighted average cost of debt after tax is 2.3%, which reflects the firm's strong credit profile and its ability to negotiate favourable terms in the debt market. The cost of debt for the company varies across the debt instruments. The senior secured Term Loan A is priced at Euribor + 132 basis points (bps), Term Loan B at Euribor + 157bps, and Term Loan C at Euribor + 182bps, reflecting an incremental increase in risk for longer maturities. In contrast, the second lien debt carries a significantly higher spread of Euribor + 375bps due to its junior position and increased risk. Additionally, the subordinated loan, which is structurally below the senior tranches, accrues deferred interest at a rate of 8.0% per annum under a Payment-in-Kind (PIK) structure. This high cost reflects the elevated risk associated with its lower priority in the repayment stack. Comparable trading debt from companies with a similar BBB- rating indicates spreads ranging between 132bps to 375bps over the six-month Euribor, which aligns with the pricing observed for Jungheinrich's debt instruments. On average, the coupon rates for senior debt fall between 4.3% and 8.0%, depending on the instrument's priority and maturity.

One of the defining characteristics of Jungheinrich's debt strategy is its focus on maintaining manageable interest coverage ratios, which reflect the firm's ability to meet interest payment obligations from its operating income. The projections indicate an improvement in the interest coverage ratio from 3.1x in 2025 to 6.4x by 2029, as there is confidence in the robust operational performance and conscious debt management. Additionally, the company's debt financing strategy is aligned with the trade-off theory of capital structure, balancing the tax benefits of debt against the risks of financial distress, as discussed by van Binsbergen et al. (2010).

6. Cost of Equity

The cost of equity (CoE) is the return expected by shareholders in exchange for owning part of the asset and bearing the ownership risk. It represents the compensation required to offset the inherent risks of equity investment and with cost of debt, is the other main component of the WACC (Li, n.d.). The Capital Asset Pricing Model (CAPM) is the standard methodology for estimating the cost of equity, expressed as:

$$CoE: CAPM = Risk\ free\ rate + BETA\ x\ (Market\ return - Risk\ free\ rate)$$

Where in the case of Jungheinrich:

- 2.4% risk-free rate, representing the yield on government securities considered risk-less retrieved from Bloomberg. For Jungheinrich this would be the 10-year German bond yield.
- Beta coefficient, indicating the firm's sensitivity to the market. This was derived from a peer benchmarking, using the median unlevered Beta of Jungheinrich peers which is 0.83, and then re-levering this with regards to Jungheinrich's capital structure. This equals to a levered Beta of 1.47.

- The market return was retrieved from Bloomberg and represents the average return of a representable market over a timespan which normalizes mid-term macroeconomic effects such as COVID-19. For Jungheinrich this would be the 10-year average return of the DAX40 stock index.
- Market risk premium is implied by deducting the risk-free rate from the market return and describes the additional return that investors require for taking on the risk of investing in the stock market over a risk-free asset. The market risk premium is thereby estimated at 8.4%.

For Jungheinrich, the estimated cost of equity amounts to 14.5%, reflecting the higher risk premium demanded by investors in the dynamic and capital-intensive intralogistics industry. Studies such as those by Hasler in 2019 emphasize the importance of beta adjustments to account for firm-specific risk factors, including operational volatility and industry dynamics. Furthermore, recent research highlights the significant influence of cash flow risk on the implied cost of equity, particularly for firms exposed to cyclical market conditions and technological shifts (Yu, 2024). Jungheinrich's equity structure includes a sweet equity scheme, accounting for 6% of its ordinary shares, aligning management incentives with long-term shareholder value creation. The implications of a higher cost of equity underscore the importance of balancing equity financing with debt to optimize WACC. Jungheinrich's strategic approach ensures sufficient equity capital to mitigate financial risks while leveraging the cost efficiency of debt.

7. Weighted Average Cost of Capital (WACC)

The Weighted Average Cost of Capital ties the capital structure, CoE and CoD together as it represents the average rate of return a firm is required to generate to satisfy its debt and equity

investors. It is a critical metric in capital budgeting and valuation, serving as the discount rate for estimating the present value of future cash flows (Li, n.d.). WACC is calculated as follows:

$$WACC = \frac{Equity}{Debt + Equity}\ x\ CoE + \frac{Debt}{Debt + Equity}\ x\ CoD\ x\ (1 - tax\ rate)$$

Where in the case of Jungheinrich:

- D+E: Market value of the entire capital structure combining debt and equity components, based on the L10Y average total debt to equity market value, which for Jungheinrich amounted to 1.10.
- E: Market value of equity which based on the 1.10, accounts for 48% of to the total market value of the capital structure.
- D: Market value of debt which is implied by the above and dominating the structure accounting for the remaining 52% of debt to the total value of the firm
- The tax rate used for the evaluation is 30% as it represents the marginal corporate tax rate, in line with broker reports on the selected peer group. The tax rate is only applied to the debt component given that interest payments on debt are tax deductible creating the debt benefit known as the tax shield (Graham et al. 2022).
- CoE and CoD represent the cost of equity and cost of debt respectively, as explained above.

