ABB CHASING HIGHER MARGINS – FOCUSES ON CORE BUSINESS

A CASE STUDY CONCERNING THE DIVESTMENT OF ABB POWER GRIDS

Lovisa Berglund* Filip Fröjd**

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Abstract

In this paper the divestment of a business unit made by the Swedish-Swiss company ABB to the Japanese company Hitachi will be studied. The paper follows a case study methodology and aims to answer why ABB made this divestment as well as if the transaction was successful and at a fair price. Further, it contributes to learning about why firms are narrowing their business' focus. An important actor in this process was the Swedish activist investor Cevian Capital, who initiated this deal. The paper concludes that in the beginning of 2018, ABB was a company operating with the divisions Automation, Electrification and Robotics as their core business, why a divestment of their Power Grids operations allowed for a narrower business approach. Simultaneously, Hitachi wanted to internationalize and broaden its customer base. According to the calculations performed in the thesis, the valuation of Power Grids seems to be fair. The business was sold for 11 billion dollars whereas the report's valuation points somewhere in the range of 10 to 12 billion dollars. Overall, the transaction is considered to be successful according to stakeholders. The result was in line with previous literature which claims that industrial conglomerates need to narrow their scope.

Keywords: Mergers and Acquisitions, Divestment, Conglomerate

Supervisor: Ran Guo, Assistant Professor, Stockholm University

*24436@student.hhs.se

**24428@student.hhs.se

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1. Introduction

During the 1970s, a global trend swept in across the business world where large companies started diversifying their portfolios. By diversifying their portfolio of companies and business units they decreased the industry specific risk that the group experiences if one company or industry in their portfolio should perform poorly (Ansoff, 1957). Many companies used acquisitions to grow and become conglomerates (Guilen & Garcia-Canal, 2010). However, when the 1990s came around, the conglomerates began divesting their business units that did not belong to their core business in order to specialize and focus on improvements (Davis et al., 1994). However, some larger industrial conglomerates prevailed, such as ABB, GE, and Toshiba.

Mergers and acquisitions have always been a part of businesses strategy and planning, as well as a driving factor in the rise and fall of conglomerates. Over the years the perceived success of M&A deals has varied. From the trend in the 70s where diversification was trending (Servaes, 1996) to today when more companies see advantages in narrowing its business (Spitale, 2021). Regardless, a way forward for both diversifying your business or narrowing it is to perform transactions. Reasons for why firms choose to acquire are plenty, but some common reasons are stimulating growth, gaining competitive advantages through intangible assets, increasing market share, extracting synergies, influencing supply chains through vertical integration, or eliminating competition through horizontal integration (Duksaitė et al., 2011). Reasons for why firms choose to divest are also several and some are brought forward by Spitale (2021), who states that limiting opportunities can lead to positive aspects for a business, such as stronger brand positioning, differentiation, better success in offering high margin products, and easier to communicate are just some positive aspects of narrowing the business. Although, this does not mean that a firm trying to have a differentiated product offering can not participate in M&A deals or have it as a part of their strategy. As long as the acquired company is in line with the differentiated offering an acquisition can be a great way of eliminating competition or growing the business, e.g. in buy-and-scale strategies (Berger-de León et al., 2022). A firm that wants to narrow its business does not always have to find a buyer. A way of divesting a part of a business can be through starting a completely new one, a so-called spin-off (Fryges et al., 2014).

For this case study ABB's divestment of their business area Power Grids will be in focus. ABB had for a long time focused its operations around four units, Automation, Robotics, Electrification, and Power Grids. Activist investor Cevian Capital and other important owners aligned in the philosophy that narrowing the business, in particular divesting Power Grids, would improve the performance of the firm. Their perspective follows previous literature mentioned above, which indicates that divestment leading to a more narrow focus is a positive strategic move. Ulrich Spiesshofer, who was the CEO at the time, and the management of ABB decided to adhere to the strong wishes of major shareholders that had been voiced for quite a few years. ABB sold its business unit Power Grids to the Japanese firm Hitachi, first through a jointly owned subsidiary. Eventually, ABB and Hitachi finalized the deal and Hitachi ABB Power Grids became Hitachi Energy, fully owned by Hitachi.

This case study will elaborate on the reasons for why this deal took place, what led up to the decision, and how the different stakeholders acted. The case study will also investigate the valuation and whether or not it was reasonable. Lastly, it will be analyzed how the outcome of the deal was perceived by stakeholders, and if the transaction is to be viewed as successful. To narrow the scope of the case study, the authors have formulated three research questions that will form the basis of the study:

I. Why did ABB choose to divest Power Grids?
II. Was the transaction successful and performed at a fair price?
III. How can this transaction contribute to the overall knowledge in the field of how conglomerates benefit from narrowing its business?

The outcome of the study concludes that the transaction overall was successful. Both the selling side and the buying side were pleased by the transaction and experienced positive effects going forward. For ABB the transaction made it possible to focus on the high margin, core business as well as initiating a share buyback program. The share price naturally reacted positively. Hitachi acquires a company that fits well into their organization and sustainability focus, meaning ABB found a responsible buyer that would cherish their acquisition. The valuation was also concluded to be fair considering comparable companies, precedent transactions, and a DCF valuation. The actual transaction had a price in the middle of the range suggested from this study's valuation. Therefore, the valuation was concluded to be fair for both parties.

1.1. Purpose

The purpose of this thesis is twofold. First, the thesis aims to evaluate why ABB chose to divest its Power Grids division, if the transaction was successful and at a fair price, and explore how this case can inform the debate on the optimal business scope of industrial companies. Secondly, the thesis will serve as a base for material that can be used for teaching purposes for the Department of Finance at the Stockholm School of Economics.

1.2. Knowledge Contribution and Aim

The main contribution of this thesis is to bring a practical case study to exemplify the research performed in the area of conglomerates and how they need to specialize their business focus. Even though there is a lot of research done in the area, especially on data from the 1970s to the 1990s, there is a need for research performed on the conglomerates that prevailed across the globe. Studies like this have been done for specific industries or regions, but are not covering the entire business world, and electric grid companies are scarce in previous research. The thesis aims to offer empirical insights by exemplifying and evolving findings in previous literature through following a specific company and transaction. The contribution to previous literature will occur through a real-world example of how and why ABB as a conglomerate divested one of its business areas, ABB Power Grids. Furthermore, the thesis will aim to contribute to the debate regarding if conglomerates benefit from narrowing the business focus and become more specialized.

1.3 Limitations

The case study methodology in itself comes with some limitations. According to Yin (1994), generalizing conclusions can be difficult when conducting a case study. Therefore, the conclusions are first and foremost applicable to the specific case of the transaction of ABB Power Grids. However, comparisons will be made to previous literature to understand if the transaction is similar to previous cases in some aspects, specifically the benefits of narrowing the scope in conglomerates. Due to the limited time, but also in order to make this paper reasonable in length, it has been chosen to limit the case study to top management's perspective. As described under 3.3.1 Interviews, there are positive aspects of limiting the perspectives to management and partners since they have more first-hand experience of the events. However, this excludes the perspective of general employees.

2. Literature Review

In the following section, the previous literature conducted in this area is examined. It starts by explaining the reasons behind diversification and the rise of conglomerates in the 1970s. Thereafter, the fall of conglomerates in the 1990s will be described through previous research, which will be the main focus in the thesis discussion. Lastly, a short description of a new rise of technology conglomerates is included to describe a more current trend.

2.1. The Rise of Conglomerates

To understand why firms merge a key phenomenon to understand is diversification. Through dividing cash inflow and profits between different businesses, maybe even businesses operating within different industries, a conglomerate gets less sensitive for industry and firm specific downturns (Ansoff, 1957). By merging or acquiring businesses a firm diversifies its risk and hence becomes a safer investment. Guilen and Garcia-Canal (2010) also discuss the benefit of acquisitions by exemplifying how Spanish firms have gained their international breadth. Their acquisition strategy helped them compete with multinational firms and grow at a speed higher than organically (Guilen & Garcia-Canal, 2010).

Other research has examined how the company's valuation is affected by a diversification strategy. In the early 70s previous research described a trend of diversifying. Servaes (1996) examines the value of diversification and if there is a diversification discount. The author found a large diversification discount during the 60s, meaning that the diversified companies trade at a premium. Furthermore, Laeven and Levine's (2007) examines market valuations for financial institutions and whether it is influenced by the diversity of its activities. They find that diversification discount is lower where financial conglomerates are involved in many activities than for those financial institutions that broke down these activities into financial intermediaries which each have a specialization in these activities (Laeven & Levine, (2007).

Rumelt (1982) describes an appropriate form of diversification where economies of scope balances with diseconomies of organizational scale. The author also discusses what makes a firm's businesses related, and mentions that the degree to which a firm's businesses are 'related' depends on the nature of the core factor they share. Further, the relatedness also

concerns the degree to which the association between the factor and businesses using it is idiosyncratic (Rumelt, 1982).

2.2. The Fall of Conglomerates

Servaes (1996) did not only see benefits with diversification in his research. A big concern Servaes raises is the manager's potential hunger for private benefits that might occur when merging companies. This is a typical example of a principal-agent problem, where the managers represent the agents (Servaes, 1996). Likewise, Laeven and Levine (2007) discuss the agency problem associated. Furthermore, Servaes (1996) discusses the diversification discount that was predominant during the 1960s. The researcher found this diversification discount decreasing to zero during the 1970s, which proved that this benefit for conglomerates disappeared (Servaes, 1996). The evidence presented by Servaes, combined with the evidence of Lang and Stulz (1994) and Berger and Ofek (1995), shows that, in general, diversification has not been beneficial for firms operating in the US market.

Davis et al. (1994) discuss how the conglomerates that were a popular organizational form in the 1980s declined in popularity in the 1990s, only a decade later. The authors gathered time-series data on US largest firms in the 1980s. The data supports that there are two different processes that drive the deinstitutionalization of conglomerates. The first process consisted of conglomerates not standing the competition on the market and needing to sell off some of their business areas. The second process was that firms who were more specialized disagreed with the way conglomerates operated and grew. These two processes led to the largest US firms becoming more specialized in the 1990s. The authors also commented on how the rethorics changed in the society where the “firm-as-a-portfolio” became less commonly used and the emphasis laid more on companies working together in a network. Thereby, that status of the conglomerates as rulers of the business world was replaced by them being viewed as networks that lacked boundaries where individual firms connected and cooperated (Davis et al., 1994).

Ramachandran, Manikandan, and Pant (2013) also discuss how US conglomerates have decreased their market share and performance after the 1980s, which strengthens the argument for streamlined businesses. One market type that seems to go against this trend is emerging markets. In these markets, conglomerates that are diversified and have many

unrelated business areas are thriving. The article describes how the researchers have performed a study on Indian businesses during a period of five years. The businesses they have studied have a structure that builds upon independent companies within a group, which differs from divisions within the same company. This independence is of a legal form and allows the group's individual companies to raise capital and determine different strategies that suit each specific company. The group's companies are supervised by the group center, but they do not report directly to the group. The group center is defined as "a management layer in the group chairperson's office" (Ramachandran et al. 2013), which organizes the unity experienced by the companies' employees, helping companies aim for opportunities, share resources, and cooperation of strategy implementation. In the Indian market that the authors have studied, these groups outperform other companies.

Other researchers have discussed how conglomerates have evolved over time. In an article in The Economist (2019), it is mentioned that even though some are of the opinion that conglomerates are inefficient and experience a lack of focus, they are still relevant and will not die out. However, what seems to have happened is that the conglomerates have evolved and have a more clear focus. Furthermore, innovative business ideas have been created by combining two different industries. In general, this ability to adapt and evolve will ensure they continue to play an important part in the industry (The Economist, 2019).

