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DAIMLER TRUCK SPIN-OFF VALUATION AND ANALYSIS:

Examining parent company value creation through abnormal returns in corporate spin-offs

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## **Abstract**

This study offers an insightful analysis of the corporate spin-off of Daimler Truck Holding AG from its parent company, Mercedes-Benz AG, on December 10, 2021. The valuation of Daimler Truck's stock price on its initial trading day is approached through three distinct methods: 1) intrinsic value, 2) Comparable Company Analysis, and 3) Precedent Transaction Analysis. Among these approaches, the intrinsic value method yields the most reliable output, given Daimler Truck's status as a company characterised by stable cash flows. In addition to the valuation analysis, the research project comprises a distinct component: Analysing abnormal returns for parent companies in corporate spin-offs.

**Keywords:** Valuation, Corporate Spin-Off, Parent Company Abnormal Returns, Value Creation

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### 1. Introduction

“Today is a historic day for Daimler Truck (...)” - Martin Daum, Chairman of the Board of Management of Daimler Truck Holding AG (Daimler Truck North America 2021).

This statement marks a significant milestone for Daimler Truck (DT) and encapsulates the magnitude of its decision to go public through a spin-off from Daimler AG on December 10, 2021. This spin-off disintegrated one of Germany’s largest industrial conglomerates (Cünnen and Hubik 2021). Moreover, it has broad implications for the automotive industry, notably when the sector radically transforms (Splittgerber 2021). This thesis aims to assess the value of DT at the time of its spin-off and to scrutinise whether its valuation of approximately EUR 23 billion was justified. This valuation is derived from the 822,901,882 newly issued shares at an initial price of EUR 28 per share (Daimler AG 2021a). To comprehensively explore this aim, the study employs a multi-faceted valuation approach, including absolute and relative techniques.

The primary analysis of this thesis examines the spin-off in detail, incorporating market and competitive assessments to determine DT's share price. The final section synthesises the findings, critically evaluates the methodologies used, and discusses practical implications and future research directions.

### 2. Literature Review – Going Public

Going public is a critical juncture for firms, signifying maturity and heralding structural and managerial changes. It offers financial gains, decision-making autonomy, and heightened public visibility. While *Initial Public Offering* (IPO) is the most well-known method of going public, it is crucial to distinguish it from other approaches. IPOs involve a first-time listing of shares on an exchange and are one among several avenues for public transition. Section 2.1 elaborates on various mechanisms for going public, followed by an analysis of the underlying motivations (Deutsche Börse AG 2023).

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### **2.1. Types of Going Public**

One prevalent approach to going public is the Initial Public Offering (IPO), allowing firms to raise capital by selling existing and new shares. IPOs often fuel company growth and provide liquidity for existing shareholders. Alternative methods include Private Placements, targeting select institutional investors; Direct Listings, sidestepping traditional IPOs to list existing Special Purpose Acquisition Companies (SPACs), formed to acquire unspecified companies within a set timeframe. Companies can also go public through Spin-offs, making a business division independent, Equity Carve-outs, partially listing a business unit while retaining majority control, or Dual Listings, appearing on multiple stock exchanges for broader visibility (Deutsche Börse AG 2023).

### **2.2. Motives for Going Public**

Going public is crucial in a company's development, offering numerous advantages to boost financial and strategic impulses. It primarily focuses on capital acquisition, allowing companies to invest in projects and growth ventures, expanding their market presence and business scope (Lowry, Michaely and Volkova 2017). The ability to quickly and easily sell shares to access cash is a central concern post-going public, especially for investors like Venture Capitals. Being publicly listed leads to heightened public attention, allowing companies to expand their customer base, pursue attractive partnerships, and attract talents (Deloitte & Touche LLP 2020). Companies can also pursue strategic objectives through IPOs, such as separating or spinning off business divisions or subsidiaries, focusing on core business areas, and gaining independence and flexibility (Blättchen, et al. 2006). Going public can also allow companies to use their shares as currency for acquisitions, enabling mergers and acquisitions without straining the cash flow (Pagano, Panetta and Zingales 1998; Ritter and Welch 2002). Finally, going public offers a succession solution for founders lacking internal successors (Blättchen, et al. 2006).

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### **2.3. Spin-Off in detail**

Spin-offs have gained significant traction in recent corporate history, as they involve separating a business unit from its parent company to create an economically and legally independent entity (Achtleitner, Bassen and Wahl 2003). These transactions aim to enhance the parent company's enterprise value (EV) by focusing on its core business, reducing negative synergies, and improving operational efficiency (Achtleitner, Bassen and Wahl 2003; Burger, Ulbrich and Ahlemeyer 2010). Historically, conglomerate structures were used to reduce company risk and boost shareholder value (Leinwand and Mainardi 2012; Achtleitner, Bassen and Wahl 2003). However, as capital markets evolved, investors preferred to invest directly in specific companies, shifting towards pure-play corporate models emphasising transparency and core capabilities (Leinwand and Mainardi 2012; McIvor 2007). Spin-offs have been scrutinised for their impact on company value, particularly regarding share price changes (Schultze 1998; Vollmer 2014). Studies on the European capital market have shown positive wealth effects associated with spin-off activities, with significant abnormal returns observed shortly after the announcement (Veld and Veld-Merkoulova 2003; Vollmer 2014). Long-term impacts of spin-offs have been explored, with spun-off subsidiaries outperforming industry peers in the first three years post-separation, challenging the efficient market hypothesis that such positive effects should be immediately reflected in share prices (Harris and Madura 2010; Veld and Veld-Merkoulova 2003).

### **3. Company Profile of Daimler Truck**

In the dynamic world of the automotive industry, DT is a pivotal player that significantly shapes the sector. This section focuses on DT's history, business areas, and financial situation, analysing its evolution and strategic rationale for the spin-off. This serves as a foundation to comprehend better and contextualise the subsequent sections that delve deeper into the spin-off analysis and company valuation (Daimler Truck 2023).

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### **3.1. Business segments and product portfolio**

DT operates market-leading divisions across various regions with distinct product lines and brands. Trucks North America (TN) excels in large and small fleets, offering brands like Freightliner and Western Star and leveraging Detroit Diesel's technology for critical components. The unit boasts over 1,100 dealer and service locations. In Europe and Brazil, Mercedes-Benz (MB) leads in light to heavy-duty trucks, supported by an extensive network of truck operating centres and general distributors. Trucks Asia (TA) combines Mitsubishi Fuso Truck and Bus Corporation (MFTBC) and Daimler India Commercial Vehicles (DICV), focusing on key Asian markets through its FUSO brand and a global retail network of 2,750 locations. Daimler Buses (DB) holds sway in the EU30, Brazil, Argentina, and Mexico, offering a variety of buses under Mercedes-Benz and Setra brands. Complementing its physical products, the Financial Services division provides tailored financing solutions, insurance, fleet management, and integrated service offerings (Daimler Truck 2021).

### **3.2. Pre-Spin-Off organizational structure**

Before the planned spin-off, Daimler AG had a hierarchical structure with 100% ownership of its subsidiaries, including Mercedes-Benz AG, Daimler Mobility AG, Daimler Truck AG, and others; please refer to *Figure 2*. Such a structure enables uniform strategies and streamlined decision-making. However, the spin-off signals an intent to harness more focused strategies and agility by creating two distinct entities (Daimler Truck 2021).

### **3.3. Rationale for the Spin-Off**

Daimler AG made the far-reaching decision to separate its commercial vehicle business, primarily driven by dynamic changes in the market environment. Notably, new technology competitors entering the market challenged traditional business models. At the same time, the rapid advancement of electrification and digitisation demanded increased investments to stand up to technological competitors. Factors like the COVID-19 pandemic also highlighted distinct

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customer needs in passenger and truck segments. While technologies such as electrification and autonomous driving are essential for passenger cars and trucks, the specific technological requirements in both segments diverge significantly. Another crucial reason for the separation was creating better conditions for implementing individual strategies. In the past, synergies between the passenger car and truck businesses were limited, diminishing the benefit of joint operations. The separation allows the passenger car business to focus on the premium segment. In contrast, the truck business can pursue its strategy without coordinating with the passenger car division. Moreover, both sectors often competed internally for investment funds. With the separation, both business areas gain direct access to the capital market, allowing them to allocate and invest their financial resources more efficiently. As part of the Daimler Group, the truck business previously had limited opportunities for independent capital raising. Finally, the decision also promises to realise value potential for shareholders. With both business areas' independent and focused alignment, the passenger and commercial vehicle businesses can more efficiently realise existing value potential. Overall, the decision to separate Daimler's commercial vehicle business represents a strategic move that enables both business areas to respond more agilely to market changes and more effectively implement their specific business strategies (Daimler AG 2021b).

### **4. Spin-Off analysis of Daimler Truck**

The global economic landscape constantly evolves due to complex financial strategies, industry dynamics, and technology developments. Corporate spin-offs are crucial occasions that affect individual businesses and reveal broader trends within industries and the economy. DT's spin-off has attracted interest from investors, analysts, and industry observers. The company's valuation is based on historical financials and various valuation methodologies (Daimler Truck 2021).

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### **4.1. Market and Industry Analysis**

Medium and heavy truck manufacturing is a crucial area within the automotive industry, requiring commercial vehicles to transport heavy loads across various terrains. This industry relies on cars for retail, agriculture, construction, and logistics. The need for environmentally friendly trucking solutions has become increasingly important as globalisation promotes cross-border trade and e-commerce transforms consumer behaviour (Council 2010). The global market for medium and heavy trucks includes commercial vehicles (CVs), buses and coaches (BCs), heavy commercial vehicles (HCVs), and heavy buses and coaches (HBCs) (MarketLine 2022). The COVID-19 pandemic caused a decline in the market for medium and large vehicles in 2020, with lockdown measures and lowered operational capacity causing significant decreases in demand from logistics, transportation, and heavy industries. However, the market gradually recovered and increased after the vaccination rate rose in early 2021 (Total units sold in 2020: 386,407 / 2021: 394,369 - CAGR: 2.1%) (MarketLine 2022). Daimler AG decided to spin off its truck and bus manufacturing business in late 2021 to focus on zero-emission (ZE) truck development and maintain its pole position in the market (Daimler Truck 2021). The development of ZE trucks is of utmost importance to market competitors, as quantitative studies have shown the impact of this change in transport on global environmental impact (Breed 2021). Plug-in electric cars are being explored for various applications in medium and heavy-duty industries due to their high efficiency, requiring less primary energy and emitting fewer greenhouse gases (Lloyd 2001). Despite the market's unease, Daimler AG successfully separated DT on December 10, 2021, showcasing the importance of sustainable and environmentally friendly trucking solutions in the automotive industry (Moultak 2017).

### **4.2. Competitive Landscape Assessment (Peer Group evaluation)**

Because of fierce market competition, players compete based on prices and the worth of the vehicles they supply. The main strategies employed by market leaders to distinguish themselves

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from their rivals are strong brand recognition and market diversity. Leading companies have concentrated on designing and producing electric vehicles to boost sales in the future, be ready for an era without emissions, and phase out the sale of combustion engine vehicles by 2030 (MarketLine 2022). DT competes in Europe, North America, Asia, and Latin America, with primary competitors including Volvo AB and Traton SE (both public at the time) in the European Medium- and Heavy-duty truck markets. DT is the European market leader, accounting for 19% of the market in 2021, with the closest competitor in Europe being Volvo AB, with a 15% market share (Soroka and Luman 2022). In the North American market, the competitive landscape looks different, as the demand for different types of trucks is different from the European market. Traton SE (Volkswagen), DT, PACCAR, and Volvo are the market leaders in North American medium and heavy trucks. The market participants are in Germany, the United States, and Sweden, suggesting a diverse presence of medium and heavy truck suppliers. Wabash National Corp., Federal Signal Corp., Blue Bird Corp., and The Shyft Group are additional competitors, although not comparable in size, but rather in similar distribution channels/business models. In North America, DT accounts for 37.9%, signalling a massive pole position with the Freightliner line, with the second biggest competitor being PACCAR with their Peterbilt truck line (National Automobile Dealers Association 2023). Isuzu, Hino, Tata, and Ashok Leyland are among DT's primary rivals in the Asian market. Additional competitors include Beiqi Foton Motor Ltd., a global commercial vehicle manufacturer, and Hitachi Ltd. (primarily in the construction vehicle industry), which Daimler also targets with its construction line. Since the expansion in this market will be of maximum importance for holding a leading position in the global truck market (Asia-Pacific accounts for 58.2% of the global medium and heavy trucks market value), it is emerging as the most significant market in the shift to ZE-trucks (MarketLine 2022). No additional competitors were identified for the Latin American market.

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### **4.3. Company Valuation based on Enterprise Value**

A spin-off is when a parent company creates a new independent corporation from one of its operating divisions by issuing stock to existing shareholders. This makes multiple separate companies from the parent company (Linn, S. C., & Rozeff, M. S. 1985). DT's valuation before its spin-off is based on EV valuation methods, which result in the Equity Value when computing the Equity Bridge and subtracting it from the EV (Berk and DeMarzo 2020). A financial forecast is executed for the next five years to determine the first stock price on the Frankfurt Stock Exchange's first day of trading on December 10, 2021.

#### 4.3.1. Financial forecast

A firm valuation relies on financial projections and business plans, which consider various inputs and assumptions. DT's financial statements and additional data from 2018-2021 are extracted to analyse the forecast. The prospectus, published by DT and several investment banks, provides detailed information on critical data and assumptions (Penman 2010). The analysis comprises drivers affecting revenues, costs, and market- and macroeconomic environment data. Financial statements are reclassified for valuation purposes, applying growth rates to income, balance sheet, and cash flow statements, and cross-checked with primary sources like annual reports and databanks (CapIQ).

##### 4.3.1.1. Income statement

The income statement projection is crucial for valuation, identifying key drivers of costs and revenues. Revenue is the primary value driver. FY2021 financials are derived by estimating Q4 2021 financials, comparing the last three quarters of the year and last year's Q4. Revenue growth is susceptible to valuation value, and DT's revenue can be divided into five main business segments: TN, TA, MB, DB, and Daimler Financial Services. The revenue is forecasted by analysing individual developments in each geographic segment to project the company's revenue. For the TN business line, market data for the Heavy and medium-duty truck market in

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North America is analysed for a growth rate of DT sales in North America. As the North American segment makes up 97% of DT TN revenue, North America was the only geographic segment analysed for this business line. The growth rate for revenue is then calculated by averaging the growth in North American market size, the growth in road freight transported in North America (since Medium and Heavy-Duty Trucks are still the primary source of road freight transportation), the growth in Unit Sales, and an additional premium for ZE-Trucks. The ZE-truck premium is added to the revenue growth rate estimation as the truck market develops, with the main competitors competing for the pole position in the ZE-truck race. The CAGR of the TN revenue forecast period 22'-26' equals 4.2%. The development of Medium and Heavy-Duty Trucks will result in an unreasonable surge in sales in the years to come because it is anticipated that these trucks will be emission-free by 2030. The growth rate must be adjusted for this unprecedented occurrence in the truck industry and the automotive sector, as one of the primary reasons for spinning out DT was the separation to concentrate on the ZE-truck target. By taking an average of the revenue CAGR 18'-21' and the CAGR from the projected years 22'-26', the normalised year 27' is calculated by applying this growth rate, incorporating both historical and projected financials. The MB business segment, which has a major geographic concentration in Europe, is anticipated to use the same methodology and growth rate justification but with adjustments for Europe and the European market because, on average, 63.5% of its sales are generated in Europe. Latin America accounts for 12.4% of the sales in this business division, and its market for medium- and heavy-duty trucks is also considered. Its main business is the manufacturing and distribution of trucks in Europe, with its most important Truck-line called Actros. Because of the implementation of EU regulations regarding the ZE trucks, further steps were taken toward electric trucks, and the MB segment has already introduced the eActros. MB revenue CAGR for the forecast period 22'-26' equals 5.2%, slightly higher than the North American revenues, as further domination in the European market is

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expected in the following years (Daimler Truck 2021). The same applies to the DB business segment revenue forecast, as this segment operates in geographical segments identical to the MB business division. The CAGR of DBs revenue forecast from 22'-26' equals 5.2%, too, as the growth in the two key markets, Europe and Latin America, will be the same for MB and DBs. As differing geographic concentrations also suggest different growth rates, the metrics used for estimating the revenue (Expected Market growth, Road Freight growth, ZE-Truck Premium, and Unit sales growth) were modified for the distinct business segments. The TA business segment, primarily focusing on Asia, contributed 15.2% of DT's overall revenues on average over the years 18' through 21'. Its main revenue contributors are the India-tailored truck brands Fuso and Bharat (Daimler Truck 2021). Given that Asia has the largest global truck market, DT's expansion in this region is crucial, particularly considering the company's goal of producing ZE trucks. The Trucks Asia business segment's revenue is again computed using the same four key factors affecting DT's influence in this market. This results in a CAGR for the projected period in the Asian Truck segment of 3.9%. Since the switch to ZE trucks is the most crucial, the MB and DB segment will have the greatest growth in the future. As a result, sales will expand faster (Basma 2022). The financial services business segment, which creates tailored financing solutions for firms and does not contribute to a regional concentration, is the most unique revenue stream in forecasting. By adding the anticipated demand for trucks with the unit sales during the forecast period and adjusting for the interest rate environment, the projection for this revenue stream is put into action as the demand for financing and leasing alternatives rises in an environment with lower interest rates. Therefore, the CAGR for this revenue stream is 2.5% over the anticipated period. All the revenue streams anticipated for the projection year add to total revenue, with a geographic breakdown highlighting developments in each of DTs' several geographic concentrations. With a normalised year FY2027 growth rate of 0.5% (calculated from the average of CAGR 18'-21' and 22'-26'), the projection period's Total

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revenue CAGR is 4.8%. The historical CAGR cannot be compared because the COVID-19 fall in demand for goods and trucks generally affected most of the historical years.

Calculating the costs directly associated with manufacturing the goods or services a business sells is part of forecasting the cost of goods sold (COGS). COGS is a substantial part of an organisation's financial statement and directly affects profitability (Berk and DeMarzo 2020). The COGS forecast is based on % of Sales discounted by the average of the FY2022-2026 CAGRs of the major COGS components for DT: Different Raw materials, Personnel expenses, Energy, etc., to incorporate the developments of the market and macroeconomic developments into the future, particularly in the context of transitioning to ZE-trucks. As on average, the COGS in % of Sales for the historical period 18'-21' was 82.1%, the assumption is made that DT will be able to improve their Revenue-Cost-structure with the plan presented in the prospect and will be able to reduce and then hold a % of Sales level of 80.7% throughout the forecasted period. Based on this supposition, the COGS is projected as a percentage of sales and then adjusted for the significant future-impacting variables. DT manufactures trucks; thus, price changes will directly impact how many trucks are produced. One of the critical variables is the development of the price of raw materials. Steel, aluminium, and rubber are essential for making trucks and buses. When predicting the COGS for the next five years, it is necessary to consider several extra raw materials for electric trucks, including copper, iron ore, lithium (for batteries), and cobalt, which will be significant for the ZE-truck and bus mission. According to Euromonitor's prediction, the price level of standard raw materials will decline over the forecast period due to an average combined CAGR of (5.9%). Other than that, the average combined CAGR of the additional raw materials equals 1.3%, indicating a price level increase, especially for Lithium and Cobalt. The labour costs directly associated with the produced items are another significant factor affecting COGS. To take this factor into account, another variable is considered when developing COGS: the development of personnel costs in the major producing

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countries. Household income growth in the key markets where DT operates and produces the most, whose predictions lead to an average combined CAGR of 3.5% for the forecast period, is a proxy for labour costs. The average CAGR obtained from combining all the factors is (0.4%), utilised to modify the previously determined COGS in % of Sales.

Selling, General and Administrative (SG&A) costs include personnel costs, depreciation, amortisation of fixed and intangible assets, and other administrative expenditures. These costs are unrelated to manufacturing, sales, or research and development (Daimler Truck 2021). The Depreciation and Amortization (D&A) are not included in the SG&A analysis and prediction for a valid forecast and are separately analysed. Since SG&A, in particular, moves in the same direction as Revenue develops, the projection is based on % of Revenue. To account for potential changes, the average growth in household income in Germany, where most administrative staff members are employed, is also considered, along with the average growth rate in the number of marketing, sales, and service department employees. SG&A expenses, therefore, increase with a CAGR of 6.3% for the forecast period. Research and Development (R&D) costs primarily comprise personnel and material costs. Engineers from Germany, Japan, and the United States mainly focus on ZE automobiles, autonomous driving, and further development of existing products. As a result, the estimate is based on developing future personnel expenses in the leading countries where the engineers work, using household income as a proxy, and the increase in R&D staff predicted by DT. A combined CAGR of 8.9% for the anticipated period implies a significant rise in R&D demand, consistent with the fundamental rationale for the spin-off - leadership in the ZE-truck and bus industry.