For Jungheinrich the assumptions and calculations made result in a WACC of 8.2%. When comparing this to the peers, it appears that the median WACC of the Global Material Handling players is 9.2% while for the Automation peers a median of 10.9%, in both cases higher than for Jungheinrich. This is mainly due to a lower cost of debt that Jungheinrich benefits from as it enjoys more favorable borrowing terms relative to its peers, especially in the automation

segment. Simultaneously, Jungheinrich's D/E ratio of 1.05 is higher than its peers, indicating that it operates with higher leverage. Despite this, the lower WACC reflects an efficient capital structure and Jungheinrich's well managed risk profile and optimised capital structure. The cost of equity reflects an inherent risks of shareholder investment, in line with its peers. Research by Li (2024) underscores the critical role of WACC in guiding investment decisions, highlighting its sensitivity to changes in debt and equity proportions.

Jungheinrich's WACC supports its valuation methodologies, including discounted cash flow analysis and the Gordon Growth Model. Further it enables access to cost-efficient funding, enhancing its ability to become a leading player in the warehouse automation sector.

8. Conclusion

Jungheinrich's financial strategy reflects a well-optimized capital structure that aligns with its operational objectives and market positioning in the intralogistics and warehouse automation sectors. The company's leverage, with a Net Debt/EBITDA ratio of 2.79x and a Debt-to-Equity ratio of 1.05, underscores its strategic use of debt to fund growth initiatives while maintaining equity stability. These figures highlight Jungheinrich's reliance on predictable cash flows from material handling equipment and after-sales services to service its debt effectively, positioning it as a stable player in a capital-intensive industry. Jungheinrich's Weighted Average Cost of Capital (WACC) of 8.2% is notably lower than that of its peers, reflecting the company's efficient use of debt and favorable borrowing terms. With a weighted average cost of debt at 2.3% after tax and secured terms such as a 132 bps spread over Euribor for Term Loan A, Jungheinrich leverages its investment-grade profile to maintain cost-efficient financing. Meanwhile, the equity contribution of 47.9% of total funding, bolstered by sweet equity incentives comprising 6% of ordinary shares, ensures long-term alignment between management and shareholders. The firm's ability to generate stable cash flows is evident in its

projected improvement in interest coverage from 3.1x in 2025 to 6.4x by 2029, providing confidence in its ability to manage financial obligations. Jungheinrich's cost of equity, estimated at 14.5%, reflects the risk premium demanded by investors in a dynamic and capital-intensive sector, further validating the firm's efficient capital structure. While risks such as shifts in debt market conditions or operational disruptions remain, confidence remains, that Jungheinrich is in a prime position to benefit from the planned capital structure with leverage to fund acquisitions and innovation, enabling it to capitalize on growth opportunities and deliver the forecasted returns. The analysis indicates that Jungheinrich's approach to capital structure ensures it is equipped to solidify its leadership in the warehouse automation industry while safeguarding long-term shareholder value.

Individual Part IV: Nils Kuschel – Returns Analysis

Introduction

Private equity (PE) funds acquire equity ownership in private companies, leveraging strategies designed to maximize returns and drive value creation. These funds have become increasingly popular among institutional investors, such as pension funds, endowments, and sovereign wealth funds, due to their capacity to deliver superior financial performance. Empirical studies show that private equity funds consistently outperform public markets, achieving average internal rates of return (IRRs) between 20% and 30% (Kaplan & Strömberg, 2009; Phalippou & Gottschalg, 2009). This success is primarily attributed to strategic mechanisms such as operational improvements, financial engineering, and the ability to effectively time market entry and exit.

Leveraged buyouts (LBOs) have become the gold standard of private equity investment practice. LBOs involve acquiring companies through significant debt financing—often 60% to 80% of the purchase price—while minimizing equity input. This capital structure amplifies returns by enabling the company's cash flows to support debt repayment, effectively increasing equity value over time. LBOs align with the three key drivers of PE returns: operational improvements, deleveraging, and multiple expansion. Operational improvements include cost-cutting and revenue enhancements, often achieved through active management. Deleveraging systematically reduces financial risk as debt is repaid, while multiple expansion allows PE firms to exit investments at higher valuations. Together, these factors have cemented the effectiveness of LBOs in unlocking value in companies with stable cash flows, strong market positions, and growth potential.

The global PE landscape remains resilient, supported by a record $3.7 trillion in “dry powder” available for investment as of 2023 (Bain & Company, 2023). Despite macroeconomic challenges such as rising interest rates and inflation, PE strategies have evolved to prioritize digital transformation and ESG integration, ensuring relevance in modern investment portfolios (Lerner, Sorensen, & Strömberg, 2021; Gompers et al., 2016). These trends reflect a shift toward sustainable and scalable returns, reinforcing PE’s role as a driver of long-term value creation in both traditional and emerging industries. These dynamics have further solidified PE as a cornerstone of modern investment portfolios, offering both diversification and superior risk-adjusted returns compared to traditional equity markets.

A combination of strong underlying business fundamentals, market leadership, and opportunities for operational and strategic enhancements characterizes the ideal private equity investment case. Private equity firms seek companies that exhibit stable cash flows, competitive advantages within their industries, and scalability. Industries such as technology, healthcare, and sustainable energy have emerged as desirable targets due to their high growth potential and alignment with macroeconomic and ESG trends. Business models that leverage recurring revenue streams, high customer retention rates, and strong pricing power are especially valuable, as they offer predictability and resilience against economic volatility.

