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THE RELATIONSHIP BETWEEN ESG FACTORS & VALUATION WITHIN THE TECHNOLOGY SECTOR

A study by the Global Technology Leaders Team to determine if a link exists between the environmental, social and governance performance of businesses and company valuation.

Contents

ABSTRACT

This white paper seeks to understand the link between ESG considerations – or non-financial metrics of the Environmental, Social, and Governance performance of businesses – and company valuation. A multitude of studies have sought, to mixed effect, to prove that ESG factors have a significant impact upon stock price returns, but few have focused directly on valuation. These results have been particularly mixed when looking at some of the strongest- performing regions, notably the US. This may partly explain why the focus of investors and regulators on ESG integration to-date has been less pronounced in the US in comparison with Europe. One of the key reasons we believe that previous studies have shown less convincing correlation of stock returns with ESG considerations has been the lack of granularity in comparing similar companies. Given the strong outperformance of the technology sector over the broader equity market in the past two decades, the US market, which is more heavily weighted to the tech sector often appears to have a weaker relationship between ESG factors and stock valuation.

The Global Technology Leaders Team are dedicated technology equities specialists with deep knowledge and extensive experience of investing within the sector that has been the single largest source of economic value creation and disruption in stock markets over the last decade. By taking a deeper dive on an individual sector – technology, we have sought to isolate other factors that impact stock price performance and valuation and as such, attempted to remove the impact of technology disruption in order to examine the impact of environmental, social and governance factors at a more granular level.

We have used three different methods to assess company ESG credentials to ensure our results are reliable and robust. We used our proprietary ESG scoring system based on aggregated raw company data, and also rankings provided by two of the most commonly used third-party ESG data providers. By using three different methodologies to assess the ESG scores across our universe we sought to eliminate any bias or controversy in the ranking awarded to enable a true focus on our aim of determining if higher ESG factors performance corresponds to a higher stock valuation.

We compiled and scored a universe of c.700 equity securities from the technology sector. Two parallel analyses were then undertaken. Firstly, we split our stock universe in half with the top scoring ESG companies in one bucket, and the poorer scoring companies in the other. We then assessed average valuation multiples for P/E, EV/Sales and EV/EBITDA across 2018 – 2020. We found that, on average, the better scoring ESG companies received a higher valuation multiple from the market.

In the second analysis, we took our stock universe and screened the companies for size, growth, and quality to produce 20 buckets, each containing groups of similar companies with similar characteristics.

This screening process aimed to control for factors that commonly impact valuation multiples in order to isolate the impact of an ESG score on the multiple. We then split each bucket by high/low ESG score and assessed valuation multiples across each bucket from 2018-2020. We found that 60% of multiples assessed across the buckets from 2018-2020 illustrated a valuation premium given to the higher scoring ESG companies. In addition, on a regional P/E analysis, this premium appeared to have increased across all major regions from 2018-2020.

These findings are consistent and confirmatory of the Janus Henderson Global Technology Leaders Team's investment philosophy and investment process. For both the Global Technology Leaders and the Sustainable Future Technologies strategies, we incorporate our insights on non-financial related ESG factors explicitly into our valuation methodology and investor engagement strategy. We believe this study shows empirically that companies that perform well on ESG metrics, and can show significant improvement in these areas, tend to be valued more highly by the market and crucially, that ESG factors should be an integrated part of the investment process.

INTRODUCTION

Incorporating ESG considerations into an investment process is not straightforward, and as such nuances big and small exist across the asset management industry with the exact decision on how to incorporate these factors a common question for institutional money managers. There are a multitude of different approaches to ESG or sustainable investing ranging from strategies seeking to have a positive impact on global challenges from their investments, to those that simply apply an exclusion criterion to filter securities, and as a result reduce the negative impacts of the type of investments they make.

The integration of ESG factors has become not only a core focus for our clients, but also for governments and regulators. In order to provide standardised and recognised requirements for funds considering non-financial ESG factors, the EU introduced the Sustainable Finance Disclosure Rules (SFDR) in 2021 to be followed in due course by a Green Taxonomy. The EU platform for Sustainable Finance is also actively considering how to broaden its approach beyond just environmental factors, and to include a Social Taxonomy to recognise the symbiotic relationship between planet and people. Other regulators and governments are formulating their approaches with a variety of similar green frameworks, definitions, or taxonomies to help provide guidelines and standards around sustainable, responsible or ESG investing.

No attempt at a standard definition is provided here, and we do not wish to gloss over the difficulties in assessing what good, bad, best or worst 'ESG attributes' may be. This paper has been borne out of a desire to provide a more granular and detailed evaluation of how non-financial factors may impact on valuation. Given how much of a focus ESG investing has become in financial markets, there have been comparatively few studies that have tried to isolate the myriad of factors that could establish a high correlation or indeed causal link between ESG attributes and the corresponding effects on valuations, multiples, and stock price performance. The technology sector has been a source of enormous economic value creation and disruption in stock markets over the last decade and indeed the vast majority of the earnings growth that has occurred over that time period has in fact come from the technology sector. The sector has typically commanded a premium given its disruptive business models and favourable secular tailwinds, as illustrated by figures 1 and 2.

Fig. 1: Long-term Technology Outperformance

Performance (USD)
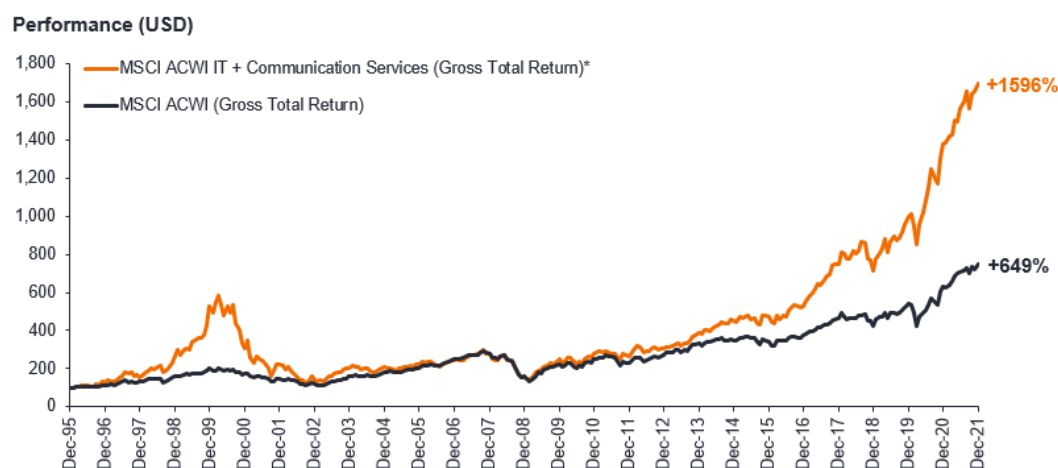
Source: Janus Henderson Investors, Morningstar, as at 31 December 2021.
Note: * MSCI ACWI IT (Information Technology) to 30 November 2018 and then a custom index of MSCI ACWI Information Technology + Communication Services since
          Gross total returns are shown in USD.
          Indices rebased to 100 as at 31 December 1995.
          Past performance does not predict future returns.

Fig. 2: Relative Technology to World Forward P/E

Source: Janus Henderson Investors, Bernstein, as at 31 December 2021.
Note: Forward P/E = Price to forward earnings.
(Orange line) MSCI ACWI Information Technology Sector, price-to-forward earnings relative to MSCI ACWI Index from December 2001 to November 2018 pre GICS sector changes in MSCI Global indices, then (Grey line) MSCI ACWI Information Technology + ACWI Communication Services relative to MSCI ACWI Index to 31 December 2021 post GICS sector changes in MSCI Global indices.
Past performance does not predict future returns.

The UK-based Global Technology Leaders Team manages strategies classified by SFDR as 'Article 8' Global Technology Leaders and 'Article 9' Sustainable Future Technologies. At its core, we view technology as the science of solving problems. In line with this belief, both of our strategies incorporate ESG considerations into the investment process in terms of defining the universe, and at a company-specific fundamental research level. By navigating the technology hype cycle, we look to identify strong secular themes and companies with unappreciated earnings power, and promote environmental and social characteristics, aiming to deliver strong consistent returns in a less volatile manner.

For the Global Technology Leaders Strategy, which promotes environmental and social characteristics, we will invest in companies that may be ESG laggards (based on proprietary screening) but only when we have a positive view that tangible improvement and progress can be expected based on an action plan addressing specific issues within allotted timeframes. Active engagement can serve not only as a catalyst for change in company processes, behaviour, and disclosure, but also as an enhancer of value for shareholders and other stakeholders, consistent with our belief that improving ESG performance can lead to higher company valuation. Within Sustainable Future Technologies, (which has a dual mandate of aiming to provide capital growth over the long term by investing in technology-related companies that contribute to the development of a sustainable global economy), investments are made only in companies where at east 50% of forecastable revenues are derived from the eight sustainable technology themes identified by the Global Technology Leaders Team, ie. Clean Energy Technology, Smart Cities, Low Carbon Infrastructure, Sustainable Transport, Resource Optimisation, Digital Democratisation, Tech Health and Data Security.

We use both qualitative and quantitative (described in more detail in Methodology) research as a means to help us gain ESG insights and apply this to our view of appropriate valuation for our holdings. We view our valuation discipline and ESG integration as key differentiators versus other dedicated technology specialists, hence the relationship between these factors is of fundamental importance to our investment approach.

With this white paper we aim to provide a more granular, technology-specific perspective and also present empirically-based evidence of the relationship between ESG attributes and valuation. Essentially, highlighting how exposed the enterprise value (EV) of a company is to ESG risk factors and how this impacts our investment process.

Hypothesis

This white paper seeks to address a key question on the topic of ESG in the broader context of the technology equities sector, while attempting to effectively isolate the read-through of ESG attributes to financial metrics. We focus on the following key area:

- **Do technology companies with robust ESG ratings receive a valuation premium from the market with respect to three key valuation multiples P/E, EV/Sales and EV/EBITDA?**

Within this key question we also seek to answer several sub-questions:
- How do these valuation premiums vary across regions?
- How do these valuation premiums vary across different market capitalisations?
- Do valuation premiums vary across the three selected multiples?

Note:
P/E: Price-to-Earnings ratio. A company valuation metric that measures a company's current share price relative to its earnings per share (EPS).

EV/Sales: Enterprise Value/Sales. Enterprise-value to sales multiple is a quantifiable metric of a company's valuation based on its annual sales taking into account the company's equity and debt.

EV/EBITDA: Enterprise Value/Earnings Before Interest, Taxes, Depreciation & Amortisation (EV multiple). The enterprise multiple is a company valuation metric taking into account a company's debt and cash levels in addition to its stock price, and relates that value to the firm's cash profitability.

LITERATURE REVIEW

How to incorporate ESG factors into the investment process to seek increased returns for clients has become a ubiquitous question for institutional asset managers (Eccles et al. 2016). As the economic power of millennials and Generation X increases, the focus on sustainable or ESG-focused investing continues to increase with the broader thematic trends of 'green' or 'impact' investing becoming mainstream. The moral and ethical benefits of the subtle shift to Conscious Capitalism (John Mackey & Raj Sisodia 2014) are not the topic of this paper or review. The focus here is the underlying premise of dual mandate investing, where capital returns as well as social or environmental benefits are sought. Despite strong inflows to European ESG-related strategies (circa €233bn in 2020 according to Morningstar data), it remains unclear if there are direct causal links between corporate ESG attributes and the corresponding effects on valuations, multiples, and stock price performance or corporate financial performance (CFP), (van Beurden and Gosslin 2008; Hoepner and McMillan 2009).

