

Is ESG Disclosure worth the effort?

A thesis assessing whether a transparent and appropriate ESG Disclosure and if usage of a sustainability reporting framework has an effect on a listed growth company's stock price performance & financial performance.

Markus Ransved Nilsson & William Palmqvist

Stockholm School of Economics

B.Sc. Retail Management

Bachelor's Degree Thesis 15 ECTS credits

Spring Semester 2021

Supervisors: Emelie Fröberg & Huong Ngoc Lan Nguyen

Abstract

Undoubtedly the interest in business sustainability has an upward sloping trend. This has led to an enhanced level of investment into this research field. Nonetheless, the research has mainly circulated sustainability measures for larger enterprises and neglected growth companies. In fact, these companies represent 50-60% of all value creation and represent 99% of all corporations within the OECD countries. Neither has a topic-relevant industry comparison been performed. Therefore, a quantitative examination of 113 companies, in three different sectors, during a four-year period, has been conducted where the analysis was aimed at ESG disclosure performance rather than actual ESG performance. It has investigated whether ESG disclosure performance and usage of sustainability reporting frameworks affect stock price and financial performance for growth companies listed on the NASDAQ First North Growth Market Sweden. Additionally, a sector comparison was performed to detect potential differences between industries. The study found a weak but significant positive correlation between ESG disclosure performance and stock price performance. However, the relationship diminished in a portfolio setting even though a clear positive trend for utilizing an ESG rolling portfolio strategy was discovered, but statistically insignificant. From an industry perspective, the Retail & Consumer Packed Goods and Industrial sector showed significant results, while the Health Care business did not. Sustainability framework utilization positively correlated with share price for the Retail & Consumer Packed Goods industry but not for the general market. Although the results, in general, are modest, they are still a valuable contribution to the literature as they provide a more nuanced picture of the investigated relationships.

Foreword

We would like to direct our appreciation towards our two supervisors Emelie Fröberg (Research Fellow at SSE Institute for Research & Assistant Professor at SSE Department of Entrepreneurship, Innovation, and Technology) and Huong Ngoc Lan Nguyen (Ph.D. Student at SSE Department of Marketing and Strategy). With their expertise and guidance, we have been able to steer this research study towards our desired goal. A special thanks should also be directed to all opponents for their feedback contributions for this thesis. To all voluntary contributors of correction reading and topic discussions, thank you as well. Lastly, we would like to acknowledge our humble gratitude towards SSE Center for Retailing for the three years we have spent together.

Markus Ransved Nilsson & William Palmqvist

Stockholm, 18th of May 2021.

Table of Content

Introduction.....	3
Background.....	3
Problematization.....	4
Purpose & Research Contributions	5
Research Question	7
Empirics.....	7
Theory	7
Sustainability Reporting Frameworks & ESG Disclosures - Retail Investors Perspective.....	7
ESG & Its Link with Financial Performance	9
Sector Comparison	11
Portfolio Analysis	12
Method	13
Research Strategy	14
Research Design.....	14
Industry & Company Selection	14
Establishing a Rating System	15
Financial Data Collection	16
Portfolio Testing	17
Data & Confidence Interval.....	18
Correlation & Regression Testing	18
The Variables.....	19
Panel Data, Multi-Dimensional Regression & Empirical Model	21
Breusch-Pagan Lagrange multiplier	24
The Hausman test	24
Model Robustness.....	25
Multicollinearity	26
ANOVA Scheffé.....	27
Quality Criteria	28
Results.....	28
The Models.....	29
Model 1.....	29
Model 2.....	30
Results Model 1: Hypothesis 1 _{AB}	30
Results Model 2: Hypothesis 2 _{AB}	31
Results Model 3-8: Hypothesis 3-6 _{ABC}	32
Model Robustness: Results Model 1 - Arellano Robust Covariance Matrix.....	33
Model Robustness: Results Model 2 - Arellano Robust Covariance Matrix.....	34
Model Robustness: Results Model 3-8 - Arellano Robust Covariance Matrix	35
Results Portfolio Analysis: Hypothesis 7 _{ABC}	36
Results Summary.....	37
Discussion	37
Conclusion	40
Limitations & Future Research.....	41

Introduction

Background

During the past two decades, there has been a surge in environmental, social, and governance (ESG) concerns from stakeholders of all sorts - individual shareholders, institutional investors, governments, local communities, customers, employees, and suppliers (Escrig-Olmedo et al., 2013). Yet, the research conducted within this field has mainly been applied at large-cap companies or a global scale (e.g., Hill et al., 2007), leaving a gap for further research to cover. Yu et al. (2018) contributed to bridging this gap by assessing how ESG disclosure performance has a non-linear relationship with a company's Tobin's Q. Hence instigating that better disclosure of ESG has an amplifying effect on firm valuation measurements, such as Tobin's Q. However, they further establish that firms with greater asset size, better liquidity, higher R&D intensity, fewer insider holdings, and good past performance will be more transparent of their ESG issues (ibid). Thus, leaving the question of whether or not publicly listed growth companies - with, e.g., little assets and short financial history - are under the same scrutiny. In contrast to these significant results, which are of sincere interest to corporate leaders, KPMG (2016) identified that only one-third of all ESG related disclosure is voluntary, leaving two-thirds as a tic-the-box action from corporate leaders. Therefore, government regulations remain the most important instrument of change within this field.

Another issue regarding ESG disclosure strategies is the fear of being perceived as greenwashed. Michelle J. Stecker (2016) explains this fear by stating: "The fear of corporate greenwashing is a valid concern for socially conscious consumers and investors. With annual reports not required to be verified, certified, or audited by a third-party standard organization, the lack of clear guidelines on the fiduciary duties of directors and officers, and the large amount of money at stake could be a recipe for disaster". Consequently, to mitigate this issue and attempt to unarm this resistance inherent within corporate leadership, EU has voted for a taxonomy. It aims to achieve, "a common language and a clear definition of what is sustainable", because "the action plan on financing sustainable growth called for the creation of a common classification system for sustainable economic activities" (European Commission, 2021). This will enable funds and large investment corporations to rank portfolios

based on the new standard of what will be considered sustainable and hence limiting greenwashing (European Commission, 2020).

Problematization

The increased interest in business sustainability has led to an enhanced level of investment into this research field. Yet, the research has mainly circulated sustainability measures for larger enterprises (Casalino et al., 2014; Tsalis et al., 2013). Larger enterprises are more often multinational and consequently under pressure from numerous stakeholders to implement ESG issues as a board topic. However, this external force of change might not be as present for smaller corporations with fewer stakeholders, leading to a reality where the change is not happening sufficiently enough (He et al., 2014). According to Jaramillo et al. (2018), this slow transition also a result from other factors that affect small and medium-sized enterprises' (SMEs) sustainability work. These factors are hindrances, that most often base themselves on the lack of resources, limiting the implementation of ESG related measurements. Yet, SMEs cannot ignore what stakeholders will inevitably demand in the future, if the companies desire to survive in a competitive environment characterized by technological evolution, globalization, and innovative competition (Handoko et al., 2014). Thus, combining less external pressure with few resources and a fierce competitive environment infers a barrier to implement extensive and precise ESG disclosures that is significant for SMEs in general, and growth companies in particular.

In addition to this complexity, a second barrier might be present for publicly listed growth companies. Namely, finding a sufficient return on investment for these disclosures since it requires the corporation or the market to respond accordingly, with an enhanced financial performance or a stock price appreciation, respectively. However, considering that these firms are listed at stock exchanges where the power balance between institutional and retail investors differentiates from large-cap markets, the return ambiguity accelerates. Subsequently, marking the relevance of understanding the difference between how institutional investors and retail investors pivot around corporate ESG information.

The institutional investors' practices can be exemplified through two large investment corporations. Norges Bank Investment Management, which manages the world's largest sovereign wealth fund, established investment criteria that focus on climate change, water, and children's rights (Yu et al., 2018). Consequently, increasing investors' possibility of pressuring

the investment targets - and incentivizing corporate leaders to enhance their ESG disclosure performance (Ibid).

Another suitable example for Swedish companies is Kammarkollegiets Kapitalförvaltning which had assets under management amounting to approximately 4% of NASDAQ First North Growth Market's accumulated market capitalization during 2019 (Nasdaq, 2019; Kammarkollegiet, 2019). Its investment process is long and rigid, requiring extensive resources to manage. By investigating their process, it becomes apparent that it, in general, consists of three ESG related screening processes (Kammarkollegiet, 2018). First, an initial normative screening is conducted - a screening process based on corporate guidelines, e.g., ethics and morals. Second, an external party is appointed to score the companies on their ESG performance. Finally, the companies that have managed to pass through these three steps of screening move on to be evaluated on other criteria of interest for the fund managers (ibid).

These are without a doubt lengthy processes that few or no retail investor has time or resources to go through. Moreover, are the prominent rating institutes that help institutional investors in their screening process, basing approximately 50% of their ESG evaluation on corporate disclosures (MSCI, 2020). A direct source from the listed companies, public for both institutional and retail investors. Amplifying the corporates disclosures importance as a source of information for the retail investor due to the imbalance in capabilities to evaluate a company's ESG performance. Therefore, an investigation into how a growth company's ESG disclosure performance affects its stock price and financial performance is of most profound interest for both the company's corporate leaders and the retail investors as shareholders.

Purpose & Research Contributions

As mentioned, the interest and research in sustainable business have surged (Escrig-Olmedo et al., 2013). Yet the ESG literature has mainly been focused on companies' corporate ESG performance materiality effect within the company's financial performance (Eccles et al., 2001; King & Lenox, 2000; Margolis & Walsh, 2003; Ruf et al., 1998; MSCI, 2020). Some research has also ventured into the field of strategy, in terms of firm valuation and how ESG issues may affect a company's valuation based on firm risk-reducing characteristics, adjusted cashflows for ESG benefits, and investigated when to be transparent or not (Bos, 2014; KPMG, 2020; Giese et al., 2019; Fatemi et al., 2018; Nordea, 2017). Others study corporate ESG performance as a critical component for investment success (Richardson, 2009), or if shareholders are

skewed to favor investments with a better corporate social responsibility image (Margolis & Walsh, 2003; De Bakker et al., 2005). Nevertheless, a continuous lack of research explicitly examining growth companies' ESG transparency and the quantity of their ESG disclosures is still insufficient or even non-existent. Flagging a gap in the literature which this study aims to contribute to filling.

Furthermore, a focus on growth companies was chosen since 99% of all companies were SMEs (including growth companies) and stood for 50-60% of all value creation within the OECD countries in 2019 (OECD, 2019). They also have a larger share of retail investors compared to larger publicly listed firms. In addition, several researchers and prominent political figures highlight these firms' part in the development of the economic environment. Sallovschi & Robu (2011), articulate this by stating the following in their article *The Role of SMEs in Modern Economy*: “An important involvement of the external impact of small and medium enterprises is the fact that their contribution in the development is not limited to the sector of SMEs of the economy, but more than that, it is extended as an impact on the enterprises not in this sector, with significant influences”. Based on their study of a vast literature, Sallovschi & Robu (2011) further claims that fast growing SMEs (i.e., growth companies) serve as the engine of economic growth. Marking the role of growth companies as a category of particular interest to examine deeper.

Sallovschi and Robu (2011) continue to further discuss the development of the role of SMEs in the economic environment by establishing that it may very well be exponential given two synergetic effects. Partly because the characteristics of a growth company position these organizations at the forefront of economic development. Partly because the conditions of new business configurations, demands, and requirements in the global economic environment are favorable for expanding the small and medium sectors, including growth companies (Sallovschi & Robu, 2011). A prediction that proved accurate when SME policies were put high on the agenda of diverse international fora. Such as the G20 summit and Global Partnership for Financial Inclusion's subgroup, B20, that created a task force with the specific focus of SMEs (OECD, 2021).

Given the apparent lack of research into the field of ESG disclosure performance's effect on stock prices and corporate financial performance aimed at growth companies. Plus, the occasionally overlooked but prominent economic position of growth companies, this study will

contribute to a significant lack within the relevant research and consequently enhance the knowledge within the field.

Research Question

- Does ESG disclosure performance & sustainability reporting framework utilization affect financial performance & stock price appreciation for the retail shareholders of growth companies listed at NASDAQ First North Growth Market Sweden?

Empirics

In order to answer the presented research question, this study has examined 113 companies on the NASDAQ First North Growth Market Sweden during a three-year period (2017-2019). Information has been collected from credible sources – e.g., Avanza, Borsdata, and corporate annual company reports – to ensure trust within the results. Furthermore, an appropriate choice of method has been piloted to detect authentic relationships within the data and further contribute to this field of research.

Theory

Sustainability Reporting Frameworks & ESG Disclosures - Retail Investors Perspective

Recently, impact investing and green funds have seen an uprise in both popularity and performance. During 2020, the best performing fund in Sweden was Handelsbanken Renewable Energy A1 (Ståhl, 2021), and during the first nine months of said year, 333 new green funds were started across Europe, totaling the record-high number to 2898 (Carnegie, 2021). As an effect, ESG funds are being referred to as the world's biggest investment order, meaning that 25-40% of the world's BNP are projected to be invested in companies that meet the investor requirements of ESG performance (Halldin, 2021).

Simultaneously, the dominant Swedish online stockbrokers Avanza and NordNet grew their customer base, consisting of retail investors, by approximately 27% (Placera, 2020; NordNet, 2020). These investors also increased their savings rate as invested capital and capital inflow to the stockbrokers rose by hundreds of percentage points (SvD, 2020). Consequently, some stock markets were disrupted due to the resulting power imbalance between institutional and the enhanced collective power of the retail investors (Webb, 2020). In Sweden, retail investor

power is most substantial at the growth market First North, because of the low market capitalizations of firms that deter larger investments in minority shares, generally sought by institutional investors. Additionally, general societal sustainability awareness is increasing, and in Sweden, sustainability is the most critical factor when shopping for 70 % of customers (Swedish Trade Federation, 2018). This implies that the increasing base of retail investors consists of at least ESG-aware, if not ESG-concerned, individuals.

As it stands, larger Swedish companies subjected to legislation must produce a sustainability report that discusses the firm's impact on the environment, social issues, respect for human rights, and prevention of corruption (PwC, 2017). However, no current legislation further decides what the report should include or how it should be constructed. Instead, several organizations such as Global Reporting Initiative (GRI), Principles for Responsible Investments (PRI), Sustainability Accounting Standards Board (SASB), and International Organization for Standardization (ISO), have established frameworks from which companies can pick and choose what to include in their report and how it should be presented. However, an important note is that these frameworks and the sustainability reports rely on firm self-disclosure and are not reviewed by certified auditors (Hansen, 2018), in addition to the fact that no company listed at First North is obligated to construct a sustainability report. The information included is then captured by different indexes that measure and rate the firm's sustainability operations—voted five consecutive years as the best green index provider is Bloomberg Barclay's MSCI (Environmental Finance, 2021). In the MSCI ratings, utilizing recognized sustainability reporting frameworks is recommended to gain a high ranking, as 50% of the rating relies on voluntary information disclosure largely congruent with ESG-frameworks (MSCI, 2020). However, no distinct literature takes into consideration financial effects for the utilization of these recognized and popular frameworks.

Several studies have been constructed that measure the relationship between ESG disclosure, firm valuation and share price effects, with ambidextrous results. According to Auer & Schuhmacher (2016), sustainable investment strategies can perform better than the market in the USA and Asia, while ESG investors in Europe pay a premium. Similarly, Maiti (2020) concludes that investments utilizing a three-factor model that includes ESG factors, give higher Sharpe ratios. Hence generating returns above the traditional Fama-French model often used by value-investors. However, Fatemi et al. (2018) suggest that firm ESG disclosure harms firm valuation, even though it might be a mitigation factor in terms of abysmal performance at the

risk of public attention. Yet, through their extensive peer review including over 2000 cases, Friede et al. (2015), establishes that the explanation resides with the fact that ESG factors are utilized in portfolio settings, which shows a neutral relationship to firms' financial performance, not individual equity investments. Nevertheless, no studies have been performed discussing the relationship for growth companies or taking a retail investor's perspective. Instead, they focus on large-cap markets and takes the perspective of an institutional investor. Therefore, no connection has been drawn between ESG disclosure or utilization of a sustainability reporting framework and capital appreciation returns, nor has it been established if investments in ESG disclosure are positive for shareholders in growth companies. Additionally, it has not been recognized whether firm utilization of an ESG reporting framework pays for the company's shareholders.