There seems to be others sharing the belief that conglomerates adapt and survive. Yu (2021) argues that even though many larger companies have been splitting up to become smaller, independent entities, conglomerates are still playing in the market. Some of these conglomerates have remained the same as before with diverse divisions in the group. The author points out that economies of scale, diversifying risk, and cross-selling are benefits these conglomerates still draw upon. However, one point of survival seems to be management, since successful conglomerates are well managed (Yu, 2021).

2.3 And Rise Again

Mims (2021) discusses how the traditional conglomerates have diminished in power and strength and a new form of conglomerates have emerged during the last years. The author writes about how companies such as Amazon, Microsoft, and Apple have become technology conglomerates. The large technology companies have become more diversified and now

operate in many different business areas within technology, such as software, hardware, cloud services, and e-commerce. The author argues that the companies ability within technology allows them to expand into these new business areas and seize opportunities as well as acting as disruption for the traditional companies who lack the same access to technological solutions. These technology conglomerates are expected to continue growing and hold power in the coming years (Mims, 2021).

Panigrahi et al. (2020) also discussed this subject in their research paper about the new trends in conglomerates. The researchers investigate the reasons why technology conglomerates have become more popular in recent years as well as advantages and disadvantages of being a conglomerate. To exemplify this, they have done a case study about Facebook, its acquired companies and the benefits in acquiring businesses in different business areas (Panigrahi et al., 2020).

2.4. Conclusion

In conclusion, previous literature has studied the rise and fall of conglomerates over the years. The rise of conglomerates was driven by a will to minimize firm and industry specific risk through diversification (Ansoff, 1957). Servaes (1996) as well as Laeven and Levine (2007) studied the diversification discount that prevailed in the 1960s but decreased in the 1970s, when agency problems of managers merging for personal benefits diminished the diversification discount. During the 1990s, the conglomerate trend seems to be fading and Davis et al. (1994) argues that this is driven by conglomerates being forced to sell off business areas when they cannot stand the competition and earlier conglomerates that are now more specialized which denounce the conglomerates' processes. There seem to be discussions regarding if conglomerates have died out or if they are still a prevailing business model. Ramachandran, Manikandan, and Pant (2013) study emerging markets, where conglomerates still are a driving force. Other articles, such as The Economist (2019), mentions that the conglomerates that are present today have evolved and have a more clear focus. Yu (2021) also shares the belief that conglomerates adapt and survive and that economies of scale, diversifying risk, and cross-selling are benefits these conglomerates still draw upon. Further, Yu (2021) argues that the surviving and successful conglomerates are led by well functioning management. Furthermore, there is evidence of a new conglomerate wave of technology companies nowadays (Mims, 2021).

3. Methodology

In the following section, the methodology for this case study will be explained. This contains a description of the research question, the case study method, the data collection, and valuation methods, including the illiquidity discount. Furthermore, the research methodology will be examined critically to describe the credibility of the case study and how it has been improved by conscious choices.

3.1. Research Question

There is a lot of research done on the topic of mergers and acquisitions. Most of the research is made on firms operating in the US market during the 60s, 70s, and 80s. The authors of this thesis believes that the divestment of Power Grids made by ABB to Hitachi in the late 2010s will contribute with important insights from a recent major transaction to existing research. The authors found this divestment/acquisition particularly interesting since it covered two completely different geographical locations. Further, the business in question operates in the energy sector, which lately has become a sector of utmost importance for the world's safety and prosperity. With this in mind, three research questions have been formulated.

I. Why did ABB choose to divest Power Grids?
II. Was the transaction successful and performed at a fair price?
III. How can this transaction contribute to the overall knowledge in the field of how conglomerates benefit from narrowing its business?

3.2. The Case Study Method

Due to the descriptive nature of the research question, the authors have employed a case study methodology for the thesis. In his book, Yin (1994) has explained the case study method to be fitting when there is predominantly qualitative gathering of information that exists in a particular context. The case in question does have a lot of data but the main factors are variables, which makes a case study an appropriate method to follow. The authors of this thesis were trying to gain insights into real life events when ABB divested Power Grids by studying phenomena in their contexts. This approach is suitable since a variety of factors concerning the transaction is explored. Moreover, the case studies a strategic decision made

by corporate giants and according to Gibbert, Ruigrok and Wicki (2008) the method has proven to be successful in testing theory in the strategic field.

3.3. Data

3.3.1 Interviews

Most of the data retrieved in this thesis originated from performed interviews. Interviews have been performed with people who have experience from both the sell side and the buy side. Interviews have also been conducted with major owners of ABB. As can be seen in Table 1 below, the authors of this paper have interviewed people with experience as owners as well as employees within ABB Power Grids and Hitachi Energy. The authors got the opportunity to interview people higher up in the hierarchy who may have gained more knowledge regarding the transaction and have a longer background within the company. This limited the risk for subjective answers due to lack of information. This opportunity was very fortunate, since people who were not present during the transaction or had less experience within the company had a risk to give out misleading information in the form of their own interpretation of the events, acting as second hand sources.

Employees who had experience from Power Grids before the transaction and Hitachi Energy after the transaction gave the case a stronger foundation and a clearer view of what actually happened in ABB during this time and what the driving factors were as well as the resulting events for Hitachi. Further, this insight could contribute to answering what scope is optimal for a conglomerate, and by that contribute to existing research that tries to examine this.

One of ABB's owners, Cevian Capital, has been interviewed since they were the ones who initiated this transaction. They were believed to contribute to the thesis by describing what potential they saw and how they convinced ABB's board of directors to see the same opportunity. Active owners such as Cevian played a very important role in this transaction and to not include their perspective and thoughts would undermine the trustworthiness and nuance this thesis aims to achieve.

Table 1. Information regarding conducted interviews.

Interviewee	Title	Date	Length	Mode
Peter Jansson	Regional Financial Director Europe and Middle East & Africa at Hitachi Energy, previously Regional Financial Director of ABB Power Grids in Europe and CFO of ABB Power Grids Sweden	21st of April 2023	30 minutes	Digital
Annina Muller	Investment Analyst at Cevian Capital Zurich	27th of April 2023	30 minutes	Digital
Robert Schuchna	Partner at Cevian Capital Zurich, responsible for their portfolio company ABB	27th of April 2023	30 minutes	Digital

3.3.2. Financial data

The thesis is based on numbers from the annual reports presented by ABB and Hitachi during the relevant time period of the years 2015 to 2022. The historical data presented by the companies displays several years of financial data for Power Grids that has been used for the discounted cash flow (DCF) valuation method, from 2015 to 2018. This left the last historical year of 2019 and the forecast period beginning in 2020 to remain uncertain and in need of assumptions. Furthermore, historical stock prices for both ABB and Hitachi have been gathered from Yahoo Finance. Through this data, graphs and depictions of stock prices for specific time intervals and dates can be evaluated.

Capital IQ has been used as a main source regarding extraction of multiple data for valuations based on multiples and precedent transactions. The database gives the possibility to withdraw data from specific dates. This has been very useful when analyzing stock prices and multiples for the stand alone firms before and after the divestment.

3.4. The Valuation Method

The valuation of Power Grids was made from both precedent transactions and multiples from comparable companies. The case study has also performed a DCF valuation of the business. Thus, the three main valuation methods have been used to give insight into what range the valuation should be within. These valuations have been compared between each other as well as with the actual purchase price in the transaction.

Moreover, the final valuation will include a discount for illiquidity as described in section 3.5. The illiquidity discount was estimated at about 30% and represents the lack of liquidity. The valuation of Power Grids will be presented in an estimated range rather than a specific price.

3.4.1. Multiple Valuation

To value the transaction, multiples from peers have been used. The multiples that have been retrieved are P/E, EV/EBIT, EV/EBITDA, and EV/Revenue. By using enterprise value multiples and taking the mean and median of the set, Hitachi Energy could be valued through multiple data. The P/E has been used to get a sense of the market valuation of publicly traded comparables. However, since Power Grids was a privately traded company within two publicly traded organizations, more importance was laid upon the enterprise value multiples. The selection of companies used as peers have been chosen by a thorough analysis of their businesses. The basis for the selection of suitable peers stems from Capital IQ's suggestions of peers as well as newspaper articles. The companies used as peers in this case study are presented in Appendix 5 - Peer Assessment. These were used to find the mean and median for each multiple. The mean and medians were then used to create a span from min to max. Further, a span of min and max for only the median for all multiples was created and analyzed. Lastly, a football field valuation chart was created where the min and max of each multiple were plotted to give a range of the valuation for each multiple. This chart also included multiples of precedent transactions. Thereafter, the chart was compared to the actual valuation.

3.4.2. Precedent Transactions Valuation

Moreover, precedent transactions in the market have been analyzed to give an understanding of how a typical transaction looks like and what might differ from the case. The precedent transactions have been analyzed by multiple valuation to be able to compare it to the transaction in question.

The multiples used for precedent transactions are EV/Revenue and EV/EBITDA. The EV/EBIT multiple was not accessible in the database and could therefore not be included in the analysis. Furthermore, since the valuation method concerns transactions in the private market, the P/E multiple is not accessible due to them not having a public price per share. Moreover, the M&A deals chosen have been selected from the peer companies' comparable transactions on Capital IQ. Since the deal this case study aims at exploring is not a common transaction, but rather a more complex and unique transaction, exact comparable transactions could not be found. Therefore, the reader should be aware that precedent transactions are focusing on the energy sector, since that is what has been found most closely related to the transaction examined in the case study. Moreover, plenty of companies are bought and sold multiple times. The case study has only accounted for one of these transactions. The transaction that has been chosen is the one closest in time to the ABB Hitachi transaction that was performed in December 2018. The precedent transaction multiples were also analyzed with mean and median span as described above for the multiple valuation. They were also included in the football field valuation chart where they were compared to the actual valuation.

3.4.3. Discounted Cash Flow Valuation

When performing a DCF valuation, previous financial data from the years 2015 to 2019 has been used. The forecasting period was chosen to be five years from the transaction in 2020. Furthermore, complete historical financials were not reported for ABB Power Grids Global in 2019, which meant that this historical year had to be estimated as well based on the previous historical data. The forecast consisted of growth rates based on average revenue growth of around -5% in the historical period for the first two forecast years. The following years, a 10% revenue growth has been assumed since Power Grids is expected to at least recuperate until their steady state. It has also been indicated during the interviews that Power Grids might benefit from Hitachi’s experience to manage project operations. Thus, the revenue in

steady state is slightly above the revenue that Power Grids experienced in 2015, thereby fulfilling the assumption of recuperation. Thereafter, COGS, Other Expenses, Depreciation & Amortization, Capital Expenditures, and Change in Net Working Capital was created from applying an average historical percentage of revenue times the revenue each year. The free cash flow (FCF) formula applied is as follows,

$$FCF = EBIT - Taxes + D\&A - Capex - \Delta NWC$$

The weighted average cost of capital (WACC) used as a discounting rate in the DCF valuation was ABB's WACC, since the research question explores ABB's point of view in this transaction. The cost of equity was calculated using adjusted risk free rate from PWC's risk premium study (2019), market premium, and unlevered electrical equipment beta (Damodaran, 2023a). The cost of debt was calculated using the credit spread (Damodaran, 2023b) for ABB's credit spread AAA (ABB, 2020a), and the average tax rate (τ) during the historical period. The equations for cost of equity and cost of debt were calculated as below,

$$r_{equity} = r_{adjusted\ risk-free} + r_{market\ premium} * \beta_{unlevered}$$

$$r_{debt} = (r_{adjusted\ risk-free} + r_{credit\ spread}) * (1 - \tau)$$

Thereafter, the debt-to-total assets and equity-to-total assets were assumed based on historical capital structure in ABB during 2011 to 2020. Lastly, the WACC was calculated as below,

$$r_{WACC} = r_{equity} * E/V + r_{debt} * D/V$$

As previously mentioned, the WACC was used as a discounting rate in the forecasting period. Further, a sensitivity analysis was created of WACC on the parameters D/V and E/V in order to get an understanding of if the E/V and D/V as the average over the historical period was a good assumption and how sensitive the WACC was to each of these assumptions, which can be found in Appendix 10. The perpetuity was calculated using the Gordon growth formula,

$$PV(FCF_{perpetuity}) = FCF_{perpetuity}/(r_{WACC} - r_{growth})$$

where the growth rate was assumed by the authors to be equal to 2.5% since Power Grids and the market they operate in is expected to grow moderately.