Research studies on ESG benefits to stock price performance are widespread (Kempf and Osthoff 2007; Fulton, Kahn and Sharples 2012; Statman and Glushkov 2009; Friede, Busch & Bassen 2015). However, more recent work benefits from an increased back catalogue of results for analysis and more extensive data sets. Thus, it follows to focus efforts initially on wide ranging meta-analyses and aggregated studies. Friede, Busch & Bassen 2015) aggregated and analysed c.2,200 individual studies and concluded that 90% of previous studies within their data set showed a non-negative correlation between ESG and stock price performance, with the majority of 62.6% exhibiting a positive result. Only 10% of the studies showed a negative result. Similar aggregate studies have concluded that firms with strong ESG ratings showed 89% and 85% outperformance in both market metrics and accounting/ratio metrics respectively (Fulton, Kahn and Sharples 2012). ESG can also reduce systematic and security-specific investment risk within investment portfolios (MSCI ESG & Equity Returns 2019), a feature which is not only limited to equities but has been shown in credit portfolio construction as well (Barclays 2016). In fact, in the bond markets, corporate environmental attributes have had the biggest impact on performance over the last two and nine years in the US and Europe respectively (Barclays 2018). Furthermore, ESG often acts as an indicator of corporation quality, that is to say it is associated with sustainable earnings growth and a generally high Return On Investment (ROI) (BMO 2017).

There is also evidence that so-called ESG momentum (the rate of change of improvement in ESG metrics) is linked to strong positive performance, and in some cases leads to a risk premium for firms as is often seen with more traditional factors such as value or quality (Giese & Lee 2019). However, it has been shown that ESG outperformance is pared back after initial impetus (Borgers, Derwall, Koedijk and Ter Horst 2013; Halbritter and Dorfleitner 2015) suggesting that momentum effects are most keenly felt as a company first begins to think carefully about ESG factors. With more traditional financial metrics such as cost of capital, strong correlations between companies with high ESG scores have been identified both at an individual security level and at an ESG-focused fund level (Fulton, Kahn and Sharples 2012; Chava 2014). Atz et al. 2012 established a 'Return On Sustainable Investment' (ROSI) methodology to answer the question as to whether sustainable business practices lead to positive financial returns, focusing on case studies from consumer food and automobiles. They found that overall Net Present Values for their focus companies increased as a percentage of revenues by up to 12%. As the global climate crisis deepens modern day rhetoric is very much tilted to the environmental side of ESG. However, work on governance assessment models applied over two years to stocks in Central and Eastern Europe showed that the highest rated stocks in terms of governance outperformed (Bistrova & Lace 2011).

When looking through the lens of some studies however, results remain positive but relationships appear weaker. An analysis of c.11,000 US-based mutual funds between 2004 and 2015 indicated that for 64% of the time periods examined, sustainable funds had 'equal or higher median returns' (Morgan Stanley 2015). In the same study however, and when examining volatility, results found that across all time periods within the study, downside deviation was significantly reduced in the 'sustainable funds' vs. the 'traditional funds' i.e. sustainable funds were less risky investments. Furthermore, some research has found a negative correlation in certain regions such as the US and Asia, although volatility levels were deemed to be lower (Refinitiv 2020). This is attributed to the fact that sustainability issues are not as prominent on the agenda in these regions as opposed to Europe, for example. However, while past performance does not predict future returns, it is worth noting at this stage that the US and Asia have a very high proportion of

technology companies, which have, in general, performed very well over the past ten years, during which ESG considerations have increasingly become more of a focus for investors; this illustrates the importance in ESG classification criteria. It is also possible that firms with good ESG principles underperform as they are outperformed by low ESG stocks that have been systematically ignored by investors, skewing some study results (Merton 1987).

Despite the wide-ranging studies mentioned above, there is still no general consensus on the *benefits* of ESG investing. Currently there exists a broad train of thought that ESG principles are good for the world, and can be positive or indifferent to investment returns (Fulton, Kahn and Sharples 2012; Refinitiv 2020; Morningstar 2020). In other words, ESG investing does not always *increase* returns, but sacrificing returns is not a pre-requisite for investing in good ESG companies (Morningstar 2020). Despite this, is it possible to identify the impact of good ESG principles on valuation metrics? The crux of this lies in the difficulty of finding a direct causal link between ESG and CFP metrics as opposed to just a broad correlation (Roberts & Whited 2013; Giese et al. 2019; Refinitiv 2020). In short, can it be proved that an improvement in ESG performance alone directly impacts corpoate financial performance (CFP) with all other variables remaining equal, and what is the economic mechanism for this. The challenge to this is largely twofold.

First, we must recognise the wide variety of methodologies employed in previous research and the highly variable data sources and quality levels (Fulton, Kahn and Sharples 2012). Understandably, with a lack of ESG data in the late 1900s and no clear ESG reporting standards, it is difficult to compare one study with another. Furthermore, key data providers in the present day are often inconsistent with each other and this can be a stumbling block for robust analysis (Serafeim 2021). As a result, two comparable providers can allocate ESG scores to the same company that bifurcate considerably, leading to questions on the quality of source data used in previous work and meta-analyses (Chatterji, Durand, Levine and Touboul 2016). There are currently three main data providers for ESG data with wide-ranging statistics and ratings; these are MSCI ESG Research, Thomson Reuters and Sustainalytics. On a broader level one could argue that older studies, and therefore by definition aggregated studies, are scientifically not robust given that many key data points in the ESG data universe were simply not measured or collected historically. This must be considered even before the quality of any data is considered. With respect to methodologies employed most studies have, at a basic level, attempted to analyse securities by classifying them as ESG or otherwise and comparing returns over a set time period. Others have constructed hypotetical portfolios using both long and short strategies to analyse risk/return metrics (Morningstar 2020). Most pertinently, and as will be discussed in our methodology statement, some research has focused on analysing the change in CFP metrics while attempting to isolate the causality of those changes to ESG factors (Giese et al. 2019). Very few studies have focused solely on intrinsic valuation multiples such as P/E, EV/Sales and EV/EBITDA, which are the focus of this study.

Secondly, previous works do not often distinguish between correlation and causality (Krueger 2015, Giese & Lee 2019; Refinitiv 2020), and it is clear that there are other variables correlated to ESG metrics that affect CFP and must be controlled for (Morningstar 2020; BMO 2017; Refinitiv 2020). For example, companies that generate revenue and future cash flows from products or solutions aimed at tackling sustainability issues will benefit from tailwinds of increased demand for their product (BMO 2017). ESG performance

and corporation size has also been found to be positively correlated with larger companies having higher ESG scores (Refinitiv 2020; Morningstar 2020). It is true also that the impacts of ESG on CFP are not uniform or financially material for some industries (Khan, Serafeim and Yoon 2016) making a broad-brush approach and correlative study not applicable to many firms. Indeed, isolated event studies have shown that markets do not necessarily respond positively to all ESG initiatives (Hvidkjaer 2017). Furthermore, high ESG scores vs. increased CFP are often interpreted to mean that the company valuation is high because of the strong ESG metrics. However, this could easily be the reverse in that a highly valued company may be financially stronger and able to invest in and develop their ESG metrics, leading to higher ESG ratings (Giese et. al 2019). Some work has been attempted to isolate causality through ESG. Using regression analysis and residual values to this regression, 'size adjusted' scores can be calculated to control for corporation size, industry and region (Giese & Lee 2019). Alternatively, Giese et al. 2019 identified three 'transmission channels' through which ESG information and performance could be directly transmitted to the corporation's valuation and CFP and resulted in a reduced cost of capital and higher profitability. Perhaps most notably Barclays' 2016 methodology involved selecting pairs of fixed income portfolios with as close to identical risk profiles as possible, but highly differentiated ESG credentials. Performance was then compared and contrasted between the portfolios constructed with the highest and lowest ESG scores. In summary, broad brush studies on ESG do not frequently

adjust for valuation, future expected earnings/growth rates, company size etc. Nor do they seek to normalise the impact of large cap legacy names, which already have high ESG standards.

Despite the extensive literature on ESG, little has been done thus far at a sector specific level, or have focused solely on analysing valuation metrics directly as opposed to just stock returns. Bank of America identified several ESG factors on an industry basis in order to rank ESG performance by sector, finding the technology sector 5th out of 11 (BoA ESG Part II). Within the same study Bank of America concluded that "ESG as a factor was… ineffective within technology with respect to future performance over both the short and long term…" .The methodology applied involved ranking the universe of companies by 'above 50' scores and 'below 50' scores to analyse performance spreads between cohorts.

With this background in mind, we believe it would prove insightful if the aim of our study would be to test the hypothesis that high ESG standards for technology firms do receive higher valuations from the market on a P/E, EV/Sales and EV/EBITDA basis.

METHODOLOGY

Universe Construction

In seeking to test our hypothesis we first collated our investable universe of securities with which to carry out the study. A broad universe of equity securities totalling c.700 companies across the globe was built using the investable universes of the Global Technology Leaders and Sustainable Future Technologies strategies as described in the introduction. Given we view technology as the science of solving problems, we have not used an index to define what a technology company is. For example, Amazon has never been classified as a technology company by the major indices despite being one of the largest cloud infrastructure providers in the world. We view technology companies as those that have hardware or software at the core of their business, such companies fall within our investable universe.

We used our long-established ranking screen database, which contains a wide range of metrics depicting the growth, value, momentum, and quality characteristics of each stock in the universe. From this data we extracted key fundamental data points such as market capitalisation, YoY revenue growth, Net Debt/ EBTIDA, operating and gross margins, and Free Cash Flow (FCF)/Share. In addition to company fundamental data, we also assigned each security an ESG score of which the provenance is described below.

ESG Scoring

We have used three different methods to assess company ESG credentials to ensure our results are reliable and robust. We used our own proprietary ESG scoring system based on aggregated raw company data, and then also used rankings provided by two of the most commonly used third-party data providers. By utilising three different methodologies to assess the ESG factors across the universe, we sought to eliminate any bias or controversy in the ranking awarded to enable a true focus on whether or not the relationship between higher ESG factor performance corresponded to a higher valuation. Note that the intention was not to compare and contrast the scoring methodologies but rather to check that the core hypothesis does or does not hold independent of the scoring methodology.

The proprietary methodology we used is based on an ESG ranking screen which sorts our universe into laggards, transitioners and leaders. This enabled us to focus our engagement and improve our fundamental company analysis. We considered materiality within our tech sub-sectors and tailored our screen accordingly, leveraging our bottom-up expertise across our broad definition of tech. Within our proprietary ranking tool, we considered E, S and G fairly and dynamically based on data quality and relevance. To avoid subjective interpretations we used underlying raw data metrics where possible. A rating was applied and scaled based on data quality, data relevance to technology and finally ESG focus and relevance. A more detailed explanation of our ranking screen is provided in the Appendix.

Note that the ESG score and subsequent ranking produced is only relative to the universe in this study composed of technology stocks and is not compared or ranked against the wider market.

SOURCE	METHODOLOGY
DATA PROVIDER 1	Providers' own
DATA PROVIDER 2	Providers' own
GLOBAL TECH LEADERS SCORING	25 raw data metrics with a variety of sources. *(including disclosure scores e.g do companies disclose to CDP*? or have a deforestation policy?)* **More details in the Appendix**

*CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.

Valuation Multiples

In order to test our hypothesis, we chose three common valuation multiples to run our analysis. These were the Price to Earnings Ratio (P/E), the Enterprise Value to Sales Ratio (EV/Sales) and the Enterprise Value to EBITDA Ratio (EV/EBITDA). We took three years of data from 2018 – 2020 for each security across each multiple ie. 9 multiples for each stock. Further historical multiple data for years preceding 2018 was available, however we chose not to go back further than this in order to mitigate the poor and often incomplete level of ESG data pre-2018. Given the prevalence of ESG investing within the last three years many companies have started to provide more detailed disclosure on their business and operations, and report this to third party data analytics providers as well as investors more generally. As such, we felt that assessing our universe across the last three years would give a more accurate and complete representation of the ESG credentials of our investment universe.