Bearing in mind the information about ESG-investors and frameworks, retail investors, and ESG-investments, the following hypotheses are proposed:

***H1a:** Having a high ESG-disclosure score increases stock prices for growth companies listed at the NASDAQ First North Growth Market Sweden.*

***H1b:** Utilization of a sustainability reporting framework is positively correlated with stock prices for growth companies listed at the NASDAQ First North Growth Market Sweden.*

ESG & Its Link with Financial Performance

When it comes to ESG disclosure and its relationship with corporate financial performance (CFP), there is conflicting evidence in the current literature. Huang (2019) found an economically modest yet significant relationship between ESG activity and corporate financial performance. Similarly, Xie et al. (2018) found a non-negative relationship between CFP and ESG performance. In addition, they conclude that modest disclosure of ESG effort has the greatest effect on corporate efficiency. Furthermore, good management practices are understood as a necessity to enhance the relationship between ESG and CFP (Wang, 2014; Isaksson & Woodside, 2016). On the other hand, Nordqvist & Raber (2016), claims that no such prerequisite exists between ESG and the corporation's financial performance. However, perhaps most prominently, Friede et al. (2015), found that ESG is tightly linked with corporate financial performance and has been so since the early 1990s. This holds especially true for North America and emerging markets (ibid).

Even though somewhat conflicting evidence exists between the relationship, most studies have been historically skewed towards a positive relationship between ESG and CFP. Nonetheless, previous academic work is intentionally based on data surrounding large mature companies on global stock exchanges, with large samples consisting of companies from various industries. No studies have been performed that concerns minor volatile growth companies. Such companies have the benefit of establishing business models that incorporates ESG values from inception. On the other hand, they might not have the resources to invest in ESG efforts or extensive ESG disclosure built upon rigorous and complex sustainability reporting frameworks.

Porter & Kramer (2006) eminently concluded that activists and media direct companies in counterproductive ways in terms of CSR activities. First, they make companies pit society against business which in fact is interdependent. Second, they tilt companies to think of sustainability in generic terms instead of adapting strategies and activities individualized for their operations. Consequently, companies, mostly large companies, greenwash by highlighting ESG issues while hiding ESG performance (Yu et al., 2020). Yet, if companies let the same frameworks that guide their core business decisions, guide their CSR efforts, corporate social responsibility (CSR) can be much more than a cost, namely a source of sustainable competitive advantage. A perspective that Avlonass & Nassos (2013) elaborated on by suggesting several strategies in how organizations can set up operations to gain advantages through sustainable operations. Furthermore, it has also been shown that sustainability efforts can increase competitive advantages for not only larger corporations but also SMEs (Cantele & Zardini, 2018).

What previous studies label as performance is taken from rating institutes that rely on corporate self-reported information and other written content about the company (Appendix 2). Thus, it is more accurate to refer to it as ESG disclosure performance rather than operational performance. That is the perspective taken in this work when forming the following hypotheses, based on the aforementioned academic research:

H2a: *Having a high ESG-disclosure score positively correlates with financial performance for growth companies listed at the NASDAQ First North Growth Market Sweden.*

H2b: *Utilization of a sustainability reporting framework positively correlates with financial performance for growth companies listed at the NASDAQ First North Growth Market Sweden.*

Sector Comparison

As mentioned, several studies have previously examined ESG performance and ESG disclosure performance in a setting of both large and mature companies and occasionally for a sample consisting of SMEs. However, these studies take a holistic and joint approach towards various industries. No studies have previously aimed at examining the ESG performance and ESG disclosure performance's connection to financial performance or stock price appreciation from the perspective of a sector analysis (Wang, 2014; Isaksson & Woodside, 2016; Huang, 2019; Xie et al., 2018; Avlonass & Nassos, 2013; Cantele & Zardini, 2018; Eccles et al., 2001; King & Lenox, 2000; Margolis & Walsh, 2003; Ruf et al., 1998; Casalino et al., 2014; Tsalis et al., 2013; Hill et al., 2007; Yu et al., 2018). Retail & Consumer Packed Goods, Health Care and Industrials proved to be the most desirable selection since these industries had the highest average number of trades and stood for 54% of all First North retail investor trades in 2019 (Nasdaq, 2019) Therefore, this study suggests the following hypotheses for these sectors at the NASDAQ First North Growth Market Sweden:

***H3a:** ESG Disclosure performance positively correlates with stock price appreciation for the Retail & Consumer Packed Goods industry sector.*

***H3b:** ESG Disclosure performance positively correlates with stock price appreciation for the Industrial industry sector.*

***H3c:** ESG Disclosure performance positively correlates with stock price appreciation for the Health Care industry sector.*

***H4a:** Sustainability reporting framework utilization positively correlates with stock price appreciation for the Retail & Consumer Packed Goods industry sector.*

***H4b:** Sustainability reporting framework positively correlates stock price appreciation for the Industrial industry sector.*

***H4c:** Sustainability reporting framework positively correlates stock price appreciation for the Health Care industry sector.*

***H5a:** ESG Disclosure performance positively correlates with financial performance for the Retail & Consumer Packed Goods industry sector.*

***H5b:** ESG Disclosure performance positively correlates with financial performance for the Industrial industry sector.*

***H5c:** ESG Disclosure performance positively correlates with financial performance for the Health Care industry sector.*

H6a: Sustainability reporting framework positively correlates with financial performance for the Retail & Consumer Packed Goods industry sector.

H6b: Sustainability reporting framework utilization positively correlates with financial performance for the Industrial industry sector.

H6c: Sustainability reporting framework utilization positively correlates with financial performance for the Health Care industry sector.

Portfolio Analysis

Lastly, this work also includes the perspective of active return through a multiple expansion. MSCI (2020) discuss the aspect of active return based on the price to earnings ratio (PE ratio) as a measure of the “true effect” of performing well within their ESG rating system (MSCI, 2020). The reasoning behind active return (PE-based) is that one should, for a given period, look at the compound annual growth rate (CAGR) of a company or of a portfolio. Furthermore, one should analyze the Dividends & Buyback effect as it will affect the price of a publicly listed stock and shall therefore be integrated to capture actual stock price performance. Lastly, one should examine the multiple expansion over the given period. If the CAGR plus Dividends & Buyback effect is equal to the expansion of the PE ratio, the market has been entirely rational, and the stock price follows actual financial performance (MSCI, 2020). If there is a difference on the other hand, a positive or negative active return is present.

With similar reasoning but using an earning yield multiple instead, this research has applied the concept to growth companies. Even though it is no perfect measurement, the earnings yield captures how much earnings that are generated for a share in the company (Gustafsson, 2020). Therefore, if a company has a low earnings yield, the price is high relative to the company's earnings, which could indicate that investors have high beliefs about the company's future performance. On the other hand, if a company has a high earnings yield, they generate high returns relative to their share price, which can be interpreted as investors have low beliefs of future increase in earnings from the company. However, earnings yield is a multiple which entails that it needs to be put in relation to other shares with similar attributes (Ibid).

KPI formula: Earnings yield

$$\text{Earnings Yield} = \frac{\text{Earnings per share}}{\text{Average price per share}}$$

Where;

- EPS = The company's net earnings divided by the number of outstanding shares

- Average price per share = The price of a share in the company

This work examines the book value of a portfolio share – assuming a hundred percent reinvestment rate (equity value + dividend) and compares it to the market capitalization of a share. Potential differences between these value's development over the examined period will give an active return indicator. As growth companies tend to generate more volatile and occasionally negative earnings, utilizing earnings yield is a more suitable KPI since it compared to PE can be employed for calculations with negative numbers. Yet, literature has rarely examined this perspective for growth companies, which presents a lack of support when forming hypotheses. Therefore, by using the previously established hypotheses regarding ESG disclosure performance impact on both financial performance and stock price performance, the following hypotheses are drawn:

H7a: *The top-third ESG disclosure performing rolling portfolio will have a superior active return compared to the middle- and bottom-third ESG disclosure performing rolling portfolios over the examined period.*

H7b: *The middle-third ESG disclosure performing rolling portfolio will have an inferior active return compared to the top-third ESG disclosure performing rolling portfolio, but a superior active return compared to the bottom-third ESG disclosure rolling portfolio over the examined period.*

H7c: *The bottom-third ESG disclosure performing rolling portfolio will have an inferior active return compared to the top- and middle-third ESG disclosure performing rolling portfolios over the examined period.*

Method

This section will initially present the research strategy and design. Thereafter it will explain how each step in the conducted study was done and its logic given the purpose of the report. This includes Industry & Company Selection, Establishing an ESG disclosure performance rating system, and Financial Data Collection. Thereafter, various forms of computed testing and its components will be explained and motivated for – Portfolio Testing, Descriptive statistics, Correlation Testing, Regression Testing, Model Variables, Empirical Model, and Hausman Testing. Finally, this section will include an assessment of how this study has taken into consideration common quantitative quality criteria, validity, and reliability.

Research Strategy

A research strategy was applied to ensure that the data collected could explain the results generated, to fulfill the study's purpose (Blomqvist & Hallin, 2014). Because of the lack of literature assessing the ESG disclosure effect for retail investors, insufficient knowledge exists for corporate leaders to evaluate the benefits of initiating an ESG disclosure strategy for its non-institutional exposure. This initiated an investigation of using grounded theory as its research strategy. Grounded theory was initially developed by Barney Glaser and Anselm Strauss in 1967 (Norman & Lincoln, 1998). The theory relies on the premise that one needs to move from data to theory to enable new theories. However, grounded theory was neglected since this research aimed to expand existing theories to a new application area. Instead of the neglected approach of a grounded theory, a case study was chosen as appropriate. A case study should not be viewed as a stand-alone feature but rather a strategy examining a specific phenomenon, covering a logical study design, data collection, and data analysis approach (Yin, 2003). This approach can be implemented on either a single case - working qualitatively - or by examining multiple cases - working quantitatively (Voss et al., 2002). The latter was chosen as most appropriate since it was hypothesized that a single case study would generate company-specific results not significant to the overall population. Applying a multiple case study requires a case selection size sufficient to represent the rest of the population ($n \geq 30$). Tests are then run to either predict similar results or providing evidence that such a conclusion cannot be drawn (Ibid).

Research Design

Industry & Company Selection

To sufficiently answer the research question and fulfill the report's purpose, this study had to find an effective way to target retail investors and growth companies at a large scope. Consequently, this requirement led to an assessment of what public stock exchange to approach to sufficiently target a sample of growth companies with a larger relative influence from retail investors compared to the OMX30, for which large institutional investors' influence heavily outweigh the smaller retail investors. NASDAQ First North Growth Market Sweden proved best suited to fulfill such a premise since their market share distribution was dominated (+60% market share) by institutions for retail investors (Nordnet Bank AB & Avanza Bank AB)(Nasdaq, 2019). After that, an industry selection was conducted to limit the scope of the research. Limiting the research scope implied a risk of jeopardizing the reports' ability to represent a phenomenon rather than a case-specific event. Therefore, a careful investigation of

what industry selection would be most suitable to represent the investigated phenomenon was performed. Companies were subsequently randomly selected through a standard randomizer (e.g. Random.org) to ensure a further non-biased sample selection (Newbold et al., 2013).

Establishing a Rating System

In order to rate the selected companies based on their ESG disclosure performance, several precautionary actions were taken to mitigate the risk of this endogenous variable. First of all, an industry enquiry of how ESG performance is evaluated, both theoretically and practically, was performed. Based on the results from this enquiry, a rating system was established. It utilized the MSCI ESG Index & Industry Materiality Mapping as a reference point with its allocated weights for various ESG issues to assess when rating the selected companies (MSCI, 2021; MSCI, 2020).¹ To arrive at a final ESG disclosure rating, weighted for industry individual key issues, it was normalized relative to ESG disclosure ratings of industry peers.² Companies were then allocated a final assessment score ranging from 1-5. The ESG disclosure rating was conducted by both authors independently to ensure that both could follow the steps and reach the same ratings. This was later followed by a practical validity check to ensure that the rating system was representative of market conduct. The validity check consisted of interviews with investors of various sorts, both large fund managers and retail investors. Results from the validity check are presented below in *Table 1*.

Table 1

Interview Subject; Position/Organization	Date	Type of investor	Validity Check
---	------	---------------------	----------------

¹ The ESG disclosure rating system is industry relative and uses a weighted average approach. Critical issue weights are determined at the GICS Sub-Industry level based on each industry's relative external impact and its respective risk time horizon. These issues and allocated weights undergo a continuous formal review per annum to ensure that their materiality level is accurately estimated (exemption of corporate governance since it is considered consistently materialized)(MSCI Inc, 2020). For each reviewed company, a Weighted Average Issue Score is calculated based on its industry-associated key issues at a 5% minimum level.

² Consumer Goods; Product Carbon Footprint – 8%, Raw Material Sourcing – 8%, Labor Management – 15,30%, Privacy & Data Security – 15%, Chemical Safety – 12%, Supply Chain Labor Standard – 9%, Governance – 33%.

Industrials; Opportunities in clean technology – 16%, Toxic Emissions & Waste – 11%, Carbon Emissions – 50%, Labor Management – 6%, Health & Safety – 11%, Governance – 6%.

Health Care; Toxic Emissions & Waste – 8%, Product Safety & Quality – 42%, Human Capital Development – 6%, Access to Health – 24%, Governance – 20%.

Fund Manager	2021-02-26	Large	<i>"We use a four-step screening process including both internal and external expertise. But the internal process is essentially based on common sense and the information we can extract from the corporations ourselves. Thus, I think your rating system is very representative for how an investor conducts this type of analysis."</i>
Head of ESG Issues at a large fund	2021-02-26	Large	<i>"I think you are correct in your assessment of how a thorough ESG rating system is constructed. I would actually argue that your rating system could be seen as conservative since I believe retail investors, in general, are trusting corporate reports completely and sometimes forget unmentioned ESG aspects."</i>
Partner / Impact Fund	2021-03-02	Medium	<i>"As a private equity impact investor, we are very keen in our assessment of how a prospect actually works with ESG. Yet, the first step in any analysis will inevitably be reading their corporate reports. Therefore, I think you are actually assessing this from a valid perspective."</i>
Investment Associate / Investment Fund	2021-03-04	Medium	<i>"We are doing exactly this but in a simplified way actually. But I think you may get modest results, but I guess that is better than the other way around."</i>
Retail Investor (Ex; Swedish CEO of a Global Bank)	2021-03-10	Small	<i>"Put it like this: I as an informed retail investor am going through this process for essentially all my investments since I appreciate the issue of ESG and I think this is the desirable but less realistic conduct. However, for the more ordinary investor, I believe some are much sloppier before an investment. Nevertheless, taking their perspective in assessing a company's ESG disclosure performance could be irrelevant in the long term since evidence apparently shows that investors considering ESG are winning in the long term."</i>

Financial Data Collection

When collecting the data necessary for a complete analysis, several sources were used. Borsdata.com was utilized to gather corporate financial performance and ownership information. Borsdata is an independent information provider of financial information gathered directly from NasdaqOmx, Refinitiv, Millstream, and Borsdata (Borsdata, 2021).

Stock price information was gathered using Avanza - a bank targeting retail investors and private trades (Avanza, 2021). When collecting stock price data, it was important not to gather a snapshot price taken at the end of a year - often found in corporate reports - but instead investigate the stock price performance over the year and using a more representative average. Hence, by utilizing Avanza's function of quarter-based prices - adjusted for trade volumes - and calculating the average each year, the report managed to assess stock price effects and performance more accurately (ibid).