Furthermore, the interviews informed the authors that there were no expected synergies in the transaction. Since there were no public records of synergies, they would have been based on assumptions. Thus, by excluding synergies, the valuation was more likely to be close to the actual case and not based on assumptions that contribute with uncertainty in the output.

3.5. Illiquidity Discount

Another consideration for the valuation was the illiquidity discount when valuing stock in private companies. This is an area that has been frequently researched and it seems to be a common understanding that illiquidity exists and should be taken into account when valuing off the market assets (Baz, 2021; Damodaran, 2005). Damodaran (2005) formulate the illiquidity discount as follows "*The illiquidity discount should be a function of the number of potential buyers for the asset and the ease with which that asset can be sold*" and mentions five factors causing discount to vary among transactions:

1. *Liquidity of assets owned by the firm:* If a firm has more liquid assets, its discount should be smaller. Power Grids are considered by the authors to be rather normal in this aspect, why this factor should not influence the overall discount.

2. *Financial health and cash flows of the firm:* A business with positive cash flows and strong earnings should be subject to a lower discount. In this aspect Power Grids has negative cash flows and their earnings are not as high as the rest of the business, and because of this the discount should be higher.

3. *Possibility of going public in the future:* If the firm in question is likely to go public in the near future the discount should be lower. As for Power Grids, they always have the possibility to go public and do a so-called spin-off. Therefore this should influence the discount downward.

4. *Size of the Firm:* A company valued billions of dollars should be subject to a lower discount then a firm worth only a few million dollars. Power Grids is a company valued to 11 billion dollars, therefore the discount is lower when taking this into consideration.

5. *Control Component:* If an acquirer buys a controlling stake in a company the discount should be lower. Hitachi buys the entire business unit and after the first phase they own 80.1%, so this should influence the discount downwards.

The discount for a specific firm is hard to estimate but Damodaran (2005) shows examples from a close to no discount all the way up to 50% illiquidity discount. A range of 30% to 50% is recommended by Gordon (2022). Two different papers find data points showing discounts at on average 35% (Maher, 1976; Silber, 1991). However, Johnsson (1999) found a smaller discount of about 20%. In the case with Power Grids the authors have chosen to apply a 30% discount rate. This discount rate is in the lower range from the literature presented. Even if Power Grids perform rather poorly, its size, the controlling component, and the alternative to make a spin-off motivates the lower range illiquidity discount. The illiquidity discount is always hard to estimate, why the valuation can differ greatly depending on what discount the analyst settles for. Since there are no standard ways to calculate the discount that fits into this case study one has to subjectively decide an appropriate rate based on previous research and industry standard.

3.6. Research Criticism

As previously mentioned, Yin (1994) as well as Gibbert, Ruigrok and Wicki (2008), have explained the case study method. In this description, Lincoln and Guba's (1985) four criterias for quality have also been explained and criticized. The four criterias are credibility, transferability, dependability, and confirmability. In regards to the internal validity and thereby the credibility, the method may experience researcher bias. During the interview, the respondents are asked about their experiences which reduces credibility. However, these sources of information were complemented with financial data which enhanced the credibility. The external validity, also interpreted as the transferability, was limited due to the subjective form of the information that has been gathered. The case study in itself applied mainly to the specific case and can not often be generalized. However, Yin (1994) mentions that the case study method allows for generalization in the analysis of the theories applied, even though statistically the case can not be generalized. However, since the research question was in line with the recommendation to ask "how" or "why", the generalizability has been improved (Yin, 1994) and thereby also the transferability. This compensatory information with the financial analysis also increased the dependability since this triangulated the method. The accuracy of the financial data was high, which also spoke for the dependability of data. Lastly, the confirmability concerns the objectivity in the case method. As previously mentioned, the interview questions asked for the subject's experiences, which meant that the data gathered through interviews were subjective. However, since it is

complemented with objective financial data and the analysis and conclusions drawn from this information was objective, there was an increased confirmability. There may be that other interview subjects and the same methodology may gain different results, but the same respondents and the same financial data as used in this case should not elicit different conclusions.

Moreover, the case coincided with confidential information. The companies that the case was concerning, ABB and Hitachi, are at this point in time both publicly traded. Therefore, the employees had strict policies regarding handing out information that is non-public. In other words, information that was not already existing in press releases may have been sensitive to stock price changes and was therefore not disclosed. This also concerned the investors that had main ownership in the companies. Some of them were unable to give any information regarding the transaction due to internal policies and could therefore not contribute with their view to the case. Excluding some investors' views from the overall picture may have risked distorting the information to only suit some investors' opinions. This had to be kept in mind while discussing the results. However, the risk was diminished by complementing the information with press releases from the non-participating investors as well as financial data and other externally validated information.

4. The Case

4.1. Hitachi History

Hitachi was founded in 1910 by the electrical engineer Namihei Odair. The original firm operated as a repair workshop for machines in the Hitachi Mine in Ibaraki Prefecture, Japan. Since then, the company has grown to become a multinational conglomerate. Hitachi is headquartered in Tokyo, Japan and its stocks are publicly traded on the Tokyo stock market. Hitachi's products are divided into four groups: Digital Systems & Services, Green Energy & Mobility, Connective Industries, and Automotive Systems Business. They are used to handle infrastructure projects and have processes that limit risk associated with such long-term projects (Hitachi, 2023a).

4.2. ABB History

ASEA Brown Boveri, commonly known as ABB, was formed in the year 1988 as a merger between the Swedish Allmänna Svenska Elektriska Aktiebolaget, ASEA, and the Swiss Brown, Boveri & Cie, BBC. The company has grown since then and is now involved in 23 industries where it offers 4 systems and 12 product groups. ABB has divided their organization into different business units. At the inception of this case they had four business units; Automation, Robotics, Power Grids, and Electrification. After divesting Power Grids they changed their structure into four new business areas; Electrification, Motion, Process Automation, and Robotics & Discrete Automation (ABB, 2023a). The company is publicly traded on SIX Swiss Exchange, Nasdaq Stockholm, and New York Stock Exchange with the main ownership held by Investor AB, BlackRock and Cevian Capital (ABB, 2023b).

4.3. Hitachi ABB Power Grids History

ABB entered the High-Voltage Direct Current, HVDC, market in 1954 with the world's first commercial link installed in Sweden. In the 1990s, ABB pioneered with VSC-HVDC and has installed about 100 HVDC projects which in total can transport 120 GW, representing around 50 percent of the global installed base (ABB, 2014).

In December 2014, ABB and Hitachi first formed a strategic partnership for their Power Grids operations. This partnership took the form of a Joint Venture. The idea behind the partnership was to utilize Hitachi's market presence in Japan and ABB's HVDC technology. The Joint Venture was supposed to be based in Tokyo and responsible for design, engineering, supply, and after-sales services for the Japanese market of HVDC. Hitachi took a 51 percentage stake and ABB took a 49 percentage stake in the Joint Venture (ibid).

Since HVDC was first developed in the 1970s, Hitachi has been participating in all ten HVDC projects that have been carried out in Japan in order to support the stabilization of Japan's electric grid. Hitachi's participation has taken the form of technology development and project management. The previous projects have used line commutated converter, LCC, technology. In the years leading up to the partnership, renewable energy and new innovations in the market have put more pressure on using the VSC-HVDC technology that enables a wider range for the power transmission (ibid).

The usage area for HVDC is when one wishes to transfer electricity between two different power grids. The electricity is collected as alternating current, AC, from a power source, such as a wind farm, and is then converted to direct current, DC. Thereafter, the electricity is transported in DC form and converted back to AC at the receiving end where it is supposed to be used. The HVDC system can handle different frequencies on the transmitting and the receiving end. Moreover, this technology decreases the electricity loss, further it has lower requirement for space and construction cost and is thus a fitting way for long-distance transmission underground and underwater (ibid).

As mentioned earlier, the previous technology for HVDC transmission was through LLC which was first used in the 1970s. In the 2000s, a new technology was developed called voltage source converter, VSC. This new technology has been useful as the HVDC market focused increasingly on renewable energy, since VSC-HVDC ensures grid-stabilization. This technology is not only suitable for long-distance transmission, but for underwater and underground as well. Therefore, the grid can reach renewable energy sources such as off-shore wind farms and island habitat, city centers where space is limited, and cross-border interconnections that require subsea transportation (ibid).

Sustainability work and having it incorporated in the business plan has long been important for Hitachi. Due to the technology being suitable for renewable energy, their decision to create a Joint Venture with ABB regarding their Power Grids business goes in line with this focus. Lorena Dellagiovanna, vice president and chief sustainability officer says (Hitachi, 2022);

> *"Hitachi believes a strong commitment to sustainability will be the Growth Driver. Sustainability is not a cost nor is it for compliance. It is a value creation for the business first, and as a consequence, for society. It is important to clarify that sustainability is not a concept up in the air, something nice to have, but it's a key driver for any business to survive in the mid-to-long term future. It has become increasingly accepted that the objective of maximizing shareholder value requires not only top competitive performance, but also the attention to a variety of sustainability's issues."*
>
> - Lorena Dellagiovanna, vice president and Chief Sustainability Officer at Hitachi, 2022

4.4. Divesting Power Grids

4.4.1. What leads up to the divestment?

One of the main owners in ABB is Investor AB (henceforth Investor), which has owned a majority stake since the 1st of January, 1925. Investor was founded in 1916 by the Swedish Wallenberg family. As an investment company, Investor manages SEK 724 billion in adjusted net assets in a portfolio containing over 20 companies (Investor AB, 2023a). The company's investment strategy is to find sustainable value creation by long term trends, e.g., by technology (Investor AB, 2023b). By chairs on the board of their investments, they try to implement these long-term changes in their portfolio companies. They rely on a governance model and prioritize buy-to-build strategy and strong cash flows.

Another company that had their eyes at ABB since their very beginning was Cevian Capital (Schuchna, 2023). Cevian Capital (henceforth Cevian) is an activist investment fund founded in 2002 by Christer Gardell and Lars Förberg. The foundation for their operation was their activist investment strategy the two founders had performed together since 1996 (Cevian Capital, 2023a). In 2018, Cevian managed assets of 15 billion dollars and was therefore the largest dedicated activist fund in Europe and second largest in the world. During the years

since its inception, the fund has expanded internationally. Custos, Cevian's first vehicle, had a market focus on Sweden. Cevian Capital I, the second vehicle, expanded toward the Nordic region. In their third and latest fund, Cevian Capital II, the market focus has expanded to Northern Europe including UK, Germany, Swiss and other German speaking countries (Lovell, 2018). Annina Muller, an investment analyst at Cevian Capital Zurich, described that they aim to maintain a constructive dialogue and relationship with the companies they invest in. Cevian has a private equity approach in the public market and they try to engage shareholders.

Cevian's targets need to be stable but undervalued due to mistrust from shareholders, misunderstandings or being overlooked. Their target needs to have a potential for improvement. Cevian works together with the board and leadership to implement improvements during their investment period, which lasts at least 5 years. In order to have influence, they aim to become one of the two largest owners in their portfolio companies. Cevian focus on improvement of i) operational performance, ii) strategy and structure, iii) balance sheet, and iv) ESG. They own up to 15 companies at the same time (Cevian Capital, 2023b). As previously mentioned, Cevian was interested in ABB from the inception of the first fund in 2002. As a large Swedish conglomerate there were possibilities to change the structure and make the business more effective, which was attractive for an activist fund.