For each multiple/ratio we considered the nature of both the numerator and denominator to arrive at a representative multiple for each year. For example, for the Price to Earnings ratio we felt it was not accurate to take one particular share price across the year for the numerator and instead calculated an average share price for the calendar year period and divided this by the EPS for the same calendar year period. The same process was used for Enterprise Value in the remaining two multiples where we took an average EV for the calendar year and divided this by both sales and EBITDA for the same calendar year period. This gave us an average calendar year valuation multiple for each security. This approach mitigated the impact of sharp share price and EV movements during a calendar year such as occurred in 2020 when markets dropped considerably on the news of Covid-19 related lockdowns and rebounded sharply in to the end of CY2020. In addition, some multiples were excluded once calculated due to extremely high values often of several thousand. This prevented extreme value anomalies disproportionately affecting results. Data was sourced from Bloomberg.

We acknowledge the look-ahead bias that can come into the study at this point given the method of multiple construction described above. To try to avoid this we also ran two versions of the model using more traditional trailing and forward multiples. To achieve this for trailing multiples, we took numerator values (stock price and enterprise value) on the day that full year earnings were released for the previous year i.e. the day in 2019 that full earnings were announced for 2018 and divided them by the earnings/sales/EBITDA in the denominator. We carried out the same process but using forward multiples. The rationale for these two model versions was to aim to remove look-ahead bias by using a numerator that fully reflected the market view of full year earnings at that point in time.

As mentioned, there was an inherent difficulty in this method given the Covid-19 pandemic. Share prices and enterprise values at the beginning of 2020 caused calculated multiples to be erratic, considerably away from historical values of the stock multiples, and as such an unreliable data set with which to run our analysis. As such we chose to remain with our multiple construction approach outline above. In future iterations of this study, we would like to use forward multiples where possible, given this is the most common method of valuing technology companies. As we add further years of data to the study going forward the anomalous year of 2020 should become less prominent.

Analysis – 2 Approaches

In analysing the constructed data set we took two main approaches. First, we examined the entire universe as a whole (ie. one single bucket of technology companies), and secondly we divided the universe into 20 separate 'buckets' of similar companies in an attempt to isolate ESG as a factor and control for common factors such as company size, growth, quality etc. The details of these two approaches are described below.

### 1. Entire Universe Analysis

With our prepared data set we took our stock universe and ranked them using our proprietary ESG score (described in section 'ESG Scoring') from best to worst. This resulted in a range of scores (where the lower the score the better) of 173 up to 533. We split the universe at the mid-point to give two halves containing the top ESG companies in one half and the not so strong ESG companies in the other. Using the valuation multiples data we had collected over the three-year period, we were then able to compare valuations for our companies to see whether the top half of stronger ESG companies would receive, on average, a higher valuation from the market over time.

In addition to the above, a second analysis was run with the entire universe but split geographically. Each company was designated to its continent and each continent was then split, as above, in half by ESG score. The valuation multiples of each half were analysed and the percentage premium (or discount) given to the high scoring ESG companies was calculated.

2. Bucketing Analysis

While carrying out the entire universe analysis approach, we were cognisant that it is an oversimplification to assume that any differences in valuation seen from simply plotting the two halves of our universe in one single bucket is down to ESG alone. As discussed in the literature review there are many factors that can influence the multiple given by the market to any given company. This can include technology sub-sector, company maturity, growth rates, quality, margin structure, net debt etc. As such, we aimed to take our universe and split it into several buckets with the aim to group similar companies with similar characteristics before performing our analysis. The bucketing process is represented in Fig. 3 and described in further detail below.

Fig. 3: Bucketing Process
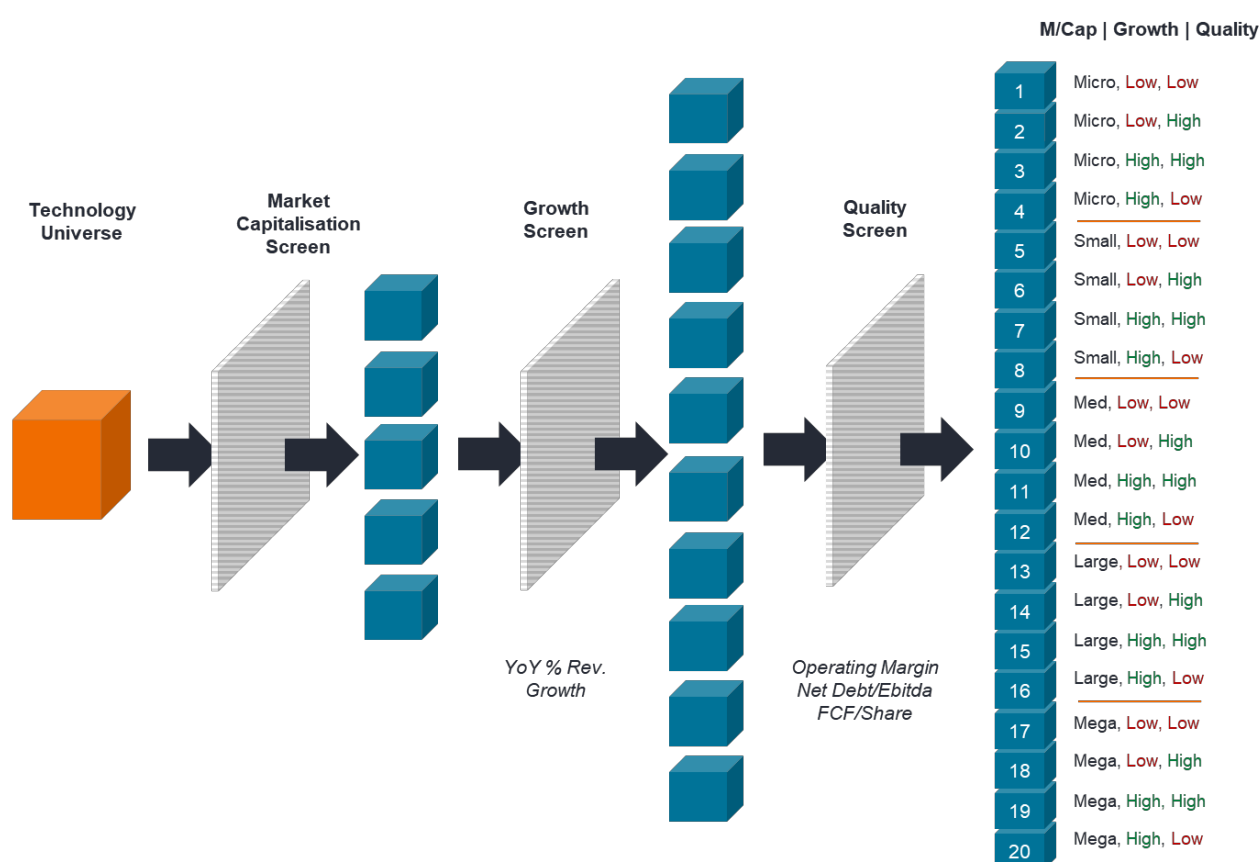
As illustrated in Fig. 3 we split our universe in to 20 separate buckets based on three main criteria; market capitalisation, growth, and quality. This was to attempt to control for the influence of these key factors on valuation and to ensure we were comparing like-for-like. For our market capitalisation screen we defined five ranges to discriminate and these are shown in the table below.

|	Market Capitalisation Range ($bn)	
Micro Cap	0	2.49
Small Cap	2.5	4.99
Medium Cap	5	24.9
Large Cap	25	249.9
Mega Cap	250	10000

For growth we looked at YoY % revenue growth for seven consecutive years ranging from 2015/2016 to 2021/2022. (N.B. the final year 2021/2022 is consensus best estimates). Within each year we calculated the median (given data positive skew) YoY revenue growth for the universe and compared each individual company to this value. If the company was above the median it received a 'High' score for that year, and if it was below the median it received a 'Low' score for that year. Finally, the number of 'High' and 'Low' scores for each of the seven years for each company was summed up and companies with four or more 'High' scores were designated as high growth companies. The rest were designated as low growth companies. Note that these designations are relative to the technology universe used in this study and not necessarily the wider market. This growth screen split each of our five market cap buckets into two, giving ten buckets at this stage of the process.

For our quality screen, we used three individual metrics to assess quality – Net Debt/EBITDA, Operating Margin, and FCF/Share. We chose several metrics here to account for the different margin structures of businesses operating in various technology sub-sectors, and to ensure a robust as possible screening process for our final buckets. The process for each metric was carried out in a similar fashion to the growth screening process. For each of the three metrics we looked at five years' worth of data from 2015 to 2019. Within each metric and each year, the individual company score was compared to the median of the peer group for that same metric and year, and each company was then given a 'High' or 'Low' score if it was above or below the median for that particular year. An overall 'High' or 'Low' score was then assigned for each metric across all five years. Finally, these overall scores for each metric were compounded to give a final High/Low quality rating for each security (Fig. 4). This quality screen split each of the ten growth screened buckets into two, giving a final count of 20 buckets as per the flow chart (Fig. 3). The distribution of companies across the buckets is illustrated in Fig. 5. Note that bucket 17 contains no companies.

### Fig. 4: Market Cap, Growth and Quality Screen Scores

BUCKET SUMMARY

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
M/Cap	Micro	Micro	Micro	Micro	Small	Small	Small	Small	Medium	Medium	Medium	Medium	Large	Large	Large	Large	Mega	Mega	Mega	Mega
Growth	Low	Low	High	High	Low	Low	High	High	Low	Low	High	High	Low	Low	High	High	Low	Low	High	High
Quality	Low	High	High	Low	Low	High	High	Low	Low	High	High	Low	Low	High	High	Low	Low	High	High	Low

Fig. 5: Distribution of Buckets across Companies
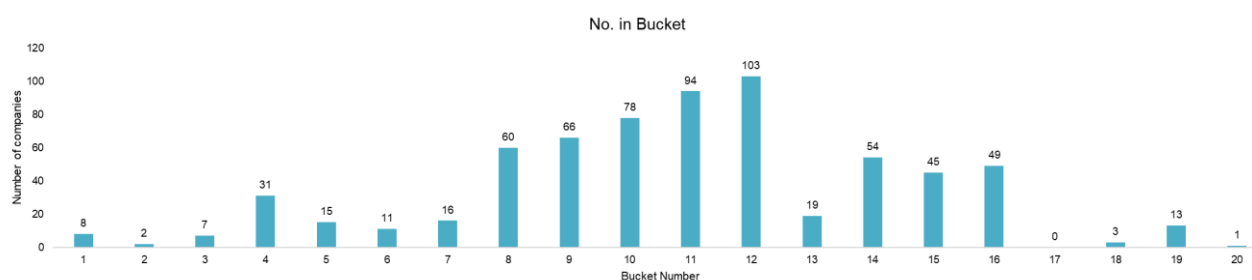
Source: Janus Henderson Investors, as at 31 December 2021.

In order to sense check the bucketing process we calculated how many times more or less each company's YoY % revenue growth was above or below the peer group average. We also did the same for FCF/share as one of our quality measures. This gave us two multiples for each company that we could plot to quality control the bucketing process. For example, if the average revenue growth for a company across 2015-2019 was 10%, and the average for the peer group was 5% the company would score a 2x multiple on growth. We plotted these on a scatter chart with quality on the x-axis and growth on the y-axis. The bubble size represents the market capitalisation. A chart for the medium cap. buckets (numbers 9-12 inclusive) is shown in Fig 6.