Portfolio Testing

Once the industry selection, company sampling, ESG disclosure performance rating, and financial data collection finished, the following step was the portfolio analysis. A rolling portfolio analysis was conducted over a three-year period (2017-2019) each year, sorting the companies based on their ESG disclosure performance into a top – middle – bottom third portfolio construct. These samples were then tested on their individual portfolio's active return over the three years. Active return was computed by examining each portfolio's CAGR (compound annual growth rate) of portfolio net earnings, dividends-and-buyback compound effect, and average earnings yield expansion.³ Earnings Yield was chosen above its reciprocal PE ratio since it is better suited for handling negative numbers for the earnings per share and consequently better suited for a growth market such as the NASDAQ First North Growth Market Sweden. Moreover, was consideration taken to the effect of portfolio companies paying out a dividend or making a buyback of shares, which would significantly affect share prices. Hence, eliminating this effect ensured an isolation of the active return of each share in the rolling portfolios.

³ Active Return is calculated by averaging each portfolio – top, middle, and bottom third – growth net earnings each year during the three-year period (2017-2019). Each rolling portfolio CAGR was then computed by the following formula:

$$\left(\left(\frac{\text{Average Growth in Net Earnings 2019}}{\text{Average Growth in Net Earnings 2017}} \right)^{(1/3)} - 1 \right)$$

Dividend-and-Buyback compound effect was computed by the following formula:

$$\left(\left(\frac{\text{Dividend \& Buyback effect 2019}}{\text{Dividend \& Buyback effect 2017}} \right)^{(1/3)} - 1 \right)$$

Earnings yield expansion was computed by the following formula:

$$1 - \left(\frac{\text{Average Portfolio Earnings Yeild 2019}}{\text{Average Portfolio Earnings Yeild 2017}} \right)^{(1/2)}$$

Active Return was computed by the following formula:

$$\left(\frac{\text{Average Growth in Net Earnings 2019}}{\text{Average Growth in Net Earnings 2017}} \right)^{(1/3)} - 1 + \left(\left(\frac{\text{Dividend \& Buyback effect 2019}}{\text{Dividend \& Buyback effect 2017}} \right)^{(1/3)} - 1 \right) - \left(1 - \left(\frac{\text{Average Portfolio Earnings Yeild 2019}}{\text{Average Portfolio Earnings Yeild 2017}} \right)^{(1/2)} \right) = \text{Active Return}$$

Data & Confidence Interval

The data collect has 113 (N=339) observations of independent random variables, repeated over three consecutive years, 2017-2019. According to the central limit theorem, a sample of n independent random variables with mean μ , variance σ^2 , and a mean of \bar{X} , has a distribution that approaches normal distribution as n becomes larger (Newbold et al., 2013). This entails that one can assume that the sample utilized in the study is representative of the population. Oftentimes a sample size of 30 is considered the minimum for the central limit theorem.

For this report, a 95% confidence interval will be used. A confidence interval is an estimation of an interval that includes a population parameter (Newbold et al., 2013). A 95% interval means that if further sampling of the population is performed continuously, the true value of the unknown population parameter would be included 95% of the time (Ibid). Based on the confidence interval, a 0.05 significance level will be used. Therefore, if the p-value of the regression does not exceed 0.05, the null hypothesis will be rejected. In turn, if it does exceed 0.05, the null hypothesis will not be rejected, and the regression or mean comparison will not be statistically significant.

Descriptive Statistics

	N	Minimum	Maximum	Mean
EBIT	339	-360 000 000	517 000 000	-3 100 341.60
Price	339	0.06	487.50	27.07
Dividend	339	0.00	11.00	0.23
ESG	339	1.66	5.00	3.00
Framework	339	0.00	1.00	0.10

This table includes the descriptive statistics of the data gathered from the companies and utilized in the models.

Correlation & Regression Testing

To answer the hypothesis of this work, regression analysis testing will be the method used. The regression coding will be conducted by both authors independently and then validated to get congruent results. A regression evaluates correlations between a dependent variable and a certain number of independent variables (Gallo, 2014). While the dependent variable is the factor one tries to predict, the independent variables are factors suspected/suggested to impact the dependent variable. A regression line is a linear line drawn through the data points used for the regression and shows the best fit between the variables (Ibid). However, a regression also

includes an error term which shows the certainty of the formula as a regression is only a predictor of the relationship between the factors (Ibid)

The regression formula:

$$y_i = \alpha + \beta x_{i1} + \varepsilon_i$$

Where;

- y_i = The dependent variable
- α = The Y intercept
- β = The slope coefficient
- x_{i1} = The independent variable
- ε_i = The random error term
- i = 1, ... , N

However, considering the nature of the data at hand and the relationships explored, regular linear regression will lead to biased results and relationships because of potential heterogeneity and endogeneity. How to deal with this issue will further be discussed in a later section of this work.

The Variables

The independent variables

Information on several independent variables has been sampled for the companies in the study to answer the hypothesis. To capture the aspect of ESG disclosure, each industry had its own criteria with individual weighted importance based on industry-standard (MSCI, 2020). Retail & Consumer Packed Goods were measured on disclosure of product carbon footprint, raw material sourcing, labor management, privacy & data security, chemical safety, supply chain labor standards, and corporate governance. Industrial companies were measure on disclosure of opportunities in clean tech, toxic emission & waste, carbon emission, labor management, health & safety, and corporate governance. Lastly, Health Care companies were measured on disclosure of toxic emission & waste, product safety & quality, human capital development, access to healthcare, and corporate governance. In order to capture the effects of changes in performance, the independent variable was measured throughout three consecutive years. Each company was assigned a score between 1-5 and is, therefore, an interval scale (Celko, 2010), suitable for regression analysis. An example of how a scoring is described in Appendix 1.

To distinguish between companies that utilize an established framework to conduct a sustainability report, a binary variable of 0 and 1 represent if they have referenced such a framework in their sustainability reports.

For changes in share prices for stocks at the stock exchanges, dividends are historically positively correlated with stock prices (Bask, 2020). As dividends are announced, the stock price often changes depending on the board of directors' decision. Because of this strong correlation, several valuation models have been developed that use dividends as an estimator of firm value. One of them is the renowned dividend discount model (Ibid). Therefore, to compare the correlation of the ESG variable, dividend data have been collected for each company and used as an independent reference variable in the regressions.

The dependent variables

First and foremost, share price will be a dependent variable to capture the examined aspect of capital appreciation for private investors in small growth companies and its relationship with ESG-disclosure and dividends.

Lastly, as a measure of financial performance, the EBIT will be used. EBIT is a company's earnings before interest, tax, and depreciation. Albeit other measures such as return on capital employed can be used to show capital efficiency and how high returns a company can gain from their level of capital; this study will only examine pure earnings of a company. Therefore, it disregards non-operational expenditures and only focuses on increased earning relative to past performance.

Table 2

Variable	Notation	Formula or Computation	Type	Used in Model:
ESG Disclosure Score	ESG	Footnote 2	Independent	Model 1-8
Dividends	Div	Payout per share * Number of shares	Independent	Model 1,3,5,7

Framework	FW	Using framework or not using framework	Independent	Model 1-8
Share Price	SP	Market Capitalization / Number of shares	Dependent	Model 1,3,5,7
Earnings Yield	EY	Earnings Per Share / Average Stock Price	Dependent	Portfolio Analysis
EBIT	EBIT	Revenue – COGS – Operating Expenses	Dependent	Model 2,4,6,8

Panel Data, Multi-Dimensional Regression & Empirical Model

The data collected is structured as panel data since it measures the same individuals (companies) over different points in time. It also includes a multi-dimension, a cross-sectional dimension, and a time series dimension (Hsiao, 2007; Okeke & Okeke, 2016). Considering the nature of the hypotheses and the data at hand, two main issues arise, heterogeneity and endogeneity. “The unobserved dependency of other independent variable(s) is called unobserved heterogeneity and the correlation between the independent variable(s) and the error term (i.e., the unobserved independent variables) is called endogeneity” (Brugger, 2021). Thus, considering that numerous factors not included in this work can influence the dependent variables share price and financial performance, using panel data and a corresponding model operating with panel regression is necessary to avoid biased results, which would be the case using simple OLS (Ordinary Least Square) regression. Furthermore, panel data overcomes the issue of autocorrelation often present when the same individuals are measured at several points in time (Okeke & Okeke, 2016).

Four different methods are typically used when evaluating regression on panel data: The pooled ordinal least square model, the fixed effects model, the fixed effects model using least square dummy variable(s), and the random effects model (Colonescu, 2016). Pooled OLS disregards differences in slope and intercepts among individuals (ibid; Garcia et al., 2017). It is similar to normal OLS regression because the lack of treatment of time dimensions and individual individual characteristics (Brugger, 2021). However, for panel data it is suboptimal because it requires that there is no exogeneity or serial correlation over time.

The regression formula: Pooled OLS

$$y_{it} = X'_{it}\beta + \alpha_i + \varepsilon_{it} \mid \text{for } t = 1, \dots, T \text{ \& } i = 1, \dots, N$$

$$Cov(X'_{it}, \alpha_i) = 0$$

Exogeneity Assumption

Where;

- y_{it} = The dependent variable
- X'_{it} = The independent variable
- β = The slope coefficient
- α_i = The Y intercept
- ε_{it} = The random error term

Unlike the pooling model, the fixed effects model considers individual effects for the individuals and the differences between them (Colonescu, 2016). In a fixed effects model, endogeneity can exist, yet, by assuming that the unobserved heterogeneity is constant (fixed) over time and deduct the mean value for each equation term, it is returned to nought and has no effect (Brugger, 2021). This entails that the fixed effects model allows for heterogeneity to be present in the model. The main disadvantage with the fixed effects model is that because the individual effects never change with time, effects can solely be examined within and not between individuals (Brugger, 2021; Garcia et al., 2017).

The regression formula: Fixed Effects

$$y_{it} = X'_{it}\beta + \alpha_i + \varepsilon_{it} \mid \text{for } t = 1, \dots, T \text{ \& } i = 1, \dots, N$$

$$Cov(X'_{it}, \alpha_i) \neq 0$$

Endogeneity Allowed

Where;

- y_{it} = The dependent variable
- X'_{it} = The independent variable
- β = The slope coefficient
- α_i = The Y intercept
- ε_{it} = The random error term

An alternative fixed effects model is the fixed effects least square dummy variable model (LSDV). In the LSDV model, the fixed effects are represented by an individual dummy variable for each factor. Dummy variables can be introduced in panel data to explain each unit that is unobserved, but correctly explain the model of relation (Okeke & Okeke, 2016). A primary critique against the fixed effect LSDV model is that it is inconsistent; however, academia is yet to establish such a property as very few studies have examined the topic (ibid).

The regression formula: Fixed Effects using LSDV

$$y_{it} = X'_{it}\beta + \alpha_i + \varepsilon_{it} \mid \text{for } t = 1, \dots, T \text{ \& } i = 1, \dots, N$$

$$\text{Cov}(X'_{it}, \alpha_i) \neq 0$$

Endogeneity Allowed

We may write the fixed effects models as

$$y_i = X_i\beta + i_h\alpha_i + \varepsilon_i, i_h = \begin{bmatrix} 1 & 0 & 0 & \dots & 0 \\ 0 & 1 & 0 & \dots & 0 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & \dots & 1 \end{bmatrix}$$

Or more compactly using dummy variables as

$$y = [X \ d_1 \ d_2 \ \dots \ d_n] \begin{bmatrix} \beta \\ \alpha_1 \\ \alpha_2 \\ \vdots \\ \alpha_N \end{bmatrix} + \varepsilon$$

Where, for $i = 1, 2, \dots, N$, d_i is a dummy variable that indicates the i^{th} individuum. Subsequently, by computing the $N_t \times N$ matrix $D = [d_1 \ d_2 \ \dots \ d_N]$ and assemble all N_t rows this obtains a dense computation of this model to,

$$y = X\beta + D\alpha + \varepsilon$$

(ibid)

Where;

- y_{it} = The dependent variable
- X'_{it} = The independent variable
- β = The slope coefficient
- α_i = The Y intercept
- ε_{it} = The random error term
- D = Dummy variable

Instead of having fixed effects over time, the random effects model assigns random variables that vary through time and represent the effect of the independent variables not captured by the model (Brugger, 2021). A model can be considered a random effects model if the regressors can be assumed not to correlate with the unobserved individual heterogeneity (Okeke & Okeke, 2016). Over time, it can alternate between OLS and fixed effects, allowing it to capture effects both between and within individuiums (Brugger, 2021). Hence, it captures both individual effects and time dependent effects (Alam, 2020).

The regression model: Random Effects

$$y_{it} = X'_{it}\beta + \alpha_i + \varepsilon_{it} \mid \text{for } t = 1, \dots, T \text{ \& } i = 1, \dots, N$$

Defining when to use which estimator

$$Cov(\alpha_i, X_{it}) \neq 0 \rightarrow FE - Model$$

$$Cov(\alpha_i, X_{it}) = 0 \rightarrow OLS$$

Defining when to use which model based on serial correlation of the error terms

$$\lambda = 1 - \left(\frac{\sigma_{\varepsilon^2}}{\sigma_{\varepsilon^2} + t\sigma_{\alpha^2}} \right) \quad \begin{matrix} \lambda = 0 \Rightarrow OLS \\ \lambda = 1 \Rightarrow FE \end{matrix}$$

Where;

- y_{it} = The dependent variable
- X'_{it} = The independent variable
- β = The slope coefficient
- α_i = The Y intercepts
- ε_{it} = The random error terms
- λ = Variance of the Y intercept

Breusch-Pagan Lagrange multiplier

A Breusch-Pagan Lagrange multiplier test helps to decide if simple OLS regression or a random effects model is preferable for the data at hand (Torres-Reyna, 2010). It tests for heteroskedasticity and variance across entities (Ibid). When these requirements are not fulfilled, a model may lose its efficiency at best but will potentially be biased at worst when using OLS regression. Hence, instigating several researchers to contrive estimators for their specific and general stipulations, e.g., Goldfeld and Quandt for heteroskedasticity and Hildreth and Houck for random coefficients (Breusch & Pagan, 1979; Goldfeld & Quandt, 1965; Hildreth & Houck, 1968).

Breusch-Pagan Lagrange multiplier (Breusch & Pagan, 1980)

$$LM_{BP} = T \sum_{i=1}^{N-1} \sum_{j=i+1}^N \hat{\rho}_{ij}^2 \sim X^2 \left(\frac{N(N-1)}{2} \right)$$

For this test, the null hypothesis is that the variance across entities is non-existent (Ibid). If the null hypothesis is rejected, it means that there is a panel effect and difference between entities in the data. If that is the case, there is heteroskedastic in the data and a random effects model is preferred over simple OLS regression (Brugger, 2021).

The Hausman test

In order to decide if the model utilities for regression with panel data should have fixed or random effects, a common method is the Hausman test. The test includes both the estimators

of a fixed and a random model and tests for endogeneity. It examines whether the unique errors are correlated with the regressors or not (Torres-Reyna, 2010; Colonescu, 2016).

According to Baltagi (2001), the test compares the beta for the random and for the fixed within model. If the unique errors are correlated with the regressors, the beta values should not differ between the models. However, if they are, the beta random should be inconsistent with the beta within. The null hypothesis is, therefore, that the beta random is inconsistent. If null hypothesis is rejected, a fixed effects model is preferred, while a random effects model is suggested in the case of non-rejection (Torres-Reyna 2010; Colonescu, 2016).