One of the key tools to further enhance returns in private equity is the use of add-on acquisitions. Add-ons involve the acquisition of smaller, complementary companies, which are then integrated into the platform company to achieve substantial synergies. These synergies can be expanded product offerings, broader market reach, and streamlined operations. Additionally, add-ons provide opportunities for multiple arbitrage, allowing private equity firms to acquire smaller companies at lower valuation multiples and achieve blended valuation improvements upon exit. Empirical evidence demonstrates that approximately half of private equity deals

involve add-on strategies, and such acquisitions are estimated to enhance exit multiples by an average of 1.5-2.0x (PwC, 2023).

The strategic rationale for add-ons extends beyond financial returns. They enable private equity firms to accelerate growth by leveraging the operational and managerial expertise of the platform company. For instance, the addition of a specialized company can deepen the platform's market penetration or bolster its technological capabilities. Moreover, add-ons provide an efficient avenue for entering new geographic markets or verticals, mitigating risks associated with organic expansion. By systematically targeting high-growth sectors and aligning acquisitions with long-term strategic objectives, private equity firms ensure that add-ons contribute not only to enhanced financial metrics but also to the broader value-creation narrative of the investment. Private equity funds generally target IRRs of 20%-25% for large-cap investments, though returns can vary based on market conditions and operational strategies (Kaplan & Strömberg, 2009). Larger industrial targets, such as Jungheinrich, often benefit from stable cash flows and robust market positions, which mitigate risks and create opportunities for value enhancement through operational efficiencies and strategic repositioning. Moreover, in sectors like manufacturing, where longer investment horizons are typical, IRRs may average slightly lower, between 18%-22%, due to the scale of required transformations (Axelson, Jenkinson, & Strömberg, 2013). These high returns can only be generated by using a high amount of debt to pay the purchase consideration (40-60% of deal volume).

The Investment Case of Jungheinrich

Jungheinrich, the targeted company of the investment paper, is a globally recognized leader in intralogistics solutions and aligns closely with the framework of an ideal candidate for an LBO. The company exhibits strong market fundamentals through its leadership as the third-largest

material handling provider globally and its prominent position in warehouse automation, a sector projected to grow at a weighted compound annual growth rate of 13.5%. Its revenue streams are diversified and characterized by predictability and resilience due to significant contributions from recurring revenues such as rental services and after-sales support. These features ensure stable cash flows critical for meeting debt obligations in an LBO structure.

The company's strategic focus on automation solutions positions it in a high-growth industry with substantial demand driven by global trends such as e-commerce expansion and supply chain optimization. Its commitment to sustainability, evidenced by its Ecovadis Platinum rating, enhances its appeal to investors while opening opportunities to capture value in a market increasingly driven by sustainable practices and often directly required from the funds' LPs. These elements, combined with its strong operational base, create a compelling case for value-creation initiatives after the purchase through both organic and inorganic strategies. Jungheinrich's market leadership, recurring revenues, and alignment with key investment trends highlight its potential to deliver superior returns under a well-executed LBO framework.

Overview Returns

In the analysis of a potential LBO of Jungheinrich, three cases of financial outcomes specific to Jungheinrich, unique risks, and rewards associated with its operations—such as cyclicality in demand for industrial machinery and fluctuations in raw material costs—were modeled. This analysis is essential to anticipate bottlenecks during economic downturns or supply chain disruptions that could impact profitability in the downside scenario and potentially break bank-introduced covenants while also identifying opportunities to maximize returns through operational enhancements and market expansion in the upside case.

For Jungheinrich, the base case was conservatively modeled, factoring in current macroeconomic conditions and leveraging the company's premium market positioning to capitalize on prevailing trends. The downside case emphasizes potential challenges in the buyout's success, with Jungheinrich growing below market rates and experiencing margin contraction. Conversely, the upside case adopts a more aggressive outlook, projecting above-market growth if the base case proves to be overly cautious.

Returns are expected to test the lower IRR returns of manufacturing companies (16.6%) in the downside case and IRRs of 24.9% and 29.2% in the base and upside cases, respectively. This translates into a money multiple range of 2.2x to 3.6x, while 3.0x will be achieved in the base case, meaning an equity value in absolute terms of EUR 8,172(downside), EUR 11,853m (base), and EUR 14,166m (upside) (see Figure 6: Value Creation).

The overall increase in return can be understood by applying several value creation levers articulated in the investment thesis, namely organic growth, inorganic growth, and deleveraging. To align the management with the investment's success and ensure a stronger commitment to achieving the outlined value creation targets, management is offered a stake in the company through a sweet equity program. For an investment equivalent to twice their annual salary, including bonuses, they will receive 3.5% of the company's ordinary shares at a significant discount (see Figure 10: Management Compensation). Additional long-term performance incentives are tied to meeting the strategic objectives of the value creation thesis, which comprise a target EBIT margin of 9.0% and 10.0%, an automation revenue share of 40%, and an absolute EBIT threshold of EUR 1,522m. If these targets are achieved, management may earn up to an additional 3.5% of the company's ordinary shares. This structure not only motivates the management team to exceed expectations but also ensures alignment with investor interests, as meeting these targets directly enhances overall returns.