Fig. 6: Medium cap buckets

Medium Caps *(Buckets 9 -12)*
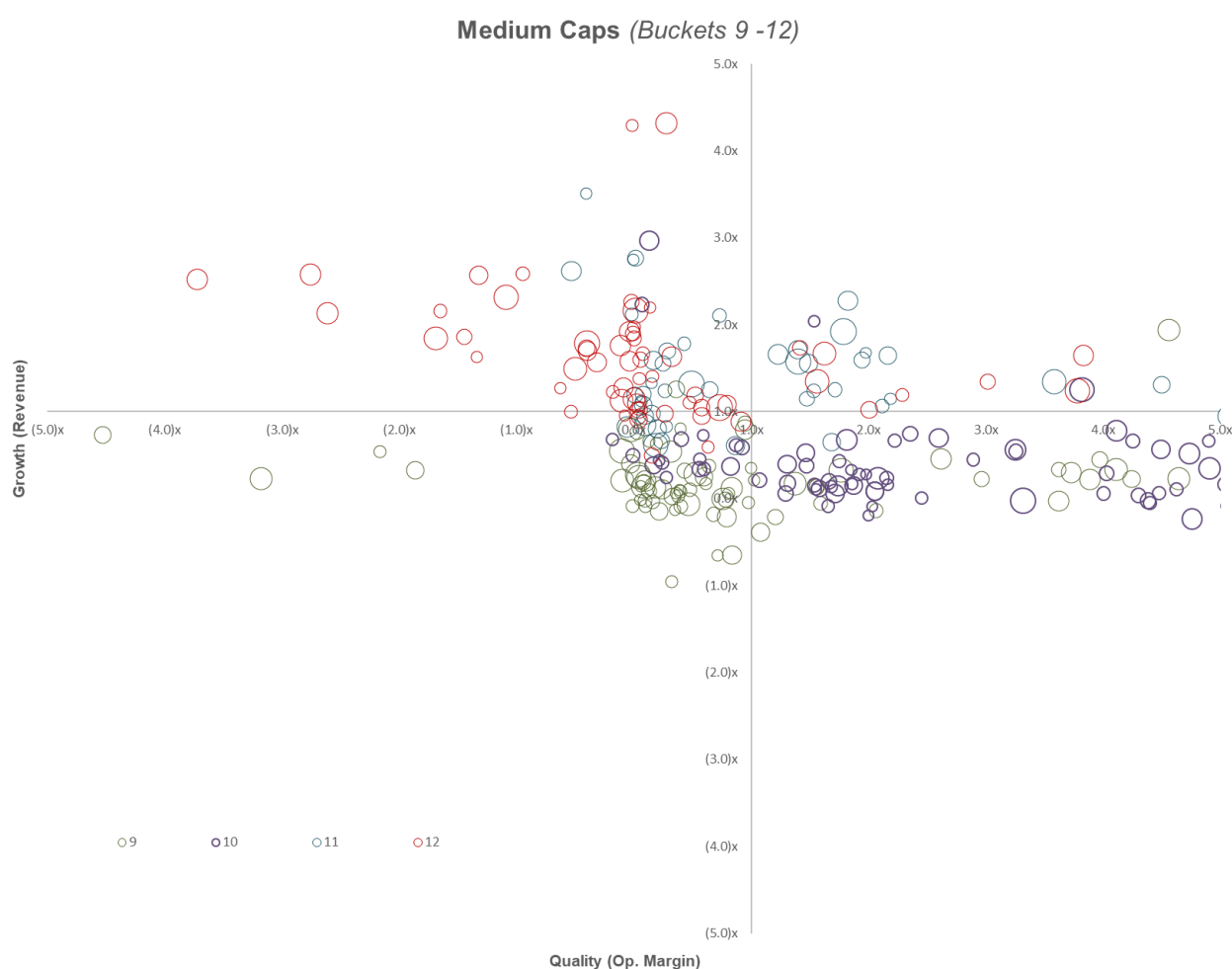
As can be seen from Fig. 6, the four buckets sit largely within their respective quadrants; those sitting in the the top right quadrant indicates higher growth and higher quality, and towards the bottom left is lower growth and lower quality. It is vital to note that not all data points will sit in the correct quadrant as the chart was constructed using *average* growth and quality metrics vs. *average* peer group metrics. However, the purpose of the QC was to visually inspect that the bucketing process was robust enough to carry out the further analysis and that like for like companies had been effectively separated into the correct buckets as far as they could be.

In addition to the QC process above, we reviewed all buckets individually to manually adjust for any companies that for one reason or another had not been sorted into the correct bucket. For example, on our initial bucketing two companies screened in the high growth & low-quality bucket number 20 – these were Tesla and Amazon. Tesla scored convincingly high on growth and screened low quality across all three metrics of Net Debt/EBITDA, Operating Margin and FCF/share. As such we were comfortable leaving Tesla in bucket 20. Amazon again unsurprisingly scored high on our growth screen, but somewhat surprisingly scored overall low quality. On closer inspection we found that on Net Debt/EBITDA it scored 'Low' vs the peer group for two out of five years and scored 'Low' on Operating Margin for all five years. However, the company scored 'high' across every year tested for FCF/Share. Given that Amazon has a very diverse business with significant Operating Margin variation across verticals, a relentless focus on FCF/share and is a mature business we manually reclassified Amazon to 'high' quality and as such it moved in to bucket 19. Note that this left only company in bucket 20 and as such we were unable to produce results for a bucket which contained only one.

RESULTS

Entire Universe Results

The results for the entire universe analysis are shown below for Price to Earnings, Enterprise Value to Sales, and Enterprise Value to EBITDA in Figures 7, 8 and 9 respectively.
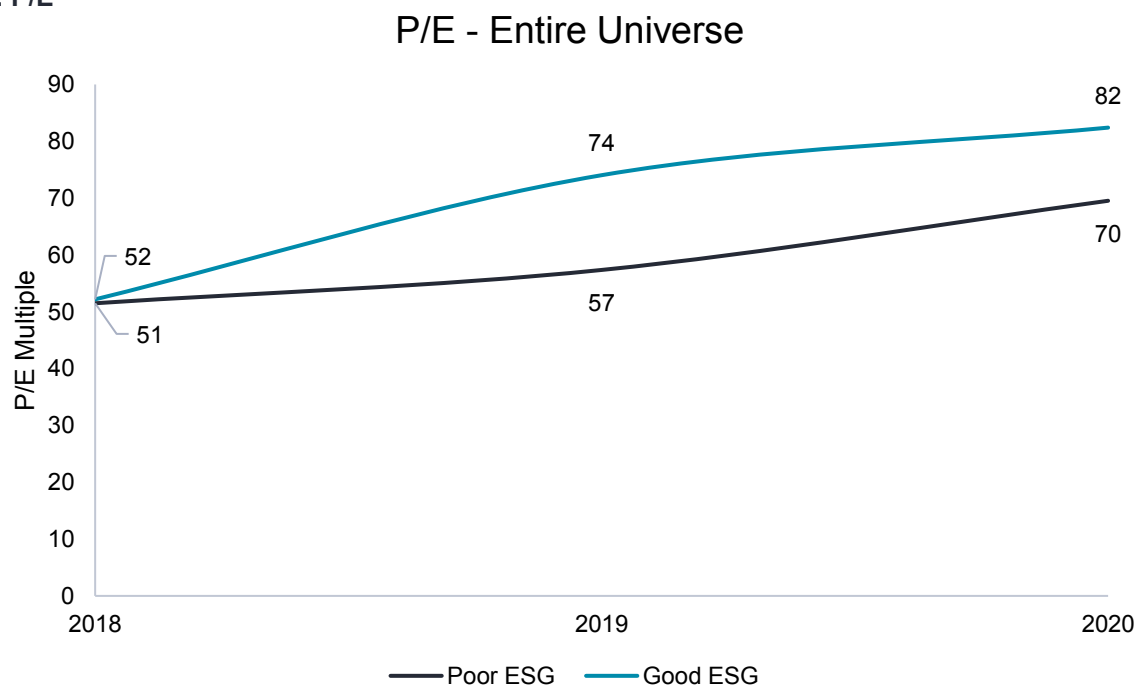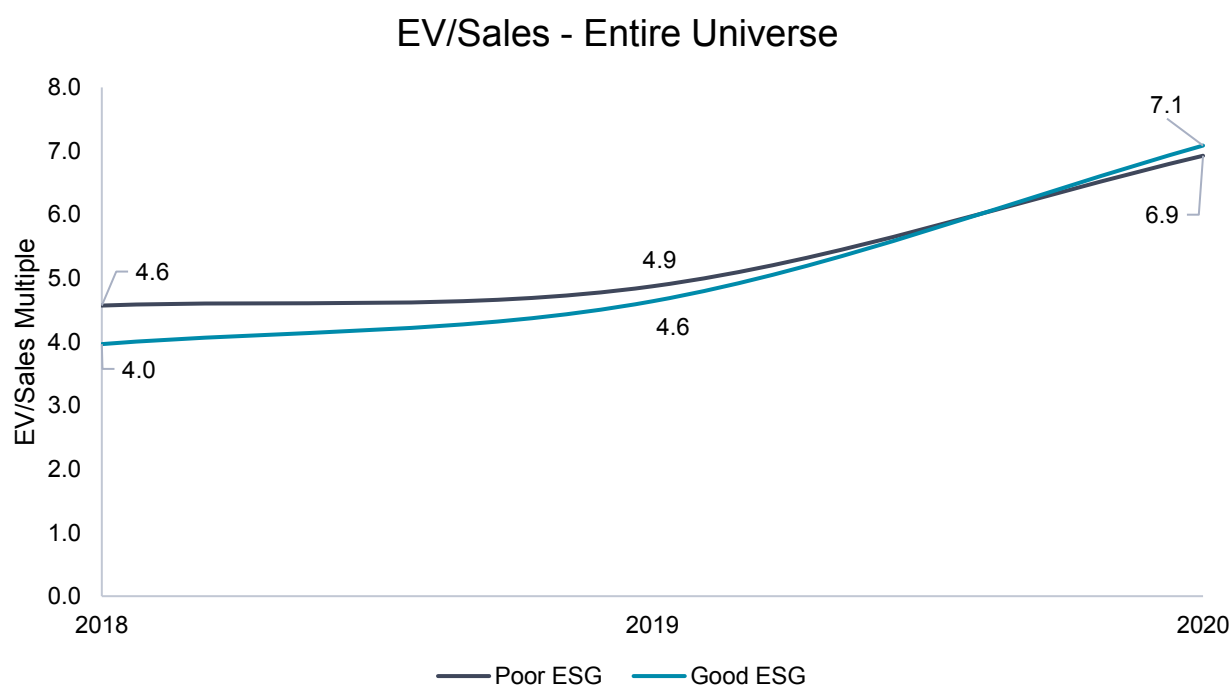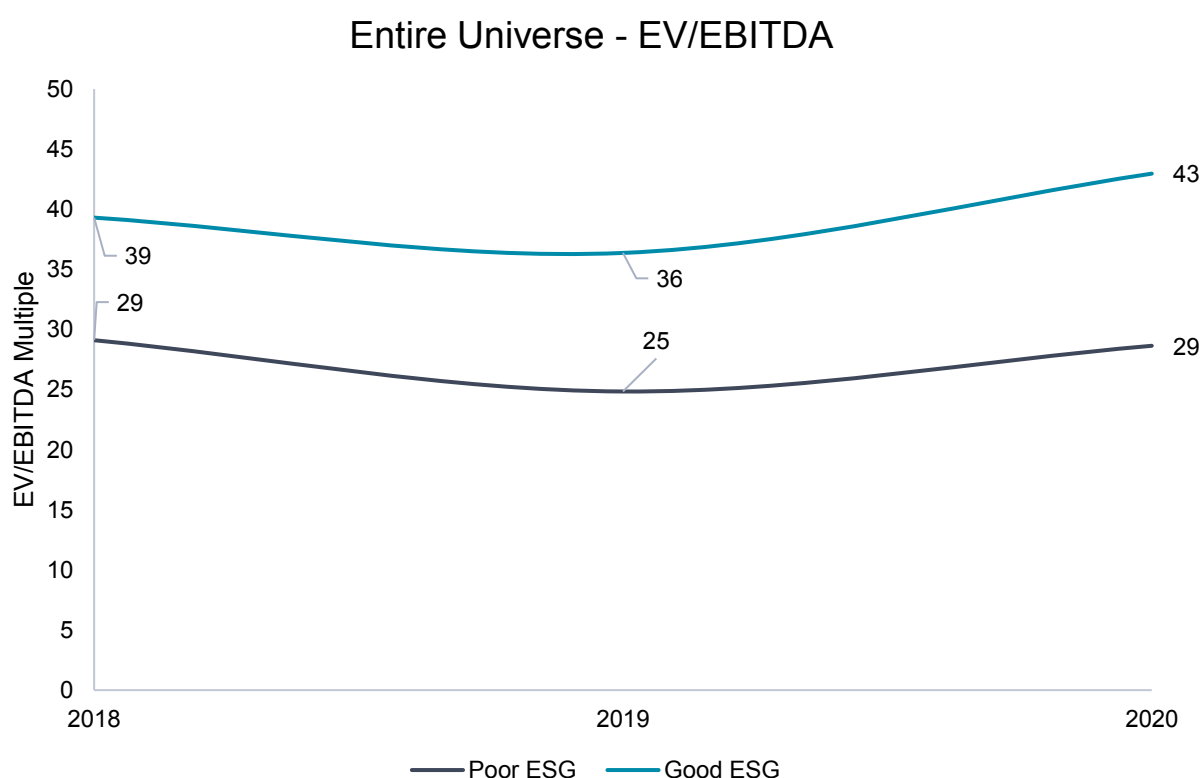
Fig. 7: P/E