Additionally, a Patent analysis is done to indicate trends and activities to increase the validity of the R&D forecast. (*see Figure 4 in the Appendix*). The study confirms the developments assumed by the other methodology. Other operating expenses primarily consist of positions that are difficult to anticipate reliably and are thus forecasted using the conventional method,

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utilising % of sales and comparing historically. D&A, previously included in operating expenses, averaged 2.2% of Sales from 18'-21' but was not forecasted using % of Revenue. For the D&A, a detailed historical PPE Schedule is extracted from the annual reports and then split into Depreciation and Amortization and Right of Use assets (RoU). Depreciation is determined from the PPE Schedule as the historical average percentage from the individual positions and applied to the forecast period (Boyko 2019). The Opening Balances and the relevant maintenance and expansion capital expenditures (CapEx) are assessed following the PPE forecast to establish the Depreciation expense after each period. The estimate shows a 41.5% increase in D&A in 2022, owing to the enormous revenue increase and thus high CapEx in this year, but then gradually dropping with (2.2%) in the projected period through 2026, indicating the CapEx reduction plan until 2025. DT intends to maintain a stable EBIT and EBITDA margin while improving till 2025 as part of its cost-cutting strategy. Historically, excluding COVID-19-affected years in which margins must be evaluated independently, the EBIT margin averaged 6.0%, and the EBITDA margin averaged 8.1%. For the forecast period 22'-26', the EBIT margin is expected to average 6.5%, beginning with 6.0% in FY2022 and increasing to 6.6% in the last forecast year FY2026. Over the forecast period, the EBITDA margin is expected to average 9.2%. The non-operating activities are not forecasted, as they mainly consist of positions that can hardly be predicted. Interest Expenses and income are computed by calculating the historical interest income in % of Cash and Cash equivalents (C&CE) and the historical interest expenses in % of debt. The percentages are then expected to remain constant over four years and applied to the predicted values of C&CE and debt from the balance sheet forecast. To ensure a viable projection, the standard corporate tax rate in Germany (30%) was applied and expected to remain constant during the forecast period.

### 4.3.1.2. Balance sheet

For valuation purposes, the Balance sheet is reclassified into *C&CE*, *Operating and Non-*

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*operating Invested Capital, Debt, and Equity.* Operating Invested Capital, therefore, amounts to the sum of net working capital (NWC) items and tangible/intangible assets. For forecasting C&CE in the case of DT, the average C&CE level of the last four historical years is used and quarterly analysed to determine a valid future cash amount. To determine the Operating Cash (as only Excess Cash is needed in the Equity Bridge for the Net Debt calculation), an analysis is conducted, analysing the operating cash levels of the DT's peer group from the last four years. The minimal operating cash threshold is calculated by dividing the C&CE by the revenues of the 13 peers and then assessing the percentage required to operate a firm like DT (1.7% Minimum operating Cash threshold). As for Trade and other receivables, the average collection period of the historical years is calculated ( $\text{Total Receivables}/\text{Revenue} \times 365$ ) and then applied to the forecast period, basically saying that the average days in which DT's receivables will be collected amounts to 112.5 days (Leitch 2011). Similarly, inventories are anticipated by calculating the average holding duration of past inventories and then applying the rate to the forecasted COGS, resulting in an average inventory holding duration of 82.6 days. The average Payable Period is used to predict Trade and other payables, illustrating the link between Revenue and Trade payables in the forecast amounting to 30.9 days. These parts of the cash conversion cycle were projected since they are necessary for the NWC calculation on the balance sheet, which allowed for the computation of NWC. Goodwill, intangible assets, PP&E, and RoU Assets are forecasted on a detailed schedule to identify the key drivers. For the Goodwill and intangible assets, the schedule is split into individual positions, starting with the opening balance as a base and forecasting the additions in intangible assets with the growth rate (3.2%), which is extracted as the combined CAGR of total additions (CapEx) from 18' to 25'. The rest of the intangible assets mainly consist of Goodwill (>30% of intangible assets on average for the historic years 18'-21'), patents, brands, and other trademarks (Daimler Truck 2021). Right of Use (RoU) - Assets contain, as applicable, the following amounts: the amount

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of the first measurement of the lease liability (as defined above), any payments paid to the lessor on or before the lease's commencement date, less any lease incentives received (Association of Chartered Certified Accountants 2016). The RoU assets are forecasted in an asset schedule applying the average growth rate of the PPE and intangible assets to the closing balance of FY2021.

Because there is no detailed information for the forecast on the non-operating components, non-operating invested capital is calculated by subtracting total operating invested capital from net debt and equity and compared to the historical values derived from the annual report. The operating invested capital and the non-operating invested capital equal the total invested capital; nevertheless, only operating invested capital is used to calculate operating ROIC/RONIC and the respective reinvestment rate (RR) (Jennergren 2013). The operating ROIC for the years 18'-27' is calculated by the net operating profit less adjusted taxes (NOPLAT), which comes from the cash flow map and is divided by the operating invested capital. As for the operating RONIC is computed by the change in NOPLAT year-on-year (YoY) divided by the change in operating invested capital YoY. The operating ROIC in FY2019 (6.3%) is close to the average operating ROIC in the forecast period 22'-27' (6.8%), indicating a valid forecast on NOPLAT and operating invested capital, remembering the fact that the development of operating ROIC/RONIC, particularly in the COVID-19 affected years, can hardly be considered respective for forecasting. The RR is then computed with two methods (Method 1:  $(1 - \text{Operating Unlevered Cashflow}/\text{NOPLAT})$ ; Method 2:  $(\Delta \text{ Operating Invested Capital (incl. Other Non-Cash Adjustments)}/\text{NOPLAT})$ ) and is used for computing the terminal growth rate (LTGR). The LTGR will be further explained in part 4.3.2.3.

For the net debt (*debt and debt-like items – excess cash*) forecast, the single line items in the historic years 18'-21' are analysed as % of EV, which resulted from the Adjusted Present Value (APV) valuation method. To get at the Equity Value and, ultimately, the implied share price,

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the net debt, known as the equity bridge, must first be subtracted from the EV (Fernández 2019). The historical average net debt-to-EV ratio is 50%, much higher than the peer group average. Deriving an average target net debt-to-EV ratio from the peer group study, applying it to the terminal year, and predicting the subsequent years by striving for the terminal value target ratio of 29% are the methods used to implement the net debt forecast. The percentage steps are 1% in the first three forecast years, 2% in years four and five, and 3% in the year of the terminal value. Equity is calculated as the difference between total invested capital and net debt for the forecast period and analysed for validity by comparing the forecast values to the historical values, in which the single line items of the equity position are summed up to the total amount.

### 4.3.1.3. Cashflow map

The cash flow statement is reclassified into the primary key line items used when valuing DT. Using historical data and the forecasted periods, the income statement and balance sheet are combined to create the individual cash flows for the core and non-core businesses (Gruca and Rego 2005). However, the non-core business cash flows are not forecasted because neither the non-operating invested capital nor the other comprehensive income is forecasted, as the uncertainty is too high to ensure a valid forecast in these positions. The operating unlevered cashflows<sup>1</sup> (assuming the company is 100% equity financed) are the main output from the cashflow map used for the cashflow-based valuation methods. The net financing profit less adjusted taxes (NFPLAT) is added to the changes in net debt, non-controlling interest, and shareholder equity for the financing cash flow. The flow-to-equity valuation approach also uses the differences in shareholders' equity, which displays the shareholder transactions year over year as a cash flow. The inverse sum of operating- and non-operating cashflows is often used to determine whether the cashflow map is accurate for the anticipated values. Still, the non-operating cashflow uncertainty is too significant in this case to allow for a reliable projection.

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<sup>1</sup> NOPLAT subtracted by Changes in Operating Invested Capital

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### 4.3.2. Cost of Capital

An appropriate discount rate is needed to determine the present value of future cash flows. The commonly accepted metric for this in both practice and literature is the Weighted-Average-Cost-of-Capital (WACC), defined as:

$$WACC = \left( \frac{E}{EV} * Re \right) + \left( \frac{D}{EV} * Rd * (1 - Tc) \right) \quad (1)$$

This rate represents the expected return investors demand based on the company's capital structure, which comprises equity and debt. The two key components are the weighted cost of equity and the weighted cost of debt (Berk and DeMarzo 2020).

$$\text{Weighted Cost of Equity} = \left( \frac{E}{EV} * Re \right) \quad (2)$$

$$\text{Weighted Cost of Debt} = \left( \frac{D}{EV} * Rd * (1 - Tc) \right) \quad (3)$$

Target Equity-to-Enterprise Value (E/EV) and Debt-to-Enterprise Value (D/EV) ratios must be established for these calculations. A target E/EV ratio of 78% is derived from the average Debt-to-Enterprise (D/EV) ratio of 22% observed in the peer group. DT's future capital structure is assumed to align with this average. The sample size consists of 13 values. Because it is not particularly large, it is vital to note that excluding any data point would omit important implications for DT. Using the average as a measure thus offers a comprehensive perspective, adequately capturing the specific risk profiles within the peer group. After a detailed analysis of the equity and debt capital costs for DT, the weighted average cost of capital is 6.81%, assuming a tax burden of 30%.

#### 4.3.2.1. Cost of Equity

The Capital Asset Pricing Model (CAPM) is applied to determine the equity cost, denoted as  $Re$ . Despite known criticisms, the CAPM is a widely used tool in financial practice. Criticism of CAPM mainly arises from assumptions that, strictly speaking, do not correspond to actual conditions and neglect factors such as liquidity, size, and other market imbalances (Stahl 2015).

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Nonetheless, the CAPM provides a valuable framework for estimating the cost of equity, as it relies on readily accessible market data and aligns with a broader understanding of market risks.

$$Re (CAPM) = rf + \beta * (rm - rf) \quad (4)$$

The risk-free return,  $rf$ , is initially used as a starting point for CAPM. This represents the expected return of a risk-free asset, typically represented by short-term government bonds of a stable country. This return serves as the basis since it is the minimum an investor would expect if not taking on additional risk (Berk and DeMarzo 2020). In the case of DT, 10-year German government bonds as of December 10, 2021, are the representative indicator for the risk-free return. Choosing a 10-year term represents a balanced compromise that considers relevance for long-term investments and avoids diminishing liquidity for bonds with terms of 20 years or longer. At this time, the yield of 10-year German government bonds was negative at -0.35% (Daske and Gebhardt 2016). Although this yield reflects the market situation, it is desirable to use a non-negative risk-free yield, as a negative yield does not align with the fundamental financial expectation that money is worth more today than in the future and that investors should expect a positive return for lending their capital (Haksar and Koop 2020). Moreover, the risk-free rate is not expected to stay negative for 10-20 years. To achieve a more realistic assessment, an annual statistical survey conducted by IESE Business School was also considered. This survey, which questioned 1,624 Finance and Economics Professors, Analysts, and Company Managers, revealed that a risk-free return of 0.6% was set for Germany (Fernandez, Bañuls and Acin 2021). Based on market-based data and expert opinions, the risk-free return average is 0.13%. A beta of 1 indicates asset alignment with market fluctuations, providing a balanced basis for DT evaluation. A beta greater than 1 indicates higher volatility than the market, while a beta less than 1 signifies lower volatility (Berk and DeMarzo 2020). This study uses the peer group average as of December 10, 2021, for the beta analysis. Specifically, the levered beta calculated by Bloomberg is used. Bloomberg calculates the beta factor through regression of

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the weekly prices for the stock and the index. The comparison index used for this beta analysis is the MSCI World Index in EUR. The default timeframe for this analysis is two years, but it can be adjusted to individual needs. In this case, the study chooses three years. This decision is based on the idea that three years represent a sufficient period to adequately reflect economic fluctuations and company-specific features without excessive influence from short-term market disruptions. In addition to the raw beta, Bloomberg reports the Adjusted beta, representing an estimate of a security's future Beta.

$$\text{Adjusted Beta} = 0.6 x * \text{Raw Beta} + 0.33 \quad (5)$$

Here, it is assumed that a security's beta approaches the market average over time (Merchant 2023). However, since this study examines the beta factor in the context of DT, it is necessary to eliminate the capital structure from the levered beta. The levered beta takes a company's debt into account. In this case, it is necessary to calculate the unlevered beta (debt-free beta) for the peer companies (Berk and DeMarzo 2020). The average of these unlevered beta factors forms the basis for this analysis. This unlevered beta is 0.74. To determine the beta relevant to DT, this study finally re-levered the previously calculated unlevered beta with the specific capital structure and associated risks of DT. This results in a final beta of 0.89 for DT. Then, there is the Market Risk Premium (MRP), representing the additional return that investors expect for undertaking average market risk. This premium is calculated as the difference between the expected return of the market, called  $r_m$ , and the risk-free return,  $r_f$  (Berk and DeMarzo 2020). In valuing DT, it is vital to identify an appropriate Market Risk Premium (MRP) that considers the specific characteristics and risks of the company. For this purpose, this thesis uses the MSCI World Index as a representative indicator for market returns. The MSCI World Index is a widely used benchmark for global stock markets, representing various companies from developed countries. It serves as a barometer for global stock market performance and includes more than 1,500 companies, which cover 85% of the free float-adjusted market capitalisation in each

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country (Morgan Stanley Capital International 2023). Since DT is an internationally active company, the MSCI World Index reflects the diversified and global market conditions relevant to the company. Since DT's business activities are significantly linked to the Eurozone, and the company reports in EUR, it was crucial to specify the MSCI World Index in EUR. Using returns in EUR ensures that currency fluctuations and potential exchange rate risks are included in the analysis. Analysis in another currency could have led to distortions that were not in line with DT's actual operational risks and opportunities. The selected period of 18 years (2003-2021) for the analysis of market returns was determined based on the availability of the time series in EUR. Although a longer time series would have been desirable, the 18-year horizon provides a sufficient basis to recognise long-term trends and cyclical factors in the global stock market. The annual return of the MSCI World Index for the period was 9.36%. The market risk premium is obtained after deducting the risk-free return of 0.13%. This premium reflects the additional return an investor would expect to take the risk of investing in the global stock market compared to a risk-free asset (Berk and DeMarzo 2020). It represents a key parameter in the CAPM model and significantly contributes to determining DT's cost of equity. According to the application of the CAPM to determine the cost of equity for DT, the calculated capital cost amounts to 8.33%. This value reflects the expected return that equity holders demand for their investment in the company.

### 4.3.2.2 Cost of Debt

Calculating the cost of debt ( $R_d$ ), especially in the context of a multinational company like DT, is a complex process that does not allow for a uniform approach. Instead, it is necessary to determine individual costs of debt through approximation. In this sense, four methods are used to provide a specific estimate for DT's cost of debt. The first method considers the bonds issued by DT, with the three bonds having the most extended maturities (10, 7, and 5 years) selected. An average of these bonds' Yield to Maturity (YTM) is used as it reflects the total returns an

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investor would expect if he held the bond until maturity. However, since this number does not fully capture the risks, it must be corrected for the Estimated Loss Given Default for the Credit Rating of BBB+. As the bonds were issued in USD, and DT reports in EUR, there is a specific currency risk (Berk and DeMarzo 2020). The theory of Interest Rate Parity (IRP) accounts for this risk. In this context, the forward rate should be equivalent to the spot rate multiplied by the interest rate of the home country and divided by the interest rate of the foreign country, assuming the conditions for the application of IRP are met (Berk and DeMarzo 2020). A premium or discount can now be derived from comparing the EUR forward rate with the EUR spot rate. The cost of debt for this method is 2.65%. The second method relies on the Corporate Yield Curve in the industrial sector. This curve shows the relationship between the yields of various companies' bonds within the industry and their maturity. Analysing this curve offers insight into the average cost of debt for companies with characteristics comparable to DT (Díaz and Skinner 2001). A maturity of 10 years was selected as representative for the spin-off valuation of DT, resulting in a cost of debt of 1.77%. The third method is like the CAPM but uses a Debt Beta of 0.1 instead of an Equity Beta. This Debt Beta is aligned with the respective credit rating, and considering the other CAPM components results in a cost of debt of 1.05% for DT (Berk and DeMarzo 2020). The fourth method examines the effective interest payments on debt from 2018 to 2021 and relates them to long-term debts. The result is a cost of debt of 0.86%. Together, these four methods offer a comprehensive overview and yield an average cost of debt of 1.6% for DT. By considering various factors and approaches, this analysis provides a robust estimate of the cost of debt tailored to DTs' specific characteristics.

### 4.3.2.3 Long-term growth rate

The Long-Term Growth Rate (LTGR) is a critical component in corporate valuation, especially in the Discounted Cash Flow (DCF) and Economic Value Added (EVA) methodologies. For the valuation of DT, two different approaches to determining the LTGR are employed,

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considering both firm-specific and macroeconomic factors. The first method is based on the Operating Return on Invested Capital (Operating ROIC) and the Reinvestment Rate (RR). The formula is defined as:

$$g = ROIC * RR \quad (6)$$

ROIC is a performance indicator measuring a company's profitability relative to the capital invested. ROIC is calculated as the Net Operating Profit Less Adjusted Taxes (NOPLAT) at time  $t$  divided by the Operating Invested Capital at time  $t-1$ .

$$ROIC = \frac{NOPLAT_t}{Operating\ Invested\ Capital_{t-1}} \quad (7)$$

The other factor in the formula, RR (Reinvestment Rate), describes the retention rate, the proportion of net profit that is not distributed as dividends but is reinvested in the company.

$$RR = \frac{NOPLAT_t}{\Delta Operating\ Invested\ Capital_t} \quad (8)$$

The multiplication of these two factors yields an LTGR of 2.0%. This method is highly firm-specific and aims to quantify the internal growth potential of the company (Berk and DeMarzo 2020). The second method incorporates broader macroeconomic factors and calculates the LTGR based on the average GDP growth in various key markets. Anticipated growth rates for the USA (2.1%), Asia (4.7%), EU30 (1.8%), and Latin America (2.6%) were considered, resulting in an average nominal GDP growth of 2.8%. In addition, the expected long-term inflation rate for the European Union of 1.7% was included, leading to a nominal Terminal Value Growth Rate of 4.5%. Averaging these two approaches results in a blended LTGR of 3.3%. This methodology allows for a balanced perspective incorporating firm-specific factors and general market conditions, making the corporate valuation more robust and accurate.

### 4.3.3. Cash Flow-based valuation methods

Cash flow-based valuation is widely used for valuing a company based on projected future cash flows. These approaches analyse the company's ability to generate and make available to capital holders, like investment or financing projects. Standard methods include Discounted Cash Flow

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(DCF), Adjusted Present Value (APV), Flow-to-Equity (FTE), and Economic Value Added (EVA). These methods help justify a company's current value by focusing on the firm's future performance for the next 5-10 years (Steiger 2010).

### 4.3.3.1. Discounted Cash Flow Approach

The DCF valuation methodology is widely used to value businesses with steady cash flows, typically assuming 100% equity financing. This valuation uses two DCF methodologies: the Exit Multiple approach and the terminal value growth method of the Gordon-Growth model. The Cash Flow Map's Unlevered Free Cash Flow to the Firm is used as a starting point, adjusted with statistical error, and discounted with the Weighted Average Cost of Capital (WACC) to derive Operating EV at year-end and EV at valuation date (Berk and DeMarzo 2020). The resulting EV from the DCF Perpetuity Growth method (EUR 41,515 million) is then subtracted by the calculated net debt from the balance sheet forecast (EUR 15,761 million) and the non-controlling interest (EUR 503 million) in order to get to the equity value of DT (EUR 25,251 million), which is finally needed to derive the share price from this valuation method, by dividing the equity value by the number of shares outstanding (implied share price: EUR 30.7). For the Exit Multiple Approach, which brings into consideration the market environment by considering a multiple, the forecasted EBIT is taken into consideration, as this is a crucial key performance indicator (KPI) in the heavy- and medium-duty-Truck market (Daimler Truck 2021). To derive the EV, the terminal year forecasted EBIT 27' is multiplied by the median peer group EBIT multiple, derived from the Comparable Company Analysis (CCA) and then discounted with the WACC. The sum of the present value of the unlevered free cash flows to the firm is then added to arrive at the EV (EUR 47,954 million) and finally at the implied share price (EUR 38.5) after subtracting the equity bridge.