Jungheinrich's New Trucks business revenue is projected to grow organically by EUR 1,351m by 2029, driven by a suite of organic initiatives that leverage the company's robust positioning in warehouse automation, sustainability, and strategic expansions at existing sites. These measures are anticipated to enhance the money multiple by 1.0x. Approximately 21% of Jungheinrich's intralogistics revenue originates from automation solutions, which are poised for sustained expansion at a CAGR of 12.7%, consistent with broader market trends. This segment alone is expected to contribute EUR 496m to the topline. Additionally, the material handling trucks business is forecasted to achieve a CAGR of 7.5%, supported by growing customer adoption of electrified fleets and lithium-ion technology, adding a further EUR 434m in revenue. The rising emphasis on sustainable operations and emissions reduction along client supply chains is anticipated to augment both these segments. Jungheinrich's well-regarded standing as a sustainability leader will contribute an incremental EUR 21m to revenue by 2029. Furthermore, the company's targeted international expansion, particularly in North America and Asia-Pacific, is projected to yield an additional EUR 399 m in revenue by scaling recently established locations. These growth initiatives underscore Jungheinrich's strategic commitment to capturing market opportunities and maintaining a competitive edge in high-growth regions.

This ramp-up in revenue growth will be reinforced by improvements to gross profit and EBIT margins. Modernization of production facilities is projected to yield a 1.0% increase in the gross profit margin. In comparison, efficiencies derived from research and development initiatives are expected to contribute an additional 0.6% to the EBIT margin. Moreover, the company's digital transformation agenda is anticipated to raise the EBIT margin by a further 0.9%. Collectively, these measures are forecasted to improve the EBIT margin by 2.5 percentage points by 2029, translating into an additional EUR 240m in EBIT and enhancing the money multiple by 0.2x. The growing contribution of automation revenues, which are typically valued

at higher multiples compared to material handling revenues, is expected to elevate Jungheinrich's blended EBIT multiple from 14.1x at entry to 15.5x by 2029, contributing an additional 0.3x to the money multiple. The combined impact of these operational and strategic improvements positions Jungheinrich to deliver robust returns through enhanced efficiency, cost management, and targeted value creation. Overall, organic growth and associated initiatives are projected to account for 1.7x of the exit money multiplier by 2029, underscoring their critical role in Jungheinrich's value creation.

Inorganic growth will also serve as a cornerstone of the strategy, with the acquisitions of ROFA and Gebhardt identified as key drivers. These targets were selected for their specialized expertise in intralogistics automation and their highly complementary business models. The acquisitions are aligned with Jungheinrich's broader strategy to enhance its automation capabilities and extend its global footprint. ROFA, despite experiencing margin pressures in recent years, demonstrated resilience during the COVID-19 pandemic by achieving revenue growth of 4.3% and expanding its workforce to over 1,000 employees. By leveraging Jungheinrich's extensive service and sales network alongside ROFA's innovative products and skilled team, substantial synergies are anticipated. A structured integration framework is expected to restore ROFA's historical margins of 13.6% (7.4% in 2022) and enable its growth trajectory to align with market dynamics by 2028. Similarly, Gebhardt, which boasts a strong growth profile and significant international revenue share, stands to benefit from Jungheinrich's established organizational infrastructure, enabling cross-selling opportunities and improved margins. Under conservative projections, Gebhardt's growth is expected to align with the automation market's CAGR going forward, below its CAGR from 2016 to 2022 of 20.6%. Combined, these acquisitions are projected to contribute approximately 0.3x to the money multiple, with an additional 0.2x resulting from operational improvements achieved through

Jungheinrich's optimization framework. The success of these acquisitions will depend heavily on Jungheinrich's ability to effectively integrate operations, manage cultural alignment, and leverage economies of scale within its broader corporate framework.

Deleveraging will further bolster returns, contributing an estimated 0.1x to the money multiple. Jungheinrich's robust cash flow generation will enable accelerated amortization of Term Loan A, reducing interest expenses and enhancing equity value over the investment period.

Nevertheless, the execution of these strategies is accompanied by a range of risks. Organic growth is contingent on the continuation of favorable macroeconomic trends in warehouse automation and sustainability. A deceleration in these markets or delays in the adoption of lithium-ion technology could adversely affect revenue projections. The realization of international expansion plans relies heavily on the successful scaling of operations in competitive and less familiar markets, such as North America and Asia-Pacific, where integration risks may arise. Similarly, inorganic growth presents challenges, particularly with respect to the seamless integration of ROFA and Gebhardt. Achieving the anticipated synergies and operational efficiencies requires precise execution, which could be disrupted by cultural or organizational misalignments. Persistent margin pressures at ROFA might also limit the realization of expected value creation. Broader macroeconomic factors, such as fluctuations in global demand, inflationary pressures, and supply chain disruptions, pose additional risks that could undermine Jungheinrich's financial and operational performance. These challenges could jeopardize cash flow generation, delay debt repayment, and diminish equity returns, thereby affecting deleveraging efforts. However, the company's ability to adapt to dynamic market conditions and its strategic focus on sustainability and innovation provide a foundation for resilience, supporting the long-term potential of its value-creation strategy.

Exit Options

Jungheinrich faces a variety of sophisticated exit strategies, each with distinct implications for returns and long-term strategic positioning. The three primary options are an initial public offering (IPO), a sale to a financial sponsor, or a strategic buyer. Each of these exit routes impacts returns differently, depending on market conditions, the nature of the acquirer, and Jungheinrich's operational readiness. A comprehensive evaluation of these options is crucial to determining the path that maximizes value for shareholders.