In December 2014, ABB entered a joint venture with Hitachi regarding their Power Grids business. The joint venture utilized Hitachi's market presence in Japan and ABB's HVDC product (ABB, 2014). Even though the joint venture was not particularly large, it helped the companies get to know each other and understand the culture. They got to work together and got a glimpse into each other's processes (Jansson, 2023).

Hitachi is a traditional Japanese company and the business culture in Japan is known for being unique. Gezelius (2011) describes the business culture in Japan to be hierarchic and that the management usually wants to keep control. Therefore, they tend to be very well organized and structured. A typical Japanese employee puts the interest of the organization before their own and they have a very loyal approach to their employer. Japanese managers usually focus more on details rather than overviewing the organization's operations. When a decision is to be made, most positions in the organization are involved in the decision making it a long and complex procedure. However, the procedure is also a very democratic one. This

is a culture that the employees in Power Grids got exposure to during their cooperation with Hitachi in the Joint Venture.

During 2014, ABB had profit warnings and needed to oversee the structure in their organization. At this time, Cevian felt it was the right opportunity to enter as an owner in the company, which they did in 2015. The first rumor that Cevian were becoming owners in ABB was in 2015. Svenska Dagbladet (2015) writes about Cevian and Christer Gardell and how he challenges Investor in becoming the most influential owner of ABB. The journalist also writes that a secret meeting between the two investment companies had taken place where they discussed a potential collaboration through an investment vehicle. Cevian wanted to control 20% of the votes in ABB, and they would do so by cooperating with Investor. As of 2015, Cevian owned a 5% stake in the company. Sources to Svenska Dagbladet informed that Cevian Capital would soon start lobbying for narrowing ABB's portfolio (Svenska Dagbladet, 2015).

The strategic decision of divesting Power Grids was not given in the first place. Robert Schuchna is a partner at Cevian in Zurich who is responsible for their portfolio company ABB. During an interview with Robert Schuchna, he mentions how at the time of Cevian's entry in the company in 2015, ABB were doing their own analysis on the Power Grid structure and how to improve it. It was supposed to take about one year to perform the analysis. During this year, Cevian decided that they would also do an analysis of the Power Grids business. In 2016, the analysis was completed and to Cevian it was clear that the Power Grids business needed to be divested. However, when they presented this to the board, the board was skeptical.

Another interview was held with Peter Jansson, who before the transaction in 2018 was the Regional Financial Director of ABB Power Grids in Europe and CFO of ABB Power Grids Sweden. Nowadays, Jansson is employed at Hitachi Energy as the Regional Financial Director Europe and Middle East & Africa. Jansson recollects that in the early 2000s, ABB had started discussing Power Grids role in the company and if they should divest it or keep it within the company. On the 4th of October, 2016, ABB's management disclosed they were going to keep Power Grids under ABB's directive and focus on lowering risk, increasing growth, and earnings accretion. Therefore, the board did not agree with Cevians assessment that Power Grids needed to be divested. During the last few years prior to this decision, ABB

had gone through a restructuring where they sold off non-core business areas and increased their focus on their technology areas, such as Robotics and Smart Cities. Svenska Dagbladet (2016) speculated in 2016 that the decision to not divest Power Grids indicates that the board believes that the company still could be successful as a diversified actor within the Power and Automations technology. Instead, ABB planned to reshape their market divisions into four units including Electrification Products, Robotics and Motions, Industrial Automations and Power Grids (ABB, 2016).

Since Cevian entered as owners in ABB up until October 2016, the share price had increased 11%. In an article in Nyteknik (2016) a source within Cevian explains that this rise in share price is way smaller than the potential they believe a divestment of Power Grids could have. They argue that when firms are combined, energy gets consumed, but when units are freed the energy is freed. Furthermore, to make the divestment possible Cevian continues to aim for a 20% stake in the company together with Investor. They believe that is the stake necessary to achieve change in ABB (Nyteknik, 2016).

Lars Förberg, one of the co-founders at Cevian, joined the board of ABB in 2017. Robert Schuchna (2023) retells how Förberg through this got access to the same information the board had. He also gained an opportunity to influence the board by supplying them with the same information that Cevian held and thereby bring the different parties to the same level of information in general. According to The Financial Times (2018), Lars Förberg joining the board in 2017 was one of the reasons why ABB eventually agreed to divest the Power Grids business.

The discussion continued and by 2018, ABB wanted to focus on the core business, which became clear after the interview with Peter Jansson (2023). He explains it as a natural step to take for ABB, since it was in line with their overall strategy. Separate business divisions that are operating quite independently like Power Grids did, are bound to evolve and change during the years. When changes happen in the organization, it might fit in another context than the current one.

Jansson continues describing why Power Grids was not a perfect match for ABB's portfolio. The division had problems keeping up in terms of margin and profitability. For example, Process Automation and Robotics were divisions that experienced much higher margins,

whereas the Power Grids division stood out in its poor results (see Appendix 4). ABB had a desired range in margin that they wanted their operations to be within, which they communicated internally, and Power Grids did not meet the expected level of performance. However, when looking at Hitachi, their margins were more in line with the ones of Power Grids, Jansson explained.

Further, Jansson discussed the wish to de-risk the operations from ABB's point of view. He exemplified earlier divestments and said that the Power Grids operations was a more complex business than the others. It was difficult to forecast the business going forward and that was something only applicable to the Power Grids operations (Jansson, 2023). At the same time, Hitachi would boost its global presence in the power grid industry by this potential transaction. Schuchna (2023) mentions how Hitachi is more infrastructure focused and therefore, the environment of the business in Power Grids suited the structure of their other business areas.

An article in CNBC (2018) claims that the CEO of ABB, Ulrich Spiesshofer, could make a U-turn regarding divesting the company. In 2016, he ignored calls from shareholders to sell Power Grids but the division's influence on ABB's stock price could be the reason for why he had to shift his opinion. Since 2016, the performance of Power Grids had improved. Even though Power Grids were on an upward trajectory, Ulrich Spiesshofer told Financial Times (2018) that the portfolio was not cast in stone and thereby fuelled the rumors of a transaction. The article mentions Ulrich Spiesshofers continuing problems with setting ABB on a stronger growth trajectory. This had been a main concern for Spiesshofer during his entire tenure (The Financial Times, 2018). CNBC (2018) also explains that ABB would offload its least profitable division in favor of its very successful business area Automation.

4.4.2. The first divestment

On December 17th, 2018, ABB and Hitachi announced the transaction. Proctor (2018) stated in a news article that the transaction contained a purchase of 80.1% of Power Grids for 11 billion dollars. Further, the deal contained an option for Hitachi to buy the remaining 19.9% of Power Grids at a later stage. The article explains that ABB is to focus more on Robotics and Automation when Power Grids is out of the portfolio. Furthermore, the article states that this decision would satisfy the demand of Cevian, who believed that ABB operations are too

complex and that the stock price would be improved by ABB spinning off one or multiple units. Hitachi, according to the article, claims that they will combine their digital technology together with ABB's world class grids. They will also take advantage of ABB's broad customer base and with this merger build an energy platform connecting life, mobility, and industry.

Peter Jansson explained in the interview that only a small group of people got to know about the transaction, the majority received the information only days before the public. All employees needed to sign an NDA and then got informed about the upcoming divestment.

Ulrich Spiesshofer said in an interview with SVT (Ljungberg, 2018) that it's a "Win Win Win". He explains it as Power Grids will move to an environment with strong financial support and infrastructure, but it is also a very good deal for ABB's shareholders. From Hitachi's point of view they will be able to create a better customer offer, according to Spiesshofer. The interview also entails that the plan is to end the transaction in the first half of 2020, where the remaining 19.9% shares will be sold. The initial purchase of 80.1% of the shares will be bought for a total valuation of 11 billion dollars.

As previously mentioned, the largest shareholder in ABB was Investor. In an article in Svenska Dagbladet (2018), Johan Forssell, CEO of Investor, explains how he views this transaction. Forssell says that the divestment is logical in an industrial point of view and it gives ABB the possibility to focus on the business areas Electrification and Automation. Further, Forssell believes the timing to be perfect. Forssell is not alone in that opinion, since Spiesshofer in the same article argues the timing to be perfect as well. Spiesshofer also says that the customer needs have changed and that ABB needs to reorganize to be competitive going forward. They will do so by divesting Power Grids, simplify their business model and structure, as well as strengthen their customer offer (Svenska Dagbladet, 2018).

Peter Jansson experienced that Power Grids got to know Hitachi when working together in their joint venture. Even though it was a fairly small joint venture it still gave both sides the opportunity to interact and understand each other. According to Jansson, a rather unique connection between Hitachi and ABB is their mutual culture, which they realized when working together. Jansson believes this may be one of many reasons why Hitachi and ABB were such a successful match. As previously mentioned, the Japanese business culture is

unique with its hierarchical structure but democratic approach to problem solving as well as the loyalty between employees and employers. Jansson mentions how Power Grids got to know the culture and realized that ABB and specifically Power Grids worked in a similar manner, making the transition to operate under Hitachis organization much easier.

The market's reaction to the announcement was slightly negative, with a decrease of approximately 0.4% on the 17th of December, 2018. However, ABB's stock price was at this time on a general downward trend which continued after the announcement. When the first half of 2020 was underway and 80.1% of Power Grids was sold, the stock price had recuperated. At this time, ABB announced a share repurchase program using the cash from the transaction. On the 1st of July 2020, ABB announced that they were to buy back 10% of the outstanding shares, of a market value of over 4 billion dollars. The program was to commence shortly after the second quarter reporting on the 22nd of July (Revill, 2020). Upon hearing this news, the market reacted positively by increasing the share price to 23.15 dollars, which was an increase of close to 4% compared to the previous day.

At the first year anniversary since their operations started, on July 1st in 2021, Hitachi made a press release about Power Grids. The press release informs that Hitachi ABB Power Grids will change name and become Hitachi Energy. With the name change, Hitachi Energy was also supposed to change their corporate brand to the Hitachi brand to be used in communications internally and externally (Hitachi, 2021a). Hitachi themselves explains the change as follows,

> *"The transition to the Hitachi Energy name reflects the rapidly evolving energy landscape and the opportunity to create economic, environmental and social value; and with Hitachi enabling the business to position its pioneering and digital technologies to serve existing and future customers, going beyond the grid – opening up a breadth of opportunities in areas like sustainable mobility, smart life, and data centers."*
>
> - Hitachi, 2021

4.4.3. The final divestment

In the end of September 2022, ABB made a press release regarding their remaining stake in Hitachi Energy (ABB, 2022). As previously mentioned, Hitachi obtained a call option in the transaction in 2020. This call option concerns the last 19.9% stake that ABB holds in Hitachi Energy. The exercise value for the option was 1.679 billion dollars. Moreover, ABB expected this transaction to gain a positive net cash inflow of approximately 1.425 billion dollars.

Since the final transaction was subject to needing regulatory approval, the transaction was not expected to occur before the fourth quarter that same year. When separating ABB from Power Grids, ABB had ensured that they would assist Hitachi by rendering services to ease the transition. By assisting in this way, both parties hoped the transition would be smooth for Hitachi to take over the entire operation by itself.

On the 28th of December 2022, the transaction was at last completed. This is before the option's expiration in 2023, and the transaction was therefore completed sooner than was first expected by the involved parties. ABB's CFO, Timo Ihamuotila, expressed this as the following (Shields, 2022),

> "*We are delighted to have agreed on the final part of the transaction earlier than expected and on favorable terms. This will further strengthen our balance sheet and give us additional flexibility in our capital allocation decisions*"
>
> - Timo Ihamuotila, CFO at ABB, 2022

By the time of the final divestment, the closing stock price of ABB was 25.45 dollars. Therefore, the stock price had risen from the time the divestment was announced, when the closing price was 19.10 dollars with around a 33 percent increase. The stock had also risen with about 9 percent in closing price since the first part of the divestment was completed on July 1st, 2022.