Hausman test formula to test differentiation between fixed effects model and random effects model

$$H = (\hat{\beta}^{RE} - \hat{\beta}^{FE})' [Var(\hat{\beta}^{RE}) - Var(\hat{\beta}^{FE})]^{-1} (\hat{\beta}^{RE} - \hat{\beta}^{FE})$$

Where;

- $\hat{\beta}^{RE}$ = vector of coefficient estimates for the random effect
- $\hat{\beta}^{FE}$ = vector of coefficient estimates for the fixed effect

Model Robustness

Hoechle (2007) stated that “erroneously ignoring possible correlation of regression disturbances over time and between subjects can lead to biased statistical inference”, which means that regression models based on panel data are subjected to outside inferences. These inferences can underestimate standard errors and therefore lack conservatism (Hoeche, 2007). Meaning that significance values become inflated. Such outside inferences could come in the form of cross-sectional dependence, serial correlation, and heteroskedasticity. Cross-sectional dependence is that residuals are correlated across entities (Torres-Reyna, 2010), which in turn can increase biasness. On the other hand, Serial correlation is the similarity between observations as a function of the time lag between them and can therefore often be found in time series data (Kmenta, 1986). However, according to Torres-Reyan (2010), serial correlation is only an issue for data consisting of few years, called micro panels. Micro panels are what this work is built upon and are therefore not an issue in the model creation. As a matter of fact, the same reasoning applies to cross-sectional dependance (Torres-Reyna, 2010; Baltagi, 2001).

Heteroskedasticity entails that the distribution of residuals is not normally distributed, which causes biased estimations of standard errors (Breusch & Pagan, 1979). In turn, heteroskedasticity can lead to biased results of models. Therefore, a test of the models is required to ensure that if heteroskedasticity is present, it is remedied. As mentioned, a test that measures it is the Breusch Pagan test. Besides allowing for determination between a random effect or an OLS regression, a slightly different form of it detects if a robust covariance matrix is needed to account for heteroskedasticity not captured by the Brush Pagan Lagrange multiplier model (Torres-Reyna, 2010). This test accounts for heteroskedasticity not captured in the random effects model. Therefore, such a test will be utilized, and a covariance matrix will be employed if necessary, to produce unbiased results.

Several covariance matrixes exist, such as White 1 and White 2 (Torres-Reyna, 2010). However, unlike other matrixes, an Arellano covariance matrix is more inclusive as it accounts for both heteroskedasticity and serial correlation (Ibid). Therefore, in case of an issue with heteroskedasticity, an Arellano covariance matrix will be used.

Arellano – Bond GMM model accounting for uncaptured heteroskedasticity

$$y_{it} = \gamma + \alpha y_{it-1} + \sum_{j=1}^5 \rho_j \text{year} - \text{of} - \text{examined independent variable}_{ijt} + \sum_{m=1}^M \beta_m x_{mit} + \lambda_t + \mu_i + \varepsilon_{it}$$

Where:

- y_{it} = The dependent variable
- γ = The Y intercepts
- $\text{year} - \text{of} - \text{examined independent variable}_{ijt}$ = Dummy variable that indicates whether independent variable i is multichannel for j years in year t
- ρ_j = Parameter of interest that measures the long-term effect of the independent variable on the dependent variable.
- x_{mit} = Includes m independent control variables
- β_m = Vector of m parameters
- λ_t = Set of period effects that capture common trends in the dependent variable
- ε_{it} = Error term for capturing all other omitted factors
- μ_i = The unobservable, time-invariant, dependent variable specific fixed effect

Multicollinearity

Multicollinearity refers to the linear relationship among two or more variables, which rephrased is denoted as a lack of orthogonality among them. In more technical terms, Alin (2010) explains

this phenomenon in the following way: “multicollinearity occurs if k vectors lie in a subspace of dimension less than k . This is the definition of exact multicollinearity or exact linear dependence. It is not necessary for multicollinearity to be exact in order to cause a problem. It is enough to have k variables nearly dependent, which occurs if the angle between one variable and its orthogonal projections onto others is small”. Hence, the issue of multicollinearity is that it might cause the regression coefficient to have a large standard error, i.e., large sampling error, making the coefficient less reliable. Another consequence of having an unreliable coefficient that might fluctuate from one sample to another is that it inflates the variance of the coefficients which harms the testing significance, the results of the estimators, and the results forecasting ability (Alin, 2010; Kalnins, 2018).

Moreover, a regression coefficient should be interpreted as the change of one variable given the change of another while holding all other explanatory variables constant, *ceteris paribus*. However, this may not be applicable in all cases given the apparent presence of multicollinearity, making such an interpretation very impractical (especially when investigating the public stock market, which deals with layer upon layer of dependent variables). Therefore, multicollinearity should not be seen as a modeling error; the problems instigated by potential multicollinearity should rather be investigated and taken into consideration afterwards while letting the model itself be specified (ibid). Also, following the logic of multicollinearity only assessing independent variables, there is little need to control individual effects since this study uses panel methods, which possesses a substantial likelihood of reducing multicollinearity (Egger & Winner, 2006).

ANOVA Scheffé

For the portfolio analysis examining active return on the three portfolios divided based upon ESG-disclosure performance, ANOVA testing will be used to ensure that the results cannot be random. As the portfolios and subsequent calculations consist of groups, it is necessary to test for statistical significance of the results. ANOVA is a sample name for statistical tests that determines if a difference in means exists across groups (Iversen & Norpoth, 1987). An ANOVA indicates if the populations can be assumed to have the same means (Sorjonen, 2019). Therefore, the null hypothesis for the test is that all means can be assumed to be equal. In the case of rejection, the means cannot be assumed to be equal. In this case, the populations are represented by the portfolio samples. Several different ANOVA tests exist, and the one most

appropriate to this data is a Scheffé test. It is a conservative test which means that significant results appear less frequent than for other tests, yet it is the most suitable when groups differ in size (Ibid). Therefore, it will be used as the number of companies in the data cannot be divided into three groups of equal sizes.

Quality Criteria

In order to produce trustworthy results, this study has taken into consideration two quality criteria: reliability and validity. Starting with the first one, reliability, concerns the issue of ensuring that measurements should be consistent. If a study's measurement is consistent, it implies that the study becomes replicable, since it will be able to be conducted at another time and produce the same result as the initial analysis (Bryman & Bell, 2011). A study's reliability can be compromised given that an independent variable is to be interpreted and categorized given each observers' subjectivity (Ibid).

The independent variable, which could be questioned for its subjective tendencies, is the ESG Disclosure Performance Rating Score. However, given that growth companies are not scored by a common scoring institute, such an implication is inevitable. Hence, by mimicking the process of MSCI Inc., as previously described, this study has mitigated this issue to the largest extent possible. Another precaution that was taken to increase the reliability of this report was the choice of evaluating disclosure performance rather than overall ESG performance. Overall ESG performance is a score that is virtually impossible to examine in timeframes and hence would never be able to be mimicked, which would decrease the trustworthiness significantly (Bryman & Bell, 2011).

The second quality criterion, validity, concerns the study's ability to measure what is intended to be measured (Bryman & Bell, 2011). All of the conducted tests have been utilized by similar studies, signifying a clear indication of its appropriateness. However, to ensure that this study has been independently evaluated on its own premise, several models were computed to ensure an accurate model choice.

Results

The Models

A Breusch-Pagan Lagrange multiplier test was performed with a significant result (Sig. 0.01) and rejection of the null hypothesis as the outcome. This entailed that there was heteroskedasticity and variance across entities. Meaning that the data variables are subjected to unobserved heterogeneity. Therefore, a simple OLS regression was ruled out as an appropriate model since it would present biased results. Thereafter, a Hausman test was carried out, which showed that one model was inconsistent, and therefore the null hypothesis was failed to be rejected (Sig. 0.82). This means that the regressors are correlated with the unique errors, and therefore, a random effects model is preferred over a fixed effects model. However, according to some scholars, the aforementioned correlation between regressors and errors is often overexaggerated as a decisive decider between the two models (Clark & Linzer, 2015). Yet, the random effects model oftentimes produces superior results in terms of Beta coefficient estimators when the data consist of few units of observation per individuum (Ibid). This is due to the root means square error of the fixed effect error. On the contrary, the random effects model's variances with few observations produce a root mean square error far below the fixed effects model because of low variance (Ibid).

Taking into consideration both the tests and the data itself, a random effects model was suggested for all models and therefore used to answer the presented hypotheses. Two different models were constructed containing different variables depending on what hypothesis it was designed to answer. These models were then in turn used for a subset of the data for each industry. The Breusch-Pagan test for heteroskedasticity and outside interference was significant for all models. Consequently, Arellano Robust Covariance Matrixes were developed for each one. These models were then used as a robustness test for the random effects models; however, the random effects models were all preferable over the Arellano ones because of conservatism and transparency described under the result for each model.

Model 1

$$Share Price_{it} = ESG Disclosure'_{it}\beta + Framework'_{it}\beta + Dividend'_{it}\beta + \alpha_i + \varepsilon_{it}$$

| for $t = 1, \dots, T$ & $i = 1, \dots, N$

Where;

- $Share Price_{it}$ = The dependent variable
- $ESG Disclosure'_{it}$ = An independent variable
- $Framework'_{it}$ = An independent variable

Is ESG Disclosure worth the effort?

- $Dividend'_{it}$ = An independent variable
- β = The slope coefficient
- α_i = The Y intercepts
- ε_{it} = The random error terms

Model 2

$$EBIT_{it} = ESG\ Disclosure'_{it}\beta + Framework'_{it}\beta + \alpha_i + \varepsilon_{it}$$

| for $t = 1, \dots, T$ & $i = 1, \dots, N$

Where;

- $EBIT_{it}$ = The dependent variable
- $ESG\ Disclosure'_{it}$ = An independent variable
- $Framework'_{it}$ = An independent variable
- β = The slope coefficient
- α_i = The Y intercepts
- ε_{it} = The random error terms

Results Model 1: Hypothesis 1AB

Table 3

	Share price
ESG disclosure	0.001* (0.001)
Framework	15.882 (10.758)
Dividend	0.003* (0.001)
Intercept	-79971 (125554)
N	339
R ² (adj.)	0.227

() Numbers in parenthesis represent the standard error for the coefficients.

*Numbers with an Asterix are statistically significant values.

The panel regression model 1 using random effects indicates a statistically significant positive correlation between share price and ESG disclosure & dividend at a 95% confidence interval (Sig. 0.03). It contained a sufficient sample (N = 339). For the relationship, the coefficient beta is 0.001, which means that if the ESG disclosure increase by one unit, the share price is supposed to increase by 0.01 units. Consequently, it is a statistically significant yet weak

correlation between the two variables. However, the result for a correlation between framework utilization and share price is insignificant. Still, ESG disclosure performance is not the only variable with a significant relationship with share price, as dividend show a correlation with a beta coefficient of 0.003 (Sig. 0.01). Comparatively, the relationship for the reference variable dividend is three times as strong as the disclosure performance, yet also weak.

Further, the standard errors of the beta coefficients are rather high, which is a signal of uncertainty, yet the beta coefficients are strengthened by the robustness test. The adjusted R^2 is 22.7%, which means that the model can explain 22.7% of the variance. Considering the type of data examined, including volatile stock returns, 22.7% can be considered a rather strong model. However, one should be somewhat cautious when generalizing the results on the population and consider the unexplained variance.

As the ESG-disclosure correlation is significant (Sig. 0.044), hypothesis H1a was accepted as the null hypothesis was rejected. However, the null hypothesis cannot be rejected for H1b because of the insignificant results for sustainability reporting framework (Sig. > 0.05).

Results Model 2: Hypothesis 2_{AB}

Table 4

	EBIT
ESG disclosure	-0.027 (0.018)
Framework	875374.90 (464034.94)
Intercept	-614497.830 (5399798.45)
N	339
R ² (adj.)	0.012

() Numbers in parenthesis represent the standard error for the coefficients.

*Numbers with an Asterix are statistically significant values.

Model 2 examining the relationship between financial performance and ESG disclosure & framework utilization, generated no statistically significant results at a 95% confidence interval, using a random effects panel regression model (Sig. >0.05). It contained a sufficient sample (N = 339). The model suggested a negative correlation for ESG disclosure performance

of -0.027 and a positive relation with framework utilization of $875\,374$, yet as mentioned, these results were not statistically significant. Therefore, no correlation can be established between the variables in this work. As an effect, the results are not applicable for generalization on the population. Furthermore, the adjusted R^2 was 1.2% , which entails that the model only can explain 1.2% of the variance. Consequently, a failure to reject the null hypothesis is eminent for both H2a & H2b, and the correlations are left unproven.

Results Model 3-8: Hypothesis 3-6_{ABC}

Table 5

	Retail & Consumer Packed Goods		Industrial		Health Care	
	Price	EBIT	Price	EBIT	Price	EBIT
ESG Disclosure	0.001 (0.001)	0.001 (0.001)	0.002* (0.001)	0.001 (0.001)	-0.001 (0.272)	-3 663 (5332)
Framework	34.042* (12.901)	11.56 (7.125)	2.654 (22.019)	1.219 (1.415)	-104.870 (123.500)	3 800 000 (2 000 000)
Dividend	0.003* (0.001)	-	0.008 (0.096)	-	0.001 (0.001)	-
Intercept	39673 (131470)	-85.534 (65.139)	-381370 (335370)	-20.462 (21.669)	12122 (8533.2)	-12 000 000 (17 000 000)
N	105	105	111	111	123	123
R ² (adj.)	0.648	0.072	0.0528	0.017	-0.010	0.004

() Numbers in parenthesis represent the standard error for the coefficients.

*Numbers with an Asterix are statistically significant values.

Table 5 illustrates the results for all random effects panel regression models between 3 and 8 and presents ambiguous results. The Retail and Consumer Packed Goods sector exhibited two significant results, both found in model 3. However, ESG Disclosure score, framework utilization, and dividend all had insignificant correlations (Sig. >0.05) to financial performance for The Retail and Consumer Packed Goods sector in model 4. In addition to insignificant beta coefficients, model 4 should be assessed cautiously since it only possesses an adjusted R^2 of 3.3% . On the other hand, the Retail and Consumer Packed Goods sector produced the strongest model examining stock price performance correlation to dividend ($\beta=0.003^*$) and the usage of framework ($\beta=34.042^*$), in model 3. Besides generating two significant results, model 3 also had an adjusted R^2 of 64.8% , indicating a noticeably strong model with the ability to be generalized upon the population.

The industrial sector had one significant result, found in model 5, for which ESG disclosure had a significant (Sig. 0.04) but weak correlation with share price ($\beta = 0.002^*$). However, the model had an adjusted R^2 of only 5.28%, meaning that it is weak and not applicable to be generalized on the population. No other model for the industrial sector had significant results. No correlation coefficients proved to be significant for the Health Care sector at a 95% confidence interval. As a matter of fact, the reference variable dividend was only significant for the retail industry, yielding a weaker correlation than the framework utilization, but with lower relative standard error. In general, the standard errors are rather high, but again the beta coefficients are strengthened by the robustness tests. All industry-specific models had sufficient samples of 105, 111, and 113 companies respectively.

Because of the results related to the Retail & Consumer Packed Goods sector, hypothesis H3a, H5a and H6a were rejected, while H4a was not. For the Industrial sector, hypothesis H3b was accepted while H4b, H5b, and H6b were rejected. All hypotheses were rejected for the health care sector, namely H3c, H4c, H5c, and H6c. This entails that the only industry with a significant relationship between ESG disclosure performance and share price is the Industrial sector. The only industry with a significant relationship between framework utilization & dividend and share price is the Retail & Consumer Packed Goods sector, and that no sector has a significant relationship with any variable and financial performance.

Model Robustness: Results Model 1 - Arellano Robust Covariance Matrix

Table 6

	Share price
ESG disclosure	0.001* (0.001)
Framework	15.882 (12.024)
Dividend	0.003* (0.001)
Intercept	-79971 (121905)
N	339

() Numbers in parenthesis represent the standard error for the coefficients.

*Numbers with an Asterix are statistically significant values.

Testing the panel regression model 1 using *Arellano Robust Covariance Matrix* indicates statistically significant positive correlations between share price and ESG disclosure & dividend at a 95% confidence interval. However, the result for a correlation between framework utilization and share price is insignificant. Like the random effects model, Arellano suggest an acceptance of hypothesis H1a, but a rejection of H1b. The two models have similar beta coefficients, yet what differentiates them is the standard errors of the beta coefficients, of which most are lower according to the *Arellano Robust Covariance Matrix*. This means that the random effects model is more conservative than the Arellano model. In addition, Arellano provides no R^2 for the model and it is therefore unknown how much of the variance the model explains and, in turn, how strong it is. After combing these two factors, it becomes apparent that the random effects model is more appropriate and will therefore be used as model 1 since it avoids overestimated effects and provides a more transparent picture of model strength. However, the Arellano model strengthens the validity of the coefficient betas in the random effects model.