P/E - Entire Universe

Fig. 8: EV/Sales

EV/Sales - Entire Universe

Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021.

Fig. 9: EV/EBITDA

Entire Universe - EV/EBITDA

Figures 7-9 depciting the entire universe analysis results show the average multiples for 2018, 2019 and 2020 for each half of the entire universe single bucket split by ESG score. It is clear that across all years for P/E and EV/EBITDA the top half of the universe, ie. those companies which score highly in terms of ESG, receive a higher average multiple than the poorer scoring companies. For EV/Sales we see the same result for 2020, but not for 2018 or 2019 where the average of EV/Sales multiples for the low scoring ESG companies is marginally larger than the higher scoring companies but 0.3 – 0.6x.

In addition to the results above, the entire universe was also analysed by geography using the same three multiples and the results are shown in figures 10, 11 and 12. The chart displays the percentage premium in each region given to the higher ESG scoring companies. For example, in Asia in 2020 the higher scoring ESG companies received an on average premium of +36% versus the lower scoring companies. Within this analysis the majority of companies fell in the Asia, Europe, and North America categories (333, 106 and 273 companies respectively). As such, the results for these categories should be regarded as more robust than the other regions, which all had fewer than 15 companies.

Both Europe and North America, and indeed South America, saw sustained increases across the three years of data in the premiums given to higher scoring ESG companies with respect to the P/E ratio. Overall, a clear trend is seen from 2018 to 2020 as premiums widened, and all regions received a valuation premium in 2020.

Fig. 10: P/E Premium by Region

Percentage Premium on P/E
(given for 'Good ESG' companies by region)
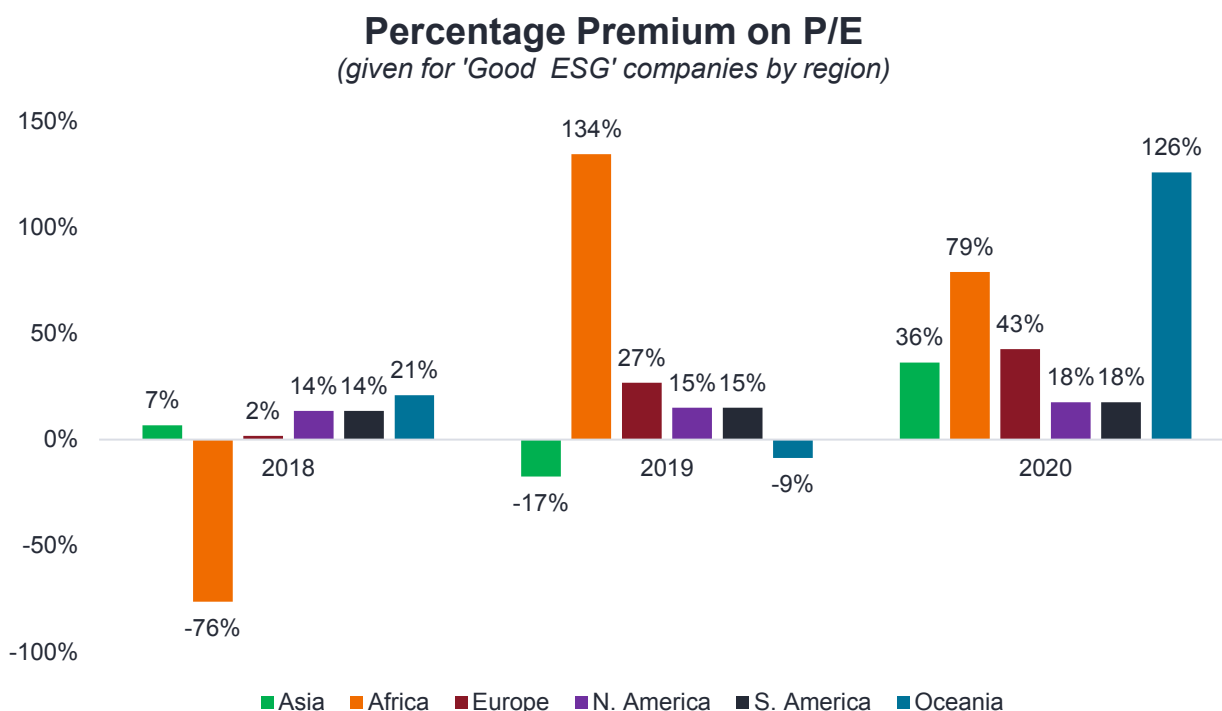
Fig. 11: EV/Sales Premium by Region

Percentage Premium on EV/Sales
(given for 'Good ESG' companies by region)
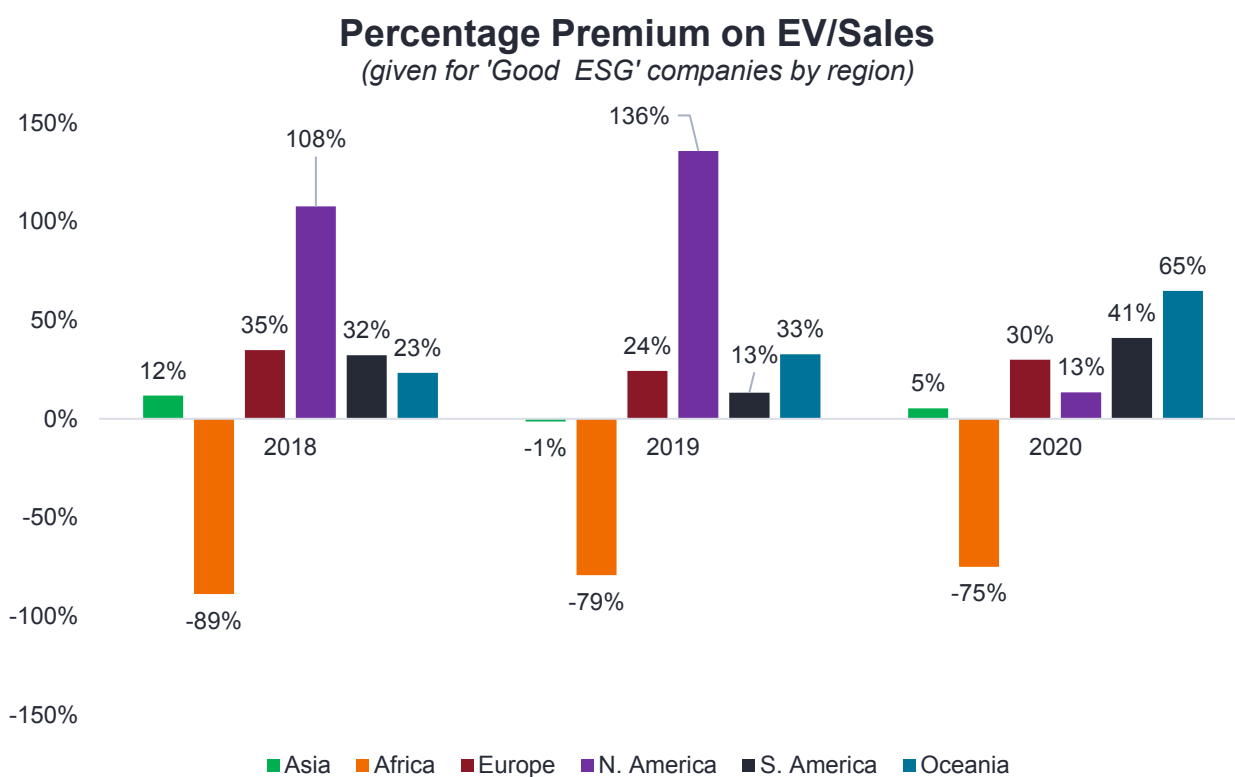
Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021.

Fig. 12: EV/EBITDA Premium by Region

Percentage Premium on EV/EBITDA
(given for 'Good ESG' companies by region)

Legend: ■ Asia ■ Africa ■ Europe ■ N. America ■ S. America ■ Oceania

2018 values: Asia -3%, Africa -15%, Europe 9%, N. America -11%, S. America 69%, Oceania -28%

2019 values: Asia 49%, Africa 29%, Europe -62%, N. America -44%, S. America 99%, Oceania -16%