4.5. Analysts Valuation and Recommendations

Pareto Securities gave their view of the valuation in Dagens Industri (2018). The article stated that ABB's overall EV/EBITDA was closer to 10 whereas Power Grids was sold on a multiple of 11.2. Moreover, the transaction was finalized on a valuation of 11 billion dollars,

which is not far off from Pareto's valuation of 11.8 billion dollars. Further, Pareto accounted for cost savings of about 500 million dollars per annum for ABB when the divestment was completed. Regardless of Pareto's slightly higher valuation, their recommendation to the public was to buy the ABB stock.

An analyst by the name Brecht Hanssens (2018) wrote about the implications that this transaction would have on the valuation of ABB. He believed the share price would rise about 40% when the transaction was confirmed and the stock started trading. The main factors contributing to this according to Hanssens are that ABB would be more focused on their core business, Automation and Robotics. Furthermore, the multiple on the existing operations were higher which meant that the overall multiple would rise, and lastly ABB would have a lot lower net debt levels. Hanssens also speculated on what the management would do with the positive inflow of cash. They were likely to reinstate their buyback program that was stopped due to a purchase of General Electrics Industrial Solutions for 2.6 billion dollars cash, which would also fuel a potential rise in stock price.

Hanssens continued to compare the business units of ABB in terms of margin and growth. It stood clear that Power Grids was underperforming compared to the other divisions, both in terms of growth and margin. Hanssens concluded that ABB was getting rid of their negative grower with the lowest margin. Hanssens' estimated the EBITDA multiple to be 7.95x, which was a lot lower than comparables, such as Honeywell, Schneider, and Legrand, that had multiples around 10x to 15x (Hanssens, 2018).

4.6. Post Divestment

As can be read in Börsvärlden (2022) Christer Gardell, the co-founder of Cevian, mentions ABB as "one of their large investments" rather than "their largest investment". This distinction indicates a decrease in ownership since ABB had in the past been the fund's largest investment. The article also mentions how well informed sources entail Cevian's decrease in ownership in ABB from 5% to 3%. Gardells reason for investing in ABB in 2015 was that he saw large shareholder value in decreasing ABB's portfolio. However, with the decrease in ownership shares that mission seems accomplished for Gardell.

In a press release made by Hitachi (2021), different key persons in Hitachi also briefly explain how the new company Hitachi Energy will bring value to customers and their overall impact on the world.

> *"With climate change and increasing natural disasters, there is a need to solve three social issues worldwide: environment, resilience, and security and safety. Hitachi ABB Power Grids provides a variety of solutions that solve these social issues, and by changing the company name to Hitachi Energy, we are further strengthening our commitment to the realization of a sustainable society. Hitachi and Hitachi Energy will contribute to solve social issues and improve people's QoL by realizing social innovation in the energy field with customers and partners."*
>
> -Toshiaki Higashihara, CEO and Executive Chairman of Hitachi, 2021

> *"The energy landscape continues to evolve and so do we. With our new name 'Hitachi Energy' we are broadening our commitment to creating further value for customers, our employees and society. The past year has been demanding for everyone, but we look forward with optimism. I am proud of our talented people in 90 countries, and through our passion, authenticity and culture of diversity and inclusion, we continue on our journey – Powering good for a sustainable energy future, pioneering and digital technologies, as the partner of choice for enabling a stronger, smarter and greener energy system."*
>
> - Claudio Facchin, CEO of Hitachi ABB Power Grids, 2021

After the transaction, ABB announced in a press release that they will take fundamental actions aiming at enhanced customer value and shareholder returns. Through the divestment, they have established a clearer focus for their portfolio of digital industries. Further, they will try to simplify the business model and structure. For example they are to discontinue the regional executive committees. They will center the operations around four new business areas: Robotics, Motion, Electrification, and Automation. Moreover, they are to implement ABB Ability, a digital solution that will drive customer value in each business. They also mention that they want to become a leader in digital solutions and evolving technology, such as artificial intelligence. When it comes to the financial implications, ABB forecasts savings of about 500 million dollars per year due to the divestment as well as about 500 million dollars in non-operational restructuring charges. Finally, they will raise their dividend after

closing the transaction and intend to keep that level going forward (ABB, 2018a). ABB's CEO Ulrich Spiesshofer and Chairman Peter Voser comments on the future;

> *"As a result of our Next Level strategy, all of our businesses are today number 1 or 2 in their respective markets. To support our customers in a world of unprecedented technological change and digitalization, we must focus, simplify and shape our business for leadership. Today's actions will create a new ABB, a leader focused in digital industries."*
>
> - Ulrich Spiesshofer, CEO of ABB, 2018

> *"We were very clear in the past that the actions required for the turnaround of Power Grids could be best achieved within ABB. Following completion of this step, we undertook a review of the Power Grids business and decided to secure the best home for the future development of the business through the combination with Hitachi. The new ABB will be positioned to write the future as a customer focused technology leader in digital industries."*
>
> - Peter Voser, Chairman of ABB, 2018

When thinking back to the transaction nowadays, Peter Jansson believes the acquisition to be very successful for Hitachi. Hitachi were especially successful when it came to expanding their portfolio and becoming more internationalized. The acquisition was very much in line with Hitachi's business offering and a strategically smart acquisition for Hitachi. Hitachi was previously very focused on the Japanese market, but today Hitachi Energy operates in about 60 to 70 countries according to Jansson. A contributing factor for this global expansion, at least in the Power Grids business area, is the acquisition of Power Grids. Hitachi Energy, as it is known today, operates in basically the same geographic areas as they did under ABB's regime, except for the region of Africa where they previously had operations they do not have today.

Furthermore, Jansson (2023) mentioned that Hitachi's investment had great timing. When considering where the world is today and the ongoing energy transition the acquisition was perfect timewise. In the last couple of years, there has been an energy crisis that started in the aftermath of the COVID-19 pandemic. It started with supply being slow to catch up to normal levels after the pandemic followed by climate changes affecting the supply. Another factor that Jansson pointed out was the geopolitical change of the landscape, which has accelerated

the transition. The Russian invasion of Ukraine led to gas shortage when Nord Stream 1 pipeline deliveries were halted. In general, the energy crisis has increased the need for renewable energy and a sustainable usage of energy, including its transportation where Hitachi Energy comes in.

Moreover, the belief that Power Grids pulled down the overall margins might have had some foundation. Before the divestment, all ABB's divisions except Power Grids performed margins on operating profit of around 12% while Power Grids performed margins of around 8%. In 2018, all margins were above 11%, but since the transaction the Motion margin has increased and the Robotics and Discrete Automation margin has fluctuated at around 8% and even been at a negative 5.6% in 2020. Overall, ABB did experience a margin of around 11%. After the transaction, ABB has experienced a margin between 9% and 21%.

As previously mentioned, Hitachi had a similar culture to ABB which eased the transition for the Power Grids unit into the Hitachi business. Robert Schuchna explains that according to the information that they have received when meeting employees at both ABB and Hitachi Energy, the employees also seem to believe that the divestment of the Power Grids business was a good decision. This corresponds to the view Peter Jansson shares from him and his colleagues. Schuchna and Jansson both mention that the Power Grids business fit well in the Hitachi company and therefore was more prioritized and gained more resources to help them grow and improve. Hitachi was also more used to infrastructure projects that are of a more risky nature. Since Hitachi Energy is described of this nature, Hitachi could more easily handle and minimize the risk due to their previous experience. The market seems to agree that this is a good divestment, since the stock price has continued climbing for both ABB and Hitachi since the final divestment.

On an ending note, with the glowing reception from both employees and owners in mind, one can wonder what could have been done differently in the transaction. Schuchna mentions that even though the divestment was successful, one lesson that Cevian takes from this event is that they could have taken a seat on the board earlier. Lars Förberg joining the board was a catalyst for the transaction and helped Cevian communicate with the board as well as reach a consensus. If this had been done earlier, they might have concluded the divestment and increased the margins earlier.

5. Discussion

5.1. Rationale Behind the Transaction

Already in 2014 when Hitachi and ABB began their Joint Venture, their relationship started to grow stronger, and as Peter Jansson (2023) described they found their culture to be rather similar. This is believed to be one of the main factors to why this transaction took place, especially since no particular synergies were expected. Cultural integration is of absolute importance when firms merge in general and it is not less important in this transaction (Jansson, 2023). For a company to get the most out of their employees, they need to be in a comfortable environment. A key to a comfortable environment is to have communication between organizational levels and to have the chance to influence the decision making. Since ABB and Hitachi had similar cultures they communicated more easily (ibid), ensuring a comfortable environment for the employees, as well as an organizational fit. This is perceived to be a reason why the merger had a relatively smooth transition into the new organization. Since ABB had already learnt that the companies had a similar culture through their joint venture, one could argue that a factor influencing ABB to divest was that they had a fitting buyer. They knew that Hitachi would cherish Power Grids and take care of the employees, which might have influenced their decision.

As stated in the case, Hitachi works a lot with sustainability questions and believes that sustainability is a must for creating long term shareholder value (Hitachi, 2022). The Power Grids business enables and facilitates renewable energy transition (ABB, 2014). The merger is therefore a strategically important acquisition for Hitachi, that lies well within their long term business plan. Thus, Power Grids operations will have the potential to generate additional value for Hitachi, since Power Grids seems to be a good fit for Hitachi's future and they should therefore be willing to invest in the entity. Similar to the cultural fit, having a buyer with a sustainability focus that suits Power Grids operations could have influenced ABB to divest. One could also speculate that this could have increased Hitachi's will to buy, thereby creating good terms for ABB in the negotiations.

Another factor behind the transaction is the different businesses' margins and in particular margin requirements (Jansson, 2022). As have been discussed in the case and which can be

seen in Appendix 4, Power Grids had lower margins than the other divisions in ABB before the transaction. However, Hitachi had lower margins in general. In Appendix 4, it is displayed that Hitachis margin before and after the divestment were close to the same, ranging from 5% to 8% during 2016 to 2022. Their lower margins made it possible for them to acquire Power Grids without affecting the conglomerate's average margins. Further, when the divestment occurred ABB's margins significantly increased. It affected both the margins per division and the company as a whole. The entire company experienced a margin of around 11% before the divestment, but after the transaction it ranged from 9% to 21%. However, one cannot say if the margins are solely affected by Power Grids, since they fluctuate a lot after the divestment. External factors could affect the business, but it does seem as though ABB did not have one division underperforming the others in terms of operating margin to a great extent as most of the divisions fluctuated around 10% in operating margin from year to year. Therefore, narrowing their business and focusing on core elements was likely to be a natural strategic move.

Moreover, performing the deal made it possible for ABB to reinstate their share buyback program (Revill, 2020). The program had been stopped earlier due to the purchase of General Electrics Industrial Solutions. Through the divestment of Power Grids, ABB got a substantial cash inflow that allowed them to start up the share buyback program again (Hanssens, 2018). When the buyback was announced, the stock price experienced an increase, which can be seen in Table 6 in Appendix 3. Therefore, the market seems to have reacted positively to the news that the buyback program was back on the table. This increased the valuation for ABB's owners and might have influenced the reputation of ABB as a trustworthy company for shareholders.

Furthermore, a trend in the market seems to be conglomerates gaining a clearer focus by divesting and restructuring their business. As the previous literature has found, some of the previous benefits of being a conglomerate might have disappeared. One of these was the diversification discount that allowed the conglomerates to trade at a premium, which Servaes (1996) found to have diminished in the 1970s. Moreover, Davis et al. (1994) found some conglomerates to specialize their business and then disagree with the processes of the traditional conglomerates, thereby meaning some actors on the market favor conglomerates less. These decreased benefits and changed attitude toward the conglomerates might drive conglomerates in general, including ABB, to move away from being a diversified

conglomerate. Thus, ABB's decision to divest Power Grids is in line with these market trends.