An IPO offers Jungheinrich the opportunity to unlock significant value for investors, making it a compelling exit strategy following an LBO. It allows private equity investors to monetize value created during the holding period, such as operational improvements, cost efficiencies, and market share growth. IPOs often command premium valuations compared to private sales, as public markets typically offer higher multiples due to broader investor demand and liquidity (Kaplan & Strömberg, 2009). In the industrial sector, IPOs benefit from investor appetite for high-growth areas like automation and sustainability, which align closely with Jungheinrich's strengths.

Market timing is critical to maximizing exit value. IPO activity in the machinery sector is cyclical, with favorable conditions driving strong valuations (see Figure 11: Global Machinery IPOs). For instance, 54 IPOs were recorded in 2021 during strong investor confidence but dropped to 28 in 2023 due to macroeconomic challenges (Bloomberg, 2024). Launching during favorable market conditions allows companies to leverage higher demand and valuation multiples, while poor timing or economic instability could reduce returns.

Historically, IPO exits post-LBO have delivered strong returns due to the alignment of private equity sponsors and management teams (Cao & Lerner, 2009). Research shows that companies

exiting through IPOs often achieve superior valuations, with returns on invested capital (ROIC) outperforming trade sales or secondary buyouts (Jenkinson & Sousa, 2015). Listing on major exchanges like the NYSE, Börse Frankfurt, or Tokyo Stock Exchange would enhance Jungheinrich's visibility, attract diverse investors, and position it as a leader in its sector.

Despite the resource-intensive process, the potential for premium valuations, liquidity, and long-term growth makes an IPO highly attractive.

A sale to a financial sponsor, such as KKR, Carlyle Group, or Blackstone, presents another viable option. Financial sponsors are drawn to Jungheinrich's stable cash flows, strong market position, and growth potential in automation and material handling. A notable precedent in this context is KKR's development of KION Group, where the firm successfully transformed the business into a leading global intralogistics provider through strategic acquisitions and operational enhancements (Acharya et al., 2013). The private equity market remains well-capitalized, with record levels of dry powder fueling interest in high-quality assets (Kaplan & Strömberg, 2009). However, given the targeted size of Jungheinrich in 2029, an exit via a financial sponsor could become tricky due to the high investment required. This often leads to several private equity funds bundling their investment as a consortium, making negotiations inherently harder and reducing the probability of success.

The final option is to sell to a large competitor, such as KION Group, Toyota Industries, or Mitsubishi Heavy Industries. This route offers significant advantages through operational synergies, including enhanced cost efficiencies, expanded product portfolios, and access to new markets. Strategic buyers are often willing to pay a premium for companies like Jungheinrich due to the potential for consolidation and technological integration. Additionally, Jungheinrich's well-established service network and its geographic footprint, particularly in

Europe and growing in Asia, provide a unique opportunity for Asian buyers to expand their regional presence and better serve global markets (Phalippou, 2020).

Closing Remarks

In conclusion, Jungheinrich presents a highly compelling investment case for private equity, leveraging its market leadership, stable cash flows, and alignment with high-growth trends in automation and sustainability. The proposed LBO framework effectively balances opportunities for value creation through organic growth, margin improvement, strategic acquisitions, and deleveraging while addressing potential risks inherent in execution and market dynamics. With carefully managed strategies and an aligned management team, Jungheinrich is well-positioned to deliver strong returns of 3.0x MOIC and an IRR of 24.9%.