2020 values: Asia 76%, Africa 67%, Europe 49%, N. America 9%, S. America 105%, Oceania 20%
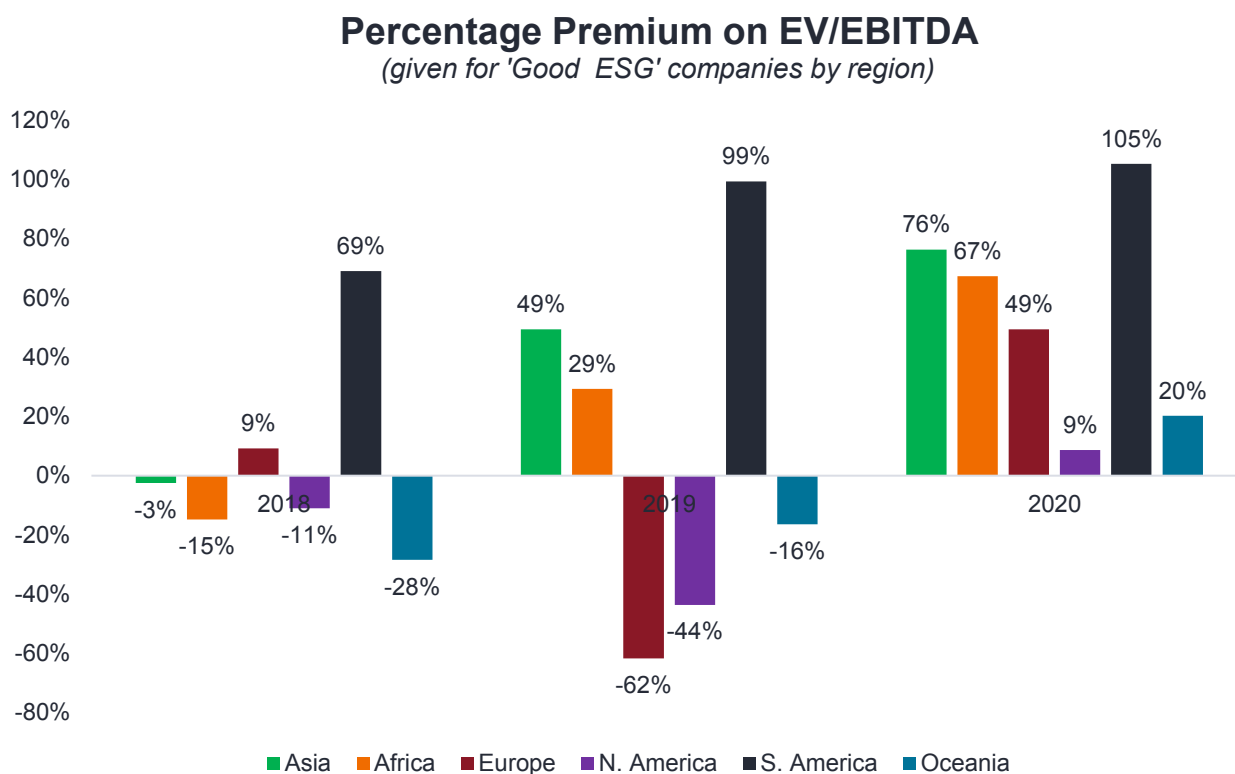
Bucketing Results

The results for the bucketed companies are shown below. An individual bucket example is displayed for bucket numbers 12 & 10, followed by overall summary results for all 20 buckets.

1. Bucket 12 Example

Bucket 12 contains 101 medium-sized companies, defined in this study as having market capitalisations of between $5 and $25bn. The characteristics of the bucket are high growth and low quality.

Bucket 12 - P/E

Bucket 12 - EV/Sales
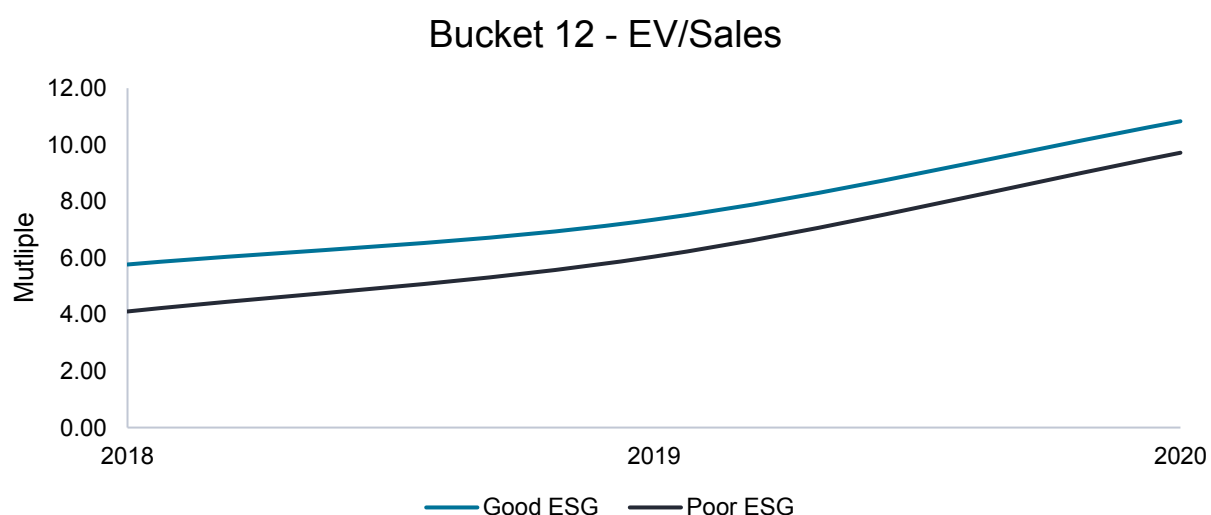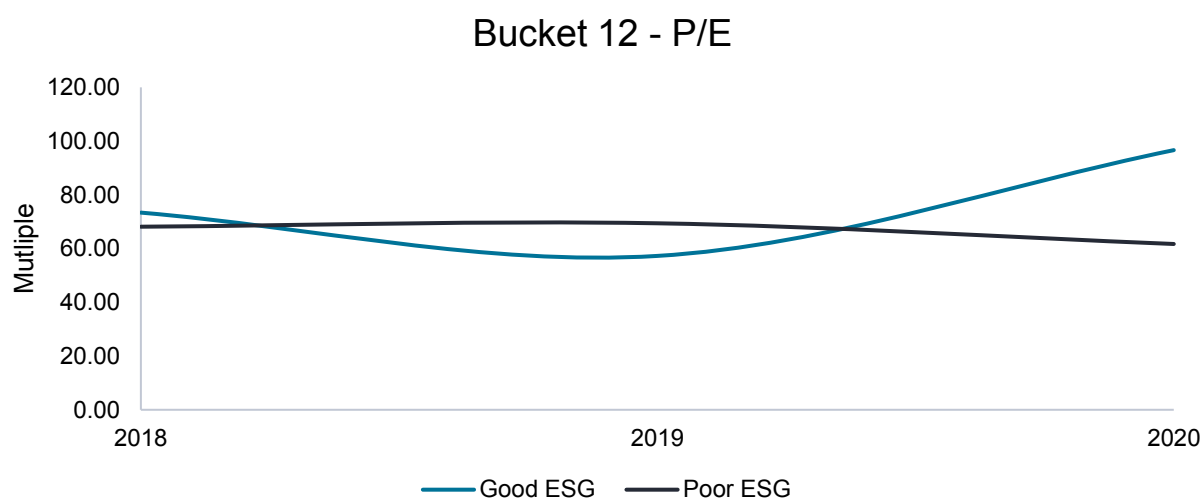
Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021.

Bucket 12 - EV/EBITDA

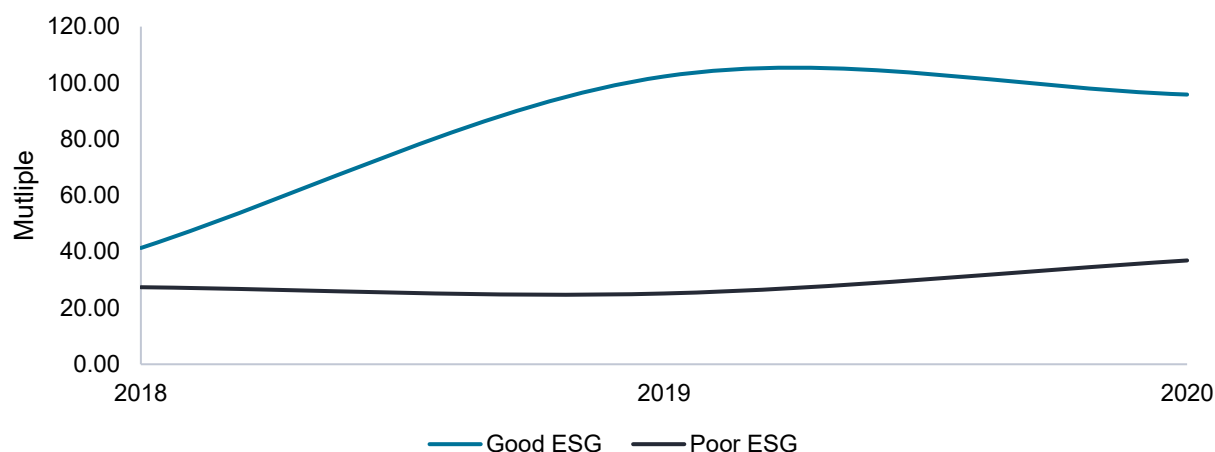Similar to the entire universe, bucket 12 is also a strong indicator of good ESG companies receiving higher valuations on average from the market than lower scoring companies in our analysis. It is important to note again at this stage that the multiples within this study are for technology companies which have historically seen considerably higher multiples than the market as a whole. As such, given bucket 12 is classified as high growth, relative to the wider market many of these companies would be considered hyper growth when purely assessing the company on fundamentals or absolute valuation multiple numbers. Furthermore, we must also remember that the multiples used in this analysis are averages over each calendar year.

2. Bucket 10 Example

Bucket 10 contains 78 medium companies, defined in this study as having market capitalisations of between $5 and $25bn. The characteristics of the bucket are low growth and high quality. Within this bucket only one out the nine multiples shows a premium given to higher ESG companies. This example illustrates the variation seen across each bucket and indicates how assessing across a variety of company sizes, quality and growth metrics are important to unpick possible trends in the data.

Bucket 10 - P/E

Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021.