### 4.3.3.2. Adjusted Present Value Approach

The APV method considers the value of a leveraged firm to be the same as the value of the

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same firm if it were wholly financed with equity plus the discounted value of the interest tax shielding from the debt its assets will support (Inselbag and Kaufold 1997). It might help an investor understand the benefits of tax breaks from interest payments or a subsidised loan at below-market rates. Leveraged buyouts are the most effective for applying the adjusted present value methodology. Unlike the DCF Valuation approach, the Unlevered Cash Flows in the APV method are not discounted by the WACC but with the Unlevered Cost of Equity to emphasise the effects of financing. As for DT, the future net debt is assumed to be determined by its EV. Therefore, interest tax shelters are also discounted using the unlevered cost of equity. The EV derived from this valuation method amounts to EUR 38,796 million, which implies a share price of EUR 27.4 after subtracting the Equity Bridge and dividing it by the number of shares.

### 4.3.3.3. Flow-To-Equity (FTE) approach

For the FTE approach, the Equity Cash Flows are derived from the Cash Flow Map by calculating the  $\Delta$  Shareholders' Equity (Transactions w/ Shareholders) YoY, which comes from the forecasted Equity in the Balance sheet. The Equity Cash Flows are then discounted by the Levered Cost of Equity to directly arrive at the implied Equity Value (EUR 23,282 million), which implies a share price of EUR 28.3 from this approach (Borgonovo and Peccati 2004).

### 4.3.3.4. Economic Value Added (EVA) Approach

The EVA approach uses the variables ROIC and RONIC, which were previously explained in detail (Chapter Balance Sheet Forecast). It calculates the annual economic profit as the product of the amount of ROIC exceeding the WACC and the invested capital from the prior year. The amount of initial invested capital must be added to the anticipated yearly economic profit to arrive at the EV (EUR 35,867 million) and the implied share price (EUR 23.8).

### 4.3.3.5. Sensitivity analysis

The sensitivity analysis is used for the cash flow-based valuation methods to build an upper and lower bound for the valuation output. Different parameters are used for the different valuation

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methods, as not every parameter is essential for every valuation method. Three sensitivity tables are created for the APV and DCF Perpetuity approach to incorporate the most essential parameters into the upper and lower bound creation. For both approaches, the tables consist of 1) Market Risk Premium ( $\pm 0.4\%$ ) vs Risk-free rate ( $\pm 0.4\%$ ), 2) Terminal Growth Rate ( $\pm 0.5\%$ ) vs Unlevered Cost of Equity ( $\pm 0.5\%$ ), 3) Loss Given Default ( $\pm 1.5\%$ ) vs Probability of Default ( $\pm 1\%$ ). The corresponding upper bound is then derived by taking the optimistic values from the sensitivity tables and averaging them, and the same is applied to the pessimistic values. For the FTE bounds, there are changing parameters for the three different sensitivity tables, namely 1) Target Net Debt (% of Equity) ( $\pm 1\%$ ) vs Risk-free rate ( $\pm 0.4\%$ ), 2) Terminal Growth Rate ( $\pm 0.5\%$ ) vs Levered Cost of Equity ( $\pm 0.5\%$ ) 3) Loss Given Default ( $\pm 1.5\%$ ) vs Probability of Default ( $\pm 1\%$ ). Different to the FTE sensitivities, the EVA bounds are built on 1) Terminal Growth Rate ( $\pm 0.5\%$ ) vs Unlevered Cost of Equity ( $\pm 0.5\%$ ), 2) Loss Given Default ( $\pm 1.5\%$ ) vs Probability of Default ( $\pm 1\%$ ) and 3) Unlevered Beta ( $\pm 0.01$ ) vs Risk-free rate ( $\pm 0.4\%$ ). The use of various parameters varies because different parameters have varying degrees of sensitivity to the valuation for various valuation methodologies.

### 4.3.4. Multiple-based valuation methods

The valuation of an EV is often achieved using multiples, as reported cashflow is considered the best proxy for future cashflows and is less subject to management manipulation (Liu, Nissim and Thomas 2002). For DT's implied share price, the chosen multiples are EV/Revenue, EV/EBIT, and EV/EBITDA, as depreciation effects often influence valuation outcomes, EBIT best represent DT's performance and suits as the leading indicator for valuation purposes (Daimler AG 2021b).

#### 4.3.4.1. Comparable company analysis (CCA)

The valuation approach using trading multiples from comparable companies measures the value of DT based on the market prices of peer group companies and, in difference to the Cash Flow-

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based valuation methods, does not calculate the intrinsic value of the company but rather the value of the company on the market (A. Damodaran 2007). As a result, assessing private companies using a relative valuation based on multiples of listed counterparts is useful. Theoretically, businesses with comparable performance that operate in the same sector should be valued with the same multiple (Berk and DeMarzo 2020). Therefore, one must choose between several different types of multiples that can be used to assess the value of DT. The three fundamental multiples evaluated inside the CCA valuation of DT are EV/Revenue, EV/EBIT, and EV/EBITDA. These three multiples are the three most frequently used for valuation and depend on the earnings (Lie and Lie 2002). The CCA analysis has three prominent geographic segmentations to account for the various market effects on the companies' trading multiples in various locations. To create a more reliable benchmarking strategy, all peers were classified into one of these groups: North America, Asia, or Europe. Comparable numbers for DT could be produced by computing the mean and median on each geographic segment basis, as well as a whole, as the peers were benchmarked against many margin and profitability metrics, such as EBIT margin in % and Gross margin %. Multiples can be computed using historical, present, or anticipated values. According to most of the research, forward-looking multiples (NTM) are preferable and produce more precise estimates of company value, but only when valuing companies subject to volatile and extreme growth rates, as seen in the tech sector. For DT, this is not the case as they are a producing company with stable and constantly growing cash flows (excluding COVID-19 effects)- Therefore, the multiples that the CCA valuation is based on are Last-Twelve-Months multiples (LTM), basically taking the financials of the Last-Twelve-Months and generating the multiple. Although the NTM multiples always trade lower than the LTM multiples, as future growth is implied and the denominator is, therefore, more significant than for the LTM multiples, implying a lower multiple, the NTM multiples were also considered in the CCA analysis and calculated for comparison aspects for completeness.

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Because equity multiples, such as the Price/Earnings multiple, have issues incorporating different accounting policies (Alford 1992). The fact that the analysis includes three different geographical segments in the CCA analysis is a reason for not using it, as it may produce very invalid results due to the strong diversification in peer-group heritage. As a result, EV multiples have the advantage of ignoring capital structure, which facilitates comparisons between companies with different leverage levels. Unlike equity multiples with equity value metrics in the numerator, EV multiples include net debt and an operational metric before debt repayments, such as EBIT or EBITDA. EBITDA is a measure that is difficult to interpret in the automotive industry, however, because various businesses utilise different depreciation schedules and might thus have EBITs that are considerably lower or much higher. After extracting the trading multiples for the chosen financial metrics for every peer, a geographical average and median to show the different geographical effects on the total median multiple are calculated. Here, one can see that the North American and Asian peers trade the highest (Median EBIT multiple LTM of 20.50x and 21.07x), while the European pendant trades the lowest with a median EBIT multiple LTM of 14.40x. This is mainly attributable to the two segments' faster economic growth than the expansion of the European market. This is mainly attributable to the two nations' faster economic growth than the expansion of the European market. For the final valuation, the average of every multiple from the three geographic segments was used to arrive at the EV by calculating the *financial metric LTM \* the corresponding multiple* (e.g. *EBITDA LTM \* EBITDA Multiple LTM*). Therefore, the study arrives at three different EVs from the computation implying three different share prices: 1) EV/Revenue implies EUR 35.5; 2) EV/EBITDA implies EUR 24.8; 3) EV/EBIT implies EUR 28.7. As can be seen, the EV/EBIT computation comes the closest to meeting the objective of EUR 28, which is consistent with the anticipation that EBIT will be the most beneficial financial parameter for valuing DT. The 33rd and 66th percentiles of the 13 comparable company multiples were taken to create the

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lower and upper bound of the CCA, meaning the optimistic- and pessimistic scenarios.

### **4.3.4.2. Comparable transaction analysis (CTA)**

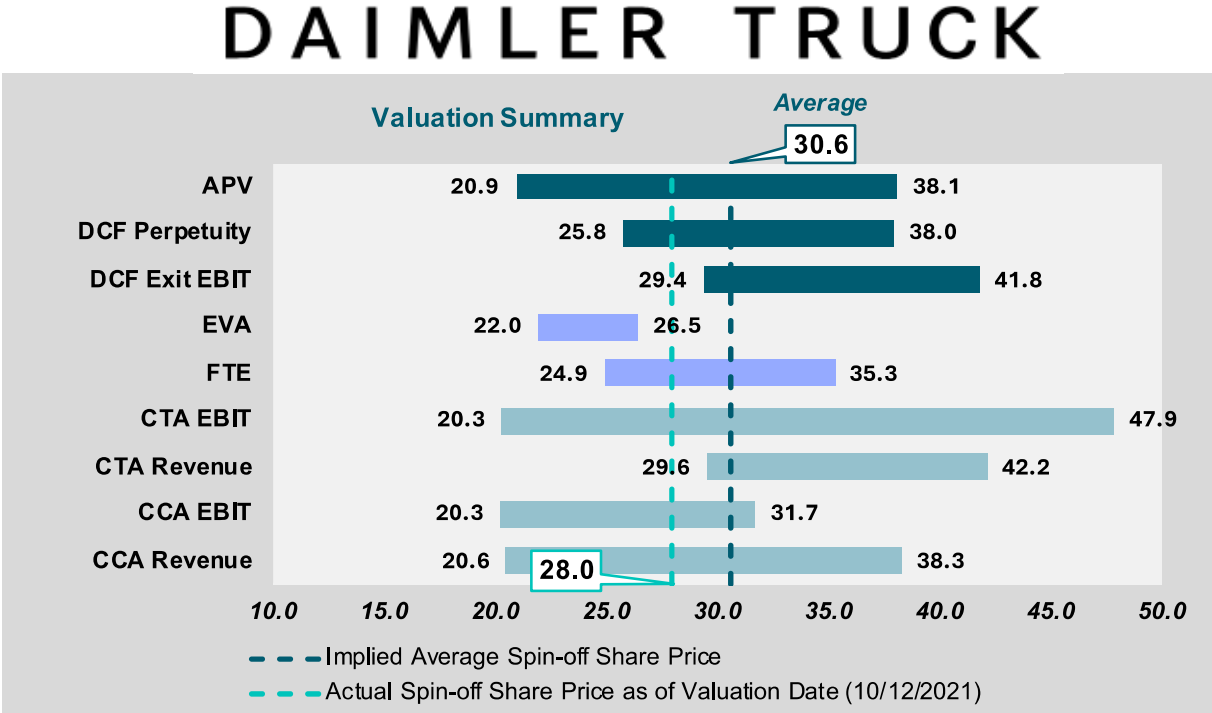
Precedent transaction analysis ("precedent transactions" or "precedents") uses a multiples-based methodology to determine an inferred value range for a particular firm, division, or group of assets ("target"). It is based on multiples paid in recent M&A deals for comparable firms. A firm, or a portion of it, may be sold for various prices in an M&A, capital markets, or restructuring transaction. This is only one of the many uses for precedent transactions (Rosenbaum and Pearl 2021). The multiples derived from the CTA are usually higher than the trading comps, as the multiples are based on actual transactions, and acquirers often pay a very high premium when overtaking the company (Kaplan and Ruback 1995). The CTA includes five precedent transactions, benchmarked companies, and geographical segments like German, Swedish, US, and Chinese, incorporating DT's operations. All companies manufacture trucks, buses, or other commercial vehicles, such as forklifts and construction machinery. Given that both businesses compete in the same markets as DT, the Navistar International Corp. and the Man SE deal are the most legitimate in this CTA. The median multiples that were computed using the CTA implied share prices of EUR 34.5 (Median EV/Revenue multiple of 1.20x), EUR 20.4 (Median EV/EBITDA multiple of 11.33x) and EUR 28.4 (Median EBIT multiple of 19.70x). The median was utilised in this instance since it makes more sense for a legitimate value because five transactions were selected for the CTA. It can be observed that the share prices of CTA EBIT and CCA EBIT are >1% distant from one another and from the target price of EUR 28, which is again in line with the assumption of EBIT being the best fit for DT's valuation.

## **5. Conclusion**

The output of this work is summarised using a football field chart, a common way for displaying the outcomes of several valuation methodologies and their averages about the real aim. This

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summary graphic shows valuation outcomes for CTA and CCA and intrinsic value methodologies, including DCF, APV, EVA, and FTE.



*Figure 1: Valuation Output – Implied Share prices per valuation method (in Euro)*

The CTA and CCA produce a broader disparity in the lower and upper bounds (ranging from a minimum of EUR 20.3 to a maximum of EUR 47.9 per share). The Cash Flow based methodologies agree, with EVA being the sole negative outlier (Average Cash Flow based valuation share price of EUR 29.7). The final valuation for DT, calculated by averaging the best estimations from all available valuation techniques, is EUR 30.6. The average approach for the valuation output is more valid than the median because the best estimates in the valuation output are primarily uniform and in line with our expectation of the final share price in the event of the corporate spin-off. The median of all best estimates equals EUR 28.7 and is, therefore, also in line with actual and implied average spin-off share prices.

### **1. Introduction**

This individual work aims to assess and empirically analyse value creation for parent companies and respective shareholders through corporate spin-offs in a short-term and long-term objection. The scope of this work is specified on European and North American (Developed economies) corporate spin-offs completed in the last 15 years (2008-2023) with > 1 billion USD issuance value to ensure comparability in size. Parent companies not publicly traded at the issuance were excluded from the analysis, as stock returns and share price development cannot be analysed and appropriately determined before the issuance. Another purpose of this work is to assess the relationship between different financial, growth, profitability and company size parameters in a regression analysis, concentrating on evaluating the indicators' effect on the return within an event period. Corporate spin-offs have emerged as a powerful instrument for unlocking untapped potential and increasing shareholder value in the shifting landscape of corporate strategy and finance (Tübke 2004). These complex transactions include separating various business units or subsidiaries from their parent company and forming autonomous, self-contained enterprises (Gertner 2002). Such spin-offs are motivated by various factors, ranging from the desire to streamline operations and focus on core skills to capitalising on unexplored market prospects (Veld and Veld-Merkoulova 2004). This empirical analysis sets out on a riveting journey to uncover the fundamental ramifications of corporate spin-offs on parent company profitability. Understanding the wealth creation potential of spin-offs becomes increasingly important as shareholders, executives, and analysts cope with the intricacies of corporate reorganisation (Tübke 2004).

### **2. Literature review**

Understanding corporate spin-offs begins with analysing the motives that motivate corporations to engage in such complex operations (Chai 2018). Several significant factors are identified by scholars, including the desire to uncover latent value inside the parent firm, improve operational

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emphasis on core capabilities, improve management incentives, and optimise capital allocation (S. N. Kaplan 1992). These incentives are critical to understanding why companies choose spin-offs as a strategic decision. Corporate spin-offs' actual value generation potential is a crucial question in the domain of such transactions. Spin-offs can result in considerable positive abnormal returns for both parent businesses and newly formed entities, according to several researchers (T. J. Chemmanur 2014). This shows that the market views business separation as a value-enhancing approach. Scholars have investigated many elements that influence the results of spin-offs to delve deeper into the empirical examination of parent company returns. These determinants include industry dynamics, parent-subsidary size, the degree of information asymmetry, and the post-spin-off ownership structure (Patro 2008). For example, studies stressed the importance of these factors in influencing parent company profits through effects like tax structure improvements and other performance-improving factors (Parhankangas 2003).

### **3. Research question**

This primary area of research aims to determine the tangible effects of corporate spin-offs on parent businesses. Whether the choice to spin off business units results in significant improvements in financial metrics for the parent firms, such as higher profitability, improved stock price performance, and total shareholder returns, is the central question touched upon in this work. Looking into the aspects that affect the outcomes for parent firms following a spin-off, in addition to the overarching impact.

### **4. Data collection**

The sample for this empirical analysis is drawn from a specific subset of corporate spin-offs. The issuance value of the selected company spin-offs exceeds 1 billion USD. This criterion focuses on significant spin-off transactions that impact parent company returns. The sample consists of the 93 qualifying corporate spin-offs between 2008 and 2023, incorporating the most

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recent and the ones still under the influence of the financial crisis aftermath to generate the highest possible validity in the analysis. Spin-offs in which the parent company is not publicly traded at the time of the spin-off, as well as the ones that did not fit criteria such as 1) The subsidiary was publicly traded before the spin-off announcement, 2) Not part of European or North American area 3) No possibility of data extraction or 4) Private companies and 5) Partial spin-offs were excluded, as the analysis could not have been undertaken in the scope that is needed for a valid and streamlined analysis as well as 6) Outliers were excluded in the regression analysis (71 qualifying spin-offs remaining), as the regression analysis concentrates only on the event study period (short-term effects). Furthermore, historical stock data for return calculation and regression analysis are extracted in Excel by plugging in formulas that receive the stock data from FactSet. For the Equity Beta calculation, historical data for the MSCI World Index is derived from the MSCI database online. For commercial due diligence in acquiring the respective data of the analysed parent companies, market data is sourced from several market analysis platforms such as MarketLine, Euromonitor, Bloomberg and Newspaper articles (NY Times, The Guardian, The Economist, etc.). Generally speaking, the announcement date of the spin-off might be understood as one of three important dates:

- Press date: The day the spin-off is first mentioned in the media
- Date of board confirmation and term announcement is referred to as the "confirmation date"
- The date that shareholders approved the transaction

The primary goal of this study is to document the early market response to the spin-off news. Therefore, the announcement date is the press date (Krishnaswami 1999). To effectively depict the effect of the announcement, each observation is independently verified by comparing news reports, tax authority data and deal databanks such as MergerMarket, as the announcement date is one of the most crucial factors in the analysis of stock return development (Gertner 2002).

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Therefore, the announcement dates, sourced initially from CapitalIQ, are verified with the several other methods explained before to ensure the validity (T. J. Chemmanur 2004). It should be emphasised that each observation's circumstances are unique; therefore, the effect on the share price following disclosure will unavoidably vary. Some businesses offer much information, starting with restructuring concepts that later develop into various spin-off tactics. When declaring their initial spin-off, some businesses are more precise. Additionally, businesses occasionally release additional news simultaneously, which skews the impact of the announcement (Allen 2001).