Model Robustness: Results Model 2 - Arellano Robust Covariance Matrix

Table 7

	EBIT
ESG disclosure	-0.027 (0.018)
Framework	875375.49* (293360.80)
Intercept	-614497.830 (5148354.81)
N	339

() Numbers in parenthesis represent the standard error for the coefficients.

*Numbers with an Asterix are statistically significant values.

Testing the panel regression model 2 using *Arellano Robust Covariance Matrix* indicates a statistically significant positive correlation between EBIT and framework utilization, at a 95% confidence interval. However, the results for the correlation between ESG disclosure performance and EBIT is insignificant. Unlike the random effects model, Arellano suggest an acceptance of hypothesis H2b, but a rejection of H2a. The two models have similar Beta coefficients, yet what differentiates them is the standard errors of the beta coefficients, of which most are lower according to the *Arellano Robust Covariance Matrix*. A decrease in the standard

errors is also why the model suggests a significant positive correlation for framework utilization, which the random effects model does not. This means that the random effects model is more conservative than the Arellano model. In addition, Arellano provides no R^2 for the model and it is therefore unknown how much of the variance the model explains and, in turn, how strong it is. After combining these two factors, it becomes apparent that the random effects model is more appropriate and will therefore be used as model 2 since it avoids overestimated effects and provides a more transparent picture of model strength. However, the Arellano model strengthens the validity of the coefficient betas in the random effects model.

Model Robustness: Results Model 3-8 - Arellano Robust Covariance Matrix

Table 8

	Retail & Consumer Packed Goods			Industrial			Health Care		
	Price	EBIT	EY	Price	EBIT	EY	Price	EBIT	EY
ESG Disclosure	0.001* (0.001)	0.001 (0.001)	0.001* (0.001)	0.002 (0.111)	0.001 (0.001)	0.001 (0.001)	-0.001 (0.019)	-3 663 (5 951)	0.001 (0.001)
Framework	34.042* (0.01)	11.56 (15.52)	-0.030 (0.113)	2.654 (16.837)	1.219 (0.692)	0.122 (0.069)	-104.870* (27.045)	38 000 000* (600 000)	0.188* (0.008)
Dividend	0.003* (0.001)	-	0.001* (0.001)	0.008 (0.065)	-	0.001* (0.001)	0.001* (0.001)	-	0.001* (0.001)
Intercept	39673 (76853)	-85.534 (53.971)	-36.213* (8.460)	-381370 (311760)	-20.462 (16.612)	-20.462 (16.612)	12122 (6199)	-12 000 000 (18 000 000)	-55.13* (20.80)
N	105	105	105	111	111	111	123	123	123

() Numbers in parenthesis represent the standard error for the coefficients.

*Numbers with an Asterix are statistically significant values.

As table 8 illustrates, several additional independent variables have statistically significant beta coefficients to their dependent variables, when using an *Arellano Robust Covariance Matrix*. For the Retail & Consumer Packed Goods industry, all coefficient betas are significant for the share price model, model 3. While ESG disclosure performance is significantly correlated with share price according to the random effects model, it is not in the Arellano model. However, no other variable in any of the two models for the Industrial sector is significant. Unlike the Industrial sector, the Health Care sector had no significant values according to the random effects model, but the Arellano matrixes suggest three significant results, spread out over the two models. Perhaps most interesting is the fact that sustainability reporting framework utilization is supposedly strongly negatively correlated to share price. However, what differentiates the two different types of industry specific models is the standard errors of the beta coefficients of which most are lower according to the *Arellano Robust Covariance Matrix*. A decrease in the standard errors is also why the model suggests several more significant

correlations, which the random effects model does not. Again, this means that the random effects models are more conservative than the Arellano models. In addition, Arellano provides no R^2 for the models and it is therefore unknown how much of the variance the models explain and, in turn, how strong they are. Again, after considering these two factors, the random effects model was used for models 3-8 as it avoids overestimated effects and provides a more transparent picture of model strengths.

Results Portfolio Analysis: Hypothesis 7_{ABC}

Table 9&10

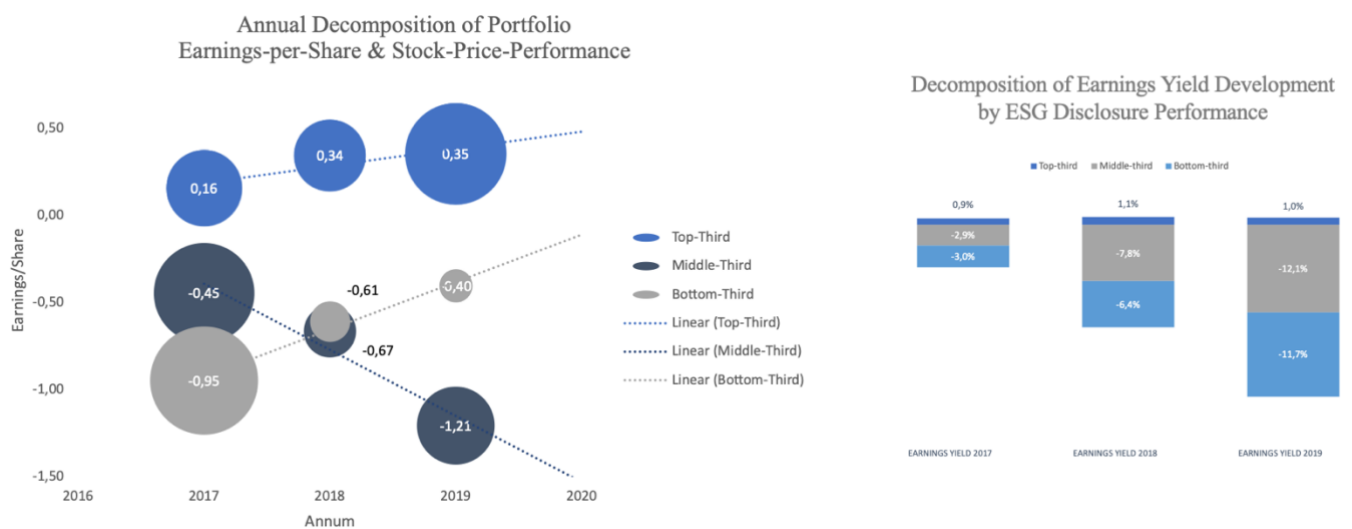


Table 9 (Right): A decomposition of the development of the Earnings/Share, Stock Price Performance during the examined period (2017-2019). The Y axis illustrates the Earnings/Share, and the size of the bubbles is each portfolio's Market Capitalization/Share.

Table 10 (Left): A decomposition of the development of the Earnings/Share, Stock Price Performance, and the resulting active return during the examined period (2017-2019).

Table 11

	2017	2018	2019
Stock-Price-Performance	0.459	0.224	0.040*
Growth-in-Earnings	0.628	0.253	0.540
N	113	113	113

*Numbers with an Asterix are statistically significant values.

When breaking down the development of Growth in Earnings and Stock Price Performance for the rolling portfolios sorted on ESG disclosure performance, the results are presented in Table 9 and Table 11. The ANOVA Scheffé did not specify any overall significant results at a 95% confidence interval, for the examined portfolios during the period (2017-2019), with the exemption for the Stock-Price-Performance between the portfolios during 2019 which proved

significant (Sig. 0.04). Meaning that the difference in the size of the bubbles along the vertical line from 2019 is proven significant, but their vertical placements are not. Because of the insignificant results (Sig. > 0.05), hypotheses H7a, H7b, and H7c are rejected. Thus, this study fails to prove a mean difference between the different portfolio structures from a statistical perspective. However, one should consider the trend lines of the rolling portfolios and their resulting active return (presented in table 10) as a subject of interest, since the statistical models suffer from large standard deviation due to the characteristics of the sample of growth companies.

Results Summary

Hypotheses	Accepted / Rejected
H1a	Accepted
H1b	Rejected
H2a	Rejected
H2b	Rejected
H3a	Rejected
H3b	Accepted
H3c	Rejected
H4a	Accepted
H4b	Rejected
H4c	Rejected
H5a	Rejected
H5b	Rejected
H5c	Rejected
H6a	Rejected
H6b	Rejected
H6c	Rejected
H7a	Rejected
H7b	Rejected
H7c	Rejected

Discussion

This study has examined how ESG Disclosure performance and usage of sustainability reporting frameworks impact stock price and financial performance for growth companies. It

has only considered growth companies listed at the Swedish NASDAQ First North Growth Market during the three-year period between 2017-2019. This market was chosen because of an apparent gap in the literature for growth companies. Since the Swedish NASDAQ First North Growth Market has a higher relative density of retail investors compared to institutional ones, their impact was captured to a larger extent than in other studies. Thus, filling a gap in the literature on how ESG Disclosure and sustainability reporting frameworks potentially affect both retail investors and growth companies.

This work's theoretical contribution includes a model that can significantly support a correlating effect between stock price and ESG disclosure performance. This result supports previous studies measuring the share price effect of ESG performance for mature corporations (Maiti, 2020; Auer & Schumacher, 2016; Friede, 2015); however, it questions the results of Fatemi et al. (2018). As a reference, it was compared to the generally acknowledged stock price affecting variable dividend. Albeit a correlation coefficient of less magnitude, it still underlines the importance of ESG disclosure performance for top management and board members within growth companies. It is not uncommon for board members to have interest in a company and for growth companies to utilize incentive programs for early top management, such as various forms of stock options. Thus, refining a well-crafted ESG disclosure strategy, that transparently reflects firm behavior, could be of financial interest for these stakeholders. It also highlights the potential importance of considering variables other than financials in a stock analysis for retail investors, such as ESG disclosure performance and transparency, when striving towards capturing an active return. Although left unproven, this study found a noteworthy positive trend for a portfolio strategy based on ESG disclosure performance (Table 9, 10, & 11). Hence, this study concurs with Friede et al. (2015) that the ESG disclosure effect is present for individual firms yet diminishes in a portfolio setting.

Nevertheless, ESG disclosure performance should not be confused with solely conducting a sustainability report based on a recognized framework. This study has shown that for growth companies listed at the NASDAQ First North Growth Market Sweden, framework utilization had no significant impact on firm valuation. Consequently, questioning whether or not investing in a sustainability reporting framework is financially viable for the individual company. Instead, focus should be targeted on disclosing appropriate ESG information, relevant to the business, and not regarding it as a tick-the-box operation. This is especially relevant for growth companies with constrained budgets.

Unlike stock price performance, no significant result emerged for correlations between financial performance, represented by EBIT, and the independent variables ESG disclosure performance and usage of sustainability reporting frameworks. The hypothesis was that an industry adjusted ESG disclosure rating system, would produce scores correlated with EBIT. Hence, the hypothesis based on historical evidence was that firms that understand the critical issues within their industry, would generate a better financial performance because of their industry aware market knowledge. As Giese (2019) concluded, if a business has incorporated ESG issues in their business model, it should be apparent within their ESG disclosure. The same reasoning was applied to sustainability reporting frameworks. However, the relationship between ESG and CFP established for mature companies (Huang, 2019; Xie et al., 2018; Friede et al., 2015), was not found for growth companies in this study. Meaning that it rather supports the connection drawn by Nordqvist & Raber (2016). In turn, this study does not provide evidence on the applicableness of competitive advantages through ESG activities found for mature companies (Porter & Kramer, 2006; Avlonass & Nassos, 2013; Cantele & Zardini, 2018). The insignificance of the results may be due to various reasons, with one of them being the horizon of ESG related investments. Meaning that companies with a good ESG disclosure can still capture financial benefits through these investments, yet the effect (payback) may not be observable in the examined period. Another reason may be that one common trait among growth companies, is a focus on generating larger volumes rather than better margins. Hence eliminating the ESG disclosure's effect on EBIT that might have been present otherwise. Nonetheless, while it might not have a positive financial effect, it might still be a risk reducing variable that enhances future earnings.

Given that ESG disclosure performance should be subjective to the general industry specific ESG issues, it was of interest to understand whether the previously mentioned relationships are equal in each industry sector. Concerning the relationship between stock price performance and ESG disclosure score, only the industrial sector experienced a statistically significant correlation. On the other hand, the Retail & Consumer Packed Goods sector experienced a significant and strong correlation between stock price performance and usage of a sustainability reporting framework. A relationship possessing a possibility of being generalized upon the population because of its noteworthy adjusted R^2 . For the Health Care sector, no examined variables proved significant for either stock price or financial performance. These results may have numerous explanations; for instance, McKinsey & Co (2019) establishes that social and

environmental sustainability has a growing and increasingly substantial importance for consumers within the retail industry. A similar growing prominence is detected within the industrial sector for opportunities in clean technology and more sustainable products (McKinsey & Co, 2020). Furthermore, these two industries are, in general, having a higher sustainability reporting rate compared to the Health Care sector (KPMG, 2020).

Although these results are modest, they are still a valuable contribution to the literature. This is because they provide a more nuanced picture of how the importance of ESG disclosure performance, and usage of a sustainability reporting framework, differentiate itself between various industry sectors and, in general, for growth companies. The characteristics of growth companies, in general, include a higher tendency to be volatile, which increases variance and standard errors. Thus, making it harder for statistical models to find significant relationships between data points. Therefore, significantly proving a correlation effect could be considered relevant in itself, regardless of the magnitudes of the correlation coefficients.

Conclusion

This study has strived towards answering the research question: Does ESG disclosure performance & sustainability reporting framework utilization affect financial performance & stock price appreciation, for the retail shareholders of growth companies listed at NASDAQ First North Growth Market Sweden?

While previous studies on the topic have surrounded mature companies at a general level, no light has been shed on growth companies or comparisons between sectors. They have also surrounded institutional investors rather than retail investors. While being ambiguous in the relationship between ESG Disclosure and stock & financial performance, they have tended towards a positive link.

To answer the research question, a rating system for ESG disclosure was built based on prominent institution's methods for evaluating mature companies. Moreover, based on the panel data gathered, several models were built and strengthened by a robustness test. Even though various relevant models exist for panel data, numerous tests were performed and indicated that a random effect regression was the most appropriate for all models. While some models had significant results, a rather strong model (1) proved a significant but weak correlation between

ESG disclosure performance and share price performance. When comparing the industries, it can be concluded that the Retail & Consumer Packed Goods and Industrial sectors had significant correlations between ESG disclosure performance and share price performance, while the Health Care sector had not. This, in combination with the overall relationship, is the central research contribution of this work. This work can be considered relevant for top management, board members, and retail investors in terms of usability. Even though two of the models were strong with high adjusted R^2 values, in general, the models were rather weak with low beta coefficients. Nevertheless, considering the nature of the data, significant results can be concluded as contributory to research in its own right.

Limitations & Future Research

Though presenting distinctive results that contribute to the literature, this study has recognized certain limitations that should be underlined to ensure its credibility. First of all, the models produced are constrained by the examined period. Extending this period to a longer timeframe would increase the number of data points from which a model could be established and increase its likelihood of finding generalizable results. Secondly, this study has only examined three industry sectors; although thoroughly motivated, it inhibits the results applicableness on the rest of the population. Thirdly, the results are based on a limited number of explanatory variables, which potentially affected the strength of the models by lowering their ability to account for the dependent variable's sample variance. Fourth, a limited number of control variables were used in the models which could potentially affect the inferences. Fifth, this study has attempted to capture how the retail investors react to ESG disclosure and usage of sustainability reporting frameworks. This entails a demand for isolating retail investors and not looking at institutional ones, which is an impractical challenge for public stock exchanges. Therefore, a guaranteed isolation of retail investors has never been claimed, and neither has the models produced solely representative results for the retail investors. Lastly, this study is limited to the examination of companies listed at the NASDAQ First North Growth Market Sweden.