Bucket 10 - EV/Sales
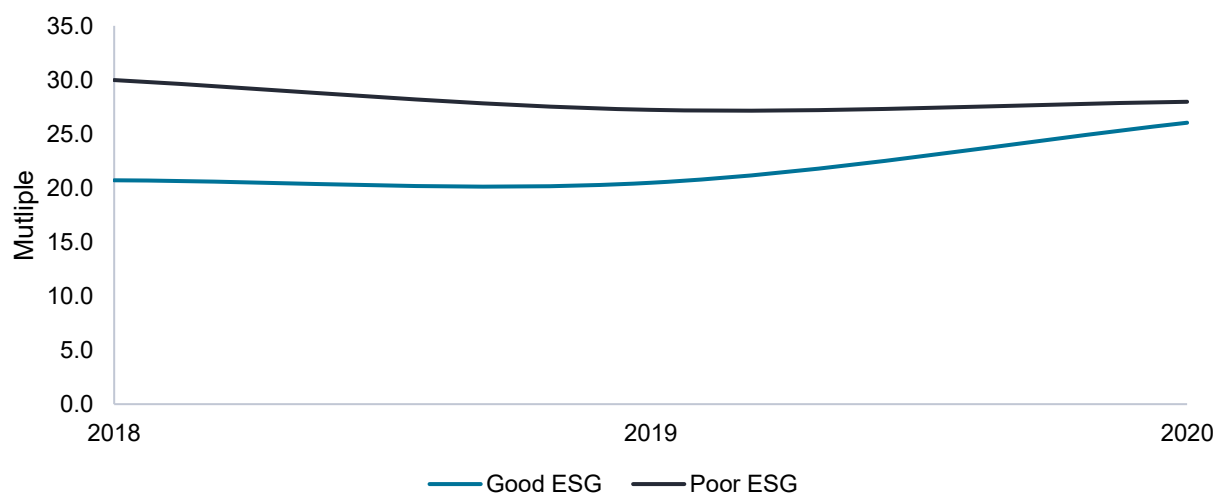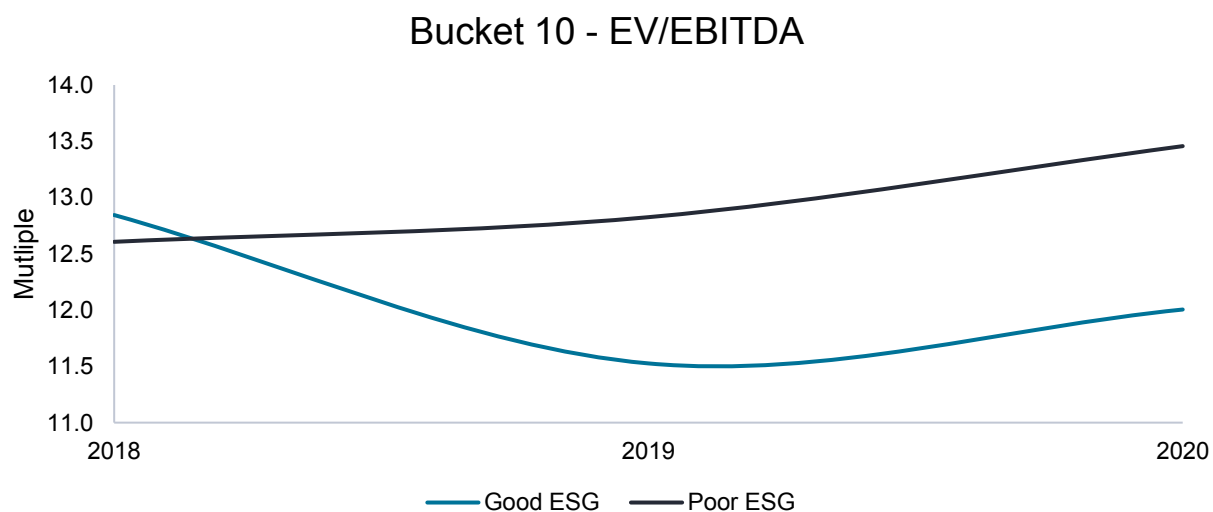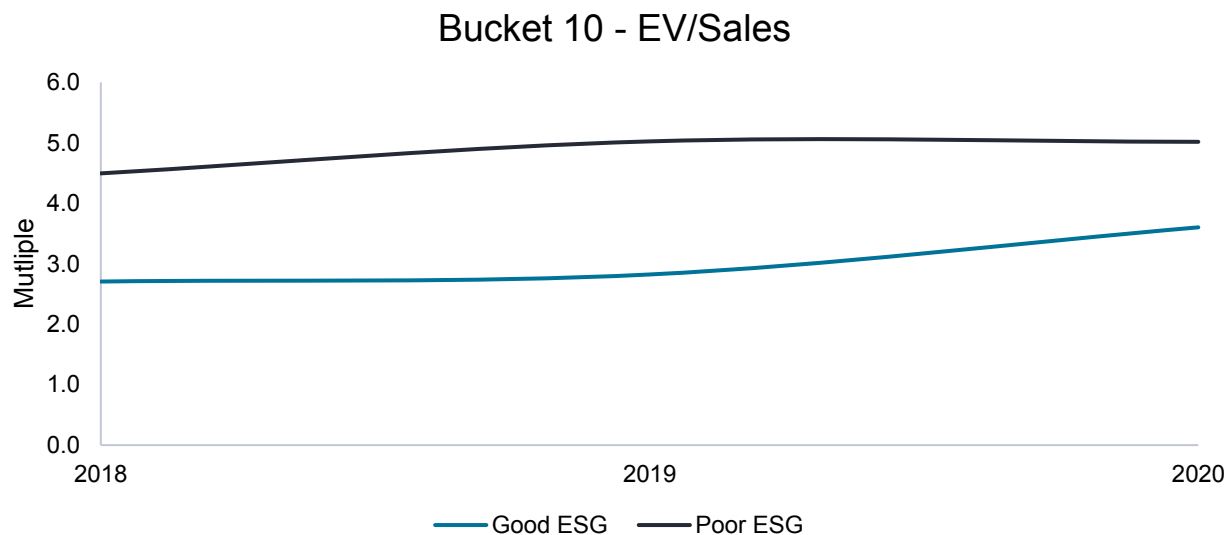
Bucket 10 - EV/EBITDA

Despite bucket 10 showing poor results, the difference between the high and low ESG halves of the bucket in terms of P/E is 2.0x – 10x and only 1.5x to 0.2x with respect to EV/EBITDA. Therefore, the results were very marginal in this bucket.

3. All Bucket Results

M/Cap	Growth	Quality	BUCKET	PREMIUM HEAT MAP									% Yes
				P/E			EV/Sales			EV/EBITDA			
				2018	2019	2020	2018	2019	2020	2018	2019	2020	
Micro	Low	Low	1	Yes	No	No	No	No	No	No	No	Yes	22%
Micro	Low	High	2	No	No	No	No	Yes	Yes	No	No	No	22%
Micro	High	High	3	No	Yes	Yes	No	No	No	No	Yes	No	33%
Micro	High	Low	4	Yes	No	No	No	No	No	Yes	Yes	Yes	44%
Small	Low	Low	5	No	Yes	Yes	No	No	No	Yes	Yes	Yes	56%
Small	Low	High	6	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	89%
Small	High	High	7	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	89%
Small	High	Low	8	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	89%
Medium	Low	Low	9	No	Yes	Yes	No	No	No	Yes	Yes	No	44%
Medium	Low	High	10	No	No	No	No	No	No	Yes	No	No	11%
Medium	High	High	11	YNo	Yes	YNo	Yes	Yes	Yes	Yes	Yes	Yes	78%
Medium	High	Low	12	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	89%
Large	Low	Low	13	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	89%
Large	Low	High	14	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100%
Large	High	High	15	No	Yes	Yes	No	No	No	Yes	No	Yes	44%
Large	High	Low	16	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	67%
Mega	Low	Low	17	-	-	-	-	-	-	-	-	-	
Mega	Low	High	18	No	No	No	Yes	Yes	Yes	No	No	No	33%
Mega	High	High	19	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	78%
Mega	High	Low	20	-	-	-	-	-	-	-	-	-	

Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021.

The heat map above summarises the results across all 20 buckets using our proprietary ESG scoring system. Where the heat map is green, we found that the high scoring ESG companies in that bucket, for that multiple, in that year had a premium attached to them by the market compared to the lower scoring companies. For example, as we saw across bucket 12, premiums were given almost across the board hence the whole row except one is green in the heat map. Note that bucket 17 is empty and hence no colour is given for that bucket. Bucket 20 only contains one company and so that row also remains empty.

In summary, 180 multiples were tested however, for the purposes of calculations this was reduced to 162 to account for the empty tests in bucket 17 and 20. Across these 162 multiples 60% of them saw a premium given to the higher ESG companies. In addition, across the Enterprise Value to EBITDA multiple 72% saw a premium. A summary of these figures is provided in Fig. 13.

Fig. 13

	All Multiples	P/E	EV/Sales	EV/EBITDA
Percentage of multiples given premium:	**60%**	54%	54%	72%

Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021.

In addition to running our analysis using our own constructed ESG score, we also ran the model using ESG scores from two external third party ESG analytics providers (1) and (2). The results of the analysis are summarised in Fig. 14 where a similar pattern of results was observed across both sets of third party ESG scores. As per the table above, the rows summarise what percentage of the 20 buckets tested showed an ESG premium given to the good ESG companies. So for example, using the scores from provider (1) 67% of the 20 buckets showed a premium given to strong ESG companies across the three years studied on a Price to Earnings ratio basis. The results from our own internal ESG scores (JHI) are shown again for ease of comparison.

Fig. 14

	All Multiples	P/E	EV/Sales	EV/EBITDA
Percentage of multiples given premium - **JHI**	**60%**	54%	54%	72%
Provider 1	**68%**	67%	86%	53%
Provider 2	**54%**	49%	51%	63%

DISCUSSION

The results of the study across both the entire universe study and the bucketed study appear to evidence that the stronger ranked ESG companies within the universe have received higher multiples from the market as a result. To be exact, in our analysis we have shown that 60% of companies were awarded this market premium across the three chosen valuation multiples and the three years over which the study was carried out. In addition, a similar pattern was observed utilising third-party data provider ESG scores.

On a first view it is prudent to consider the variation between the results for each valuation multiple used. As can be seen from Fig. 14, 72% saw premiums for EV/EBITDA compared to only 54% for the EV to Sales ratio. However, the lower correlation on EV/Sales is drive particularly by the poor performance on this measure for micro caps. We view this as reflective of immature disclosure for this segment across both financial and non-financial metrics.

Many technology companies are inherently disruptive, innovative, and rapidly growing and the rise of start-up culture has led to the appearance of many young companies in the public markets. Many nascent tech companies do not yet have positive Earnings per Share (EPS) figures or often positive EBITDA. As a result, relative valuation methodologies often rely on ratios such as EV/Sales as the only available valuation tool. As these companies are usually immature but rapidly growing, relatively high multiples are often attached to them by investors on the expectation of future growth and being in the early stage of the hype cycle. Companies who are newer to the public markets are less likely to have a developed governance structure, more likely to be founder-led, and are less likely to disclose on environmental or social metrics. Equally, financial metrics are also more likely to be less well developed and hence the score on this measure is more reflective of the lack of data than lack of correlation. In addition, as discussed below using bucket 9 as an example, often the quantum between each half of the bucket with respect to EV/Sales average multiples is very small usually <1x. As such, it does not take too many companies with elevated multiples to skew the trend in EV/Sales particularly in buckets with few companies in.

Fig. 15

	P/E	EV/Sales	EV/EBITDA
Micro	33%	17%	42%
Small	75%	67%	100%
Medium	42%	50%	75%
Large	83%	58%	83%

Fig. 15 shows the distribution across the multiples and the market cap buckets for the study. Moving from left to right on the table there is a moderate but noticeable increase in percentage premiums across from P/E to EV/EBITDA.

Fig. 16

	All Multiples
Micro	31%
Small	81%
Medium	56%
Large	75%
Mega	56%

As well as variation across the valuation multiples used there is a pattern, albeit somewhat less clear, when we look at the results in terms of market capitalisation (Fig 16). The larger the market capitalisation of the company the more likely they are to receive a premium from the market for being a high scoring ESG company. It is key to bear in mind the bucket sizes when looking at this where most companies are in the small/medium/large buckets and so it is likely those results are more reliable. A further discussion on mega caps is provided later in this paper.

In order to understand this, we need to consider how ESG scores are constructed, both in this study and from third-party data providers. Most are focused on evaluating the level of disclosure from each company across Environmental, Social and Governance factors. So for example, does a company disclose their carbon emissions? Does a company have strong board diversity and compensation arrangements? In many cases however, companies simply do not disclose this information, but not necessarily because they do not comply with strict internal ESG principles, but rather because they do not have the internal infrastructure or reporting systems to accurately and timely disclose the information to third-party ESG data providers. As such, smaller companies who are yet to produce sustainability reports or outline where they comply with the UN Sustainable Development Goals for example, often fall foul of oversimplified ESG scores. Large incumbent companies have the ability and resources to ensure that they disclose all relevant information and so often score highly on basic ESG scoring systems. This could partly explain the increase in premiums we saw from the results of the study as we moved from smaller companies to larger companies.

As well as company size, we also looked to control for company growth and quality in our analysis in order to attempt to effectively isolate the 'ESG factor' for each business. Fig. 17 summarises the percentage premiums given for good ESG companies arranged by the four bucket categories following the screening process (Low/Low, Low/High, High/High, High/Low) and we saw that high growth and low-quality companies with good ESG scores received the most valuation premiums. In contrast, for low growth and high-quality companies only 49% received a premium. The other two categories remain in the middle.

Fig. 17

Growth	Quality	
Low	Low	**53%**
Low	High	**51%**
High	High	**64%**
High	Low	**72%**

These results are perhaps not surprising when we consider how investors and the market assign multiples to public equities. On a basic level, investors are prepared to pay more for higher growth companies on the basis of the promise of future earnings power and rapid growth and therefore attach a higher multiple to their valuations. Therefore, if a company scores highly on ESG and fits into one of the buckets screened as high growth, we are likely to see elevated valuations within those buckets and a higher percentage overall. However, it is worth noting that the low-growth low-quality buckets have a similar percentage to high-growth high-quality and as such we do not believe we can see a meaningful trend in this particular results table.