### **5. Parent company abnormal return analysis**

The thorough evaluation of parent company abnormal returns is a complex, data-driven endeavour that necessitates a rigorous approach to understanding the complex financial market patterns (Hite 1983). To provide a thorough knowledge of parent company stock performance in the context of key corporate events, this analysis is rigorously undertaken, following best practices and employing cutting-edge analytical methods. The evaluation of aberrant returns followed a meticulous technique. This included estimating expected returns, frequently taken from market indices or suitable benchmark equities to give a basis for comparison. Abnormal returns were defined as differences between actual and predicted returns, which showed how the market responded to the event specifically rather than just generally. Therefore, the methodology of the event study (Returns ten days before and after the announcement of corporate spin-off) is executed by calculating the expected returns of the parent companies according to standard market conditions and implementing “normalised” macroeconomic conditions. The expected returns are then used to compare in the event-study and are calculated as follows:

$$E(R_i, t) = \alpha_i + \beta_i(R_{mkt}, t) + \epsilon_i \quad (1)$$

where  $\alpha_i$  and  $\beta_i$  are the least squares estimates of the intercept and slope for every single

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Company  $i$ , as determined by regressing stock returns on the corresponding market returns for the estimation period.  $R_{mkt}$  stands for the MSCI World Index return over the time frame under discussion. The MSCI Europe serves as a proxy for the market portfolio when analysing European spin-offs because it more accurately represents the alternative investment possibilities of the European investor.  $I_{i,t}$  stands for the error term related to each observation. The abnormal return is then calculated as follows:

$$\Delta R_{i,t} = R_{i,t} - E(R_{i,t}) \quad (2)$$

$R_{i,t}$  stands for the realised return in period  $t$  and  $\Delta R_{i,t}$  stands for the abnormal return in period  $t$ . The event research aims to ascertain whether a change in wealth is correlated with a typical spin-off. An average abnormal return that covers the whole sample period is computed for each day of the event window. Cross-sectional aggregation is the process in question. This approach isolates the impact of the spin-off announcement and lessens the likelihood that changes in the prices of certain equities will impact the outcomes. One may find the average abnormal return for period  $t$  from:

$$AAR_t = 1/N \sum \Delta R_{i,t} \quad (3)$$

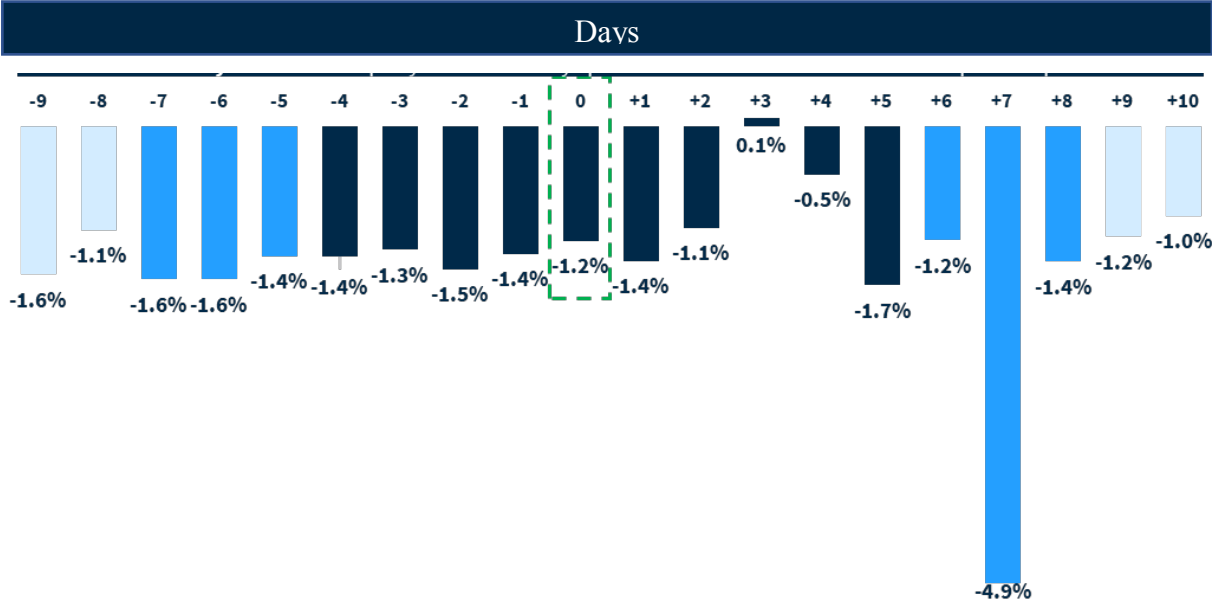
$AAR_{i,t}$  stands for the average abnormal return. Also, taking into account the time-series effect and measure the overall impact of the spin-off over the entire event window in addition to cross-sectional aggregation. Therefore, the average abnormal returns over the event window are added to determine the cumulative average abnormal return (CAAR):

$$CAAR_t = \sum AAR \quad (4)$$

Most observed days before and after the announcement show a negative abnormal return, with seven days after the initial announcement being the most significant, with a negative average abnormal return of -4.9% for the observed number of corporate spin-offs.

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Therefore, the results can be represented as follows:



The result of this short-term event study assumes that, on average, a corporate spin-off will destroy value in the period of 10 days prior to and after the announcement of the event. The on-average negative effect of the spin-off announcement on parent company returns is emphasised in the ten days after the announcement, as the average of the abnormal returns in the ten days after the announcement amounts to -1.4% in comparison to the average abnormal return in the ten days before the announcement day of -1.3%. As cumulated throughout the event study, corporate spin-offs destroy 28.5% of shareholder value. In comparison, over 50% of the value is destroyed after the announcement, implying a late reaction in line with the efficient market hypothesis.

In order to sufficiently explain the correlation between the spin-off announcement and the parent companies' stock returns, only a short-term observation can be used to determine the relationship between these two variables. Therefore, the parent companies' stock returns in the next 3,6 and 12 months were analysed to see the long-term effect of the corporate spin-off sufficiently. The outcomes of a corporate spin-off frequently show an intriguing dynamic in generating shareholder value. It becomes clear that the most substantial effects are felt in the

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medium to long term after the initial 3-month period following the spin-off, during which the parent company's shares only returned a paltry -2.9% in stock return.

The parent company's stocks experienced a substantial decline of -11.9% over the next six months, indicating that shareholders will gain from the intrinsic value previously buried within the conglomerate structure as the market gets used to the newly divided businesses. However, it is not directly shown in the share price development. The performance can be seen after a year when the parent company's stock continues to average a highly negative return of -31.8%. This steady decline in share price indicates that the value creation brought about by the spin-off is not just a passing fad but rather is a long-term trend that cannot be directly seen in the share price development, as the spun-off companies' financials are missing in the parent companies' financial statements and therefore a decline in share price is obvious. As a result, the parent company's shareholders who own shares in the business units are ultimately rewarded, especially those with substantial ownership in their spun-off companies, as the public subsidiaries tend to generate high stock returns. This underlines the appropriateness of the strategic choice to split off the business units and allow them to succeed on their own (Semadeni 2011). These findings emphasise the hypothesis that corporate spin-offs frequently result in long-term wealth creation for the parent company, only under the circumstance that the parent company holds substantial ownership in the spun-off company, as the newly emancipated companies establish themselves and perform better in the post-spin-off environment (Sapienza 2004). This can be viewed as a tactical choice that increases shareholder value by allowing them to benefit from both the parent and spin-off companies' performance.

## **6. Regression output analysis**

The dependent variable in this multiple regression model is the cumulative abnormal return (CAR) over the event period. The independent variables are scaled by the number of employees of the parent companies to generate comparability, meaning that Revenue refers to Revenue per

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Employee, EBITDA refers to EBITDA per Employee, and Issuance Value refers to Issuance Value per Employee. The R-squared of the regression model is 0.6841 (68.41%), and the adjusted R-squared equals 0.5085 (50.85%), indicating a statistically significant regression. The F-value is 3.9 with a Prob > F of 0.000, strengthening the validity of the regression model being statistically significant.

Initiation of corporate spin-off Interpretation of Regression Results:

### ***Hypothesis 1: Year's Influence on Returns***

The coefficient for Year is 0.042, with a p-value of 0.054. This implies that a one-unit increase in Year correlates with a 0.042-unit increase in Returns. However, the p-value exceeds the significance level of 0.05, although only slightly, preventing us from rejecting the null hypothesis that Year does affect Returns. Therefore, every single year from the observation sample is checked as a dummy variable, with several years being significant on the 95% and even the 99% confidence level - e.g. the most significant:

- 2017-2021 (variable year\_9-13): For these years, the p-value of the variable is <0.001, indicating that the null hypothesis can be rejected on the 99% confidence interval. The coefficients for the years can be interpreted as valid measures for the change of abnormal return if the year of the spin-off issuance is the same.

### ***Hypothesis 2: Revenue's Impact on Returns***

The coefficient for Revenue is 0.167, with a p-value of 0.495. This indicates that a one-unit increase in Revenue is associated with an increase in Returns. However, the p-value is greater than 0.05, leading us to retain the null hypothesis that Revenue does not affect Returns significantly and cannot be rejected.

### ***Hypothesis 3: EBITDA's Effect on Returns***

The coefficient for EBITDA is -1.826, with a p-value of 0.021. A one-unit increase in EBITDA per employee is linked to a high decrease in Returns. As the p-value is <0.05, the null hypothesis

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can be rejected on the 95% confidence level, and the coefficient can, therefore, be interpreted as statistically significant, meaning that an increase in EBITDA (profitability measure of the parent company) is likely negatively correlated with abnormal returns in the short-term objection of a corporate spin-off.

### ***Hypothesis 4: Issuance Value's Relationship with Returns***

The coefficient for Issuance is 0.655, with a p-value of 0.001. A one-unit increase in Issuance is associated with an increase in Returns. As the p-value is  $<0.01$ , the null hypothesis can be rejected on the 99% confidence level, and the coefficient can be interpreted as statistically significant.

### ***Hypothesis 5: Different countries have a positive influence on Returns:***

For five countries, a statistically significant influence on the abnormal returns of parent companies in the event study period is found; therefore, the null hypothesis for the four countries (United States, Canada, UK and Germany) can be rejected at the 95% confidence interval and the coefficients of the dummy variables interpreted as statistically significant. All four countries are negatively correlated with the returns, although only slightly.

## **7. Evaluation Summary**

Several important revelations come from examining corporate spin-offs and their effects on parent companies and shareholders. The study reveals a recurring pattern of negative abnormal returns over the short term, more notably over the ten days that follow the announcement of these complicated corporate events. Corporate spin-offs typically result in a significant decline in shareholder value over this relatively short period following the announcement. However, the cumulative effect seen across the event study period is most noteworthy. While it may be tempting to conclude that these spin-offs immediately destroy value, the statistics paint a more complex picture. Throughout the event study period, company spin-offs caused a significant - 28.5% decline in shareholder value on average. The fact that more than 50% of this value

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degradation occurs immediately after the announcement, indicating a delayed market reaction, is what stands out in this case. This phenomenon supports the tenets of the efficient market theory. It indicates that it can take some time for markets to consider and reflect on a spin-off's ramifications thoroughly. However, the real significance of the discoveries goes beyond their short-term, direct effects. The analysis emphasises that corporate spin-offs' most significant consequences are felt in the medium to long term. The stocks of the parent firm have strongly declined in the six months after the spin-off. As there are two separate entities, the decline can be explained as the spun-off companies' financials and profits were incorporated into the parent's financial statements. Only those still holding majority ownership in the spun-off subsidiary can profit from several variables, including greater focus, simpler operations, and resource allocation within the newly divided company, that are responsible for the increase in value.

Overall, this study presents a lively image of corporate spin-offs. While they may initially cause short-term market volatility and value degradation, their total value eventually becomes apparent. By enabling both the parent and spin-off companies to develop independently, corporate spin-offs can unlock latent value and increase shareholder wealth when carried out with foresight and accuracy. The strategic soundness of splitting off company units and giving them a chance to succeed on their terms is demonstrated by this, which will ultimately benefit shareholders who have shares in both the parent and spin-off firm and do not intend to view the corporate spin-off as an adverse event, selling off their shares in a volatile period of the stock performance. Spun-off subsidiaries ultimately generate value in the most common cases. They can be a good opportunity rather than a threat to existing shareholders and other investors in a parent company.

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Appendix Group Part

Figure 2: Prior spin-off group structure (Daimler AG 2021b)

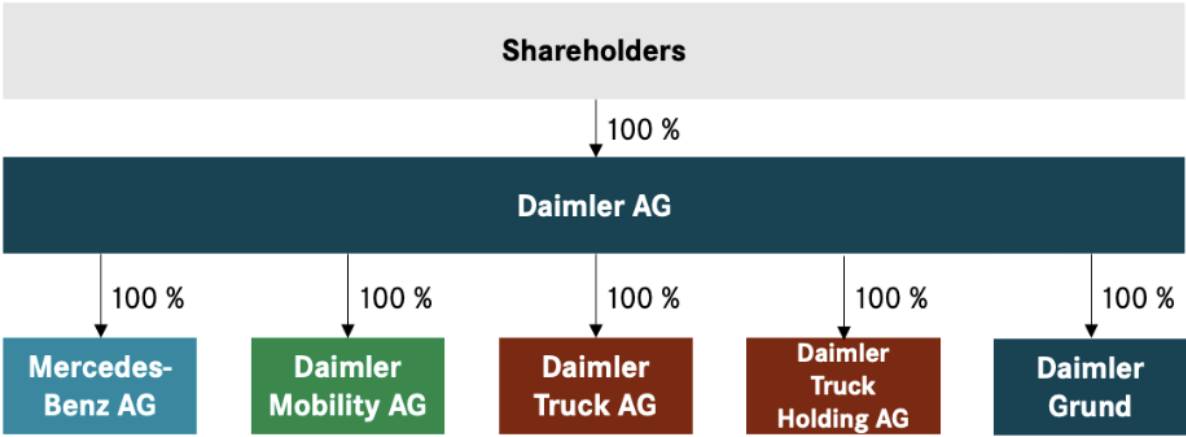


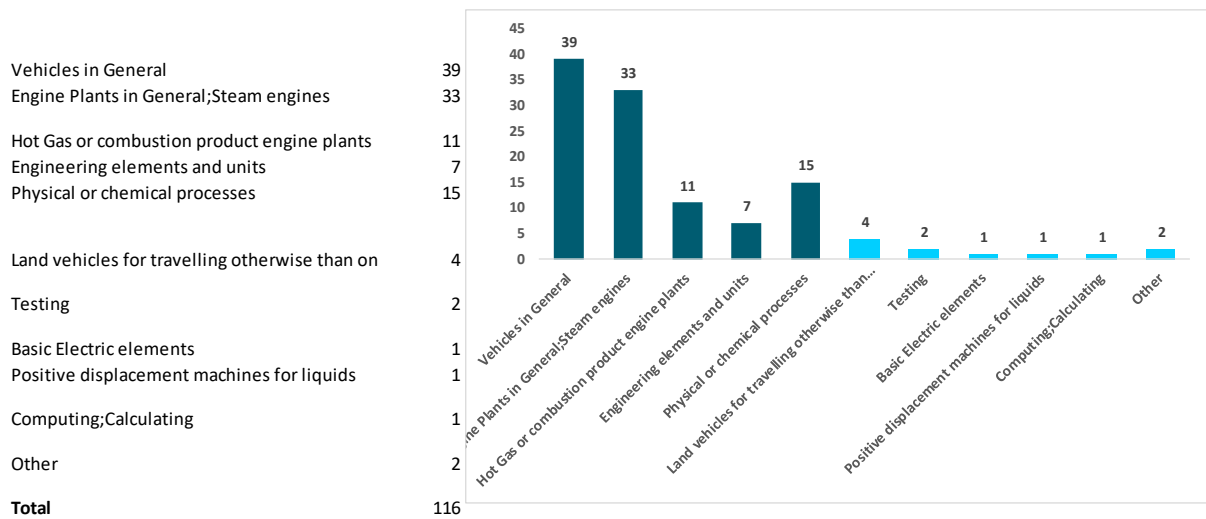
Figure 3: Daimler Truck competitive landscape (own illustration)



## Appendix Group Part

**Figure 4: Patents and Trademarks analysis (own illustration)**

### Patents and Trademarks



## Appendix Group Part

**Table 1:** Sensitivity analysis – APV (own illustration - Share Prices (in Euro))

<u>APV</u>		<b>Rf-Rate</b>				
		<b>-0.9%</b>	<b>-0.4%</b>	<b>0.1%</b>	<b>0.6%</b>	<b>1.1%</b>
<b>MRP</b>	<b>8.2%</b>	71.7	52.5	39.8	30.8	24.1
	<b>8.7%</b>	56.7	42.7	32.9	25.7	20.1
	<b>9.2%</b>	45.8	35.2	<b>27.4</b>	21.5	16.8
	<b>9.7%</b>	37.6	29.2	22.9	17.9	14.0
	<b>10.2%</b>	31.2	24.4	19.1	15.0	11.6

		<b>Unlevered Cost of Equity</b>				
		<b>5.9%</b>	<b>6.4%</b>	<b>6.9%</b>	<b>7.4%</b>	<b>7.9%</b>
<b>Terminal Growth Rate</b>	<b>2.3%</b>	30.0	23.7	18.8	14.8	11.6
	<b>2.8%</b>	36.7	28.7	22.6	17.8	13.9
	<b>3.3%</b>	45.8	35.2	<b>27.4</b>	21.5	16.8
	<b>3.8%</b>	59.3	44.1	33.7	26.1	20.4
	<b>4.3%</b>	80.7	57.1	42.4	32.3	25.0

		<b>Probability of Default</b>				
		<b>-2.8%</b>	<b>-1.3%</b>	<b>0.2%</b>	<b>1.7%</b>	<b>3.2%</b>
<b>LGD</b>	<b>26.7%</b>	27.9	27.6	27.4	27.1	26.9
	<b>28.2%</b>	27.9	27.7	27.4	27.1	26.8
	<b>29.7%</b>	28.0	27.7	<b>27.4</b>	27.1	26.8
	<b>31.2%</b>	28.0	27.7	27.4	27.1	26.8
	<b>32.7%</b>	28.0	27.7	27.4	27.1	26.7

Upper Bound **38.1**

Lower Bound **20.9**

## Appendix Group Part

**Table 2:** Sensitivity analysis – DCF Perpetuity (own illustration) - Share Prices (in Euro)

<u>DCF Perpetuity</u>		<b>Rf-Rate</b>				
		<b>-0.9%</b>	<b>-0.4%</b>	<b>0.1%</b>	<b>0.6%</b>	<b>1.1%</b>
<b>MRP</b>	<b>8.2%</b>	71.8	55.5	44.0	35.4	28.9
	<b>8.7%</b>	57.6	45.5	36.6	29.8	24.4
	<b>9.2%</b>	47.1	37.8	<b>30.7</b>	25.1	20.6
	<b>9.7%</b>	39.0	31.6	25.9	21.2	17.4
	<b>10.2%</b>	32.6	26.7	21.9	17.9	14.6

		<b>Unlevered Cost of Equity</b>				
		<b>5.9%</b>	<b>6.4%</b>	<b>6.9%</b>	<b>7.4%</b>	<b>7.9%</b>
<b>Terminal Growth Rate</b>	<b>2.3%</b>	20.9	20.9	20.9	20.9	20.9
	<b>2.8%</b>	25.2	25.2	25.2	25.2	25.2
	<b>3.3%</b>	30.7	30.7	<b>30.7</b>	30.7	30.7
	<b>3.8%</b>	38.1	38.1	38.1	38.1	38.1
	<b>4.3%</b>	48.5	48.5	48.5	48.5	48.5

		<b>Probability of Default</b>				
		<b>-1.8%</b>	<b>-0.8%</b>	<b>0.2%</b>	<b>1.2%</b>	<b>2.2%</b>
<b>LGD</b>	<b>26.7%</b>	30.0	30.4	30.7	31.0	31.4
	<b>28.2%</b>	30.1	30.4	30.7	31.0	31.3
	<b>29.7%</b>	30.1	30.4	<b>30.7</b>	31.0	31.3
	<b>31.2%</b>	30.1	30.4	30.7	31.0	31.3
	<b>32.7%</b>	30.1	30.4	30.7	31.0	31.3

Upper Bound	<b>38.0</b>
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Lower Bound	<b>25.8</b>
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## Appendix Group Part

**Table 3:** Sensitivity analysis – FTE (own illustration) - Share Prices (in Euro)

<u>FTE</u>		<b>Target Net Debt (% of Equity)</b>				
		<b>20.5%</b>	<b>21.5%</b>	<b>22.5%</b>	<b>23.5%</b>	<b>24.5%</b>
<b>Rf</b>	<b>-0.9%</b>	30.2	29.6	29.0	28.4	27.9
	<b>-0.4%</b>	29.8	29.2	28.7	28.1	27.6
	<b>0.1%</b>	29.3	28.8	<b>28.3</b>	27.8	27.3
	<b>0.6%</b>	28.9	28.4	27.9	27.5	27.0
	<b>1.1%</b>	28.5	28.0	27.6	27.1	26.7

		<b>Levered Cost of Equity</b>				
		<b>7.3%</b>	<b>7.8%</b>	<b>8.3%</b>	<b>8.8%</b>	<b>9.3%</b>
<b>Terminal Growth Rate</b>	<b>2.3%</b>	29.9	26.8	24.2	22.0	20.1
	<b>2.8%</b>	32.7	29.1	26.1	23.5	21.4
	<b>3.3%</b>	36.3	31.9	<b>28.3</b>	25.4	22.9
	<b>3.8%</b>	40.9	35.4	31.0	27.5	24.7
	<b>4.3%</b>	47.1	39.8	34.4	30.2	26.8

		<b>Probability of Default</b>				
		<b>-1.8%</b>	<b>-0.8%</b>	<b>0.2%</b>	<b>1.2%</b>	<b>2.2%</b>
<b>LGD</b>	<b>26.7%</b>	28.5	28.4	28.3	28.2	28.0
	<b>28.2%</b>	28.6	28.4	28.3	28.2	28.0
	<b>29.7%</b>	28.6	28.4	<b>28.3</b>	28.2	28.0
	<b>31.2%</b>	28.6	28.4	28.3	28.1	28.0
	<b>32.7%</b>	28.6	28.4	28.3	28.1	28.0