Future research should aim at contributing to cover this study's first, second, third, and last limitation. Applying these concepts to a longer timeframe and expanding the sample selection into new industry sectors would provide this field of research with further knowledge and

broadening the literature for retail investors and corporate leaders of growth companies. Investigating other markets to test if the results are applicable on an international basis would also contribute to an enhanced understanding of this phenomenon and if it is a global tendency or if it should be treated at a local level.

Bibliography

Alam, M./ Towards Data Science. (2020). Panel data regression: a powerful time series modeling technique. Towards Data Science. <https://towardsdatascience.com/panel-data-regression-a-powerful-time-series-modeling-technique-7509ce043fa8>

Alin, Aylin. “Multicollinearity.” *Wiley interdisciplinary reviews. Computational statistics* 2.3 (2010): 370–374. Web.

Auer, Benjamin R, and Frank Schuhmacher. “Do Socially (ir)responsible Investments Pay? New Evidence from International ESG Data.” *The Quarterly review of economics and finance* 59 (2016): 51–62. Web.

Avlonas, Nikos, and George P. Nassos. *Practical Sustainability Strategies : How to Gain a Competitive Advantage*, John Wiley & Sons, Incorporated, 2013. ProQuest Ebook Central, <https://ebookcentral.proquest.com/lib/hhss-ebooks/detail.action?docID=1471872>.

Avanza (2021). <https://www.avanza.se/start> . *Search function*

Bask, Mikael. “Pure Announcement and Time Effects in the Dividend-Discount Model.” *The Quarterly review of economics and finance* 77 (2020): 266–270. Web.

Baltagi, B.H., 2001. *Econometric Analysis of Panel Data*. John Wiley, West Sussex, UK.

Blomkvist, P. and Hallin, A., 2014, *Method for Engineering Students*. Studentlitteratur, Lund.

Brugger, B./ Towards Data Science. (2021). A Guide to Panel Data Regression: Theoretics and Implementation with Python. Towards Data Science. <https://towardsdatascience.com/a-guide-to-panel-data-regression-theoretics-and-implementation-with-python-4c84c5055cf8>

T. S. Breusch, and A. R. Pagan. “The Lagrange Multiplier Test and Its Applications to Model Specification in Econometrics.” *The Review of economic studies* 47.1 (1980): 239–253. Web.

Borsdata (2021). <https://borsdata.se/> . *Search function*

Bos, J. (2014). “Using ESG Factors for Equity Valuation”. *CFA Institute Magazine*, p. 17

Bryman, A. & Bell, E., (2011). *Business Research Methods*. Third edition. *Oxford: Oxford University Press*. p.157-159.

Casalino, N., Ivanov, S., & Nenov, T. (2014). Innovation's governance and investments for enhancing competitiveness of manufacturing SMEs. *Law and Economics Yearly Review*, 3(1), 179–209.

Cantele, Silvia, and Alessandro Zardini. “Is Sustainability a Competitive Advantage for Small Businesses? An Empirical Analysis of Possible Mediators in the Sustainability–financial Performance Relationship.” *Journal of cleaner production* 182 (2018): 166–176. Web.

Celko, J. (2010). *Joe Celko's Data, Measurements and Standards in SQL* (1). Morgan Kaufmann. <https://doi.org/10.1016/B978-0-12-374722-8.00001-3>

Clark, Tom S, and Drew A Linzer. “Should I Use Fixed or Random Effects?” *Political science research and methods* 3.2 (2015): 399–408. Web.

Colonescu, C./R. (2016). *Principles of Econometrics with R*. R. <https://bookdown.org/ccolonescu/RPoE4/intro.html>

De Bakker, F. G. A., Groenewegen, P., & Den Hond, F. (2005). A bibliometric analysis of 30 years of research and theory on corporate social responsibility and corporate social performance. *Business and Society*, 44(3), 283–317.

<https://doi.org/10.1177/0007650305278086>

Eccles, R. G., Herz, R. H., Keegan, E. M., & Phillips, D. M. H. (2001). *The value reporting revolution: Moving beyond the earnings game*. New York, NY: John Wiley & Sons.

Egger, Peter, and Winner, Hannes. “How Corruption Influences Foreign Direct Investment: A Panel Data Study.” *Economic development and cultural change* 54.2 (2006): 459–486. Web.

Escrig-Olmedo, E., Muñoz-Torres, M. J., & Fernández-Izquierdo, M. Á. (2013). Sustainable development and the financial system: Society's perceptions about socially responsible investing. *Business Strategy and the Environment*, 22(6), 410–428.

<https://doi.org/10.1002/bse.1755>

European Commission. (2021). *EU taxonomy for sustainable activities*.

https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en

European Commission. (2020). *Taxonomy: Final report of the Technical Expert Group on Sustainable Finance*.

https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy_en.pdf . EU Technical Expert Group in Sustainable Finance

Environmental Finance. (2021). Index of the year: Bloomberg Barclays MSCI Green Bond Index. Environmental Finance. <https://www.environmental-finance.com/content/awards/winners/index-of-the-year-bloomberg-barclays-msci-green-bond-index.html>

Elofsson, J. (2021). Är ESG hållbart? Carnegie.

<https://www.carnegie.se/nyheter/esg/>

Fatemi, Ali, Martin Glaum, and Stefanie Kaiser. "ESG Performance and Firm Value: The Moderating Role of Disclosure." *Global finance journal* 38 (2018): 45–64. Web.

Friede, Gunnar, Timo Busch, and Alexander Bassen. "ESG and Financial Performance: Aggregated Evidence from More Than 2000 Empirical Studies." *Journal of sustainable finance & investment* 5.4 (2015): 210–233. Web.

Garcia, Alexandre Sanches, Wesley Mendes-Da-Silva, and Renato J Orsato. "Sensitive Industries Produce Better ESG Performance: Evidence from Emerging Markets." *Journal of cleaner production* 150 (2017): 135–147. Web.

Gallo, A. (2014). A Refresher on Regression Analysis. *Harvard Business Review*, May (2014).

Gustafsson, A. (20/09/2020). Börsen rimligt värderad med earnings yield. Nordnet.
<https://www.nordnet.se/blogg/earnings-yield/>

Goldfeld, S. M., and R. E. Quandt: "Some Tests for Homoscedasticity," *Journal of the American Statistical Association*, 60 (1965), 539-547.

Giese, Guido et al. "Foundations of ESG Investing: How ESG Affects Equity Valuation, Risk, and Performance." *Journal of portfolio management* 45.5 (2019): 69–83. Web.

Hansen, T. 2018. Guest Lecture: NDH302 - Accounting. *Center for Retailing, Stockholm School of Economics*.

Halldin, Christofer. Handelsbanken Private Banking. (2021-02-22). [Video] *Studio Private Banking Strategimöte*. Handelsbanken Private Banking.
<https://dreambroker.com/channel/72uth6c9/iframe/5uqa3nb3?quality=720p>

Hill, R. P., Ainscough, T., Shank, T., & Manullang, D. (2007). Corporate social responsibility and socially responsible investing: A global perspective. *Journal of Business Ethics*, 70(2), 165–174. <https://doi.org/10.1007/s10551-006-9103-8>

Hildreth, C., and J. P. Houck: "Some Estimators for a Linear Model with Random Coefficients," *Journal of the American Statistical Association*, 63 (1968), 584-595.

Handoko, F., Smith, A., & Burvill, C. (2014). The role of government, universities, and businesses in advancing technology for SMEs' innovativeness. *Journal of Chinese Economic and Business Studies*, 15(1), 171–180. <https://doi.org/10.1080/14765284.2014.900968>

Hoechle, Daniel. "Robust Standard Errors for Panel Regressions with Cross-Sectional Dependence." *The Stata journal* 7.3 (2007): 281–312. Web.

Hsiao, Cheng. "Panel Data Analysis—advantages and Challenges." *Test (Madrid, Spain)* 16.1 (2007): 1–22. Web.

Huang, Danny Z. X. "Environmental, Social and Governance (ESG) Activity and Firm Performance: a Review and Consolidation." *Accounting and finance (Parkville)* 61.1 (2021): 335–360. Web.

Isaksson, Lars E, and Arch G Woodside. "Modeling Firm Heterogeneity in Corporate Social Performance and Financial Performance." *Journal of business research* 69.9 (2016): 3285–3314. Web.

Iversen, G. R. & Norpoth, H. (1987). Introduction. In *Analysis of variance* (pp. 6-10). SAGE Publications, Inc., <https://www.doi.org/10.4135/9781412983327>

Álvarez Jaramillo, Juanita, Jhon Wilder Zарtha Sossa, and Gina Lía Orozco Mendoza. "Barriers to Sustainability for Small and Medium Enterprises in the Framework of Sustainable development—Literature Review." *Business strategy and the environment* 28.4 (2019): 512–524. Web.

Kalnins, Arturs. "Multicollinearity: How Common Factors Cause Type 1 Errors in Multivariate Regression." *Strategic management journal* 39.8 (2018): 2362–2385. Web.

Kammarkollegiet (2019). Arvsfondsavdelningen.

<https://www.kammarkollegiet.se/4.1db648081677d277bea195ba.pdf?properties=70.5ec0ff116b40757e4e8e0b>

Kammarkollegiet (2018). *Kammarkollegiet Kapitalförvaltnings policy för ansvarsfulla investeringar*. Kammarkollegiet.

<https://www.kammarkollegiet.se/download/18.27f1fe4c168c1d817512f5c6/1551777027573/Kammarkollegiets%20policy%20f%C3%B6r%20ansvarsfulla%20investeringar%202018.pdf>

Kmenta, Jan. *Elements of Econometrics* . 2. ed. New York: Macmillan, 1986. Print.

KPMG (2016). *Carrots and sticks: Global trends in sustainability reporting regulation and policy*. New York, NY: United Nations Environment Programme and KPMG International.

KPMG (2020). *The Time Has Come- The KPMG Survey of Sustainability Reporting 2020*.

[https://assets.kpmg/content/dam/kpmg/be/pdf/2020/12/The Time Has Come KPMG Survey of Sustainability Reporting 2020.pdf](https://assets.kpmg/content/dam/kpmg/be/pdf/2020/12/The_Time_Has_Come_KPMG_Survey_of_Sustainability_Reporting_2020.pdf)

KPMG (2020). *Incorporating an ESG lens in business valuations*.

<https://home.kpmg/nl/nl/home/insights/2020/10/business-valuations-based-on-market-and-industry-forces-with-a-financial-and-esg-lens.html>

King, A., & Lenox, M. (2000). *Does it really pay to be green? Accounting for strategy selection on the relationship between environment and financial performance*. New York, NY: New York University.

Lind, J. (2020). ANTALET KUNDER ÖKADE MED 27.300 STYCKEN UNDER NOVEMBER. Placera.

<https://www.avanza.se/placera/telegram/2020/12/02/avanza-antalet-kunder-okade-med-27-300-stycken-under-november.html>

Maiti, Moinak. "Is ESG the Succeeding Risk Factor?" *Journal of sustainable finance & investment* (2020): 1–15. Web.

Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly*, 48(2), 268–305.
<https://doi.org/10.2307/3556659>

McKisney & Company (2019). Fashion's new musthave: sustainable sourcing at scale.
<https://www.mckinsey.com/industries/retail/our-insights/fashions-new-must-have-sustainable-sourcing-at-scale>

McKisney & Company (2020). Reimagining industrial operations.
<https://www.mckinsey.com/business-functions/sustainability/our-insights/reimagining-industrial-operations>

Michelle J. Stecker (2016) *Awash in a Sea of Confusion: Benefit Corporations, Social Enterprise, and the Fear of "Greenwashing"*, *Journal of Economic Issues*, 50:2, 373-381

MSCI (2021). *ESG Industry Materiality Map*. <https://www.msci.com/our-solutions/esg-investing/esg-ratings/materiality-map>

MSCI (2020). *ESG Ratings: Methodology Exerpt*.
<https://www.msci.com/documents/1296102/4769829/MSCI+ESG+Ratings+Methodology+-+Exec+Summary+Dec+2020.pdf/15e36bed-bba2-1038-6fa0-2cf52a0c04d6?t=1608110671584>

Nasdaq. (2019). *NASDAQ FIRST NORTH GROWTH MARKET Facts and Figures 2019*.
<https://www.nasdaq.com/docs/2020/02/19/First%20North%20Facts%20and%20Figures%20-%202019%20-%20Final.pdf>

Nordea (2017). *Cracking the ESG Code*. https://nordeamarkets.com/wp-content/uploads/2017/09/Strategy-and-quant_executive-summary_050917.pdf Nordea Equity Research

Nordnet (2020). Rekordresultat för Nordnet under andra kvartalet.
https://nordnetab.com/press_release/rekordresultat-for-nordnet-under-andra-kvartalet/

Norman K. Denzin, Yvonna S. Lincoln, 1998, *Strategies of qualitative inquiry*, Sage Publications, Thousand Oaks, Calif. pp70-82

Nordqvist, Sean, and Daniel Raber. *Giving CSR a Run for Its Money*. Stockholm: Handelshögskolan i Stockholm, 2016. Print.

Newbold, P., Carlson, W. L., & Thorne, B. M. (2013). *Statistics for Business and Economics*. 8. ed., Boston: Pearson

OECD (2019). *OECD SME and Entrepreneurship Outlook 2019*.

<https://www.oecd.org/industry/smes/SME-Outlook-Highlights-FINAL.pdf>

OECD (2021). *G20 & SMEs*.

<https://www.oecd.org/cfe/smes/g20smes.htm>

Okeke, J.U & Okeke, E.N. (2016). Least Squares Dummy Variable in Determination of Dynamic Panel Model Parameters. *EJERS, European Journal of Engineering Research and Science*, 1(6), 77-80.

M.E. Porter, M.R. Kramer. (2006) *Strategy and society: The link between competitive advantage and corporate social responsibility*. *Harvard Business Review*, 84 (2006), pp. 78-92

PwC. (2017). *Lagstadgad hållbarhetsrapportering*. PwC.

<https://www.pwc.se/sv/hallbar-utveckling/hallbarhetsrapport-krav.html>

Richardson, B. J. (2009). Keeping ethical investment ethical: Regulatory issues for investing for sustainability. *Journal of Business Ethics*, 87(4), 555–572.

<https://doi.org/10.1007/s10551-008-9958-y>

Ruf, B. M., Muralidhar, K., & Paul, K. (1998). The development of a systematic, aggregate measure of corporate social performance. *Journal of Management*, 24(1), 119–133.

<https://doi.org/10.1177/014920639802400101>

Savlovski, Ludovica Ioana, and Robu, Nicoleta Raluca. "The Role of SMEs in Modern Economy." *Economia. Seria management* 14.1 (2011): 277–281. Print.

Schiehl, Eduardo, and Sam Kolahgar. "Financial Materiality in the Informativeness of Sustainability Reporting." *Business strategy and the environment* 30.2 (2021): 840–855. Web.