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Appendix

Competitive Segmentation

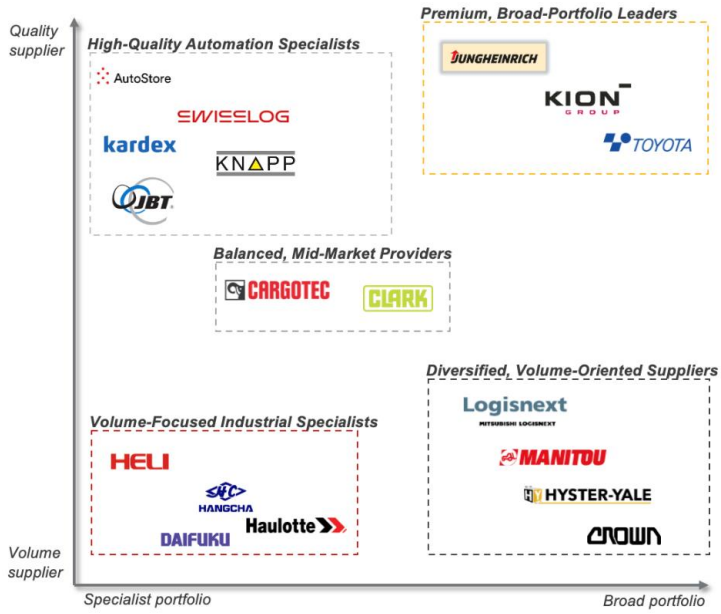

Figure 1: Competitive Landscape

Topline Development

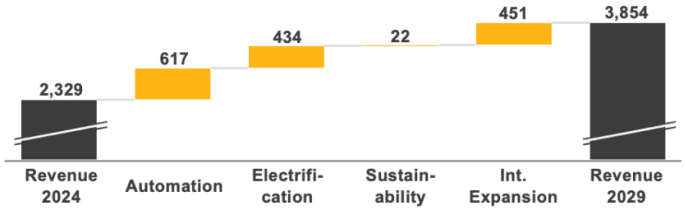

Figure 2: Topline Development

Bottomline Development

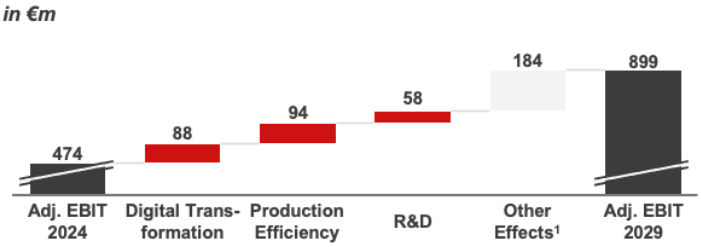

Figure 3: Bottomline Development

Entry Valuation EV – Jungheinrich

Valuation Technique (Intralogistics)	Multiple	Implied EV (€m)	Implied EV/EBIT	Weight	Divisional Value Intralogistics (€m)	P/B Value FinServ (€m)	Total SOTP Value (€m)
***DCF** using Gordons Growth as terminal value*	12.1x	5,465	12.1x	*11.1%*	607	*FS Equity value*	
***DCF** using Trading Multiples as terminal value*	14.7x	6,633	14.7x	*11.1%*	737	*2024B: 14.8m*	
***DCF** using Transaction Multiples as terminal value*	15.2x	6,876	15.2x	*11.1%*	764		
***CCA** 2024E SALES*	1.5x	6,495	14.4x		-	*P/B ratio:*	
***CCA** 2025E SALES*	1.4x	6,611	14.6x		-	*0.9x*	
***CCA** 2024E EBITDA*	10.9x	6,553	14.5x	*5.8%*	382		
***CCA** 2025E EBITDA*	10.1x	6,463	14.3x	*2.5%*	162		
***CCA** 2024E EBIT*	14.2x	6,420	14.2x	*15.0%*	963		
***CCA** 2025E EBIT*	13.2x	5,647	12.5x	*10.0%*	565		
***CTA** SALES*	1.3x	7,408	16.4x		-		
***CTA** EBITDA*	10.4x	6,247	13.8x	*13.3%*	833		
***CTA** EBIT*	14.9x	6,710	14.9x	*20.0%*	1,342		
Sum				*100.0%*	6,355	+134	6,489

Figure 4: Entry Valuation EV

Sources and Uses

Sources of Funds	Interest Rate	€m	x EBITDA	%	Uses of Funds	Fees	€m
Senior debt					**EV/Equity Bridge & Fees**		
Term Loan A	4.32%	466.9	0.8x	7.0%	Equity purchase price		3,706.2
Term Loan B	4.57%	747.0	1.2x	11.2%	Existing debt		2,918.6
Term Loan C	4.82%	747.0	1.2x	11.2%	Provisions for pensions		169.7
Subordinated debt					Excess cash		(305.7)
Second Lien		933.8	1.5x	14.0%			
Total debt		**2,894.8**	**4.7x**	**43.5%**	**Enterprise Value**		**6,488.8**
Subordinated Loan	8.00%	**3,134.3**	5.0x	47.1%	*M&A advisory fees*	1.0%	*64.9*
Institutional Investor		600.2		96.5%	*CVDD fees*	0.5%	*32.4*
Sweet Equity		21.8		3.5%	*Legal fees*	0.5%	*32.4*
Ordinary Equity		621.9	1.0x	9.4%	Transaction fees	2.0%	129.8
					Financing fees	0.5%	*32.4*
Total Equity		**3,756.2**	**6.0x**	**56.5%**	**Total fees**	**2.5%**	**162.2**
Total Sources		**6,651.0**	**10.7x**	**100.0%**	**Total Uses**		**6,651.0**

Figure 5: Sources and Uses

Value Creation – Jungheinrich

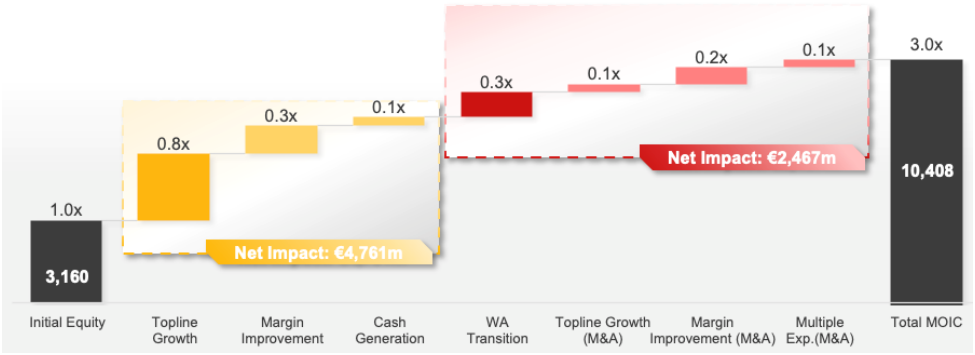

Figure 6: Value Creation

Quality of Earnings

Quality of Earnings									
in EURm (Jan-Dec)	2015A	2016A	2017A	2018A	2019A	2020A	2021A	2022A	2023A
Reported EBIT	213.1	235.0	258.6	275.4	262.6	218.1	359.6	386.1	430.3
Variable Remuneration Costs	-	-	-	-	-	-	-	-	15.0
PPA	-	-	-	-	-	-	-	0.4	13.0
Transaction Costs	0.1	-	0.4	0.1	-	-	1.0	-	8.0
Impairment losses (one-offs)	-	-	-	*2.1*	-	*17.0*	*2.0*	-	*1.3*
Reversal Impairment losses (one-offs)	-	-	-	-	-	-	-	*(2.7)*	-
Net Impairment losses (one-offs)	-	-	-	2.1	-	17.0	2.0	(2.7)	1.3
Adjustments	**0.1**	**-**	**0.4**	**2.2**	**-**	**17.0**	**3.0**	**(2.3)**	**37.3**
Adjusted EBIT	213.2	235.0	259.0	277.6	262.6	235.2	362.6	383.7	467.6