Upper Bound	<b>35.3</b>
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Lower Bound	<b>24.9</b>
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## Appendix Group Part

**Table 4:** Sensitivity analysis – EVA (own illustration) - Share Prices (in Euro)

### EVA

		<b>Unlevered Cost of Equity</b>				
		<b>5.9%</b>	<b>6.4%</b>	<b>6.9%</b>	<b>7.4%</b>	<b>7.9%</b>
<b>Terminal Growth Rate</b>	<b>2.3%</b>	22.3	22.3	22.3	22.3	22.3
	<b>2.8%</b>	23.0	23.0	23.0	23.0	23.0
	<b>3.3%</b>	23.8	23.8	<b>23.8</b>	23.8	23.8
	<b>3.8%</b>	25.0	25.0	25.0	25.0	25.0
	<b>4.3%</b>	26.6	26.6	26.6	26.6	26.6

		<b>Probability of Default</b>				
		<b>-1.8%</b>	<b>-0.8%</b>	<b>0.2%</b>	<b>1.2%</b>	<b>2.2%</b>
<b>LGD</b>	<b>26.7%</b>	23.0	23.4	23.8	24.2	24.7
	<b>28.2%</b>	23.0	23.4	23.8	24.2	24.7
	<b>29.7%</b>	23.0	23.4	<b>23.8</b>	24.2	24.7
	<b>31.2%</b>	23.0	23.4	23.8	24.2	24.7
	<b>32.7%</b>	23.0	23.4	23.8	24.2	24.7

		<b>Unlevered Beta</b>				
		<b>0.72</b>	<b>0.73</b>	<b>0.74</b>	<b>0.75</b>	<b>0.76</b>
<b>Rf</b>	<b>-0.9%</b>	28.1	26.7	25.4	24.2	23.0
	<b>-0.4%</b>	27.1	25.8	24.6	23.5	22.4
	<b>0.1%</b>	26.1	24.9	<b>23.8</b>	22.8	21.8
	<b>0.6%</b>	25.1	24.1	23.1	22.1	21.2
	<b>1.1%</b>	24.2	23.3	22.3	21.5	20.6

Upper Bound **26.5**

Lower Bound **22.0**

## Appendix Group Part

### Table 5: ROIC & RR calculations (own illustration)

**Daimler Truck AG**  
(€ in Millions Except Per Share and Per Unit Data)

ROIC & RR												
	FY2018A	FY2019A	FY2020A	FY2021A	FY2022F	FY2023F	FY2024F	FY2025F	FY2026F	FY2027F	TV	
NOPLAT	1,920.0	1,927.0	-71.0	1,135.6	1,693.2	1,909.7	2,087.8	2,142.1	2,322.2	2,393.3	2,472.3	
Operating Invested Capital	30,430.1	35,223.6	28,986.5	29,973.3	29,378.3	29,794.9	30,489.4	31,289.7	32,372.2	33,002.9	33,654.4	
<b>Operating ROIC</b>	n.a.	6.3%	(0.2%)	3.9%	5.8%	6.8%	7.0%	7.0%	7.4%	7.4%	7.5%	
<b>Operating RONIC</b>	n.a.	n.a.	(41.7%)	(19.3%)	56.5%	(36.4%)	42.7%	7.8%	22.5%	6.6%	12.5%	
Operating Unlevered Free Cash Flow	n.a.	-2,866.5	6,166.1	148.8	2,288.1	1,493.1	1,393.2	1,341.8	1,239.6	1,762.6	1,820.8	
Δ Operating Invested Capital (incl. Other Non-Cash Adjustme	n/a	4,793.5	-6,237.1	986.8	-595.0	416.6	694.5	800.2	1,082.6	630.7	651.5	
<b>Operating Reinvestment Rate (Method 1)</b>	n/a	248.8%	8784.7%	86.9%	(35.1%)	21.8%	33.3%	37.4%	46.6%	26.4%	26.4%	
<b>Operating Reinvestment Rate (Method 2)</b>	n/a	248.8%	8784.7%	86.9%	(35.1%)	21.8%	33.3%	37.4%	46.6%	26.4%	26.4%	
Check	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	
<b>Operating ROIC * Reinvestment Rate (Method 1)</b>	n/a	15.8%	(17.7%)	3.4%	(2.0%)	1.4%	2.3%	2.6%	3.5%	1.9%	2.0%	
<b>Operating ROIC * Reinvestment Rate (Method 2)</b>	n/a	15.8%	(17.7%)	3.4%	(2.0%)	1.4%	2.3%	2.6%	3.5%	1.9%	2.0%	
Check	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	

### Table 6: APV Valuation (own illustration)

Valuation Assumptions												
Valuation As-Of Date	10/12/2021											
Financial Year End	31/12/2021											
% of Cash Flow Generated in FY23 to Date	94%											
Annualized Probability of Default	0.2%											
Loss Given Default (% of NOPLAT)	29.7%											
Unlevered Cost of Equity	6.9%											
TV Growth Rate (Nominal)	3.3%											
# Shares Outstanding	823.0 >>> Sourced from www.CapitalIQ.com											
	FY2018A	FY2019A	FY2020A	FY2021A	FY2022F	FY2023F	FY2024F	FY2025F	FY2026F	FY2027F	TV	
Operating Unlevered Free Cash Flow (Base)	n.a.	-2,866.5	6,166.1	148.8	2,288.1	1,493.1	1,393.2	1,341.8	1,239.6	1,762.6	1,820.8	
Operating Unlevered Free Cash Flow (Default)	n.a.	(3,437.9)	6,187.2	(187.9)	1,786.1	926.9	774.2	706.7	551.1	1,053.0	1,087.7	
Operating Unlevered Free Cash Flow (Statistically Exp.)	n/a	(2,867.6)	6,166.2	148.2	2,287.2	1,492.1	1,392.1	1,340.6	1,238.3	1,761.3	1,819.4	
Discount Rate (Unlevered Cost of Equity)					6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	
Operating Enterprise Value at year-end					41,292.4	42,664.1	44,231.0	45,958.0	47,907.0	49,468.3	51,080	
Operating Enterprise Value as of Valuation Date					38,737.4							
Interest Tax Shield	37.5	21.9	24.0	26.9	14.8	15.0	15.3	14.5	13.7	12.5	0.0	
Discount Rate (Unlevered Cost of Equity)					6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	
PV (Interest Tax Shield) at year-end					58.6	47.7	35.7	23.7	11.7	0.0	0.0	
<b>PV (Interest Tax Shield) as of Valuation Date</b>					59.2							
Operating Enterprise Value at year-end					41,351.0	42,711.8	44,266.7	45,981.7	47,918.7	49,468.3	51,079.7	
Operating Enterprise Value as of Valuation Date					38,796.6							
Equity Bridge												
Operating Enterprise Value	38,796.6											
Enterprise Value	38,796.6											
Net Debt	15,760.7											
NCI	503.0											
Equity Value	22,532.9											
# Shares Outstanding	823.0											
Share Price	27.4											

**Robin Krdzevic:**  
Since Daimler Truck's future level of net debt is assumed to be dependent on its enterprise value, interest tax shields are discounted with the unlevered cost of equity

## Appendix Group Part

**Table 7: DCF Exit Multiple Valuation (own illustration)**

Valuation Assumptions		
Valuation As-Of Date		10/12/2021
Financial Year End		31/12/2021
% of Cash Flow Generated in FY23 to Date		94%
Annualized Probability of Default		0.2%
Loss Given Default (% of NOPLAT)		29.7%
WACC		6.7%
TV Growth Rate (Nominal)		3.3%
# Shares Outstanding		823.0

Discounted Cashflow Analysis (DCF) - Exit Multiple method	Projected:					
	FY22	FY23	FY24	FY25	FY26	FY27
<b>FCF Build Up</b>						
EBITDA	3,699.0	3,986.7	4,210.8	4,261.3	4,488.8	4,575.4
EBIT	2,418.8	2,728.2	2,982.5	3,060.1	3,317.4	3,419.0
Tax rate	30%	30%	30%	30%	30%	30%
<b>EBIAT (NOPAT)</b>	<b>1,693.2</b>	<b>1,909.7</b>	<b>2,087.8</b>	<b>2,142.1</b>	<b>2,322.2</b>	<b>2,393.3</b>
(+) Depreciation and Amortization	1,280.1	1,258.5	1,228.3	1,201.2	1,171.3	1,156.4
(+/-) Changes in NWC	833.9	737.4	1,000.0	1,127.0	1,452.3	92.0
(-) Capital Expenditures	2,398.7	1,211.5	1,219.2	1,217.1	1,229.1	428.8
<b>Unlevered FCF</b>	<b>(259.2)</b>	<b>1,219.3</b>	<b>1,096.8</b>	<b>999.3</b>	<b>812.2</b>	<b>3,028.8</b>
% growth	n.a.	-570.3%	-10.0%	-8.9%	-18.7%	272.9%
Discount factor	Middle of period	105.8%	205.8%	305.8%	405.8%	505.8%
Assume cash flows are generated at:	94.2%					
Midperiod adjustment factor						
<b>Present value of Unlevered FCF</b>	<b>(228.1)</b>	<b>1,005.5</b>	<b>847.7</b>	<b>723.8</b>	<b>551.4</b>	<b>1,927.1</b>

EXIT EBITDA/EBIT MULTIPLE APPROACH	
Terminal Year EBITDA/EBIT	4,575.4 / 3,419.0
Terminal Value EBITDA/EBIT Multiple	12.6x / 19.8x
Terminal Value	57,615 / 67,775
Present Value Of Terminal Value	36,657 / 43,122
Present Value Of Projection Period Cash Flows	4,827.5 / 4,827.5
<b>Enterprise Value</b>	<b>41,485 / 47,950</b>
Net Debt	15,760.7 / 15,760.7
NCI	503.0 / 503.0
<b>Equity Value</b>	<b>25,221.1 / 31,686.1</b>
# Shares Outstanding	823.0 / 823.0
<b>Share Price</b>	<b>30.6 / 38.5</b>
Upper Bound	36.3 / 41.8
Lower Bound	20.2 / 29.4

**Table 8: DCF Perpetuity Valuation (own illustration)**

Valuation Assumptions		
Valuation As-Of Date		10/12/2021
Financial Year End		31/12/2021
% of Cash Flow Generated in FY22 to Date		94%
Annualized Probability of Default		0.2%
Loss Given Default (% of NOPLAT)		29.7%
WACC		6.7%
TV Growth Rate (Nominal)		3.3%
# Shares Outstanding		823.0 >>> Sourced from www.CapitalIQ.com

	FY2018A	FY2019A	FY2020A	FY2021A	FY2022F	FY2023F	FY2024F	FY2025F	FY2026F	FY2027F	TV
Operating Unlevered Free Cash Flow (Base)	n.a.	-2,866.5	6,166.1	148.8	2,288.1	1,493.1	1,393.2	1,341.8	1,239.6	1,762.6	1,820.8
Operating Unlevered Free Cash Flow (Default)	n.a.	(3,437.9)	6,167.2	(167.9)	1,786.1	926.9	774.2	706.7	551.1	1,053.0	1,087.7
<b>Operating Unlevered Free Cash Flow (Statistically Exp.)</b>	<b>n/a</b>	<b>(2,867.6)</b>	<b>6,166.2</b>	<b>148.2</b>	<b>2,287.2</b>	<b>1,492.1</b>	<b>1,392.1</b>	<b>1,340.6</b>	<b>1,238.3</b>	<b>1,761.3</b>	<b>1,819.4</b>
Discount Rate (WACC)					6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
Operating Enterprise Value at year-end					44,165.0	45,632.1	47,297.5	49,126.0	51,179.2	52,847.1	54,569
<b>Operating Enterprise Value as of Valuation Date</b>					<b>41,515.0</b>						

Equity Bridge	
Operating Enterprise Value	41,515.0
<b>Enterprise Value</b>	<b>41,515.0</b>
Net Debt	15,760.7
NCI	503.0
<b>Equity Value</b>	<b>25,251.3</b>
# Shares Outstanding	823.0
<b>Share Price</b>	<b>30.7</b>

## Appendix Group Part

### Table 9: Flow-to-Equity Valuation (FTE) (own illustration)

Valuation Assumptions											
Valuation As-Of Date	10/12/2021										
Financial Year End	31/12/2021										
% of Cash Flow Generated in FY23 to Date	94%										
Annualized Probability of Default	0.2%										
Loss Given Default (% of NOPLAT)	29.7%										
Levered Cost of Equity	8.3%										
TV Growth Rate (Nominal)	3.3%										
# Shares Outstanding	823.0 >>> Sourced from www.CapitalIQ.com										
	FY2018A	FY2019A	FY2020A	FY2021A	FY2022F	FY2023F	FY2024F	FY2025F	FY2026F	FY2027F	TV
Equity Cash Flow (Base)	n.a.	1,013.0	-1,637.0	7,715.0	-4,075.5	299.4	530.8	1,068.2	1,343.6	1,093.2	1,676.0
Equity Cash Flow (Default)	n.a.	441.6	(1,615.9)	7,378.3	(4,577.5)	(266.9)	(88.2)	433.1	655.1	383.6	943.0
<b>Equity Cash Flow (Statistically Exp.)</b>	n/a	<b>1,011.9</b>	<b>(1,637.0)</b>	<b>7,714.4</b>	<b>(4,076.4)</b>	<b>298.3</b>	<b>529.6</b>	<b>1,067.0</b>	<b>1,342.3</b>	<b>1,091.8</b>	<b>1,674.6</b>
Discount Rate (Levered Cost of Equity)					8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%
Equity Value at year-end					25,453.5	27,273.1	29,012.7	30,359.7	31,543.4	33,076.2	34,154
<b>Equity Value as of Valuation Date</b>					<b>23,281.9</b>						
Equity Bridge											
Enterprise Value	39,545.6										
Net Debt	15,760.7										
NCI	503.0										
<b>Equity Value</b>	<b>23,281.9</b>										
# Shares Outstanding	823.0										
Share Price	28.3										

### Table 10: Economic Value Added (EVA) Valuation (own illustration)

Valuation Assumptions											
Valuation As-Of Date	10/12/2021										
Financial Year End	31/12/2021										
% of Cash Flow Generated in FY23 to Date	94%										
Annualized Probability of Default	0.2%										
Loss Given Default (% of NOPLAT)	29.7%										
WACC	6.7%										
TV Growth Rate (Nominal)	3.3%										
# Shares Outstanding	823.0 >>> Sourced from www.CapitalIQ.com										
	FY2018A	FY2019A	FY2020A	FY2021A	FY2022F	FY2023F	FY2024F	FY2025F	FY2026F	FY2027F	TV
Operating Invested Capital	30,430.1	35,223.6	28,986.5	29,973.3	29,378.3	29,794.9	30,489.4	31,289.7	32,372.2	33,002.9	33,654.4
Operating ROIC	n.a.	6.3%	10.2%	3.5%	5.8%	6.5%	7.0%	7.0%	7.4%	7.4%	7.5%
WACC					6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
Annual Operating Economic Profit					(308.9)	(69.5)	93.6	101.8	233.5	228.7	286.2
Discount Rate (WACC)					6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
<b>PV (Annual Operating Economic Profit)</b>					<b>6,045.8</b>	<b>6,510.4</b>	<b>6,853.0</b>	<b>7,210.4</b>	<b>7,460.0</b>	<b>7,731</b>	<b>7,983</b>
Initial Invested Capital					29,973.3	29,973.3	29,973.3	29,973.3	29,973.3	29,973.3	29,973.3
Operating Enterprise Value at year-end					36,019.0	36,483.7	36,826.3	37,183.7	37,433.3	37,704.4	37,956.3
<b>Operating Enterprise Value as of Valuation Date</b>					<b>35,867.2</b>						
Equity Bridge											
Operating Enterprise Value	35,867.2										
<b>Enterprise Value</b>	<b>35,867.2</b>										
Net Debt	15,760.7										
NCI	503.0										
<b>Equity Value</b>	<b>19,603.5</b>										
# Shares Outstanding	823.0										
Share Price	23.8										

# Appendix Group Part

## Table 11: Discount Rate (WACC) calculation (own illustration)

Target Net Debt (% of Enterprise Value)	22.5%	>>> Peer Group Average										
Target Net Debt (% of Equity)	29.0%											
Efe Bircan: Bloomberg levered Beta		Efe Bircan: <a href="https://stats.oecd.org/Index.aspx?DataSe">https://stats.oecd.org/Index.aspx?DataSe</a>										
Comparable Companies - Unlevered Beta Calculation:												
Name	Ticker	Levered Beta (5y)	Total Debt	C&CE	Net Debt	Enterprise Value	Market Cap	Net Debt / E	D/E %	Statutory Tax Rate	Unlevered Beta (5y)	Weighted
PACCAR Inc (NasdaqGS:PCAR)	NasdaqGS:PCAR	0.98	9,253.0	2,860.9	5,654.9	33,437.3	27,782.4	0.17	0.20	25.80%	0.60	0.09
Blue Bird Corporation (NasdaqGMBLBD)	NasdaqGM	1.31	191.5	10.1	189.9	584.8	394.9	0.32	0.48	25.80%	0.66	0.00
Federal Signal Corporation (NYSE:FSS)	NYSE:FSS	1.11	276.5	35.6	179.6	2,597.6	2,418.0	0.07	0.07	25.80%	0.77	0.01
The Shyft Group, Inc. (NasdaqGS:SHYF)	NasdaqGS:	1.07	48.5	32.7	32.1	1,574.7	1,542.6	0.02	0.02	25.80%	0.78	0.01
Wabash National Corporation (NYSE:WNC)	NYSE:WNC	1.60	386.7	63.1	344.9	1,165.3	820.4	0.30	0.42	25.80%	0.84	0.00
AB Volvo (publ) (OMVOLV B)	OMVOLV B	1.13	14,959.3	6,041.4	9,123.3	45,205.2	36,081.9	0.20	0.25	20.60%	0.72	0.14
Traton SE (XTRA:8TRA)	XTRA:8TRA	1.79	18,283.0	2,002.0	16,145.0	27,029.0	10,884.0	0.60	1.48	29.80%	0.51	0.06
Hino Motors, Ltd. (TSE:7205)	TSE:7205	1.27	1,403.1	432.8	697.5	4,657.1	3,959.6	0.15	0.18	29.70%	0.76	0.02
Izuzu Motors Limited (TSE:7202)	TSE:7202	1.26	2,438.6	3,118.0	1,080.2	9,775.9	8,695.7	0.11	0.12	29.70%	0.79	0.03
Tata Motors Limited (BSE:500570)	BSE:500570	1.81	16,974.0	3,691.7	10,636.3	30,350.7	19,714.4	0.35	0.54	25.20%	0.88	0.12
Ashok Leyland Limited (NSE:ASHOKLEY)	NSE:ASHO	1.43	2,807.2	172.5	2,425.4	6,693.2	4,267.8	0.36	0.57	25.00%	0.68	0.02
Hitachi, Ltd. (TSE:6501)	TSE:6501	1.35	18,468.0	7,825.9	13,476.4	59,267.8	45,791.4	0.23	0.29	29.70%	0.73	0.19
Beigi Foton Motor Co., Ltd. (SHSE:600166)	SHSE:60016	1.22	1,098.2	910.5	135.4	3,197.8	3,062.4	0.04	0.04	25.00%	0.88	0.01
Median:		1.27	2,438.61	910.45	1,080.20	6,693.20	4,267.80	0.20	0.25	25.80%	0.76	0.71
Average:		1.33	6,660.58	2,092.09	4,624.68	17,348.95	12,724.27	0.22	0.36	26.44%	0.74	
Daimler Truck AG	XTRA:DTG	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	29.80%	n/a	
Risk-Free Rate												
10y German government bond yield as of 09.12.2021	-0.35%	>>> Source: Capital IQ 10 years German Government bonds various maturities (Please refer to Tab: Input Cost of Capital)										
Average risk free investment rate in Germany 2021	0.60%	>>> Source: Statista.com										
Risk-Free Rate	0.13%	Efe Bircan: For MRP we used the past 10 years of MSCI World Index										
Market Risk Premium												
MRP for international Market (MSCI World)	9.24%	>>> Source: Capital IQ daily returns of MSCI World Index (Please refer to Tab: Input Cost of Capital)										
Debt Beta & Equity Beta												
October 28, 2021 - On its way to the expected listing on the Frankfurt Stock Exchange by the end of this year, Daimler Truck had approached S&P Global Ratings (S&P) and Moody's Investor Service (Moody's) for setting up first time credit ratings. Both rating agencies now communicated solid investment grade ratings for Daimler Truck. S&P Global Ratings assigned a long-term issuer credit rating of BBB+ (outlook stable) while Moody's assigned a long-term issuer credit rating of A3 (outlook stable).	dit Rating 2021	BBB+ >>> Source: <a href="https://group.mercedes-benz.com/investors/reports-news/financial-news/20211028-daimler-truck-rating.html">https://group.mercedes-benz.com/investors/reports-news/financial-news/20211028-daimler-truck-rating.html</a>										
	Debt Beta	0.10 >>> Source: Corporate Finance Book, Berk and DeMarzo										
Average Unlevered Beta Equity from Peer Group	0.74											
Daimler Truck AG Relevered Beta Equity	0.89											
Cost of Equity												
Unlevered Cost of Equity	6.94%											
Levered Cost of Equity	8.32%											
Cost of Debt												
Approach I												
Average YTM outstanding Bonds (10y, 7y, 5y)	2.34%	>>> Source: <a href="https://www.boerse-frankfurt.de/bond/usu2340bah07-daimler-trucks-finance-north-america-llc-2-5-21-31">https://www.boerse-frankfurt.de/bond/usu2340bah07-daimler-trucks-finance-north-america-llc-2-5-21-31</a> 10 Years Maturity <a href="https://www.boerse-frankfurt.de/anieihe/usu2340bag24-daimler-trucks-finance-north-america-llc-7-7-21-31">https://www.boerse-frankfurt.de/anieihe/usu2340bag24-daimler-trucks-finance-north-america-llc-7-7-21-31</a> 7 Years Maturity <a href="https://www.boerse-frankfurt.de/anieihe/usu2340bag24-daimler-trucks-finance-north-america-llc-5-5-21-31">https://www.boerse-frankfurt.de/anieihe/usu2340bag24-daimler-trucks-finance-north-america-llc-5-5-21-31</a> 5 Years Maturity										
Probability of default (BBB credit rating)	0.19%	Efe Bircan: Since the bonds were issued in USD, Daimler Truck AG faces a certain currency risk, as future payments will be made in USD. Daimler Truck reports in EUR. Accordingly, there can be certain fluctuations in the currency conversion.										
Estimated Loss rate for given credit rating (BBB)	70.35%											
Estimated Loss Given Default (% of NOPLAT)	29.65%											
Forward Rate premium (interest Rate Parity)	20.05%	>>> please refer to tab "Input Cost of Capital" for further calculation										
Cost of Debt Approach I	2.65%											
Approach II												
Corporate Yield Curve Industrial Sector 20 Years in EUR	1.77%	>>> Source: CapIQ Excel Plugin Corporate Yield curve 20 years.										
Cost of Debt Approach II	1.77%											
Approach III												
Risk Free Rate	0.13%											
Debt Beta	0.10											
MRP	9.24%											
Cost of Debt Approach III	1.05%											
Approach IV												
Effective Interest Rate 2018	1.03%											
Effective Interest Rate 2019	0.88%											
Effective Interest Rate 2020	0.69%											
Effective Interest Rate 2021 (Q4 projected)	0.83%											
Cost of Debt Approach IV	0.86%											
Cost of Debt	1.6%											
WACC												
Statutory Tax Rate	30%	>>> Source: Daimler Truck AG Annual Report 2020										
WACC	6.70%											