Sorjonen, K./Karolinska Institutet. (2019). Variansanalys 1[Video]. Karolinska Institutet. [Variansanalys 1](#)

Ståhl, Pär. (2021). Här är de bästa fonderna 2020. Placera. <https://www.avanza.se/placera/redaktionellt/2021/01/04/har-ar-de-basta-fonderna-2020.html>

Swedish Trade Federation. (2018). Svensk Handels hållbarhetsundersökning 2018. Svenskhandel.se. <https://www.svenskhandel.se/globalassets/dokument/aktuellt-och-opinion/rapporter-och-foldrar/hallbar-handel/svensk-handels-hallbarhetsundersokning-2018.pdf>

Tsalis, T. A., Nikolaou, I. E., Grigoroudis, E., & Tsagarakis, K. P. (2013). A framework development to evaluate the needs of SMEs in order to adopt a sustainability-balanced scorecard. *Journal of Integrative Environmental Sciences*, 10(3–4), 179–197. <https://doi.org/10.1080/1943815X.2013.858751>

Torres-Reyna, O. (Fall 2010). Getting Started in Fixed/Random Effects Models using R [PowerPoint-presentation]. Princeton University. <https://www.princeton.edu/~otorres/Panel101R.pdf>

Voss, C., Tsikriktsis, N. & Frohlich, M., 2002, Case Research in Operations Management, *International Journal of Operations & Production Management*, vol. 22, no. 2, pp. 159-219

Wande, H. (2020). Kunder strömmar till nätmäklarna. SvD. <https://www.svd.se/kunder-strommar-till-natmaklarna>

Wang, T., He, G., Zhang, L., Mol, A. P., & Lu, Y. (2014). Why small and medium chemical companies continue to pose severe environmental risks in rural China. *Environmental Pollution*, 185, 158–167. <https://doi.org/10.1016/j.envpol.2013.10.041>

Webb, A. (2021). GameStop May Be a Game, But Nokia Sure Isn't. Bloomberg. <https://www.bloomberg.com/opinion/articles/2021-01-28/gamestop-may-be-a-reddit-wallstreetbets-game-but-nokia-sure-isn-t>

Xie, Jun et al. “Do Environmental, Social, and Governance Activities Improve Corporate Financial Performance?” *Business strategy and the environment* 28.2 (2019): 286–300. Web.

Yin K., Robert, 2003, Case Study Research Design and Methods, Applied Social Research Method Series, Sage Publications Vol. 5

Yu, Ellen Pei-yi, Christine Qian Guo, and Bac Van Luu. “Environmental, Social and Governance Transparency and Firm Value.” *Business strategy and the environment* 27.7 (2018): 987–1004. Web.

Yu, Ellen Pei-yi, Bac Van Luu, and Catherine Huirong Chen. “Greenwashing in Environmental, Social and Governance Disclosures.” *Research in international business and finance* 52 (2020): 101192–. Web.

Annual Reports

Absolent group (2017-2019). *Annual Report*.
<https://absolentgroup.com/investors/annual-reports/>

Addera Care (2017-2019). *Annual Report*.
<https://www.adderacare.com/investerare/#finansiella-dokument>

Acconeer (2017-2019). *Annual Reports*.
<https://investor.acconeer.com/finansiella-rapporter/>

Acarix (2017-2019). *Annual Report*.

Is ESG Disclosure worth the effort?

<https://acarix.com/investor/financial-reports/>

Awardit (2017-2019). *Annual Report*. <https://awardit.com/sv/nyheter/rapporter>

AroCell (2017-2019). *Annual Report*. <https://arocell.com/sv/arocell-en-sammanfattning/finansiella-rapporter/>

ArcAroma (2017-2019). *Annual Report*.
<https://investor.arcaroma.se/rapportering/>

Ainohelath (2017-2019). *Annual Report*.
<https://investors.ainohealth.com/rapporter-och-dokument/arsredovisningar/>

Alcadon group (2017-2019). *Annual Report*.
<https://alcadongroup.se/investerare/finansiella-rapporter/>

Alelion Energy (2017-2019)
<https://alelion.com/finansiella-rapporter/?lang=sv>

Ages Industrier (2017-2019). *Annual Report*.
<https://www.ages.se/investerare/finansiell-information/finansiella-rapporter/>

Allarity Therapeutics (2017-2019). *Annual Report*. <https://allarity.com/investors/financials/>

Alzinova (2019). *Annual Report*. <https://www.alzinova.com/investors/financial-reports/>

Alzinova (2017-2018). *Annual Report*. <https://www.alzinova.com/investors/financial-reports-sv/>

Brighter (2017-2019). *Annual Report*. <https://brighter.se/investors/reports-and-filings/>

Byggpartner (2017-2019). *Annual Report*.
<https://www.byggpartner.se/investerare/finansiella-rapporter/>

Bublar (2017-2019). *Annual Report*. <https://goodbyekansasgroup.com/investor-relations/financial-reports>

Capacent (2017-2019). *Annual Report*.
<https://investor.capacent.se/finansiella-rapporter/>

Cellimpact (2017-2019). *Annual Report*.
<https://www.cellimpact.com/investor-relations/>

Chemotech (2017-2019). *Annual Report*.
<https://www.chemotech.se/investor-relations/financial-reports/>

Clinical Laserthermia (2017-2019). *Annual Report*. <https://clinicallaser.se/svenska-ir/rapporter/>

Chromogenics (2019). *Annual Report*.
<https://www.chromogenics.com/sv/for-investerare-2/finansiella-rapporter/>

Chromogenics (2017-2018). *Annual Report*.
<https://investor.capacent.se/finansiella-rapporter/?page=2>

Combigene (2017). *Annual Report*. <https://combigene.com/finansiella-rapporter-2017/>

Combigene (2018). *Annual Report*. <https://combigene.com/finansiella-rapporter-2018/>

Combigene (2019). *Annual Report*. <https://combigene.com/finansiella-rapporter-2019/>

Confidence (2018-2019). *Annual Report*.
<https://confidence.se/cision-block-finans-1/>

Confidence (2017). *Annual Report*. News Cison.
<https://news.cision.com/se/?m=Financial&n=confidence-international-ab>

Corline Biomedical (2017-2019). *Annual Report*. <http://www.corline.se/calendar-and-reports>

Curando Nordic (2017-2019). *Annual Report*.
https://curandonordic.se/sv_se/finansiella-rapporter/

Cyxone (2017-2018). *Annual Report*. <https://cyxone.com/investerare/finansiella-rapporter/?index=2>

Cyxone (2019). *Annual Report*. <https://cyxone.com/investerare/finansiella-rapporter/>

Clean Motion (2017-2019). *Annual Report*. <https://cleanmotion.se/ir/finansiella-rapporter/>

Digitana (2017). *Annual Report*. <https://dignitana.com/investor-relations/finreportsarchive/>

Digitana (2018-2019). *Annual Report*. <https://dignitana.com/investor-relations/financial-reports/>

Diamyd Medical (2017-2019). *Annual Report*. <https://www.diamyd.com/se/Financials.aspx>

Doxa (2017). *Annual Report*. <https://investor.doxa.se/finansiella-rapporter/?page=2>

Doxa (2018-2019). *Annual Report*. <https://investor.doxa.se/finansiella-rapporter/>

FlexCube (2017-2019). *Annual Report*.
<https://www.flexcube.com/investor-relations/#financial-reports>

Ecoclimate (2017-2019). *Annual Report*.
<https://ecoclimate.se/finansiella-rapporter/>

Enorama Pharma (2017-2019). *Annual Report*.
<https://www.enorama.se/investerare/finansiell-rapport/>

Embracer (2017-2019). *Annual Report*.
<https://embracer.com/investors/reports-presentations/?lang=sv>

Ellen AB (2017-2019). *Annual Report*. <https://www.ellen.se/arsredovisning/>

ExpreS2ion Biotech (2017-2019). *Annual Report*.
<https://expres2ionbio.com/investor/reports-presentations/>

Enzymatica (2017-2019). *Annual Report*. <https://www.enzymatica.se/investerare/finansiella-rapporter/>

Footway (2017-2019). *Annual Report*. <https://www.footway.com/se/investors>

Gasporox (2017-2019). *Annual Report*.
<https://www.gasporox.se/pressreleases/rapporter-och-finansiell-information/>

Genovis (2017-2019). *Annual Report*. <https://investor.genovis.com/sv/finansiella-rapporter/#arsredovisningar-och-prospekt>

Guard Therapeutics (2019). *Annual Report*.
<https://guardtherapeutics.com/investerare/finansiella-rapporter>

Guard Therapeutics (2017-2018). *Annual Report*.
<https://guardtherapeutics.com/p/tidigare-finansiella-rapporter>

Greater Than (2017-2019). *Annual Report*.
<https://greaterthan.eu/investor-relations/finansiella-rapporter/>

Götenehus (2017-2019). *Annual Report*.
<https://www.gotenehusgroup.se/finansiell-info/rapporter/>

Hedera Group (2017-2019). *Annual Report*.
<https://www.hederagroup.se/17/6/finansiella-rapporter/>

Hifab (2017-2019). *Sustainability Report*.
<https://www.hifab.se/ir-press/finansiella-rapporter/>

Humble Group (2017-2019). *Annual Report*. <https://humblegroup.se/investerare/finansiella-rapporter/>

Hövding (2017-2019). *Annual Report*. <https://hovding.com/investor-relations/annual-reports/>

Izafe (2017-2019). *Annual Report*. <https://izafe.se/ir-rapporter/>

Insplorion (2017-2019). *Annual Report*.
<https://www.insplorion.com/sv/investerare/arkiv/>

InDex Pharma (2017-2019). *Annual Report*.
https://www.indexpharma.com/sv/investerare/finansiella-rapporter-och-presentationer/?rep_type=annual

Idogen (2017-2019). *Annual Report*. <https://idogen.com/investerare/finansiella-rapporter/>

Impact Coating (2017-2019). *Annual Report*.
<https://impactcoatings.com/finansiella-rapporter-arkiv/>

Kakel Max (2017-2019). *Annual Report*.
<http://investor.kakelmax.se/finansiella-rapporter/>

Kancera (2017-2019). *Annual Report*. <https://kancera.com/sv/investerare/rapporter-emissioner/>

Kontigo care (2017-2019). *Annual Report*. <http://ir.kontigocare.com/investor-relations-2/finansiella-rapporter-och-dokument/>

Lidds (2017-2019). *Annual Report*. <https://liddspharma.com/investors/#financial-reports>

Lexington (2017-2019). *Annual Report*. <https://www.lexingtoncompany.com/sv/corporate-information/press-releases?InformationType=RDV>

Is ESG Disclosure worth the effort?

Lyko (2017-2019). *Annual Report*. <https://lyko.com/sv/om-lyko/investerare/finansiella-rapporter>

Mag Interactive (2017-2019). *Annual Report*.
<https://www.maginteractive.com/investors/investor-relations/reports/>

Mavshack (2019). *Annual Report*.
<https://investor.mavshack.com/se/finansiella-rapporter/?ReportFrom=2019-01-01&ReportTo=2019-12-31>

Mavshack (2018). *Annual Report*.
<https://investor.mavshack.com/se/finansiella-rapporter/?ReportFrom=2018-01-01&ReportTo=2018-12-31>

Mavshack (2017). *Annual Report*.
<https://investor.mavshack.com/se/finansiella-rapporter/?ReportFrom=2017-01-01&ReportTo=2017-12-31>

Mantex (2017-2019). *Annual Report*.
<https://www.mantex.se/investerare/rapporter/>

Modern Ekonomi (2017-2019). *Annual Report*.
<https://www.modernekonomi.se/a.174/investerare/finansiella-rapporter>

Mackmyra (2017-2019). *Annual Report*. <https://mackmyra.com/press/financial-information/rapporter/>

Nextstim (2017-2019). *Annual Report*. <https://nexstim.com/investors/financial-reports-and-presentations/>

Nordic flanges (2017-2019). *Annual Report*.
<https://nordicflanges.com/nordic-flanges-group/finansiella-rapporter/>

New Nordic HealthBrands (2017-2019). *Annual Report*.

Is ESG Disclosure worth the effort?

<https://newnordicinvestor.com/sv/rapporter-och-presentationer/>

Niccocino (2017-2019). Annual Report.

<https://www.nicoccino.se/en/investors/reports-and-presentations>

Nilsson Special Vehicles (2017-2019). Annual Report.

<http://www.nilsson.se/investorrelations/>

Nitro Games (2017-2019). Annual Report.

<https://www.nitrogames.com/investors/financial-reports/>

Nanexa (2017-2019). Annual Report. <https://nanexa.com/finansiella-rapporter/>

Netjobs (2017-2019). Annual Report.

<http://www.netjobsgroup.com/investerare/finansiella-rapporter/>

Online Brands Nordic (2017-2019). Annual Reports.

<https://www.onlinebrands.se/ir/rapporter/>

OptiFreeze (2017-2019). Annual Reports.

<https://investor.optifreeze.se/finansiell-information/finansiella-rapporter/>

Oxe Marine (2017-2019). Annual Report. <https://ir.oxemarine.com/Investors/Financial-Information>

Paradox interactive (2017-2019). Annual Report.

<https://www.paradoxinteractive.com/en/section/investors/annual-reports/>

Papilly (2019). Annual Report. <https://investor.papilly.com/finansiella-rapporter/>

Papilly (2017-2018). Annual Report. <https://investor.papilly.com/finansiella-rapporter/?page=2>

Precomp solutions (2017-2019). Annual Report.

Is ESG Disclosure worth the effort?

<http://precomp.se/sv/investerare/rapporter>

ProstaLund (2017-2019). *Annual Report*. <https://www.prostalund.se/rapporter>

Polygiene (2017-2019). *Annual Report*.
<https://ir.polygiene.com/en/investors/financial-reports/>

PiezoMotor (2017-2019). *Annual Report*.
<https://piezomotor.com/aktien/finansiella-rapporter-piezomotor/>

Photocat (2017-2019). *Annual Report*.
<https://photocat.net/wp/investor/>

Polyplank (2017-2019). *Annual Report*.
<https://www.polyplank.se/relations/finansiella-rapporter>

QuiaPEG (2017-2019). *Annual Report*. <https://www.quiapeg.com/investerare/finansiella-rapporter>

Realfiction (2017-2019). *Annual Report*.
<https://www.realfiction.com/investor-financial-reports>

RLS Global (2017-2019). *Annual Report*. <https://rls.global/financial-information/annual-reports/>

Rolling Optics (2017-2019). *Annual Report*.
<https://www.rollingoptics.com/finansiella-rapporter/>

Saxlund (2017-2019). *Annual Report*.
<https://www.saxlund.se/investerare/>

Sdiptech (2017-2019). *Annual Report*.
<https://www.sdiptech.se/investor-relations/financial-information>

Stille (2017-2019). *Annual Report*. <https://www.stille.se/se/investerare/finansiella-rapporter-nyheter/arsredovisningar/>

Senzime (2017-2018). *Annual Report*. <https://senzime.com/sv/investor-relations/financial-reports/finansiella-rapporter-2011-2018/>

Senzime (2019). *Annual Report*. <https://senzime.com/sv/investor-relations/financial-reports/>

ScandBook (2017-2019). *Annual Report*.
<https://www.scandbook.com/investerare/finansiell-information/rapporter/arsredovisningar/?lang=sv>

Scandinavian Enviro (2017-2019). *Annual Report*.
<https://www.envirosystems.se/sv/investor/financial-information/>

Simris Alg (2017-2019). *Annual Report*.
<https://simrisalg.se/sv/investerare/finansiella-rapporter/>

Skåne-Möllan (2017-2019). *Annual Report*.
http://www.skane-mollan.se/Finansiella+rapporter_1053.html

SpectrumOne (2017-2018). *Annual Report*.
<https://spectrumone.com/investor/reports-and-presentations/>

SpectrumOne (2019). *Annual Report*.
<https://spectrumone.com/investor/reports-and-presentations-sv/>

Stillfront (2017-2019). *Annual Report*.
https://www.stillfront.com/en/reports-presentations/?rep_type=annual

Storytel (2017-2019). *Annual Report*.
<https://investors.storytel.com/en/section/investors/financial-reports/annual-reports/>

Swedencare (2017-2019). *Annual Report*.

Is ESG Disclosure worth the effort?

<https://www.swedencare.se/investor-relations/>

Scandidos (2017-2019). *Annual Report*. <https://scandidos.com/investors/finansiella-rapporter>

Sprint Bioscience (2017-2019). *Annual Report*. <https://www.sprintbioscience.com/finansiell-information/finansiella-rapporter/arsredovisningar/>

Scibase (2017-2019). *Annual Report*. http://investors.scibase.se/en/reports-and-presentations?type%5B%5D=annual_report&year=

SJR (2017-2018). *Annual Report*.
<https://sjr.se/investor-relations/>

SJR (2019). *Sustainability Report*.
<https://sjr.se/wp-content/uploads/2020/03/Hallbarhetsrapport-2019.pdf>

Spectra cure (2017-2019). *Annual Report*. <https://spectracure.se/rapporter/>

TC Tech (2017-2019). *Annual Report*.
<https://tctech.se/en/en-investors/en-financial-information/>

Tempest Security (2017-2019). *Annual Report*. <https://investor.tempestgroup.se/finansiell-information/finansiella-rapporter/?ReportFrom=2017-01-01&ReportTo=2017-12-31>

Toleranzia (2017-2019). *Annual Report*. <https://www.toleranzia.se/investerare/rapporter/>

Unlimited Tavel Group (2017-2019). *Annual Report*.
<https://www.unlimitedtravelgroup.se/investor-relations/rapporter>

Urb-it (2018-2019). *Annual Report*.
<https://www.urb-it.com/about/investor-portal#FinR>

Urb-It (2017). *Annual Report 2017*. BeQuoted.
<https://www.bequoted.com/bolag/urb-it/rapporter/arsredovisning-2017-64826/>

Is ESG Disclosure worth the effort?

