

MASTER THESIS

Spring Term 2023

(As of 28. Februar 2023)

Prerequisites:

- Proficiency in Microsoft Excel and willingness to become acquainted with statistical analysis software (e.g., Stata)
- Solid command of English
- Ability to conduct own data research
- Good knowledge of methods in Corporate Finance (company valuation etc.)

Topics are either case studies or empirical studies in corporate finance. Therefore, conducting literature research in research journals and especially in books is generally less important compared to data research in newspapers, databases and/or homepages.

The thesis can be written in German or English. Specific requirements are noted in the individual topic descriptions.

Please refer to the information available on our homepage at <https://www.bwl.uni-mannheim.de/maug/lehre/masterlehre/masters-thesis/>, especially the document “How to Write a Thesis”.

For case studies, please regard the following references:

Company valuation:

- In general: see literature references for the course Corporate Finance 1 on our homepage
- Banks: Copeland, T. E., Koller, T., Murrin, J., 2000, Valuation, 3rd Ed., Wiley, Chapter 21
- Implementation in Excel: Benninga, S., 2008, Financial Modeling, 3rd Ed., MIT Press

Event studies:

- Lecture Slides, Corporate Finance 1, Event Study Methodology
- Example: Weston, J. F., Siu, J. A., Johnson, B. A., Takeovers, Restructuring, and Corporate Governance, 3rd Ed., Prentice Hall, Appendix B, pp. 171-185
- Formal representation: Campbell, J. Y., Lo, A. W., and MacKinlay, A. C., 1997, The Econometrics of Financial Markets, Chapter 4
- Additional Method for very (!) many events: Dittmann, I., Maug, E., Schneider, C. (2008), How Preussag became TUI: A Clinical Study of Institutional Blockholders and Restructuring in Europe, Financial Management, 37 (3), pp. 571-598

Topic 1: Johnson & Johnson acquires Abiomed

Supervisor: Minrui Gong

On November 1st, 2022, it was announced that Johnson & Johnson (NASDAQ: JNJ) reached a definitive agreement with Abiomed Inc. (NASDAQ: ABMD), a Danvers, Massachusetts-based circulatory support and oxygenation medical manufacturer, to acquire 100% of the latter's equity for 380 USD per share in cash. The offer price represents a bid premium of 50.75% based on Abiomed's closing price prior to the announcement (252.08 USD on October 31st, 2022). In addition, Abiomed's shareholders would receive a contingent value right (CVR) to receive up to 35 USD per share if certain commercial and clinical milestones are achieved. Mr. Joaquin Duato, Johnson & Johnson's CEO, commented on the deal: "The addition of Abiomed provides a strategic platform to advance breakthrough treatments in cardiovascular diseases and helps more patients around the world while driving value for our shareholders." Cardiovascular diseases are the leading cause of death worldwide, killing 17.9 million people globally each year, as estimated by the WHO.

Johnson & Johnson, founded in 1886 as a manufacturer of surgical dressings, has grown into a multinational conglomerate selling a wide range of health-care products under iconic brands worldwide. On November 12th, 2021, Johnson & Johnson announced its plan to spin off its consumer-health business, shifting its focus to the riskier yet faster-growing pharmaceutical and medical device markets. In 1981, Abiomed started off developing a fully implantable artificial heart called AbioCor. With a series of acquisitions thereafter, Abiomed further integrated cutting-edge technologies including Impella – the world's smallest heart pump – and ECMO (extracorporeal membrane oxygenation) into its product portfolio. In 2019, it ranked 19th on *Fortune*'s list of 100 fastest-growing companies.

The goal of this thesis is to evaluate the acquisition deal and to determine whether the acquisition terms were fair. To that end, the student should first perform a comprehensive industry analysis. Next, the student should conduct a fundamental and a multiple-based valuation for Abiomed, and discuss potential synergies. To assess stock market reaction around the merger announcement, the candidate is required to analyze the two companies and their competitors with event-study methods. The candidate should elaborate the results referring to relevant literature on market responses around M&A announcements.

Preliminaries: Ability to conduct company valuations and event studies in Excel.