## Appendix Group Part

**Table 12:** Terminal value growth rate calculation (own illustration)

Terminal Value GR Daimler Truck AG		
<i>€mm except per share</i>		Valuation Date 10/12/2021
		Currency €
		1=Print View 1
<b>Daimler Truck AG</b>		
(€ in Millions Except Per Share and Per Unit Data)		
Assumptions		
<b>GDP Growth Key markets (2026F):</b>		
GDP Growth USA	2.1%	<b>Krdzevic, Robin:</b> As > 70% of Daimler Truck's Revenues in the forecasted year FY2027 are still from the two key markets North America and EU30, those two GDP Growth rates will be used for a valid TV Growth rate calculation and the remaining 30%
GDP Growth Asia	4.7%	
GDP Growth EU30	1.8%	
GDP Growth Latin America	2.6%	
<b>Average GDP Growth (Nominal)</b>	<b>2.8%</b>	<b>Krdzevic, Robin:</b> CAGR 18-21 in European Union, as this valuation represents the macroeconomic environment on 09/12/2021 the inflation rate is fairly low
Expected Long-Term Inflation Rate (European Union)	1.7%	
<b>Terminal Value Growth Rate (Nominal)</b>	<b>4.5%</b>	<b>Krdzevic, Robin:</b> The average nominal GDP growth rate is assumed to be an appropriate indicator of Daimler Truck's expected nominal terminal value growth rate (there is no need for accounting for any industry- or company-specific discount), which is expected to be realized in FY27F, so that the steady state is assumed to be reached from that year onwards.
<b>g = Operating ROIC x Reinvestment Rate (Terminal Value)</b>	<b>2.0%</b>	
<b>Average from both approaches</b>	<b>3.3%</b>	

## Appendix Group Part

### Table 13: Comparable Company analysis (CCA) output (own illustration)

CCA Valuation (Trading Multiples) Daimler Truck AG												
€mm except per share											Valuation Date	10/12/2021
											Currency	€
											1=Print View	1
<b>Daimler Truck AG</b>												
(€ in Millions Except Per Share and Per Unit Data) --> Data as of 09.12.2021 (Valuation Date of Daimler Truck IPO)												
Comparable company analysis (CCA)	Current Price (€)	Equity Value (€)	Enterprise Value (€)	EV/Revenue LTM	EV/Revenue NTM	EV/EBITDA LTM	EV/EBITDA NTM	EV/EBIT LTM	EV/EBIT NTM	P/E LTM	P/E NTM	
<b>Comparables split</b>												
<b>North America</b>												
PACCAR Inc (NasdaqGS:PCAR)	53.4	27,782.4	33,437.3	1.7x	1.6x	14.2x	14.4x	16.4x	15.9x	17.7x	14.2x	
Blue Bird Corporation (NasdaqGMBLBD)	16.0	436.6	584.8	0.8x	0.8x	13.8x	14.6x	20.9x	23.0x	34.4x	25.7x	
Federal Signal Corporation (NYSE:FSS)	39.6	2,418.0	2,597.6	2.4x	2.2x	15.0x	13.3x	20.9x	17.7x	25.3x	22.3x	
The Shyft Group, Inc. (NasdaqGS:SHYF)	43.6	1,541.7	1,574.7	2.0x	1.7x	18.2x	14.5x	22.7x	17.0x	31.0x	21.6x	
Wabash National Corporation (NYSE:WNC)	16.6	820.4	1,165.3	0.7x	0.6x	11.5x	8.0x	21.6x	11.7x	30.1x	13.4x	
25th percentile				0.80x	0.78x	13.80x	13.34x	20.90x	15.85x	25.30x	14.15x	
Mean				1.52x	1.35x	14.54x	12.95x	20.50x	17.05x	27.70x	19.41x	
Median				1.70x	1.57x	14.20x	14.35x	20.90x	17.01x	30.10x	21.60x	
75th percentile				2.00x	1.66x	15.00x	14.45x	21.60x	17.66x	31.00x	22.25x	
<b>Europe</b>												
AB Volvo (publ) (OMYVOLVB)	17.6	35,815.0	45,205.2	1.4x	1.3x	9.7x	8.9x	10.9x	10.6x	12.2x	12.1x	
Traton SE (XTRA:8TRA)	21.8	10,880.0	27,029.0	0.9x	0.7x	7.1x	6.6x	17.9x	10.5x	15.4x	7.1x	
25th percentile				1.03x	0.85x	7.75x	7.20x	12.65x	10.51x	13.00x	8.36x	
Mean				1.15x	1.01x	8.40x	7.76x	14.40x	10.54x	13.80x	9.59x	
Median				1.15x	1.01x	8.40x	7.76x	14.40x	10.54x	13.80x	9.59x	
75th percentile				1.28x	1.17x	9.05x	8.32x	16.15x	10.56x	14.60x	10.82x	
<b>Asia</b>												
Hino Motors, Ltd. (TSE:7205)	6.3	3,627.1	4,657.1	0.5x	0.5x	6.7x	6.0x	13.2x	11.5x	40.6x	21.6x	
Isuzu Motors Limited (TSE:7202)	9.7	7,521.4	9,775.9	0.7x	0.6x	5.5x	6.0x	8.2x	8.3x	9.9x	10.6x	
Tata Motors Limited (BSE:500570)	5.4	19,512.5	30,350.7	0.9x	0.8x	11.6x	6.7x	26.0x	20.4x	-	17.8x	
Ashok Leyland Limited (NSE:ASHOKLEY)	1.4	4,120.6	6,693.2	2.6x	-	23.0x	-	33.8x	-	NM	-	
Hitachi, Ltd. (TSE:6501)	41.2	39,837.3	59,267.8	0.9x	1.0x	9.9x	7.5x	16.4x	11.6x	10.8x	11.0x	
Beiqi Foton Motor Co., Ltd. (SHSE:600166)	0.5	3,066.4	3,197.8	0.4x	-	17.5x	-	28.8x	-	149.1x	-	
25th percentile				0.55x	0.56x	7.50x	6.01x	14.00x	10.70x	10.58x	10.90x	
Mean				1.00x	0.72x	12.37x	6.57x	21.07x	12.92x	52.60x	15.23x	
Median				0.80x	0.71x	10.75x	6.37x	21.20x	11.54x	25.70x	14.40x	
75th percentile				0.90x	0.87x	16.03x	6.93x	28.10x	13.76x	67.73x	18.73x	
<b>Daimler Truck AG ETR:DTG</b>												
<b>Summary Statistics</b>												
Lower Bound				0.9x	0.8x	9.6x	7.0x	16.4x	10.9x	14.8x	11.3x	
Upper Bound				1.3x	1.1x	14.2x	11.9x	21.1x	15.9x	30.1x	18.5x	
Median				0.9x	0.8x	11.6x	8.0x	20.9x	11.7x	25.3x	14.2x	
Mean				1.2x	1.1x	12.6x	9.7x	19.8x	14.4x	34.2x	16.1x	

Implied Valuation			
	Revenue Multiple	EBITDA Multiple	EBIT Multiple
Implied Enterprise Value	45,493.0	36,713.9	39,864.8
(-) Net Debt & NCI	16,263.7	16,263.7	16,263.7
Implied Equity Value	29,229.3	20,450.2	23,601.1
# of Shares Outstanding	823.0	823.0	823.0
Implied Share Price	35.5	24.8	28.7
Upper Bound (33th percentile)	38.3	30.5	31.7
Lower Bound (66th percentile)	20.6	14.4	20.3

### Table 14: Comparable Company analysis (CCA) output (own illustration)

CTA Valuation Daimler Truck AG												
€mm except per share											Valuation Date	10/12/2021
											Currency	€
											1=Print View	1
Transaction Comp Set	Country	Enterprise Value	EV/Revenue LTM	EV/EBITDA LTM	EV/EBIT LTM	Complete Date	Target Description					
Navistar International Corporation	United States	9,414.7	1.04x	19.44x	31.44x	01/07/2021	Commercial Truck Manufacturer					
MAN SE	Germany	8,939.3	0.98x	9.77x	13.14x	09/11/2011	Commercial Vehicle Manufacturer (Vans, Trucks, Buses, Diesel engin					
Scania AB (publ)	Sweden	5,166.1	1.45x	11.33x	14.86x	09/06/2014	Commercial Truck Manufacturer / Heavy Trucks					
Sany Heavy Industry Co., Ltd	China	506.4	2.11x	20.76x	35.82x	26/12/2014	Commercial Vehicle Manufacturer (Forklifts etc.)					
KION Group AG	Germany	5,433.1	1.20x	8.50x	19.70x	02/17/2015	Commercial Vehicle Manufacturer (Construction machinery)					
Lower Bound		5,251.5	1.09x	10.27x	16.41x							
Mean		5,891.9	1.36x	13.96x	22.99x							
Median		5,433.1	1.20x	11.33x	19.70x							
Upper Bound		7,817.3	1.37x	16.84x	27.68x							
<b>Implied Valuation</b>												
	Revenue Multiple	EBITDA Multiple	EBIT Multiple									
Implied Enterprise Value	44,634.6	33,033.5	39,617.3									
(-) Net Debt & NCI	16,263.7	16,263.7	16,263.7									
Implied Equity Value	28,370.9	16,769.8	23,353.6									
# of Shares Outstanding	823.0	823.0	823.0									
Implied Share Price	34.5	20.4	28.4									
Upper Bound	42.2	39.9	47.9									
Lower Bound	29.6	16.6	20.3									

## Appendix Group Part

**Table 15:** Detailed calculation of interest rate parity

<b>Interest Rate Parity</b>	
Spot Rate 09.12.2021	0,884564352
Base Currency Annual Interest Rate (%) USD - 10 Years Treasury Yields	1,49%
Quoted Currency Annual Interest Rate (%) EUR - 10 Years German Governm	-0,35%
Days till Maturity of the Forward Contract (10 years)	3650
Forward Rate	1,06193989
Forward Premium / (Discount)	20,05%