Other researchers seem to have found the general market trend to be to specialize the business focus further (The Economist, 2019; Yu 2021). It seems that conglomerates where each separate division operates as a legal entity are still thriving in emerging markets (Ramachandran et al., 2013), but as a global company ABB should instead follow the general market trend and specialize. Further, a new trend consisting of technology conglomerates has grown in the last few years (Mims, 2021; Panigrahi et al., 2020). This does not apply to ABB either, since they fit better into the description of an industrial conglomerate. Thereby, they cannot achieve the same competitive advantages as the technology conglomerates can achieve through their technological abilities. Thus, to divest Power Grids and create a clearer focus in their core business is in line with the market trends that have been found in previous literature.

5.2. Stock Price Analysis

Regarding the evolution of the stock prices (see Appendix 2 and 3), the market seems to have had a downward trend on the stock prices of ABB and Hitachi starting already before the announcement in 2018. This trend went on into the year 2019 and did not seem to be particularly affected by the news of the transaction. In the year 2020, when the transaction was finalized, the prices were on an upward trend that was not noticeably affected by the transaction either. The option was called in the fourth quarter of 2022, during which time both stock prices were quite stable. At the end of December, when the call was approved by regulations and exercised, Hitachi's stock price was on an upward trend. ABB's stock price change was also positive during this time, even if not as positive as Hitachi's. When looking at day-to-day changes in closing prices, there does not seem to be a particular event where the stock price was immensely affected. However, this could also depend on the market adjusting beforehand due to rumors and that the news did not come as unexpected for the shareholders.

Regarding the stock price development for ABB during the entire transaction, there seem to have been an increase by around 33 percent from the time the divestment was announced to when the final divestment was executed. Since the first part of the divestment was completed on July 1st, 2022 until the final divestment was executed, the stock price increased by about 9

percent. It therefore seemed to be a steady climb in the stock price, which might both depend on the general inflation in the market as well as good performance by ABB.

5.2. Multiple Valuation by Peers

Table 2 shows the results of valuing Power Grids by using the previously calculated multiples in Table 10 in Appendix 6, and multiplying those multiples with the relevant denominator extracted from Power Grids income statement that can be found in Appendix 1. For the second table, the product has been multiplied with the previously discussed illiquidity discount.

Table 2. Peer valuation of Power Grids

Pre illiquidity	**Average**	**Median**	***Post illiquidity***	**Average**	**Median**
PE	$ 15.4 billion	$ 15.3 billion	PE	$ 10.78 billion	$ 10.71 billion
EV/Revenue	$ 13.9 billion	$ 10.3 billion	EV/Revenue	$ 9.73 billion	$ 7.21 billion
EV/EBIT	$ 34.9 billion	$ 24.2 billion	EV/EBIT	$ 24.43 billion	$ 16.94 billion
EV/EBITDA	$ 26.6 billion	$ 17.3 billion	EV/EBITDA	$ 18.62 billion	$ 12.11 billion

Table 2 displays that in some cases the difference between mean and median is substantial. This can be explained by the tough market environment. This industry has very high entry barriers and is very capital intensive. Therefore, there are only a few actors in the market, so companies that have business close to Power Grids are included, however they are not an exact copy. When compiling a set of comparables that are in a similar industry but without identical operations, multiples can differ greatly as seen above. Even if they differ, this should give an idea of how much Power Grids could be worth. Important to remember is that one can not trust the multiple valuation by itself when deciding if Power Grids was sold to an appropriate price. It has to be combined with analysts recommendations, expectations from the market, precedent transactions, DCF calculations, as well as a fundamental analysis of the business.

Furthermore, more weight is placed on the enterprise value multiples. The reason for this is that enterprise value disregards the capital structure and values the entire company. Regarding the P/E multiple, the capital structure affects the variable where the output is equity value instead of enterprise value and makes the P/E multiple less useful in this context.

To calculate the enterprise value from the equity value one needs to add the debt of the firm and subtract the excess cash as well. Thus, the P/E multiple is included in the valuation to give a more nuanced opinion on whether other multiples are reasonable, but are not the primary multiple for the valuation. The P/E multiple in the case lies steady in the middle of the valuation range. Therefore, this indicates that the rest of the multiples are accurate. If the P/E would have shown another result this could indicate that something was amiss with the calculations. Now instead it supports the rest of the thesis' findings.

Regarding the EV/EBIT and EV/EBITDA multiples, the first includes the depreciation and amortization while the other does not. Therefore, for capital intensive companies like Power Grids that can be assumed to have a large share of fixed assets, the EV/EBIT multiple might give a more accurate valuation than the EV/EBITDA. However, both are included in the valuation method, especially since precedent transactions did not have accessible information regarding the EV/EBIT multiple. More similar multiples between the comparable companies and precedent transaction valuations provides a better ability to compare the method's output.

Moreover, to compare the results and create an overview, a football field valuation chart has been used and can be found in Appendix 8. The chart shows the multiples maximum and minimum values from the comparable companies. The maximum represents the top of the rectangle and the minimum the bottom of the rectangle. The black lines that run across all bars show the lowest and highest valuation that can fit in all six rectangles, including precedent transaction multiples. It is reasonable that the valuation is somewhere within this range. The blue line indicates the actual price that Power Grids was sold for. Further it feels inappropriate to suggest a valuation outside of the median/mean range. Therefore, the football field chart indicates that the valuation should be within a range from 10 to 24 billion dollars.

5.3. Precedent Transactions

The rationale behind precedent transactions are discussed under Subsection 3.3.4. In Appendix 7, a table of comparable deals are presented. A total of 16 unique transactions form the basis for the multiples used when valuing Power Grids from a precedent transaction perspective. In Table 3, the mean and median multiples that the precedent transactions sum up to are displayed. Precedent transaction multiples are calculated from Table 12 in Appendix 7.

Table 3. Precedent transaction multiple

	EV/Revenue	EV/EBITDA
Median	1.35x	19.85x
Average	2.13x	25.56x

The income statement that has been used as a basis for the valuation Table 4 can be found in Appendix 1. As previously, a 30% illiquidity discount has been applied to the valuation in Table 4.

Table 4. Precedent transaction multiple pre and post illiquidity discount

Before illiquidity	EV/Revenue	EV/EBITDA	Post illiquidity	EV/Revenue	EV/EBITDA
Median	$13 billion	$ 24.6 billion	**Median**	$ 9.1 billion	$ 17.2 billion
Average	$ 20.6 billion	$ 31.7 billion	**Average**	$ 14.4 billion	$ 22.2 billion

As can be seen above, the values have a rather large spread here as well, ranging all the way from 9.1 billion to 22.2 billion dollars. However, this can be caused by the relatively wide variety between transactions. Since there are not really any “perfect” precedent transactions that can be applied, a wider range of relevant transactions have been used. The football field valuation chart in Appendix 8 suggests that valuation should be above 10 billion dollars. Combining these indications, the range for the valuation of Power Grids is somewhere between 10 to 22 billion dollars.

5.4. DCF Valuation

The DCF method has been used to give more information about what is a reasonable price for Power Grids, as an addition to the multiple valuations of comparable companies and precedent transactions. The DCF method before applying the illiquidity discount leads to a valuation of about 13.8 billion dollars. After applying the 30% illiquidity discount, the valuation ends at 9.6 billion dollars. There are of course large uncertainties when conducting a DCF valuation. One of the uncertainties is the large proportion of the valuation that consists of terminal value, since this is based on assumptions for the growth rate and steady state estimations. Around 78% of the total valuation consists of terminal value in this DCF, while the forecast period represents around 22% However, the suggested price seems fair in comparison to the actual price of the transaction and will be one of several methods leading to a valuation range of Power Grids.

5.5. Final Valuation Range and Assessment of Success

The final valuation will be estimated from all different methods given in the above tables of peer comparison and precedent transactions as well as the DCF valuation in Appendix 9. These valuations will then be one of the factors deciding whether this was a successful divestment with a fair price or not. Other factors forming the basis for the assessment is the perception of analysts and interviewed stakeholders.

The valuation of Power Grids in 2018 estimated from peers range from 10 to 24 billion dollars. Further, the valuation estimated from precedent transactions range from 10 to 22 billion dollars. However, considering the fact that neither peers nor precedent transactions are perfectly matched to Power Grids in terms of comparability between the operations or the transactions, the median is a better indicator to look at since it excludes outliers. When analyzing the medians for all the multiples it received a lower range, with an overall range from 7.21 to 17.22 billion dollars and a mean of this range of 12.2 billion dollars. It is in line with Pareto's suggested valuation of approximately 12 billion dollars for Power Grids. The value is also within the range suggested by the football field analysis. The DCF implies a lower value for the business, at about 10 billion dollars. Therefore a reasonable valuation for Power Grids is somewhere in the range from 10 to 12 billion dollars. The final price for Power Grids is right in the middle of this range, so it can be concluded that the transaction had a fair value.

To assess whether the divestment was successful or not the people interviewed will be the most important source of information. Furthermore, articles where the management of ABB and Hitachi express their views, will also play an important role. After all, all sources seem to have a mutual perception of the transaction to be successful. Both representatives from ABB and Hitachi are pleased with the deal, and consider it a success. Moreover, the owners of ABB as well as the analyst from Pareto consider the transaction to be a success. Further, the price offered for ABB Power Grids seems to be reasonable according to the thesis calculations, which are in line with experts' calculations. Therefore, the price should not be a factor weighting on the negative side when assessing the overall transaction.

6. Conclusion

In conclusion, low margins and a need to limit the risk in ABB seems to have been main points when rationalizing the decision to divest ABB. The transaction also allowed ABB to reinstate their share buyback program, to which the market reacted positively. The fact that the divestment occurred through a sale to Hitachi may have been influenced by the companies already getting to know each other earlier when they learned that their cultures fit together. Further, Hitachi had a sustainability focus, and therefore Power Grids seemed to have a possibility to thrive and be valuable to the seller. This might have contributed to ABB feeling secure in divesting Power Grids to a responsible buyer that will cherish their acquisition.

The market reaction to the transaction is partly interpreted through the stock price. The stock price might not have made drastic changes in day-to-day closing prices, but the price was in a downward trend when the divestment was first announced, which has turned around to increase in the time of the finalized divestment. Regarding if the price of the transaction was fair, multiples have been used to get a perception of what price range is reasonable. More importance has been placed on the median values of the multiples together with the DCF and analyst suggestions. The analyst suggests 12 billion dollars, the DCF indicates a value of about 10 billion dollars and the median multiples between 7.2 to 17.2 billion dollars. Therefore, the valuation suggested in this thesis ranges from 10 to 12 billion dollars, which concludes that the transaction price was fair to all parties. In general, the transaction is believed to be a success, since the market rationale for the transaction is strong, the price is in line with the thesis calculations, and the employees and owners' retelling are positive of the transaction.

The previous literature mentions how the number of industrial conglomerates have decreased during the end of the 20th century due to aspects such as diminished diversification discount, not surviving the competition, and previous conglomerates criticizing the conglomerates way to operate. Some researchers seem to believe that conglomerates evolve and adapt, which could be argued for that ABB do, since they still operate in four different divisions. Thus, the case study contributes with a practical example of the recent trends in the market that

conglomerates divest some divisions and evolve to create a more narrow business focus that leads to a greater stakeholder value.

Lastly, future research could explore other transactions made by ABB or other multinational conglomerates. This thesis only focuses on one transaction and since all transactions are unique, further research on other performed transactions might give a more complete picture. As previously mentioned, the case study method makes the conclusions in this case study difficult to generalize on its own. However, a greater number of case studies that achieve similar conclusions might increase the generalizability. Moreover, the thesis has touched upon the subject of market rationale, how Hitachi's culture and sustainability focus fit with Power Grids. An interesting aspect to explore more fully would be why Hitachi chose to acquire Power Grids, where future research might study the same transaction but from Hitachi and their owners' point of view.