Introductory Literature:

The announcement: <https://www.jnj.com/johnson-johnson-to-acquire-abiomed>

WHO on cardiovascular diseases: https://www.who.int/health-topics/cardiovascular-diseases#tab=tab_1

Topic 2: Xylem acquires Evoqua

Supervisor: Minrui Gong

On January 23rd, 2023, Xylem Inc. (NYSE: XYL), a US-based water-technology provider, announced the acquisition of Evoqua Water Technologies Corporation (NYSE: AQUA) in an all-stock deal with an estimated value of 7.5 billion USD. Under the definitive agreement, investors would receive 0.48 of Xylem share for each Evoqua share. This implies an offer price of 52.89 USD per share, which represents a bid premium of 28.90% based on Evoqua's closing price prior to the announcement (37.89 USD per share on January 20th, 2023). The acquisition would create the world's largest pure-play water technology company. After the acquisition, Evoqua's shareholders will own around 25% of the combined company. Patrick Decker, Xylem's CEO, said: "Our acquisition of Evoqua creates a transformative global platform to address water scarcity, affordability and resilience at even greater scale." Mr. Decker will lead the combined company after the acquisition closes. Water safety is a key element to ending extreme poverty on an international level. SDG (Sustainable Development Goal) 6, as specified by the United Nations (UN), is to provide safely managed water and sanitation for all by 2030. According to a 2021 report by UN-Water, 2.3 billion people worldwide currently live in water-stressed countries.

Xylem was spun off from ITT Corporation in 2011. Recognized as a global leader in water technologies, Xylem enables customers to transport, treat, test and efficiently use water in public utility, commercial, agricultural and industrial settings. Evoqua, once a subsidiary of Siemens AG, was formed in 2013 after the acquisition by AEA Investors LP. Evoqua offers a comprehensive portfolio of differentiated technology solutions to support customers' full water cycle needs.

The goal of this thesis is to evaluate the acquisition deal and to determine whether the acquisition terms were fair. To that end, the student should first perform a comprehensive industry analysis. Next, the student should conduct a fundamental and a multiple-based valuation for Evoqua, and discuss potential synergies. To assess stock market reaction around the merger announcement, the candidate is required to analyze the two companies and their competitors with event-study methods. The candidate should elaborate the results referring to relevant literature on market response around M&A announcements.

Preliminaries: Ability to conduct company valuations and event studies in Excel.

Introductory Literature:

The announcement: [https://www.xylem.com/en-us/about-xylem/newsroom/press-releases/xylem-to-acquire-evoqua-in-\\$7.5-billion-all-stock-transaction/](https://www.xylem.com/en-us/about-xylem/newsroom/press-releases/xylem-to-acquire-evoqua-in-$7.5-billion-all-stock-transaction/)

UN-Water: <https://www.unwater.org/water-facts/water-scarcity>

Topic 3: L3Harris acquires Aerojet Rocketdyne

Supervisor: Minrui Gong

On December 19th, 2022, it was announced that L3Harris Technologies, Inc. (NYSE: LHX) reached an agreement with Aerojet Rocketdyne Holdings, Inc. (NYSE: AJRD), a California-based aerospace and defense manufacturer, to acquire the latter in an all-cash deal valued at 3.6 billion USD. The offer price is 58 USD per share, representing a bid premium of 5.67% based on Aerojet Rocketdyne's closing price prior to the announcement (54.89 USD per share on December 16th, 2022). On October 25th of the same year, Aerojet Rocketdyne was reportedly soliciting acquisition offers. Among the interested are General Electric Company, Textron, Veritas Capital Partners, as well as L3Harris. By the time of the announcement, the target's stock price had risen by more than 20%. The deal might face strong opposition from the industry and strict scrutiny from the regulators. Constant consolidation in the US defense industry has led to growing antitrust concerns. On February 15th, 2022, the Federal Trade Commission blocked an attempted acquisition of Aerojet Rocketdyne by Lockheed Martin following opposition from Raytheon, arguing that the deal would give the acquirer unfair market power over its competitors.

L3Harris is an international communication and information technology company offering a wide range of products, systems and services to defense, civil, government and commercial customers. In 2021, deriving over 80% of its revenue from the defense sector, L3Harris ranked 7th by revenue among the largest US defense contractors. Aerojet Rocketdyne is a US manufacturer of liquid and solid rocket propulsion, air-breathing engines, and electric power and propulsion for space, defense, civil and commercial applications. Its customers include prime contractors to the US government, DoD, and NASA.