Figure 2: Scatter plot: CAR vs. Year of Announcement

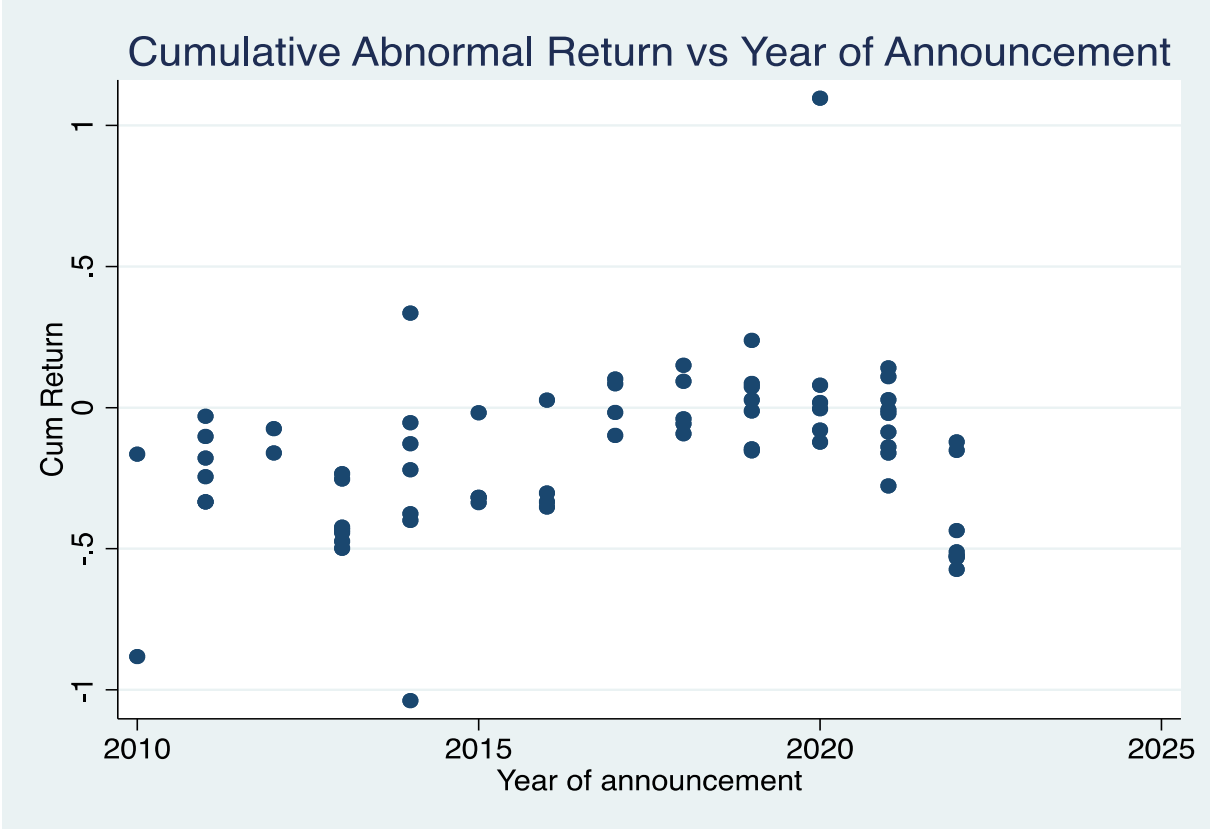


Figure 3: Scatter plot: CAR vs. Revenue per Employee

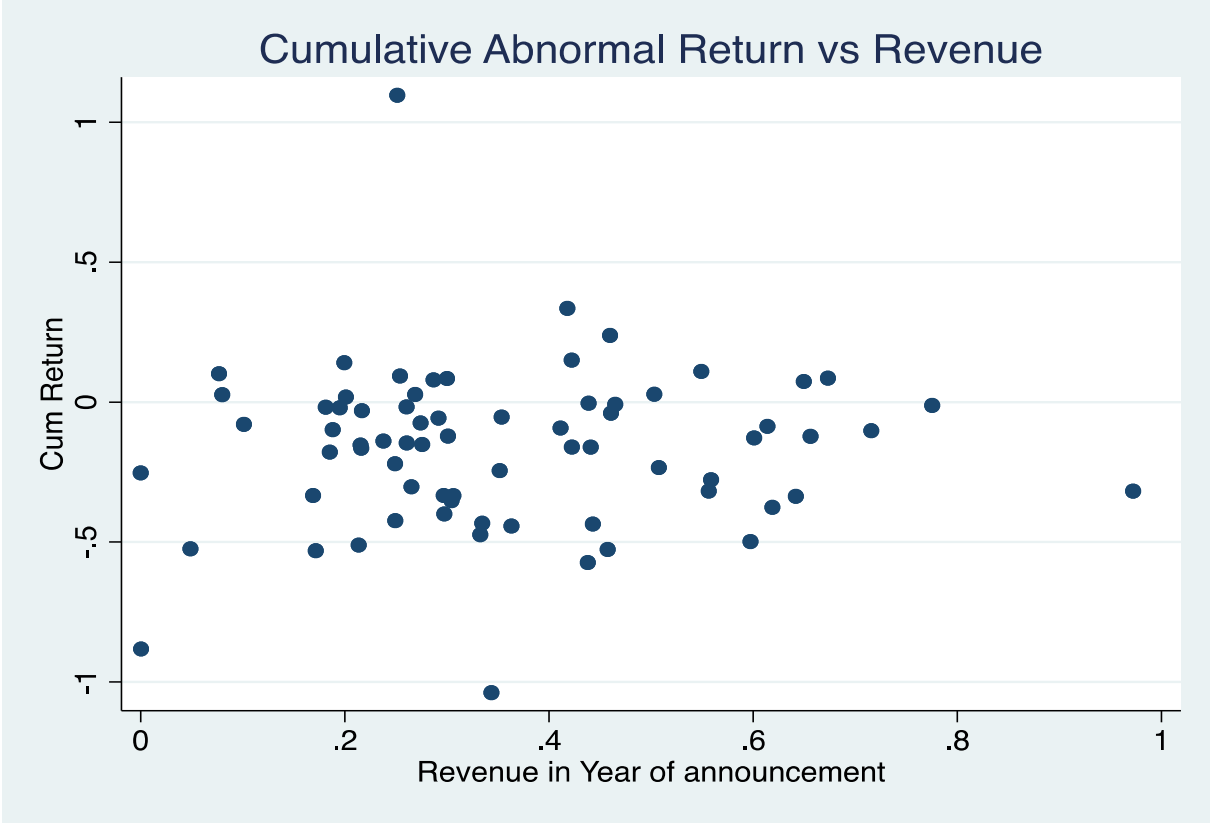


Figure 4: Scatter plot: CAR vs. EBITDA per Employee

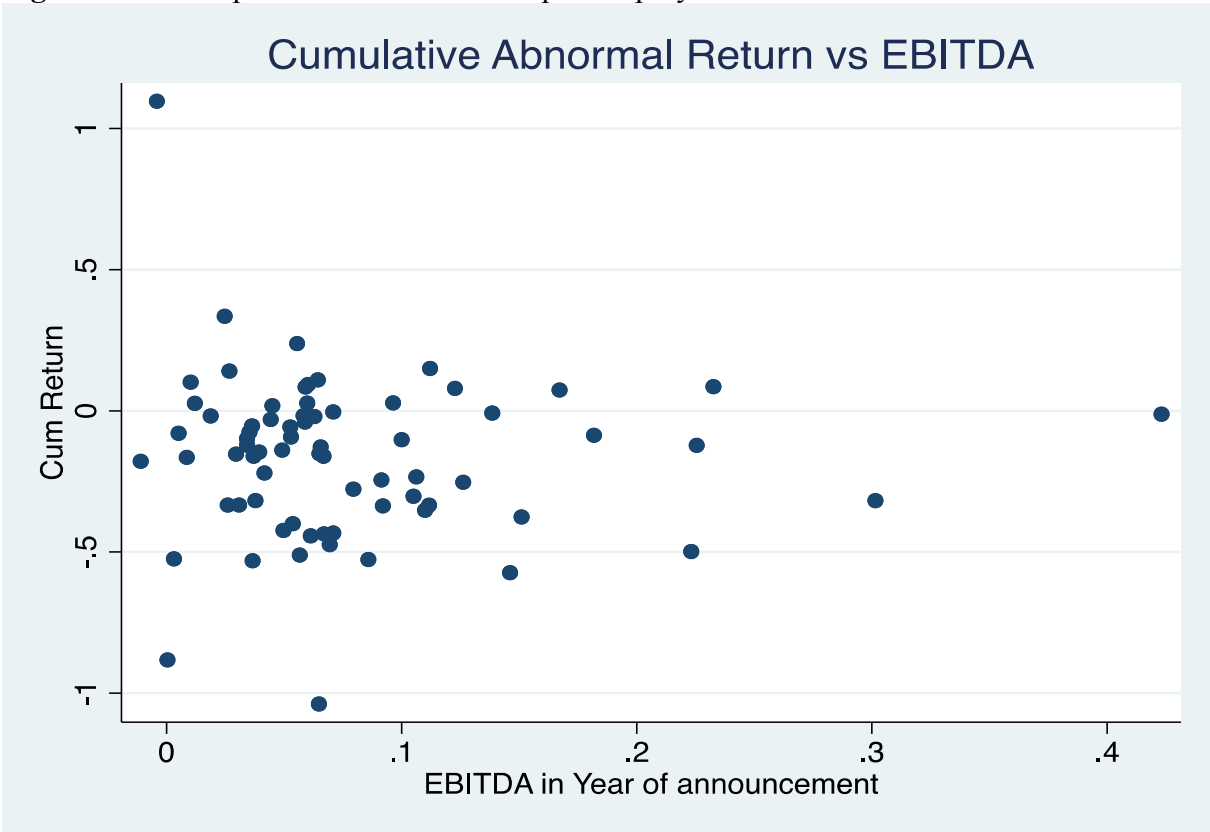
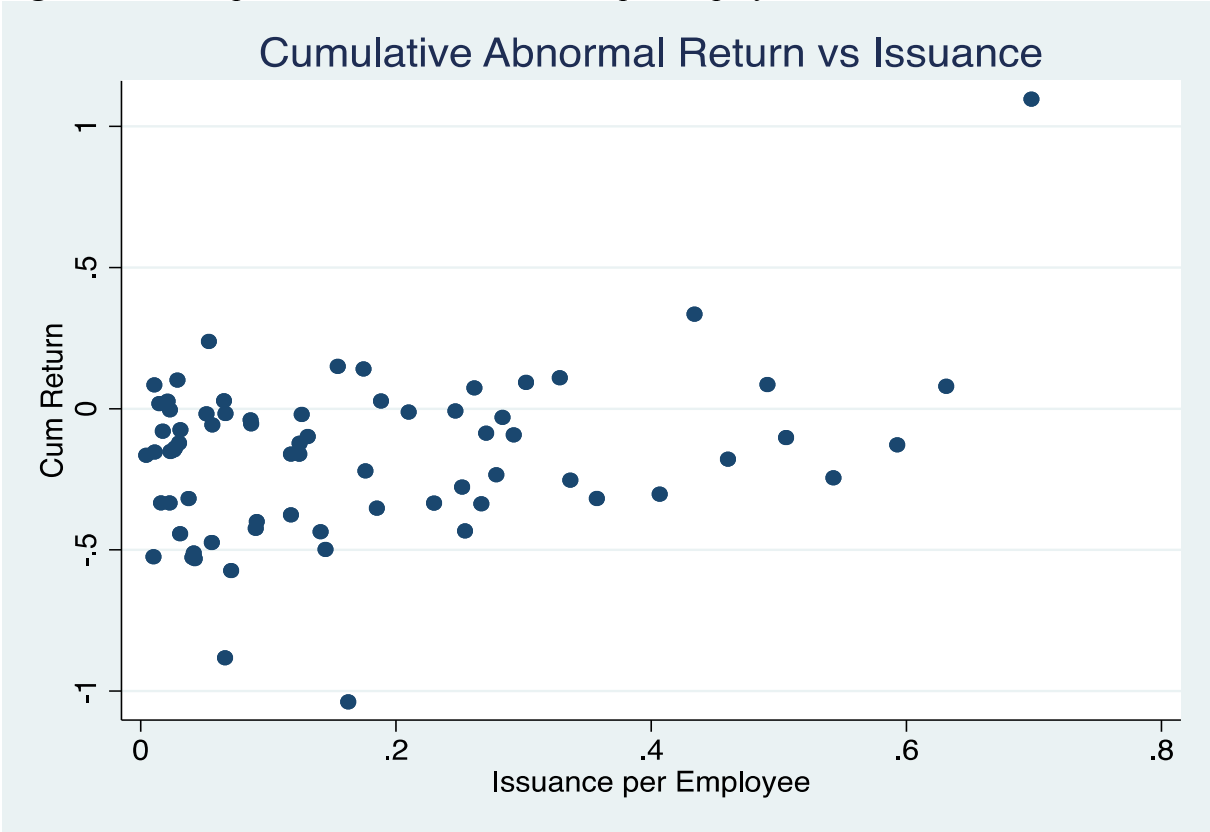
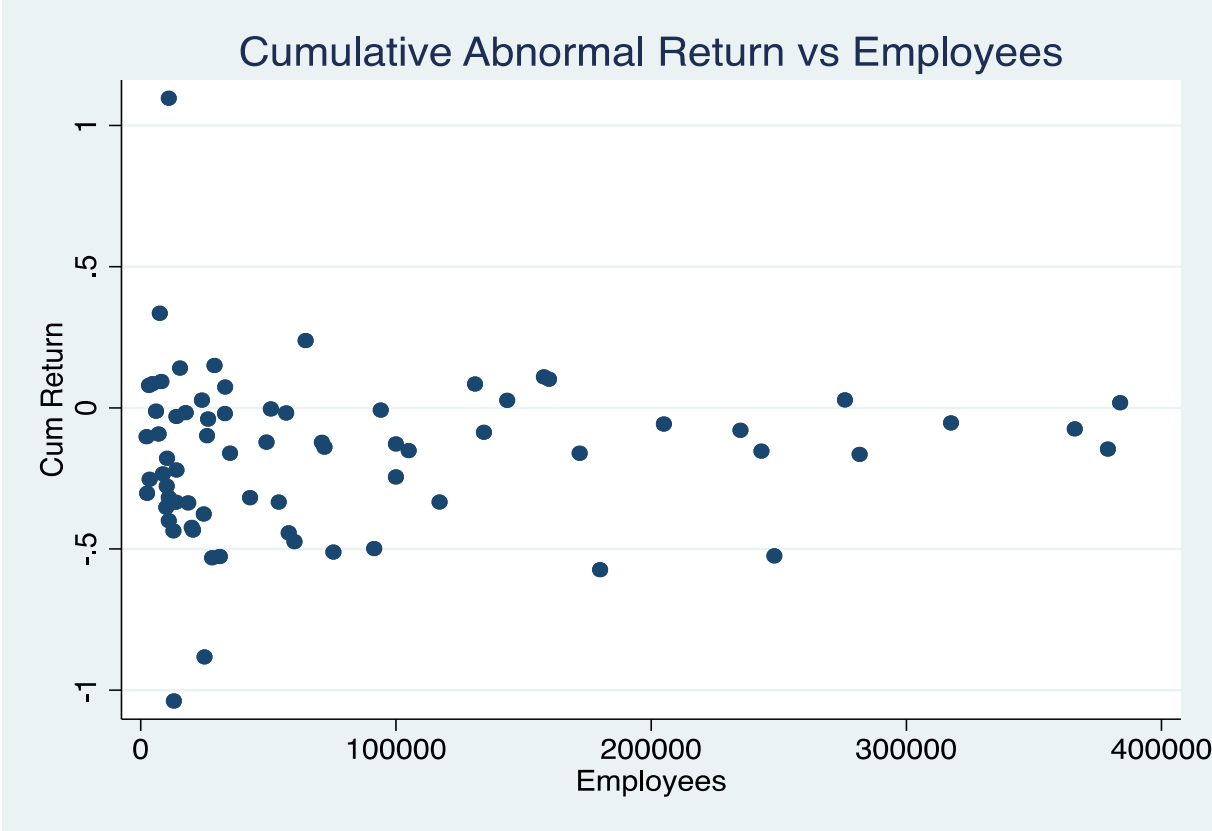


Figure 5: Scatter plot: CAR vs. Issuance Value per Employee



Appendix - Individual Part Robin Krdzevic

Figure 6: Scatter plot: CAR vs. Employees



## Appendix - Individual Part Robin Krdzevic

**Table 1: Overview Sample wider selection for long-term observation**

#	Parent company	Spin-off company	Country	Spin-off date
#	Company	Company	Country	Date
1	BorgWarner Inc. (NYSE:BWA)	PHINIA Inc. (NYSE:PHIN)	United States	06.12.22
2	Melrose Industries PLC (LSE:MRO)	Dowlais Group plc (LSE:DWL)	United States	08.09.22
3	MDU Resources Group, Inc. (NYSE:MDU)	Knife River Corporation (NYSE:KNF)	United States	04.08.22
4	Adeia Inc. (NasdaqGS:ADEA)	Xperi Inc. (NYSE:XPER)	United States	02.08.22
5	Laboratory Corporation of America Holdings (NYSE:LH)	Fortrea Holdings Inc. (NasdaqGS:FTRE)	United States	28.07.22
6	ABB Ltd (SWX:ABBN)	Accelleron Industries AG (SWX:ACLN)	Switzerland	20.07.22
7	Kellanova (NYSE:K)	WK Kellogg Co (NYSE:KLG)	United States	21.06.22
8	Brookfield Corporation (TSX:BN)	Brookfield Asset Management Ltd. (TSX:BAM)	France	12.05.22
9	Aramark (NYSE:ARMK)	Vestis Corporation (NYSE:VSTS)	United States	10.05.22
10	Fortune Brands Innovations, Inc. (NYSE:FBIN)	MasterBrand, Inc. (NYSE:MBC)	United States	28.04.22
11	Johnson & Johnson (NYSE:JNJ)	Kenvue Inc. (NYSE:KVUE)	United States	12.11.21
12	General Electric Company (NYSE:GE)	GE HealthCare Technologies Inc. (NasdaqGS:GEHC)	United States	09.11.21
13	H&R Real Estate Investment Trust (TSX:HR.UN)	Primaris Real Estate Investment Trust (TSX:PMZ.UN)	Canada	27.10.21
14	Post Holdings, Inc. (NYSE:POST)	BellRing Brands, Inc. (NYSE:BRBR)	United States	05.08.21
15	GSK plc (LSE:GSK)	Haleon plc (LSE:HLN)	United Kingdom	23.06.21
16	Bath & Body Works, Inc. (NYSE:BBWI)	Victoria's Secret & Co. (NYSE:VSCO)	United States	11.05.21
17	Becton, Dickinson and Company (NYSE:BDX)	Embeceta Corp. (NasdaqGS:EMBC)	United States	06.05.21
18	Realty Income Corporation (NYSE:O)	Orion Office REIT Inc. (NYSE:ONL)	United States	29.04.21
19	Dell Technologies Inc. (NYSE:DELL)	VMware, Inc. (NYSE:VMW)	United States	14.04.21
20	Enovis Corporation (NYSE:ENOV)	ESAB Corporation (NYSE:ESAB)	United States	04.03.21
21	Exelon Corporation (NasdaqGS:EXC)	Constellation Energy Corporation (NasdaqGS:CEG)	United States	21.02.21
22	Vivendi SE (ENXTPA:VIV)	Universal Music Group N.V. (ENXTAM:UMG)	France	13.02.21
23	Mercedes-Benz Group AG (XTRA:MBG)	Daimler Truck Holding AG (XTRA:DTG)	Germany	03.02.21
24	IAC Inc. (NasdaqGS:IAC)	Vimeo, Inc. (NasdaqGS:VMEQ)	United States	22.12.20
25	International Paper Company (NYSE:IP)	Sylvamo Corporation (NYSE:SLVM)	United States	03.12.20
26	DTE Energy Company (NYSE:DTE)	DT Midstream, Inc. (NYSE:DTM)	United States	27.10.20
27	International Business Machines Corporation (NYSE:IBM)	Kyndryl Holdings, Inc. (NYSE:KD)	United States	08.10.20
28	SolarWinds Corporation (NYSE:SWI)	N-able, Inc. (NYSE:NABL)	United States	06.08.20
29	Merck & Co., Inc. (NYSE:MRK)	Organon & Co. (NYSE:OGN)	United States	05.02.20
30	TD SYNNEX Corporation (NYSE:SNX)	Concentrix Corporation (NasdaqGS:CNXC)	United States	09.01.20
31	Brookfield Renewable Partners L.P. (TSX:BEP.UN)	Brookfield Renewable Corporation (TSX:BEP.C)	Bermuda	08.11.19
32	Continental Aktiengesellschaft (XTRA:CON)	Vitesco Technologies Group Aktiengesellschaft (XTRA:VTSC)	Germany	22.10.19
33	Brookfield Infrastructure Partners L.P. (NYSE:BIP)	Brookfield Infrastructure Corporation (NYSE:BIPC)	Bermuda	25.09.19
34	CNH Industrial N.V. (NYSE:CNHI)	Iveco Group N.V. (BIT:IVG)	United Kingdom	03.09.19
35	Fortive Corporation (NYSE:FTV)	Vontier Corporation (NYSE:VNT)	United States	01.09.19
36	Sandvik AB (publ) (OM:SAND)	Alleima AB (publ) (OM:ALLE)	Sweden	31.05.19
37	Siemens Aktiengesellschaft (XTRA:SIE)	Siemens Energy AG (XTRA:ENR)	Germany	07.05.19
38	Eli Lilly and Company (NYSE:LLY)	Elanco Animal Health Incorporated (NYSE:ELAN)	United States	08.02.19
39	Atos SE (ENXTPA:AOT)	Worldline SA (ENXTPA:WLN)	United States	29.01.19
40	RTX Corporation (NYSE:RTX)	Otis Worldwide Corporation (NYSE:OTIS)	United States	26.11.18
41	FMC Corporation (NYSE:FMC)	Livent Corporation (NYSE:LTHM)	United States	15.10.18
42	Schibsted ASA (OB:SCHA)	Adevinta ASA (OB:ADE)	Norway	18.09.18
43	V.F. Corporation (NYSE:VFC)	Kontoor Brands, Inc. (NYSE:KTB)	United States	13.08.18
44	Novartis AG (SWX:NOVN)	Sandoz Group AG (SWX:SDZ)	Switzerland	29.06.18
45	Prudential plc (LSE:PRU)	Jackson Financial Inc. (NYSE:JXN)	United States	14.03.18
46	EQT Corporation (NYSE:EQT)	Equitrans Midstream Corporation (NYSE:ETRN)	United States	21.02.18
47	Kering SA (ENXTPA:KER)	PUMA SE (XTRA:PUM)	France	11.01.18
48	Trinity Industries, Inc. (NYSE:TRN)	Arcosa, Inc. (NYSE:ACA)	United States	12.12.17
49	Honeywell International Inc. (NasdaqGS:HON)	Resideo Technologies, Inc. (NYSE:REZI)	United States	10.10.17
50	NKT A/S (CPSE:NKT)	Niilfisk Holding A/S (CPSE:NLFSK)	Denmark	11.09.17
51	Pentair plc (NYSE:PNR)	nVent Electric plc (NYSE:NVT)	United Kingdom	09.05.17
52	Aptiv PLC (NYSE:APT)	Delphi Technologies PLC	Ireland	03.05.17
53	Fidelity National Financial, Inc. (NYSE:FNF)	Black Knight, Inc.	United States	07.12.16
54	MetLife, Inc. (NYSE:MET)	Brighthouse Financial, Inc. (NasdaqGS:BHF)	United States	05.10.16
55	TEGNA Inc. (NYSE:TGNA)	Cars.com Inc. (NYSE:CARS)	United States	07.09.16
56	Snam S.p.A. (BIT:SRG)	Italgas S.p.A. (BIT:IG)	United States	28.06.16
57	Element Fleet Management Corp. (TSX:EFN)	ECN Capital Corp. (TSX:ECN)	Canada	16.02.16
58	Xerox Holdings Corporation (NasdaqGS:XRXX)	Conduent Incorporated (NasdaqGS:CNDT)	United States	29.01.16
59	Conagra Brands, Inc. (NYSE:CAG)	Lamb Weston Holdings, Inc. (NYSE:LW)	United States	18.11.15
60	Ashland Inc. (NYSE:ASH)	Valvoline Inc. (NYSE:VVV)	United States	22.09.15
61	Johnson Controls International plc (NYSE:JCI)	Adient plc (NYSE:ADNT)	Ireland	24.07.15
62	National Australia Bank Limited (ASX:NAB)	Virgin Money UK PLC (LSE:VMUK)	Australia	07.05.15
63	Graham Holdings Company (NYSE:GHC)	Cable One, Inc. (NYSE:CABO)	United States	13.11.14
64	BWX Technologies, Inc. (NYSE:BWXT)	Babcock & Wilcox Enterprises, Inc. (NYSE:BW)	United States	31.10.14
65	HP Inc. (NYSE:HPQ)	Hewlett Packard Enterprise Company (NYSE:HPE)	United States	06.10.14
66	eBay Inc. (NasdaqGS:EBAY)	PayPal Holdings, Inc. (NasdaqGS:PYPL)	United States	30.09.14
67	LVMH Moët Hennessy - Louis Vuitton, Société Européenne (ENXTPA:MC)	Hermès International Société en commandite par actions (ENXTPA:RMS)	United States	03.09.14
68	Akastor ASA (OB:AKAST)	Aker Solutions ASA (OB:AKSO)	Norway	30.04.14
69	Edgewell Personal Care Company (NYSE:EPC)	Energizer Holdings, Inc. (NYSE:ENR)	United States	30.04.14
70	Paramount Global (NasdaqGS:PARA)	OUTFRONT Media Inc. (NYSE:OUT)	United States	02.04.14
71	Vodafone Group Public Limited Company (LSE:VOD)	Verizon Communications Inc. (NYSE:VZ)	United Kingdom	17.02.14
72	Occidental Petroleum Corporation (NYSE:OXY)	California Resources Corporation (NYSE:CRIC)	United States	14.02.14
73	Kimberly-Clark Corporation (NYSE:KMB)	Avanos Medical, Inc. (NYSE:AVNS)	United States	14.11.13
74	NOV Inc. (NYSE:NOV)	NOW Inc. (NYSE:DNOW)	United States	24.09.13
75	Agilent Technologies, Inc. (NYSE:A)	Keysight Technologies, Inc. (NYSE:KEYS)	United States	18.09.13
76	The Timken Company (NYSE:TKR)	TimkenSteel Corporation (NYSE:TMST)	United States	05.09.13
77	Oil States International, Inc. (NYSE:OIS)	Civeo Corporation (NYSE:CVEO)	United States	30.07.13
78	ONEOK, Inc. (NYSE:OKE)	ONE Gas, Inc. (NYSE:OGS)	United States	25.07.13
79	SLM Corporation (NasdaqGS:SLM)	Navient Corporation (NasdaqGS:NAVI)	United States	29.05.13
80	Pfizer Inc. (NYSE:PFE)	Zoetis Inc. (NYSE:ZTS)	United States	22.05.13
81	Drive Shack Inc. (OTCPK:DSHK)	New Senior Investment Group Inc.	United States	07.01.13
82	Trane Technologies plc (NYSE:TT)	Allegion plc (NYSE:ALLE)	Ireland	10.12.12
83	Siemens Aktiengesellschaft (XTRA:SIE)	Siemens Energy AG (XTRA:ENR)	Germany	28.11.12
84	Matson, Inc. (NYSE:MATX)	Alexander & Baldwin, Inc. (NYSE:ALEX)	United States	01.12.11
85	Abbott Laboratories (NYSE:ABT)	AbbVie Inc. (NYSE:ABBV)	United States	19.10.11
86	ConocoPhillips (NYSE:COP)	Phillips 66 (NYSE:PSX)	United States	14.07.11
87	Expedia Group, Inc. (NasdaqGS:EXPE)	TripAdvisor, Inc. (NasdaqGS:TRIP)	United States	07.04.11
88	Northrop Grumman Corporation (NYSE:NOC)	Huntington Ingalls Industries, Inc. (NYSE:III)	United States	15.03.11
89	Carrefour SA (ENXTPA:CA)	Distribuidora Internacional de Alimentación, S.A. (BME:DIA)	France	03.11.11
90	ITT Inc. (NYSE:ITT)	Xylem Inc. (NYSE:XYL)	United States	12.01.11
91	ArcelorMittal S.A. (ENXTAM:MT)	Aperam S.A. (ENXTAM:APAM)	Luxembourg	07.12.10
92	Currys plc (LSE:CURY)	TalkTalk Telecom Group PLC	United Kingdom	29.01.10
93	GAM Holding AG (SWX:GAM)	Julius Bär Gruppe AG (SWX:BAER)	United States	20.05.09