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8. Appendix

Appendix 1. Financial Statements ABB Power Grids

Table 5. Income Statement for ABB Power Grids division year 2015-2019

mUSD	**2015**	**2016**	**2017**	**2018**	**2019 (est.)**
Total Revenues	11,245	10,660	10,394	9,698	9,206
-COGS	7,766	7,137	6,966	7,378	6,424
-Other expenses	2,666	2,451	2,392	1,326	1,919
EBITDA	813	1,072	1,036	994	863
-Depreciation & amortization	259	242	239	239	215
EBIT	554	830	797	755	648
-Interest	209	188	128	107	76
EBT	345	642	669	648	572
-Taxes	96	179	178	228	157
Profit	249	463	491	420	415

Appendix 2. Stock Prices

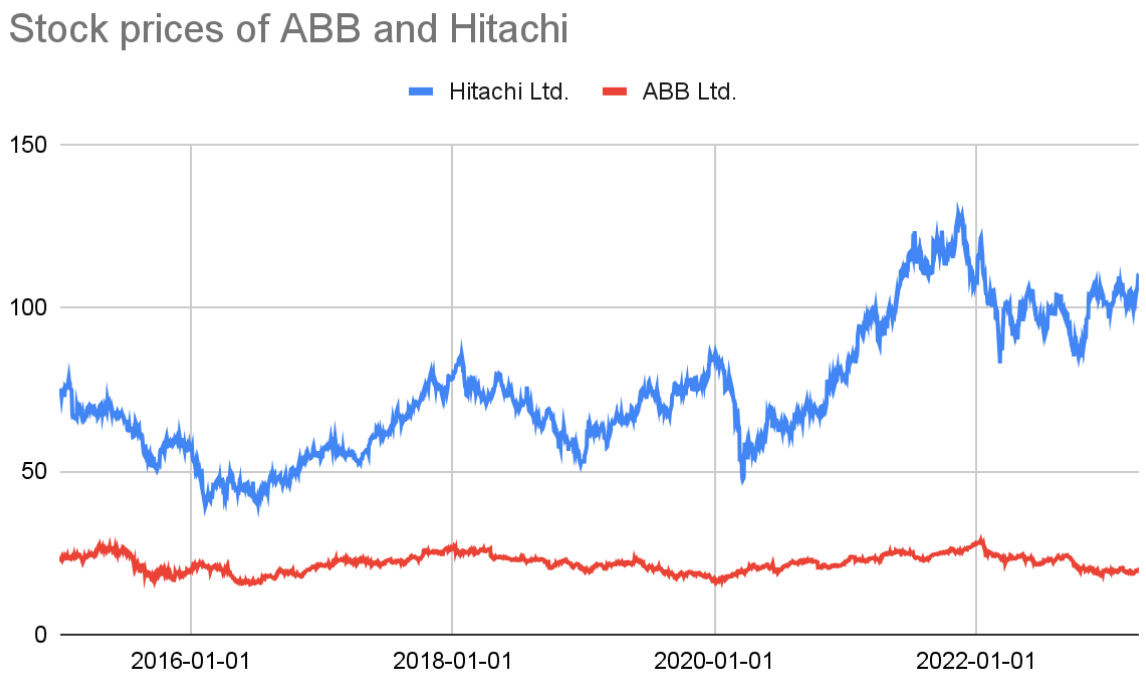

Figure 1. Historical Stock Prices of ABB and Hitachi in USD

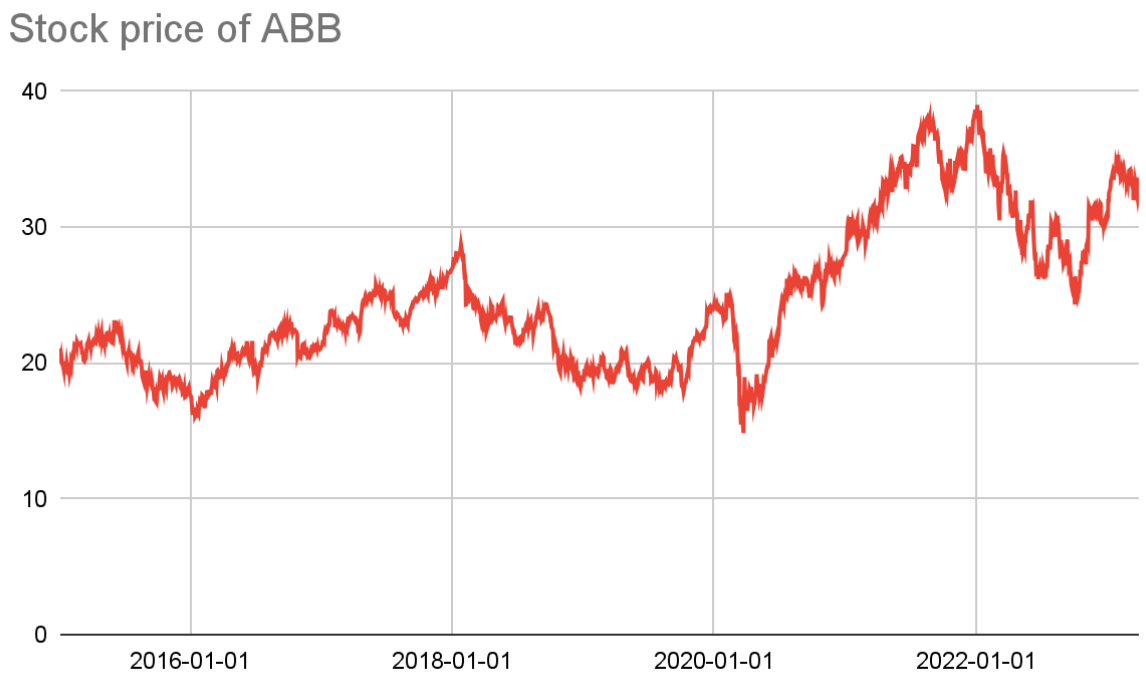

Figure 2. Historical Stock Prices of ABB in USD

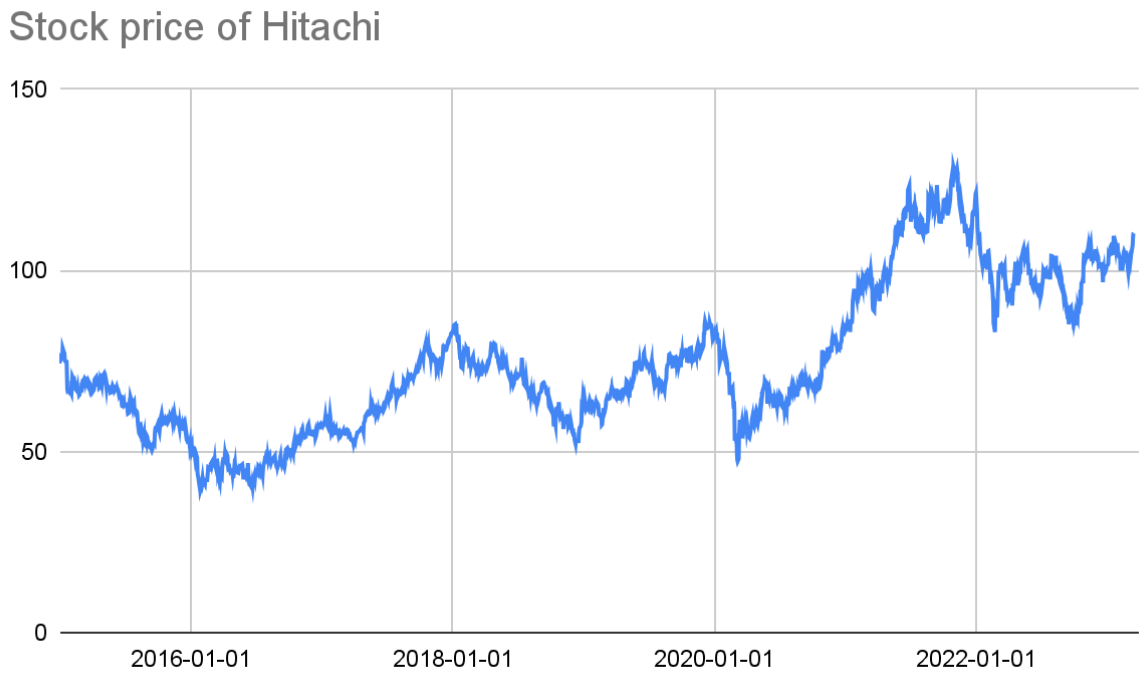

Figure 3. Historical Stock Prices of Hitachi in USD

Appendix 3. Stock Prices During Important Dates

Table 6. Select Closing Stock Price Histories in U.S. Dollars

Date	ABB	Hitachi	Event
10-03-2016	22.52	45.74	
10-04-2016	**22.57**	**46.32**	**Power Grids to remain in the ABB group**
10-05-2016	22.76	49.07	
12-14-2018	19.40	56.87	
12-17-2018	**19.10**	**55.77**	**Divestment of Power Grids announced**
12-18-2018	19.41	55.81	
06-30-2020	22.56	63.14	
07-01-2020	**23.26**	**62.56**	**First divestment completed and share buyback announced**
07-02-2020	23.43	62.57	
09-29-2020	25.61	69.29	
09-30-2020	**25.45**	**67.82**	**Divestment completed**
10-01-2020	25.64	67.69	
12-27-2022	30.64	101.37	
12-28-2022	**30.27**	**100.56**	**Call option exercised and transaction completed**
12-29-2022	30.88	102.28	

Appendix 4. Margins for ABB and Hitachi

Table 7. Operating profit margin for ABB's divisions pre divestment of Power Grids

Year / ABB division	2016	2017
Electrification Products	11.0%	13.4%
Robotics and Motions	13.1%	12.3%
Industrial Automation	11.6%	11.4%
Power Grids	8.1%	7.7%

Table 8. Operating profit margin for ABB's divisions post divestment of Power Grids

Year / ABB division	2018	2019	2020	2021	2022
Electrification	11.0%	8.2%	11.2%	14.0%	15.3%
Motion	14.3%	15.4%	15.4%	47.3%	16.2%
Industrial Processes	13.1%	11.2%	5.9%	11.4%	11.0%
Robotics & Discrete Automation	12.6%	9.0%	-5.6%	8.2%	7.8%

Table 9. Operating profit margin for ABB and Hitachi pre and post divestment of Power Grids

Year / Company	2016	2017	2018	2019	2020	2021	2022
ABB	10.67%	11.08%	12.5%	10.6%	9.3%	20.6%	13.8%
Hitachi	6.3%	6.4%	7.6%	8.0%	7.5%	5.7%	7.2%

Appendix 5. Peer Assessment

Presented are the companies used as peers in this case study. A brief introduction will follow to show how they are relevant as peers to Hitachi ABB Power Grids business. The source for this information is Capital IQ.

Alfen: Alfen is a public company based in Holland with about 900 employees. They operate in the Grid industry and offer a wide range of products and services within the Grid atmosphere.

Transformers and Rectifiers (India) Limited: They are a public company based in India with about 500 employees. They manufacture and sell all possible variations of transformers in India.

Chung-Hsin Electric and Machinery Manufacturing Corp: They are a public company based in Taiwan with about 3,300 employees. They engage in the manufacture and sale of electric motors and generators in Taiwan and internationally. The company offers power equipment and machinery.

GE T&D India Limited: They are a public company based in India with about 2,300 employees. They engage in building power transmission and distribution infrastructure in India and internationally. They offer power electronics equipment. The company also provides power and instrument transformers.

NKT A/S: They are a public company based in Denmark with about 4,000 employees. The company offers high voltage cable solutions. They develop, manufacture, and market cables, accessories, and solutions in Denmark and internationally.

Jiangsu Zhongtian Technology Co., Ltd: They are a public company based in China with about 12,500 employees. produces and sells electrical machinery and equipment for the communications, electric power, marine, new energy, and new materials sectors in China and internationally.

China Titans Energy Technology Group Co: They are a public company based in China with about 400 employees. They are an investment holding company, engaged in the research, development, manufacture, and sale of power electric products and equipment in the People's Republic of China.