The goal of this thesis is to evaluate the acquisition deal and to determine whether the acquisition terms were fair. To that end, the student should first perform a comprehensive industry analysis. Next, the student should conduct a fundamental and a multiple-based valuation for Aerojet Rocketdyne and discuss potential synergies. To assess stock market reaction around the merger announcement, the candidate is required to analyze the two companies and their competitors with event-study methods. The candidate should elaborate the results referring to relevant literature on market response around M&A announcements.

Preliminaries: Ability to conduct company valuation and event studies in Excel.

Introductory Literature:

The announcement: <https://www.l3harris.com/newsroom/press-release/2022/12/l3harris-acquire-aerojet-rocketdyne>

Report on Aerojet Rocketdyne soliciting acquisition offers: <https://www.reuters.com/markets/deals/exclusive-rocket-maker-aerojet-solicits-acquisition-offers-sources-2022-10-25/>

Topic 4: Pfizer Inc. acquires Global Blood Therapeutics

Supervisor: Bastian Koch

On August 8th 2022 it was announced that Pfizer Inc. (NYSE: PFE) entered into a definitive agreement to acquire Global Blood (NYSE: GBT). Pfizer would pay USD 68.5 per share of Global Blood, in cash. The estimated enterprise value is USD 5.4 billion. Based on the closing share price of USD 63.84 on 05/08/22, the last trading day before the announcement, this offer represents an announced bid premium of 7.3%. Based on the closing share price of USD 32.93 on 02/08/22, the last trading day before the rumour, this offer represents a rumour bid premium of 108%. Mr. Ted W. Love, CEO of Global Blood, said "Pfizer will broaden and amplify our impact for patients and further propel much-needed innovation and resources for the care of people with sickle cell disease and other rare diseases, including populations in limited-resource countries. We look forward to working together with Pfizer to serve our communities and advance our shared goal of improving health equity and expanding access to life-changing treatments to create a healthier future for all."

Pfizer Inc. is a research-based biopharmaceutical company. The Company is engaged in the discovery, development, manufacture, marketing, sale, and distribution of biopharmaceutical products around the world. The Company operates through two segments: Biopharma and PC1. Biopharma is a science-based medicines business that includes six therapeutic areas, such as Vaccines, Hospital, Oncology, Internal Medicine, Rare Disease, and Inflammation & Immunology. PC1 is its global contract development and manufacturing organization and supplier of specialty active pharmaceutical ingredients.

The goal of this thesis is to evaluate the acquisition deal and to determine whether the acquisition terms were fair. To that end, the student should first perform a comprehensive industry analysis. Next, the student should conduct a fundamental and a multiple-based valuation for Global Blood Therapeutics, and discuss potential synergies. To assess stock market reaction around the merger announcement, the candidate is required to analyze the two companies and their competitors with event-study methods. The candidate should elaborate the results referring to relevant literature on market response around M&A announcements.

Preliminaries: Ability to conduct company valuations and event studies in Excel or Stata.

Introductory Literature:

The announcement: <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-completes-acquisition-global-blood-therapeutics>

Report on the acquisition: <https://www.reuters.com/business/healthcare-pharmaceuticals/pfizer-buy-global-blood-therapeutics-54-bln-deal-2022-08-08/>

Topic 5: About You AG IPO

Supervisor: Bastian Koch

ABOUT YOU AG, a Germany-based online clothing retailer announced plans for an initial public offering during the summer of 2021. On 16/06/2022 it was announced that the final offer price has been set at €23 per share. Overall, the 31,832,300 shares covering the base offer value the overall listing at €841,964,335. Mr. Tarek Muller, co-founder and member of the management board, said that the IPO "[...] makes an exciting step toward realizing our vision of becoming the leading global fashion platform. We have gone from strength to strength since founding ABOUT YOU seven years ago, having established one of the largest European fashion offerings for Generation Y&Z. But this is just the beginning. Fashion e-commerce will become even more digital, mobile, personalized, and inspirational in the years to come, and we are in a strong position to lead this transformation. "

Founded in 2014 as a subsidiary of the Otto Group it quickly became one of Germany's unicorns. ABOUT YOU aims to digitize the classic shopping stroll by creating a more personalized shopping experience on the smartphone. Today with more than 30 million unique monthly active users, ABOUT YOU is one of the largest fashion and lifestyle platforms in Europe. It is currently active in 23 European markets. The company tries to differentiate itself from other online retailers by offering its own e-commerce infrastructure as a licensed product and by selling its own fashion label in stationary retail stores.