Figure 7: Quality of Earnings

Sensitivities

WACC/ Terminal Growth Rate

in €m	1.0%	1.5%	2.0%	2.5%	3.0%
7.4%	5,473	5,855	6,307	6,854	7,527
7.8%	5,138	5,468	5,857	6,319	6,880
8.2%	4,840	5,129	**5,465**	5,861	6,334
8.6%	4,574	4,829	5,122	5,463	5,867
9.0%	4,335	4,560	4,818	5,116	5,463

WACC/ EBIT-Multiple (CCA)

in €m	13.2x	13.7x	14.2x	14.7x	15.2x
7.4%	6,473	6,669	6,865	7,061	7,257
7.8%	6,363	6,555	6,748	6,940	7,133
8.2%	6,256	6,444	**6,633**	6,822	7,011
8.6%	6,150	6,336	6,521	6,707	6,892
9.0%	6,047	6,229	6,411	6,593	6,775

WACC/ EBIT-multiple (CTA)

in €m	13.9x	14.4x	14.9x	15.4x	15.9x
7.4%	6,725	6,921	7,117	7,313	7,509
7.8%	6,610	6,803	6,995	7,187	7,380
8.2%	6,498	6,687	6,876	7,065	7,254
8.6%	6,389	6,574	6,759	6,945	7,130
9.0%	6,281	6,463	6,645	6,827	7,009