## Appendix - Individual Part Robin Krdzevic

**Table 2: Overview Sample (outliers excluded for the regression analysis)**

#	Parent company	Spin-off company	Country	Spin-off date
#	Company	Company	Country	Date
1	BorgWarner Inc. (NYSE:BWA)	PHINIA Inc. (NYSE:PHIN)	United States	06.12.22
2	MDU Resources Group, Inc. (NYSE:MDU)	Knife River Corporation (NYSE:KNF)	United States	04.08.22
3	Laboratory Corporation of America Holdings (NYSE:LH)	Fortrea Holdings Inc. (NasdaqGS:FTRE)	United States	28.07.22
4	ABB Ltd (SWX:ABBN)	Accelleron Industries AG (SWX:ACLN)	Switzerland	20.07.22
5	Kellanova (NYSE:K)	WK Kellogg Co (NYSE:KLG)	United States	21.06.22
6	Brookfield Corporation (TSX:BN)	Brookfield Asset Management Ltd. (TSX:BAM)	France	12.05.22
7	Aramark (NYSE:ARMK)	Vestis Corporation (NYSE:VSTS)	United States	10.05.22
8	Fortune Brands Innovations, Inc. (NYSE:FBIN)	MasterBrand, Inc. (NYSE:MBC)	United States	28.04.22
9	Johnson & Johnson (NYSE:JNJ)	Kenvue Inc. (NYSE:KVUE)	United States	12.11.21
10	General Electric Company (NYSE:GE)	GE HealthCare Technologies Inc. (NasdaqGS:GEHC)	United States	09.11.21
11	Post Holdings, Inc. (NYSE:POST)	BellRing Brands, Inc. (NYSE:BRBR)	United States	05.08.21
12	GSK plc (LSE:GSK)	Haleon plc (LSE:HLN)	United Kingdom	23.06.21
13	Bath & Body Works, Inc. (NYSE:BBWI)	Victoria's Secret & Co. (NYSE:VSCO)	United States	11.05.21
14	Becton, Dickinson and Company (NYSE:BDX)	Embeceta Corp. (NasdaqGS:EMBC)	United States	06.05.21
15	Dell Technologies Inc. (NYSE:DELL)	VMware, Inc. (NYSE:VMW)	United States	14.04.21
16	Enovis Corporation (NYSE:ENOV)	ESAB Corporation (NYSE:ESAB)	United States	04.03.21
17	Mercedes-Benz Group AG (XTRA:MBG)	Daimler Truck Holding AG (XTRA:DTG)	Germany	03.02.21
18	IAC Inc. (NasdaqGS:IAC)	Vimeo, Inc. (NasdaqGS:VMEQ)	United States	22.12.20
19	International Paper Company (NYSE:IP)	Sylvamo Corporation (NYSE:SLVM)	United States	03.12.20
20	International Business Machines Corporation (NYSE:IBM)	Kyndryl Holdings, Inc. (NYSE:KD)	United States	08.10.20
21	SolarWinds Corporation (NYSE:SWI)	N-able, Inc. (NYSE:NABL)	United States	06.08.20
22	Merck & Co., Inc. (NYSE:MRK)	Organon & Co. (NYSE:OGN)	United States	05.02.20
23	TD SYNNEX Corporation (NYSE:SNX)	Concentrix Corporation (NasdaqGS:CNXC)	United States	09.01.20
24	Continental Aktiengesellschaft (XTRA:CON)	Vitesco Technologies Group Aktiengesellschaft (XTRA:VTSC)	Germany	22.10.19
25	Brookfield Infrastructure Partners L.P. (NYSE:BIP)	Brookfield Infrastructure Corporation (NYSE:BIPC)	Bermuda	25.09.19
26	CNH Industrial N.V. (NYSE:CNIH)	Iveco Group N.V. (BIT:IVG)	United Kingdom	03.09.19
27	Fortive Corporation (NYSE:FTV)	Vontier Corporation (NYSE:VNT)	United States	01.09.19
28	Siemens Aktiengesellschaft (XTRA:SIE)	Siemens Energy AG (XTRA:ENR)	Germany	07.05.19
29	Eli Lilly and Company (NYSE:LLY)	Elanco Animal Health Incorporated (NYSE:ELAN)	United States	08.02.19
30	Atos SE (ENXTPA:ATO)	Worldline SA (ENXTPA:WLN)	United States	29.01.19
31	RTX Corporation (NYSE:RTX)	Otis Worldwide Corporation (NYSE:OTIS)	United States	26.11.18
32	FMC Corporation (NYSE:FMC)	Livent Corporation (NYSE:LTHM)	United States	15.10.18
33	Schibsted ASA (OB:SCHA)	Adevinta ASA (OB:ADE)	Norway	18.09.18
34	V.F. Corporation (NYSE:VFC)	Kontoor Brands, Inc. (NYSE:KTB)	United States	13.08.18
35	Kering SA (ENXTPA:KER)	PUMA SE (XTRA:PUM)	France	11.01.18
36	Trinity Industries, Inc. (NYSE:TRN)	Arcosa, Inc. (NYSE:ACA)	United States	12.12.17
37	Honeywell International Inc. (NasdaqGS:HON)	Resideo Technologies, Inc. (NYSE:REZI)	United States	10.10.17
38	Pentair plc (NYSE:PNR)	nVent Electric plc (NYSE:NVT)	United Kingdom	09.05.17
39	Aptiv PLC (NYSE:APTIV)	Delphi Technologies PLC	Ireland	03.05.17
40	Fidelity National Financial, Inc. (NYSE:FNF)	Black Knight, Inc.	United States	07.12.16
41	TEGNA Inc. (NYSE:TGNA)	Cars.com Inc. (NYSE:CARS)	United States	07.09.16
42	Element Fleet Management Corp. (TSX:EFN)	ECN Capital Corp. (TSX:ECN)	Canada	16.02.16
43	Xerox Holdings Corporation (NasdaqGS:XRXX)	Conduent Incorporated (NasdaqGS:CNDT)	United States	29.01.16
44	Conagra Brands, Inc. (NYSE:CAG)	Lamb Weston Holdings, Inc. (NYSE:LW)	United States	18.11.15
45	Ashland Inc. (NYSE:ASH)	Valvoline Inc. (NYSE:VUVV)	United States	22.09.15
46	Johnson Controls International plc (NYSE:JCI)	Adient plc (NYSE:ADNT)	Ireland	24.07.15
47	National Australia Bank Limited (ASX:NAB)	Virgin Money UK PLC (LSE:VMUK)	Australia	07.05.15
48	Graham Holdings Company (NYSE:GHC)	Cable One, Inc. (NYSE:CABO)	United States	13.11.14
49	BWX Technologies, Inc. (NYSE:BWXT)	Babcock & Wilcox Enterprises, Inc. (NYSE:BW)	United States	31.10.14
50	HP Inc. (NYSE:HPQ)	Hewlett Packard Enterprise Company (NYSE:HPE)	United States	06.10.14
51	Akastor ASA (OB:AKAST)	Aker Solutions ASA (OB:AKSO)	Norway	30.04.14
52	Edgewell Personal Care Company (NYSE:EPC)	Energizer Holdings, Inc. (NYSE:ENR)	United States	30.04.14
53	Paramount Global (NasdaqGS:PARA)	OUTFRONT Media Inc. (NYSE:OUT)	United States	02.04.14
54	Vodafone Group Public Limited Company (LSE:VOD)	Verizon Communications Inc. (NYSE:VZ)	United Kingdom	17.02.14
55	Kimberly-Clark Corporation (NYSE:KMB)	Avanos Medical, Inc. (NYSE:AVNS)	United States	14.11.13
56	NOV Inc. (NYSE:NOV)	NOW Inc. (NYSE:DNOW)	United States	24.09.13
57	Agilent Technologies, Inc. (NYSE:A)	Keysight Technologies, Inc. (NYSE:KEYS)	United States	18.09.13
58	The Timken Company (NYSE:TKR)	TimkenSteel Corporation (NYSE:TMST)	United States	05.09.13
59	Oil States International, Inc. (NYSE:OIS)	Civeo Corporation (NYSE:CVEO)	United States	30.07.13
60	Pfizer Inc. (NYSE:PFZ)	Zoetis Inc. (NYSE:ZTS)	United States	22.05.13
61	Drive Shack Inc. (OTCPK:DSHK)	New Senior Investment Group Inc.	United States	07.01.13
62	Trane Technologies plc (NYSE:TT)	Alliegeon plc (NYSE:ALLE)	Ireland	10.12.12
63	Siemens Aktiengesellschaft (XTRA:SIE)	Siemens Energy AG (XTRA:ENR)	Germany	07.05.19
64	Matson, Inc. (NYSE:MATX)	Alexander & Baldwin, Inc. (NYSE:ALEX)	United States	01.12.11
65	Abbott Laboratories (NYSE:ABT)	AbbVie Inc. (NYSE:ABBV)	United States	19.10.11
66	Expedia Group, Inc. (NasdaqGS:EXPE)	Tripadvisor, Inc. (NasdaqGS:TRIP)	United States	07.04.11
67	Northrop Grumman Corporation (NYSE:NOC)	Huntington Ingalls Industries, Inc. (NYSE:HII)	United States	15.03.11
68	Carrefour SA (ENXTPA:CA)	Distribuidora Internacional de Alimentación, S.A. (BME:DIA)	France	01.03.11
69	ITT Inc. (NYSE:ITT)	Xylem Inc. (NYSE:XYL)	United States	12.01.11
70	ArcelorMittal S.A. (ENXTAM:MT)	Aperam S.A. (ENXTAM:APAM)	Luxembourg	07.12.10
71	Currys plc (LSE:CURY)	TalkTalk Telecom Group PLC	United Kingdom	29.01.10

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**Table 3: Summary statistics wider sample**

Year	Overview wider sample													Total	
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		2022
Observations	1	2	7	2	9	10	4	6	5	8	9	7	13	10	93
Issuance Value															
USD 1bn - USD 10bn	1	2	5	1	7	7	4	6	5	6	8	7	6	9	74
> USD 10 bn	0	0	2	1	2	3	0	0	0	2	1	0	7	1	19
	<b>93</b>														
Countries															
United States	1	0	6	0	9	8	2	5	2	5	3	7	9	8	65
Switzerland	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
France	0	0	1	0	0	0	0	0	0	1	0	0	1	1	4
Canada	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
United Kingdom	0	1	0	0	0	1	0	0	1	0	1	0	1	0	5
Germany	0	0	0	1	0	0	0	0	0	0	2	0	1	0	4
Bermuda	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Sweden	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Norway	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Denmark	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Ireland	0	0	0	1	0	0	1	0	1	0	0	0	0	0	3
Australia	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Luxembourg	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	<b>93</b>														

**Table 4: Summary statistics sample without outliers**

Year	Overview without outliers for regression analysis													Total	
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		2022
Observations	0	2	6	1	7	7	4	4	4	5	8	6	9	8	71
Issuance Value															
USD 1bn - USD 10bn	0	2	5	1	6	5	4	4	4	4	8	6	4	7	60
> USD 10 bn	0	0	1	0	1	2	0	0	0	1	0	0	5	1	11
	<b>71</b>														
Countries															
United States	0	0	5	0	7	5	2	3	2	3	3	6	7	6	49
Switzerland	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
France	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3
Canada	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
United Kingdom	0	1	0	0	0	1	0	0	1	0	1	0	1	0	5
Germany	0	0	0	0	0	0	0	0	0	0	3	0	1	0	4
Bermuda	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Sweden	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
Denmark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ireland	0	0	0	1	0	0	1	0	1	0	0	0	0	0	3
Australia	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Luxembourg	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	<b>71</b>														

**Table 5: Return analysis output for the event period**

Event window (days)	-9	-8	-7	-6	-5	-4	-3	-2	-1	0
Average of ARR	-1.6%	-1.2%	-1.7%	-1.6%	-1.4%	-1.5%	-1.3%	-1.5%	-1.4%	-1.3%
Median of ARR	-1.7%	-1.3%	-1.5%	-1.4%	-0.9%	-1.4%	-1.0%	-1.3%	-1.2%	-1.3%
CARR	-1.6%	-2.7%	-4.4%	-6.0%	-7.5%	-8.9%	-10.2%	-11.7%	-13.2%	-14.4%
Min	-5.6%	-7.4%	-8.2%	-14.1%	-15.3%	-7.3%	-7.3%	-7.5%	-9.4%	-59.5%
Max	2.9%	6.6%	3.6%	3.6%	5.3%	2.9%	2.5%	1.9%	5.0%	76.6%
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Average of ARR	-1.5%	-1.1%	0.0%	-0.5%	-1.7%	-1.2%	-4.9%	-1.5%	-1.3%	-1.0%
Median of ARR	-1.2%	-1.1%	-0.8%	-1.3%	-1.9%	-1.3%	-1.3%	-1.3%	-0.9%	-1.1%
CARR	-15.9%	-17.0%	-17.0%	-17.5%	-19.2%	-20.5%	-25.3%	-26.8%	-28.1%	-29.1%
Min	-29.2%	-5.7%	-4.3%	-5.0%	-7.7%	-9.0%	-296.0%	-6.9%	-8.9%	-10.5%
Max	28.4%	6.3%	25.6%	15.5%	6.4%	4.1%	1.7%	5.6%	4.8%	10.4%

Number of observations = 93

**Table 6: Regression data analysis output**

Metric for Regression analysis (USDm)	Revenue per Employee	EBITDA per Employee	Issuance per Employee	Employees
Average		0.36	0.08	82,671
Median		0.30	0.06	33,090
Min		-	0.01	2,300
Max		0.97	0.42	383,800

Number of observations = 71

## Appendix - Individual Part Robin Krdzevic

**Table 7:** Regression analysis table output

Multi regression analysis						
Model	3.99350716	25	0.159740286			
Residual	1.84449398	45	0.409887550			
Total	5.83800114	70	0.083400016			
<b>CAR</b>	<b>Coefficient</b>	<b>Std. err.</b>	<b>t</b>	<b>P &gt;  t </b>	<b>[95% conf. intervall]</b>	
(Constant)	-83.82205	2.2629400	-1.98	0.053	-168.9440000	1.299880
Revenue	0.1671828	0.2431923	0.69	0.495	0.3226316	0.656997
EBITDA	-1.82636	0.7657973	2.38	0.021	-3.3687550	-0.283965
Issuance	0.6550719	0.1882371	3.48	0.001	0.2759430	1.034201
Year	0.0416089	0.2103150	1.98	0.054	-0.0007507	0.083969
<b>Country</b>						
Australia	-0.3058305	0.4224853	-0.72	0.473	-1.1567600	0.545099
Bermuda	-0.2780496	0.4369453	-0.64	0.528	-1.1581030	0.602003
Canada	-0.9742379	0.3987788	-2.44	0.019	-1.7774200	-0.171056
France	-0.6314101	0.3464875	-1.82	0.075	-1.3292720	0.066452
Germany	-0.7555576	0.3357489	-2.25	0.029	-1.4317910	-0.079325
Ireland	-0.6021098	0.3485880	-1.73	0.091	-1.3042020	0.099983
Norway	-0.4963404	0.3517577	-1.41	0.165	-1.2048170	0.212136
Switzerland	-0.4052994	0.3836477	-1.06	0.296	-1.1780060	0.367407
United Kingdom	-0.7368279	0.2909019	-2.53	0.015	-1.3227340	-0.150921
United States	-0.7632126	0.3140116	-2.43	0.019	-1.3946640	-0.130761
<b>Year</b>						
2009	Omitted					
2010	Omitted					
2011	0.5151972	0.2449316	2.10	0.041	0.0218796	1.008515
2012	0.6251101	0.2755031	2.27	0.028	0.7021850	1.180002
2013	0.4484222	0.1991861	2.25	0.029	0.0472408	0.849604
2014	0.3643238	0.1823685	2.00	0.052	-0.0029852	0.731633
2015	0.3312521	0.2078726	1.59	0.118	-0.0874248	0.749929
2016	0.4910774	0.1699249	2.89	0.006	0.1488311	0.833324
2017	0.6313669	0.1461713	4.32	0.000	0.3369628	0.925771
2018	0.4942035	0.1393820	3.55	0.001	0.2134737	0.774933
2019	0.5855391	0.1316711	4.45	0.000	0.3203400	0.850738
2020	0.6228439	0.1189384	5.24	0.000	0.3832897	0.862398
2021	0.4118183	0.1072417	3.84	0.000	0.1958224	0.627814
2022	Omitted					
N	71					
F(25, 45)	3.9					
Prob > F	0					
R-squared	0.6841					
Adj R-squared	0.5085					

## Appendix - Individual Part Robin Krdzevic

**Table 8:** Outlier identification and summary statistics - Revenue per Employee

<b>Revenue in Year of announcement</b>					
	Percentiles	Smallest			
1%	<b>0</b>	<b>0</b>			
5%	<b>0.077</b>	<b>0</b>			
10%	<b>0.171</b>	<b>0.048</b>	Obs		<b>77</b>
25%	<b>0.249</b>	<b>0.767</b>	Sum of wgt.		<b>77</b>
50%	<b>0.335</b>		Mean		<b>0.0438</b>
		Largest	Std.dev.		<b>0.0364</b>
75%	<b>0.549</b>	<b>1.178</b>			
90%	<b>0.775</b>	<b>1.200</b>	Variance		<b>0.013</b>
95%	<b>1.178</b>	<b>1.285</b>	Skewness		<b>3.067</b>
99%	<b>2.569</b>	<b>2.569</b>	Kurtosis		<b>16.899</b>

**Table 9:** Outlier identification and summary statistics - EBITDA per Employee

<b>EBITDA in Year of announcement</b>					
	Percentiles	Smallest			
1%	<b>-0.110</b>	<b>-0.110</b>			
5%	<b>0.003</b>	<b>-0.004</b>			
10%	<b>0.120</b>	<b>0.000</b>	Obs		<b>79</b>
25%	<b>0.370</b>	<b>0.003</b>	Sum of wgt.		<b>79</b>
50%	<b>0.643</b>		Mean		<b>0.123</b>
		Largest	Std.dev.		<b>0.194</b>
75%	<b>0.123</b>	<b>0.423</b>			
90%	<b>0.295</b>	<b>0.768</b>	Variance		<b>0.038</b>
95%	<b>0.423</b>	<b>1.041</b>	Skewness		<b>3.825</b>
99%	<b>1.154</b>	<b>1.154</b>	Kurtosis		<b>18.629</b>

**Table 10:** Outlier identification and summary statistics - Issuance per Employee

<b>Issuance per Employee</b>					
	Percentiles	Smallest			
1%	<b>0.004</b>	<b>0.004</b>			
5%	<b>0.146</b>	<b>0.010</b>			
10%	<b>0.023</b>	<b>0.107</b>	Obs		<b>91</b>
25%	<b>0.053</b>	<b>0.110</b>	Sum of wgt.		<b>91</b>
50%	<b>0.175</b>		Mean		<b>8.008</b>
		Largest	Std.dev.		<b>51.608</b>
75%	<b>0.043</b>	<b>17.971</b>			
90%	<b>1.463</b>	<b>49.976</b>	Variance		<b>2663.367</b>
95%	<b>7.492</b>	<b>149.583</b>	Skewness		<b>8.211</b>
99%	<b>469.267</b>	<b>469.267</b>	Kurtosis		<b>72.334</b>