The goal of this thesis is to value ABOUT YOU and determine whether the offer price of EUR 23 per share was fair. To do so, the student should perform a comprehensive analysis of the industry. Then, the student should perform a fundamental valuation and a multiples-based valuation. To assess the market reaction to the announcement, the student is required to perform a study of ABOUT YOU's competitors. The student should elaborate on the first day return by looking at the relevant academic literature on first day IPO returns.

Preliminaries: Ability to conduct company valuations and event studies in Excel or Stata.

Introductory Literature:

Company Website: <https://corporate.aboutyou.de/en/about-us>

Prospectus: https://ir.aboutyou.de/websites/about-you/German/9999/pdf-download.html?file-name=ABOUT_YOU_Holding_AG_Prospectus.pdf&lg=de

Further information: <https://ir.aboutyou.de/websites/about-you/English/1/listing.html>

Topic 6: Cherry AG IPO

Supervisor: Bastian Koch

On June 7th, 2021, it was announced that Cherry AG, the Munich, Germany based computer input device manufacturer is looking to list on the Frankfurt Stock Exchange. The listing is to consist of new shares for proceeds of approximately EUR 140 million and an undisclosed volume of existing shares. The proceeds are to be used for organic and inorganic growth, and the repayment of debt. The overall base offer includes 9.3 million shares with an upside option of 2 million shares and an additional 1.695 million to cover potential over-allotment options. On June 23rd, 2021 it was announced that the price per share has been set at EUR 32, valuing the base offer at EUR 297.6 million. On June 29th, 2021, the transaction has been completed with a final share price of EUR 32, the transaction was oversubscribed, including the upside and over-allotment options, valuing the company at EUR 415.83 million. Mr. Rolf Unterberger, CEO of Cherry, said “Cherry is the worldwide leading manufacturer of switches for the premium gaming mechanical keyboard market. We are at an exciting growth stage and are looking forward to this next chapter in Cherry’s development.”

Cherry is a globally active manufacturer of high-end switches for mechanical keyboards and of computer input devices. Its business focusses on mechanical keyboard switches for gaming keyboards and on computer input devices used in a variety of settings, mainly for gaming, office, industry, cybersecurity protection as well as telematics solutions for healthcare practices. Since its foundation in 1953, Cherry stands with its two business areas, Gaming and Professional, for innovative and premium quality products developed specifically for the needs of its customers.

The goal of this thesis is to value Cherry AG and determine whether the offer price of EUR 32 per share was fair. To do so, the student should perform a comprehensive analysis of the industry. Then, the student should perform a fundamental valuation and a multiples-based valuation. To assess the market reaction to the announcement, the student is required to perform a study of Cherry’s competitors. The student should elaborate on the first day return by looking at the relevant academic literature on first day IPO returns.

Preliminaries: Ability to conduct company valuations and event studies in Excel or Stata.

Introductory Literature:

IPO Prospectus: <https://www.boersengefluester.de/wp-content/uploads/assets/annu-als/2020/A3CRRN.pdf>

Topic 7: Acquisition of Duke Realty Corp. by Prologis Inc.

Supervisor: Bastian Koch

On June 13th, 2022, it was announced that Prologis Inc. (NYSE:PLD) reached a definitive agreement with Duke Realty Corp. (NYSE: DRE), an Indianapolis, Indiana-based office, industrial, retail, and healthcare real estate investment trust service. Under the terms of the agreement, Prologis would acquire Duke Realty through Compton Merger Sub LLC. As per the terms, Duke Realty shareholders would receive 0.475 shares of Prologis for each share they own. Based on Prologis' closing share price of USD 117.24 on 10/06/22, the previous working day before the announcement, the offer price is USD 55.69. The offer price represents a rumor date bid premium of 16.7% over the closing share price on 09/05/22, and an announced date bid premium of 1% over the closing share price of USD 49.78 on 10/06/22, the last trading day before the announcement. The deal is valued at approximately USD 26 billion. Mr. Hamid R Moghadam, CEO and co-founder of Prologis, said, "We are confident that the proposed combination will be a win-win for our respective shareholders. Prologis has a proven track record serving as a leader and innovator in our industry. We are known for providing exceptional service to customers and delivering superior value for our shareholders, including the shareholders of companies we have merged with or acquired in the past. We have no doubt that Duke Realty's shareholders would similarly benefit from long-term value created by the combination of our companies."