Figure 8: Sensitivities

Football Field

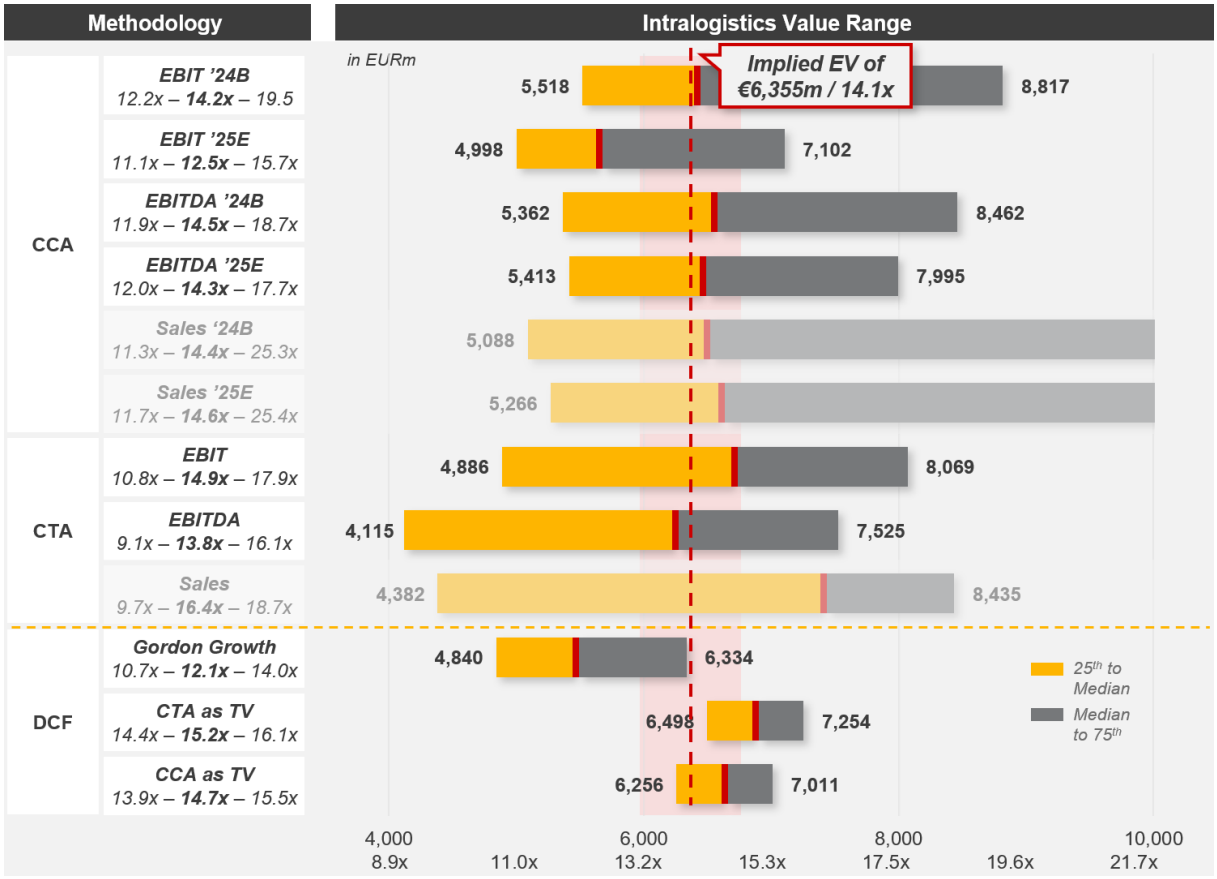

Figure 9: Football Field

Management Compensation

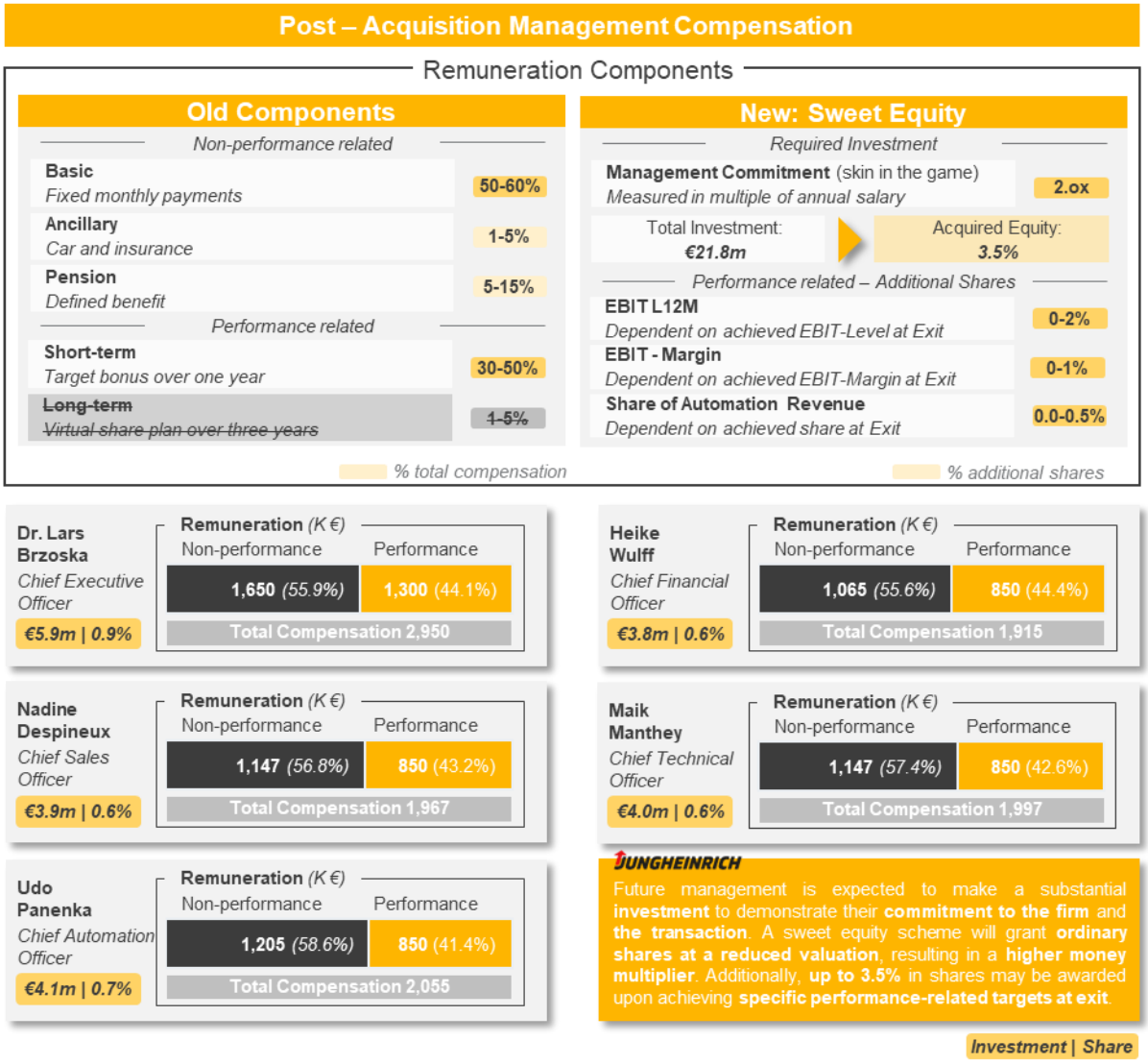

Figure 10: Management Compensation

Number of Global Machinery IPOs (Bloomberg, 2024)

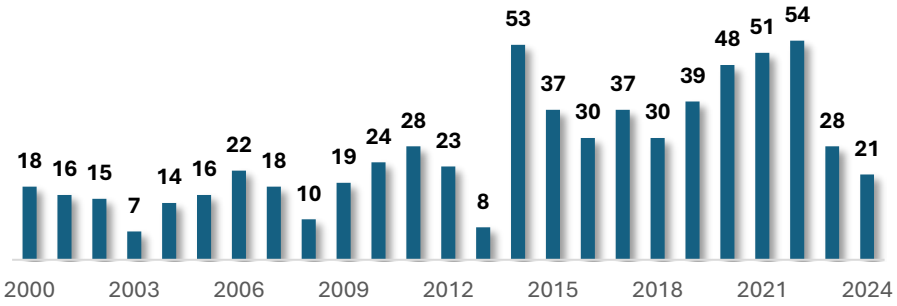

Figure 11: Global Machinery IPOs