Appendix 6. Multiples

Beneath is a table showing six different multiples for all peers that are chosen. The multiples have been extracted from Capital IQ and they have all been extracted December 2018, the same month as the first transaction between ABB and Hitachi took place.

Table 10. Multiples for all peer companies

Multiple/ Company	Alfen	Transformers and Rectifiers	Chung-Hsin Electric and Machinery	GE T&D India Limited	NKT A/S	Jiangsu Zhongtian Technology	China Titans Energy Technology
PE	34.73x	34.86x	15.12x	27.17x	N/A	12.39x	3.75x
EV/ Revenue	3.14x	0.71x	1.06x	1.39x	0.5x	0.77x	2.46x
EV/ EBIT	85.24x	11.59x	21.47x	27.19x	N/A	10.75x	54.16x
EV to EBITDA	61.79x	8.69x	13.97x	19.38x	12.2x	8.24x	25.77x

This table shows the medium and median from all peers, this is the ultimate multiples that Hitachi ABB Power Grids will be valued on.

Table 11. Average and median of multiples

Multiple/ Average	Average	Median
PE	21.34x	21.15x
EV/ Revenue	1.43x	1.06x
EV/ EBIT	35.07x	24.33x
EV to EBITDA	21.43x	13.97x

Appendix 7. Precedent Transactions

Table 12. Data of precedent transactions

Date	Target	Investor	Seller	EV/Revenue	EV/EBITDA
Oct-08-2019	Nordex SE	Acciona, S.A.	-	0.4	13.7
Feb-04-2020	Siemens Gamesa Renewable Energy, S.A.	Siemens Aktiengesellschaft	Iberdrola, S.A.	1.3	16.1
Dec-21-2019	Indo Tech Transformers Limited	Shirdi Sai Electricals Limited	Prolec GE, S. de R.L. de C.V.	0.5	34.6
Mar-25-2019	Huber+Suhner AG	Unknown buyer	Individual	1.4	11.3
Feb-19-2021	AQ Group AB	Aeternum Capital AS	-	1	7.9
Apr-25-2019	Henan Senyuan Electric Co., Ltd.	Huajin Securities Co.,Ltd.	-	5.1	31.1
Mar-04-2019	JILIN JINGUAN ELECTRIC Co.,Ltd	Luoyang Gudu Asset Management Co., Ltd.	Nanjing Nengce Investment Management Co., Ltd., Shanghai Junxi Industrial Co., Ltd., Dingxin Directional Add-issuance Selected No.2 Private Equity Investment Fund, Dingxin Directional Add-issuance Selected No.3 Private Equity Investment Fund	4.7	20.4
Jan-03-2019	Beijing Creative Distribution Automation Co., Ltd.	Beijing Haiguo Dongxing Support High Quality Tech Enterprises Development Investment Mgt Center (LP)	Beijing Creative North Technology Development Co., Ltd.	1	14.6
Feb-06-2015	Qingdao Evercontaining Electric Co.,Ltd	-	Xinyu Qingyuan Environmental Protection Investment Management Co., Ltd.	3.4	10.9
Nov-04-2014	CSG Smart Science&Technology Co.,Ltd.	-	Xinyu Dongcai Investment Management Co., Ltd.	4.4	40.7
May-05-2014	ALSTOM T&D India Limited	GE Energy Europe B.V.	-	2.1	23.9

Nov-09-2021	Sunway Co., Ltd.	Leshan Hitech Investment & Construction Development Co.,Ltd	-	2.2	93.3
Sep-09-2021	Far East Smarter Energy Co., Ltd.	Yixing Guoyuan Investment Partnership Enterprise (LP)	Far East Holding Group Co.,Ltd.	0.7	32.5
Dec-20-2020	Motic (Xiamen) Electric Group Co.,Ltd	Jiaxing Jiajing Investment Partnership Enterprise (LP)	Speed Fair Co. Ltd., Motic Holdings Co., Ltd	3.8	19.3
Dec-21-2018	Zhejiang Wanma Co., Ltd.	-	Zhejiang Wanma Smart Technology Group Co., Ltd.	0.7	17.7
May-10-2017	Jiangsu Zhongli Group Co.,Ltd	Changshu Huiju Electrical Materials Co., Ltd.	-	1.3	21

Appendix 8. Football Field Chart

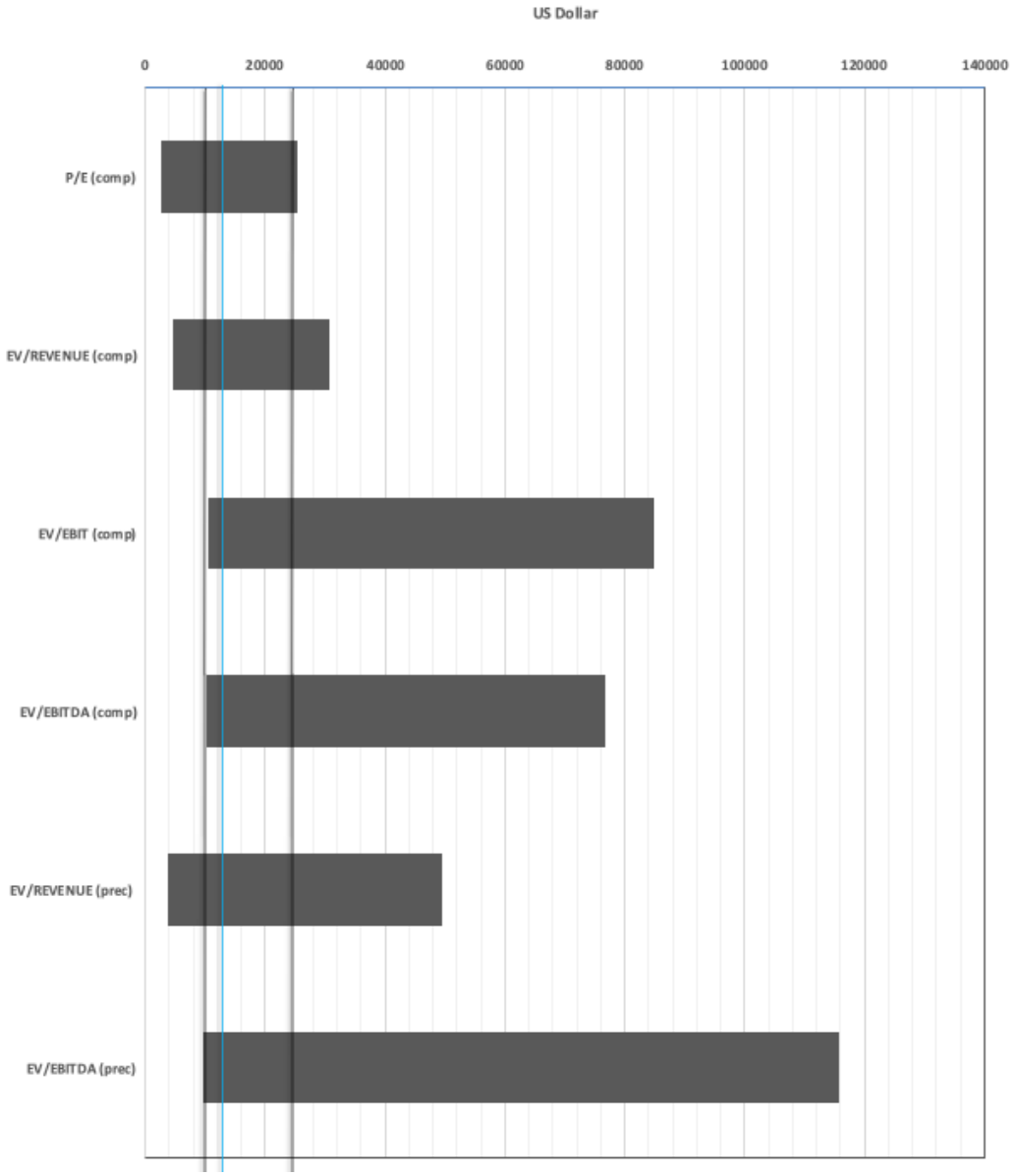

Figure 4. Football Field Valuation Chart of Comparable Companies and Precedent Transaction multiples.

Appendix 9. Discounted Cash Flow Valuation

Table 13. Free Cash Flow Calculations for ABB Power Grids division year 2015-2019

mUSD	**2015**	**2016**	**2017**	**2018**	**2019**
Total Revenues	11,245	10,660	10,394	9,698	9206
-COGS	7,766	7,137	6,966	7,378	6424
-Other expenses	2,666	2,451	2,392	1,326	1919
EBITDA	813	1,072	1,036	994	863
-Depreciation & amortization	259	242	239	239	215
EBIT	554	830	797	755	648
-Taxes	96	179	178	228	157
+Depreciation & amortization	259	242	239	239	215
-Capex	150	172	171	148	141
-Net inv. in Working Capital	-161.95	-102.99	-378.64	-288.20	645
Free Cash Flow	729	824	1,066	906	-80

Table 14. Forecasted Free Cash Flow and Discounted Cash Flow Calculations for ABB Power Grids Division

mUSD	**2020**	**2021**	**2022**	**2023**	**2024**	**Perpetuity**
Total Revenues	8739	8295	9125	10037	11041	12145
-COGS	6098	5788	6367	7004	7704	8475
-Other expenses	1822	1729	1902	2092	2302	2532
EBITDA	819	778	856	941	1035	1139
-Depreciation & amortization	204	194	213	234	258	284
EBIT	615	584	643	707	777	855
-Taxes	169	160	176	194	213	234
+Depreciation & amortization	204	194	213	234	258	284
-Capex	134	127	140	154	169	186
-Net inv. in Working Capital	-197	-187	-206	-226	-249	-274
Free Cash Flow	714	678	746	820	902	992

Individual year discount factor	0.92	0.92	0.92	0.92	0.92	0.92
Cumulative discount factor	0.92	0.85	0.79	0.73	0.67	0.62
PV (FCF)	659.65	578.50	587.90	597.45	607.16	10747.05
Sum (PV (FCF))	137778					
Post Illiquidity Discount	9644					

Appendix 10. Sensitivity Analysis WACC

Table 15. Sensitivity analysis of weighted average cost of capital calculations

Sensitivity analysis of WACC		**D/V** 100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%
E/V	0%	**2.8%**	2.5%	2.3%	2.0%	1.7%	1.4%	1.1%	0.8%	0.6%	0.3%	0.0%
	10%	3.8%	**3.5%**	3.2%	3.0%	2.7%	2.4%	2.1%	1.8%	1.5%	1.3%	1.0%
	20%	4.8%	4.5%	**4.2%**	3.9%	3.7%	3.4%	3.1%	2.8%	2.5%	2.2%	2.0%
	30%	5.8%	5.5%	5.2%	**4.9%**	4.6%	4.4%	4.1%	3.8%	3.5%	3.2%	2.9%
	40%	6.8%	6.5%	6.2%	5.9%	**5.6%**	5.3%	5.1%	4.8%	4.5%	4.2%	3.9%
	50%	7.7%	7.5%	7.2%	6.9%	6.6%	**6.3%**	6.0%	5.8%	5.5%	5.2%	4.9%
	60%	8.7%	8.4%	8.2%	7.9%	7.6%	7.3%	**7.0%**	6.7%	6.5%	6.2%	5.9%
	70%	9.7%	9.4%	9.1%	8.9%	8.6%	8.3%	8.0%	**7.7%**	7.4%	7.2%	6.9%
	80%	10.7%	10.4%	10.1%	9.8%	9.6%	9.3%	9.0%	8.7%	**8.4%**	8.1%	7.9%
	90%	11.7%	11.4%	11.1%	10.8%	10.5%	10.3%	10.0%	9.7%	9.4%	**9.1%**	8.8%
	100%	12.7%	12.4%	12.1%	11.8%	11.5%	11.2%	11.0%	10.7%	10.4%	10.1%	**9.8%**