Prologis Inc. is the leading global provider of industrial real estate, offering customers more than 600 million square feet of distribution space (55.7 million square meters) in markets throughout the Americas, Europe and Asia. It leases its 3,500 industrial facilities in 22 countries to manufacturers, retailers, transportation companies, third-party logistics providers and other enterprises with large-scale distribution needs. With more than USD44 billion under management, the company invests in properties located predominantly in the infill submarkets of its targeted markets. Its portfolio comprises High Throughput Distribution (HTD) facilities built for speed located near key seaports, airports and major freeway interchanges. These facilities are essential to creating efficiencies in the global supply chain.

The goal of this thesis is to evaluate the acquisition deal and to determine whether the acquisition terms were fair. The total consideration was USD 26 billion. To that end, the student should first perform a comprehensive industry analysis. Next, the student should conduct a fundamental and a multiple-based valuation for Duke Realty Corp. and discuss potential synergies. To assess stock market reaction around the merger announcement, the candidate is required to analyze the two companies and their competitors with event-study methods. The candidate should elaborate the results referring to relevant literature on market response around M&A announcements.

Preliminaries: Ability to conduct company valuations and event studies in Excel or Stata.

Introductory Literature:

Deal announcement: <https://www.marketscreener.com/quote/stock/IFA-SYSTEMS-AG-471667/news/Nexus-AG-entered-into-a-share-purchase-agreement-to-acquire-52-56-stake-in-ifa-systems-AG-from-Topc-34271382/>

Topic 8 : The Carve-out of Porsche

Supervisor: Henrietta Oppong-Adjei

On September 19, 2022, it was announced that Volkswagen AG would take its subsidiary Dr. Ing. h. c. F. Porsche public through an IPO. Rumors about the deal started as far back as February 18, 2022. Volkswagen intended to list up to 25% of Porsche on the Frankfurt Stock Exchange. Initial reports suggested that, even though Porsche CEO Mr. Oliver Blume would support the listing if Volkswagen pursued it, Volkswagen CEO Mr. Hebert Diess was not interested in the listing. On February 24, 2022, it was reported that Porsche and Volkswagen had reached an agreement concerning the listing, and subject to shareholder approval, Porsche would proceed with the IPO.

Volkswagen is an international leader in the automobile manufacturing industry headquartered in Germany. It was founded in 1937 and has steadily increased its market share through various acquisitions. Up until the carve-out, Porsche was a strong subsidiary of Volkswagen. Porsche specializes in the production of high-performance sports cars, such as the iconic 911 model. In 2009, Volkswagen acquired a majority stake in Porsche AG and integrated it as a holding company under the Volkswagen Group. This move allowed Volkswagen to expand its product portfolio and strengthen its position in the luxury car market. The acquisition was part of Volkswagen's long-term strategy to become the world's leading automaker and diversify its revenue streams.

The prospectus for the IPO was published on September 19, 2022. Porsche was divided into 911 million shares, half of which were ordinary shares and the other half preferred shares. 25% of the total preferred shares were to be issued in the base offering with about 14.9 million shares as an over-allotment option. The issuing price was set between EUR 76.5 and EUR 82.5 per share. The offer period was between September 20, 2022, and September 28, 2022. The listing eventually took place on September 29, 2022, with an issue price of EUR 82.5, and a total of 113.875 million shares were issued.

The goal of the study is to evaluate the carve-out and determine whether the offer price of EUR 82.5 was fair. The student is also required to assess the market reaction around the announcement of the IPO. To this end, the student examines Volkswagen and its competitors, as well as the competitors of Porsche, in an event study. The student should also examine the medium to long-term effects of the divestiture by comparing the stock price movements of these two companies with the stock price movement of Volkswagen before the carve-out and elaborate on the effect in light of the relevant literature on the effects of carve-outs and IPOs.

Preliminaries: Ability to conduct company valuations and event studies in Excel or Stata.

Introductory Literature:

<https://newsroom.porsche.com/en/2022/company/porsche-ag-initial-public-offering-p911-frankfurt-stock-exchange-29830.html>

<https://www.cityindex.com/en-uk/news-and-analysis/everything-you-need-to-know-about-the-porsche-ipo/>

<https://www.teslarati.com/porsche-stock-top-40-ipo/>