WESC (2017-2019). *Annual Report*.

<http://www.wescorp.com/wesc-bokslutskommunik-202/>

Xintela (2017-2019). *Annual Report*. <https://www.xintela.se/investerare#rapporter>

Zinzino (2017-2019). *Annual Report*. [https://www.zinzino.com/site/US/en-](https://www.zinzino.com/site/US/en-US/page/About/Corporate-Info/Financial-Reports)

[US/page/About/Corporate-Info/Financial-Reports](https://www.zinzino.com/site/US/en-US/page/About/Corporate-Info/Financial-Reports)

Appendix

Appendix 1

Sdiptech 2019 – The Almost Perfect Disclosure Score

According to MSCI, the five important areas of disclosure for companies in the industrial sector are Opportunities in Clean Tech, Toxic Emissions & Waste, Carbon Emissions, Labour Management, Health & Safety, and Corporate Governance. The disclosure score ranges from 1 to 5 and is illustrated for each category below. Sdiptech was the company out of all 113 that had the highest score, and therefore their performance is described below with examples.

Opportunities in Clean Tech		Waste Management & Toxic Emissions	
1	No mention	1	No mention
2	Mention	2	Mention
3	Considering the issue	3	Considering the issue
4	Active efforts	4	Active efforts
5	Strategies & Goals	5	Certification
Carbon Emissions		Labor Management	
1	No mention	1	No mention
2	Mention	2	Mention
3	Considering the issue	3	Employee turnover
4	Active efforts	4	Employee contract & benefits
5	Calculations	5	Code of conduct
Health & Safety		Corporate Governance	
1	No mention	1	No mention
2	Mention	2	Mention
3	Considering the issue	3	Accounting principles and notes
4	Code of Conduct	4	Top management & Board of directors
5	Calculations	5	Corporate governance report

1. Opportunities in Clean Tech

PURPOSE AND OBJECTIVES OF THE REPORT

The purpose of this sustainability report is to describe transparently Sdiptech's targets, strategies and governance, as well as its responsibilities, risks and opportunities from the perspective of sustainability. Both Sdiptech and the rest of the world must be able to monitor how the Group's sustainability initiatives develop. The report should provide customers, employees and shareholders with an understanding and knowledge of our sustainability work.

GENERATING FINANCIAL VALUE

Financial stability and strength represent a basic condition for being able to invest in sustainable business development. Responsibility for improving the environment and participating in lasting sustainable development is an important cornerstone of the Group's operations. The Group's impact on the environ-

Skills development

Sdiptech's companies strive to develop their operations and to be attractive employers. To support development efforts, Business Area Managers and other centrally stationed employees are involved in various matters among the business units, including leadership, marketing and sales, financial review and reporting and project review.

STRATEGY AND GOVERNANCE

Sustainability is an important part of our strategy and the objective is for sustainability to be taken into consideration in all strategic decisions made within the organisation. Sustainability is therefore an integral part of our acquisition process, where all of the companies acquired should contribute to more sustainable, efficient or secure infrastructure solutions. In addition to that has Sdiptech begun Nasdaq's ESG reporting.

BUSINESS MODEL

Sdiptech is a technology group with a main focus on infrastructure. Sdiptech's business concept is to offer niche technical solutions to the infrastructure sector, currently spread over more than 30 operations. A growing population and higher utilization, as well as demands for more advanced infrastructure ensure long-term market growth. Profitable positions in niche markets drive organic growth and Sdiptech adds new revenue through acquisitions. The business model is based on decentralization to subsidiaries, so that development and important decisions are made closest to customers. The Group's niches are usually defined by a technology or knowledge area, but a niche can also be a customer segment or a geographically defined area.

Sdiptech relies on entrepreneurial spirit and innovative solutions, and integrates these into a model that promotes the creation of quality companies with long life and good margins.

Examples among many that makes Sdiptech earn the highest score for opportunities in clean tech.

Category score = 5/5

2. Waste Management & Toxic Emissions

GENERATING ENVIRONMENTAL VALUE

Responsibility for improving the environment and participating in lasting sustainable development is an important cornerstone of the Group's operations. The Group's impact on the environment is limited and occurs mainly in connection with transportation of input goods and finished products, business travel and waste management. The Group's companies work continuously to reduce the environmental impact of the operations. The environmental work is conducted locally based on each company's specific conditions. Group companies strive for superior efficiency in their use of energy and natural resources, favour

systems that re-use and recycle materials and energy, and that prevent and limit environmental pollution. The ambition is to be highly sensitive to customers and suppliers' wishes and to thus be able to meet the market's demands for proactive environmental efforts. Many of the companies within the Group apply quantitative targets in their environmental work. Fully 53 percent of our business units are ISO certified. In four of

Sdiptech has earned a certification for their waste and emissions management and therefore earn the highest grade of the category.

Category score = 5/5

3. Carbon Emissions

Is ESG Disclosure worth the effort?

Carbon dioxide emissions

Sdipotech's climate impact consists mainly of carbon dioxide emissions, which we consider the foremost negative environmental impact of our operations. In addition to emissions related to the internal use of fossil fuels and electricity, emissions of carbon dioxide are also generated by various modes of transport, such as transport of materials and products and passenger transport.

- Continue the work of setting energy and climate goals.
- Establish energy mapping in accordance with the EU's Energy Efficiency Directive.
- Ensure that our business units continue updating to ISO 14001:2015.

Targets in generating environmental value

Sdipotech shall work actively to continuously reduce the direct and indirect environmental impact of its operations, products and processes. To achieve this, we strive to:

- Continue the work with providing products and solutions that contribute to driving a sustainable development and reducing environmental impact. In the Group's sustainability work, nine of the UN's 17 Global Goals have been identified as part of its operations.

Sdipotech discloses that they consider and work proactively with carbon emission reduction but does not disclose a measurement of their performance and therefore scores the second highest mark.

Category score = 4/5

4. Labour Management

Employees

Most of our workforce is employed on a permanent basis. Contracted personnel are used primarily to substitute for ordinary employees who are ill or otherwise absent. Our employees having secure employment is not only a work environment issue, but also an important factor in achieving continuity in the operations and being able to build long-term relationships. At the end of the year, the average number of employees was 1,263, of whom 87.6 percent were men:

	Total
Managing Directors (including subsidiaries) and Boards of Directors	45
Production	864
Sales	45
Administration	193
Other	116
Total personnel	1,263
Of whom, women	157
% women	12.4 %
Total leading positions	98
Of whom, women	31
% women	31.6 %

WORKING ENVIRONMENT

We provide good workplaces and foster employees' health, well-being and development. This means that with regard to workplace design, equipment, our behaviour towards one another, job descriptions, skills development and in all other work environment-related issues, we work to ensure that our employees have a working environment and a work situation that prevents physical and mental ill-health and that promotes well-being and development.

Employee turnover

We strive to be a respected employer. The companies within the Group shall strive to be attractive employers with regard to their employees' personal development. Relations to and between the employees shall be based on mutual respect and permit reasonable influence in areas affecting the individual's work situation. In 2019, total employee turnover was 10.2 percent excluding employees joining the Group through acquisitions during the year.

established a Code of Conduct detailing the basic principles for the company's values and actions. All employees are expected to adhere to the Code of Conduct in their contacts with colleagues, customers, suppliers and shareholders.

Sdipotech fulfills the requirements for every step of the scale and is earning the highest grade of the category.

Category score = 5/5

5. Health & Safety

Is ESG Disclosure worth the effort?

Health and safety

In our industry, health and safety is a priority area. We apply a zero vision with regard to work-related accidents, illness and incidents and have the ambition to work continuously to improve health and well-being among our employees. The objective is for no one to suffer from physical or mental ill health due to their work situation. Absence due to illness as a percentage of working time in days was 2.7 percent for the 2019 full-year, a decrease from last year when it was 4 percent.

As Sdipotech measures, evaluates, and discloses its employee health levels, it scores the highest grade for the category.

Category score = 5/5

6. Corporate Governance

MANAGEMENT



JAKOB HOLM
BORN 1971
CEO SINCE 2015

Jakob Holm has extensive experience in company development from a number of different sectors. As a senior adviser, he has worked with owners and management teams in large international companies as well as SMEs. He founded the management consulting company Ashölmén in 2006 and, before that, he worked at General Electric and Accenture. Jakob joined Sdipotech Innovations in August 2014. He holds a Master of Science degree in Systems Engineering from the Royal Institute of Technology in Stockholm.

Holdings: 258,749 Class B shares (through Curuset AB), 1,040 preference shares and 189,000 warrants



BENGT LEJDSTRÖM
BORN 1962
CFO SINCE 2018

Bengt Lejdström has solid financial expertise from listed companies and acquisition-intensive international groups and has, among other things, been CFO at Lagercrantz Group, Intrum Justitia and Acando. He has also worked as a management consultant and has run his own businesses. Bengt holds a Master of Business Administration degree from the Stockholm School of Economics.

Holdings: 45,200 Class B shares, 2,500 preference shares and 68,400 warrants



STEVEN GILSDORF
BORN 1978
HEAD OF ACQUISITIONS SINCE 2018

Steven Gilsdorf has solid and broad experience of developing and acquiring small and medium-sized companies in different sectors, both in Sweden and internationally. He has previously worked in operational and strategic roles at GE Capital, Booz & Co. and Blencoe, where he was most recently Head of Group M&A. Steven holds a Master of Business Administration degree from London Business School and a Bachelor of Science degree in Business Economics from Arizona State University in the US.

Holdings: 2,485 Class B shares and 68,400 warrants



FREDRIK SEDERHOLM
BORN 1957
BUSINESS AREA MANAGER SINCE 2017

Fredrik Sederholm has extensive experience of leadership and strategic corporate governance. He has previously served as CEO of several companies within the installation industry. He has also held executive positions in companies such as Assemblin, Caverion, Otk & Markan Hiss. Fredrik holds a Master of Business Administration degree from Stockholm University.

Holdings: 82,222 Class B shares and 68,400 warrants



FREDRIK NAVJORD
BORN 1980
BUSINESS AREA MANAGER SINCE 2017

Fredrik Navjord has extensive experience of business development and has worked with both growth companies and international groups. He most recently held the position of CEO for Metric, where he gained experience of working with the infrastructure sector and data communications. He previously worked as a Business Developer at Aditech and as an Investment Manager at Volvo Ventures. Fredrik holds a Master of Science degree in Engineering from Chalmers University of Technology.

Holdings: 18,345 Class B shares and 52,500 warrants



ANDERS MATTSSON
BORN 1980
BUSINESS AREA MANAGER SINCE 2018

Anders Mattsson has solid and broad experience of managing and developing businesses in Sweden as well as internationally. Anders joined Sdipotech from Munars, where he held several positions, including as Global Sales and Marketing Manager for one of the Group's business areas and as President of an international subsidiary. He began his career as a management consultant for five years. Anders holds a Master of Science degree in Engineering from Chalmers University of Technology.

Holdings: 68,400 warrants

BOARD OF DIRECTORS



JAN SAMUELSON
BORN 1963
CHAIRMAN SINCE 2018

Jan Samuelson has solid experience in building medium-sized companies in a variety of industries and has been active at all levels ranging from operational positions to this role as an active owner. Jan currently holds a number of directorships, including as Chairman of Stifffront Group AB. Jan previously worked as a Senior Partner at Accent Equity Partners and before that as a Senior Vice President at EF Education. Jan holds a Master of Business Administration degree from the Stockholm School of Economics and a Master of Laws from Stockholm University.

Independent in relation to Sdipotech and its senior executives: Yes
Independent in relation to the major shareholders: Yes
Holdings: 236,000 Class B shares and 90,000 warrants



ASHKAN POUYA
BORN 1976
BOARD MEMBER SINCE 2014

Ashkan Pouya is an experienced serial entrepreneur who has been involved in starting several research-based companies in both executive and non-executive positions and was previously the Director of Innovation at Lund University. Ashkan has a background in Business Administration, and was educated at Uppsala University, Queen's University and the WHU-Otto Besheim School of Management in Germany. Furthermore, Ashkan has had a successful career as an elite athlete, and became the World Champion in Combat Jujitsu in 2000.

Independent in relation to Sdipotech and its senior executives: Yes
Independent in relation to the major shareholders: No
Holdings: 1,000,000 A shares and 5,435,000 B shares



JOHNNY ALVARSSON
BORN 1950
BOARD MEMBER SINCE 2016

Johnny Alvarsson has previously been CEO of Indutrade, Elektronikgruppen and Zetec AB, and before that held several managerial positions at Ericsson. He currently serves as a Board member of Beijer Alma and Instaco and is also Chairman of VBG, Dacke Industri AB and FM Mattsson Mora. Johnny holds a Master of Science degree in Engineering from Linköping University.

Independent in relation to Sdipotech and its senior executives: Yes
Independent in relation to the major shareholders: Yes
Holdings: 18,200 Class B shares and 18,000 warrants



MARKUS SJÖHOLM
BORN 1971
BOARD MEMBER SINCE 2018

Markus Sjöholm has 21 years of experience in Nordic private equity, including as Managing Partner at Cap Man Buyout. He is currently Chairman of the Finnish companies Lahri Precision Oy and Expert Care Group Oy as well as a Board member of Fortisco Group Oy. He offers services for mainly private equity-owned companies through his company Actone AB, with a focus on value creation through active ownership. He holds a Master of Economics from Hanken Swedish School of Business in Helsinki and a law degree from the University of Helsinki.

Independent in relation to Sdipotech and its senior executives: Yes
Independent in relation to the major shareholders: Yes
Holdings: 15,000 Class B shares



BIRGITTA HENRIKSSON
BORN 1963
BOARD MEMBER SINCE 2019

Birgitta Henriksson is a partner of Fogel & Partners and works in an advisory capacity to boards and management teams on strategic communications and capital market issues. She is also a Board member of Stifffront Group AB. She was previously a partner of Brunswick Group and served as Head of Investor Relations and Corporate Communications at the investment bank Carnegie and also worked with company acquisitions and raising of capital at Carnegie. Birgitta holds a degree in Business Administration from Uppsala and Stockholm University.

Independent in relation to Sdipotech and its senior executives: Yes
Independent in relation to the major shareholders: Yes
Holdings: 4,600 Class B shares



URBAN DOVERHOLT
BORN 1961
BOARD MEMBER SINCE 2019

Urban Doverholt has solid experience from IT and industrial groups. Urban is Chairman of SEM Group and Vice Chairman of Säkerhetsbranschen, and is a Board member of Infobric and Stålsäkerhetsbranschen. He previously served as CEO of ASSA AB, Certego, Enlight and EDB BusinessPartner, among other positions. Urban holds a Master of Science degree from the Royal Institute of Technology in Stockholm and completed further education at IMD Lausanne, Switzerland.

Independent in relation to Sdipotech and its senior executives: Yes
Independent in relation to the major shareholders: Yes
Holdings: None

CORPORATE GOVERNANCE REPORT

Sdipotech fulfills all levels for the corporate governance category and therefore earns the highest grade.

Is ESG Disclosure worth the effort?

Category score = 5/5

Total weighted score = 4,84/5.00

Appendix 2

The graphic below details the complete set of data metrics and sources used to determine the MSCI ESG Rating.