Our analysis shows that the premium awarded for higher ESG ratings is not necessarily dependent on growth. A popular misconception is that for high growth stocks on high multiples, ESG rating would be less relevant. We show here that for high growth companies, the relationship is even stronger. Where the relationship is weaker was for low growth-high quality companies in technology, but when we refer back to the premium heat map (3. All Bucket Results) we can see that this is only the case for EV/Sales. For this bucket of low growth-high quality names, that is to say more mature companies, the most relevant metrics are P/E and EV/EBITDA.

For an example it is perhaps useful to look at Nokia (bucket 9) and Ericsson (bucket 13) which are both in the communications equipment sector with a similar expected growth rate. Both screen into low growth-low quality buckets and differ only in market cap with Ericsson c.2x larger than Nokia. Ericsson is currently on the United Nations Global Compact (UNGC) Watchlist and has a poorer ESG score than Nokia. Ericsson trades on a forward P/E multiple of 12.4x while Nokia trades on 14.8x (both using consensus EPS estimates). We do not claim that this can be entirely attributed to the ESG differential but we do view this as an example of where the ESG scoring is highly relevant.

As well as overall trends observed in the results, it is useful also to look at results on an individual bucket basis. Two examples (bucket 10 and 12) are presented earlier in this report, however buckets 2 and 9 are generally unsuccessful with respect to testing our hypothesis. Bucket 2 saw a premium given to the higher scoring ESG companies in only two out of the nine multiples tested, and bucket 9 in only four out of nine.

Although bucket 9 (*Medium Cap, Low Growth, Low Quality*) on an initial view does little to support our hypothesis, the results do warrant a closer inspection. There are 66 companies in our universe that screen into this bucket and the degree to which the poorer ESG multiples exceed the good ESG companies is relatively small (Fig. 18). For example, across the EV/Sales multiple in 2018 and 2019 the difference is c.0.5-0.6x as opposed to often double-digits seen in some other buckets.

Fig. 18

	P/E			EV/Sales			EV/EBITDA		
	2018	**2019**	**2020**	**2018**	**2019**	**2020**	**2018**	**2019**	**2020**
Good ESG	24	44	59	2.1	2.2	2.6	12.9	10.1	8.5
Poor ESG	31	27	28	2.5	2.7	3.2	8.4	8.7	9.2

Bucket 2 also performed poorly relative to the other buckets tested. This bucket contains only two companies in the micro-cap space that screened as low growth and high quality thus making the test within this

particular bucket relatively defunct. This brings up a wider issue with the bucketing process in terms of the bucket sizes. The purpose of the bucketing was to ensure we grouped companies that were like-for-like to compare similar companies. We note that a more formal and statistical sampling method from the population eg. stratified sampling, would have been appropriate to ensure an even distribution of companies in each bucket. However, with this approach we feel we would not have ended up with like-for-like companies in our buckets thus making our results less impactful. In doing this, we recognise the lack of reliability of our study in the buckets with small numbers of companies.

However, if we remove the buckets with less than ten companies in (buckets 1, 2, 3, 17,18 & 20) our overall results for all multiples increase to 69%. A further discussion on the size of buckets with respect to the mega caps is included later on. Finally, from running our analysis on a regional basis other interesting trends were unearthed although again, perhaps not unsurprising. In focusing on the regions of Europe, North America and Asia where c.97% of the companies within our universe are based, we saw a clear increase in premiums given for good ESG companies over the three years in the study period. Perhaps this was most clear in Europe where the percentage P/E premium given expanded from 2% in 2018 to 43% in 2020. Similar trends are seen in both N. America and Asia over a three-year period and on running the analysis using EV/Sales and EV/EBITDA.

It is possible that this reflects a multitude of factors:

1) At its most fundamental the volume of flows in to ESG and/or sustainable investments is a key driver for this.
2) The Covid-19 pandemic and the acceleration in global climate concerns has served only to drive capital allocators to distribute flows/funds towards green investments in considerable quantum, likely driving up valuations. Consequently, more traditional and poorer scoring ESG companies are starved of investor capital and as a result, valuations may have begun to deteriorate.
3) The developed financial markets of Europe, Asia and North America have seen considerable political and social pressures exerted on investors by clients and populations alike to ensure their invested capital is put to good use. Therefore, it is perhaps not surprising to see the percentage premiums increasing over the three-year study period.

Perhaps most importantly from this piece of analysis is the progress in ESG factors over even a three-year period appearing to have a positive effect on valuations. As discussed, ESG investing is front and centre of investment managers' thoughts and it is clear that progress and so-called ESG momentum can be seen across the continents over the study period.

Within any study there are of course limitations to the data available and the analytical techniques used to reach results. Primarily, it is worth noting that this study uses companies and securities only from the technology universe and does not take into account any other sectors. Technology companies are generally disruptive and high growth, and as such multiples within the space can appear elevated relative to other sectors.

With respect to the bucketing process, the key principle of this screening workflow was to attempt to group companies together with similar characteristics, so that when comparing the multiples of these similar companies the high or low ESG scores would be the only differentiator. This is of course a theoretical process as there are a multitude of factors that affect ESG scores for which we were not able to control. The focus on size, growth and quality we felt were the key metrics to correct for, additionally, extensive data was available for these data points.

Finally, the crux of the study and comparison between the two halves of each bucket (or the entire universe bucket) relies on the ESG score. There is of course no infallible way to calculate an 'ESG' score for any company that does not include a range of assumptions, however, we feel our internally-calculated score gives a clear representation of what we see as key influences to the ESG nature of a technology company.

Implications for the Investment Process

Given the overall trend we have seen from this study there are implications for the investment process with respect to integrating ESG into decisions to drive value. Given that using our ESG scoring methodology, companies that score well appear to achieve higher valuations it follows that incorporating this into our investment process can drive increased value for stakeholders and clients. In addition, our methodology controlled for factors such as growth and quality, and we saw premiums awarded to good ESG companies regardless of whether they were high or low growth and/or quality. As a result, the integration of our ESG method is applicable for our entire universe and not just for specific types of company, or companies of a certain size. Broadly:

- Companies with strong ESG standards are likely to have their financial performance – sales, earnings, EBITDA etc – valued more highly.

- Companies with weak ESG standards can be value traps – even with strong earnings growth – those companies are unlikely to receive full credit vs peers who demonstrate positive regard to non-financial factors.

- Effective and pro-active engagement to improve environmental, social and governance aspects of performance is likely to have a positive impact on capital returns. Owning companies that are laggards on ESG metrics is appropriate only when measurable and considered action plans to address the issues are in place.

Fig. 19
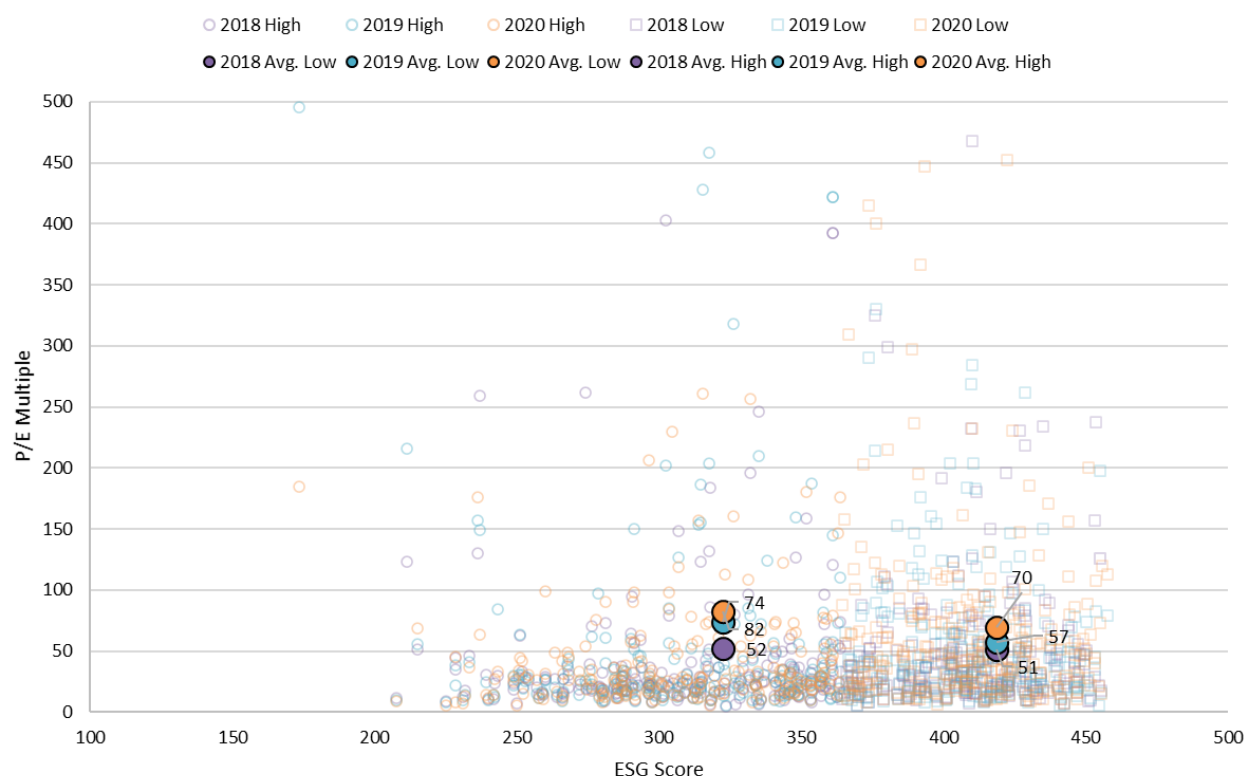
Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021.

The chart shown in Fig. 19 is worth considering in this context however, for additional colour. Each small circle (good ESG companies) and small square (poorer ESG companies) represent the P/E multiple and corresponding ESG score of every security included in the universe. It is clear that there is a range of multiples for both high and low scoring ESG companies. However, when you look at the large coloured circles on the chart, which represent the averages for each year for both high and low, we can clearly see how these sit higher on the graph ie. at a valuation premium.

Case Study Examples

For further discussion we have identified three case studies and specific examples. Firstly, we pull out two small and medium (SMID) cap pairs of companies from buckets 9 & 10, which illustrate our valuation premium thesis on a P/E basis, and then in addition we discuss some mega cap companies within our universe and also highlight an example where our overall trend does not play out. It is important to note that the results of our study are not a hard and fast rule for all technology stocks, but rather an overarching trend that we have identified and supports our rationale for concerted ESG integration into our investment process. Furthermore, the examples discussed below are individual examples only; there are a myriad of other factors that will affect the multiple, and we have tried to control for this with our bucketing process, but it is of course impossible to control for every variable.

Bucket 9 Example:

		P/E Ratio (2018 – 2020)		
Renesas Electronic Corp	**304** *(Leading Half)*	20x	56x	84x
Realtek	**423** *(Laggard Half)*	17x	21x	22x

Renesas Electronic Corp and Realtek are both companies that operate in the semiconductor space and screen into bucket 10 with Renesas screening into the leading half of the bucket and Realtek into the laggard half of the bucket. On a P/E basis it is clear that Renesas has received higher multiples from the market by a considerable amount. Here we are simply selecting two individual companies, there will be a multitude of other factors that influence the multiple but as a case study example where both companies screened into the same bucket and operate in the same sub-sector of technology, our thesis on this example holds. With respect to their ESG scores Renesas scores strongly vs. Realtek largely due to lower absolute carbon emissions and greenhouse gases (GHG) emissions on scope 1-3, with better board diversity and disclosures, and a higher percentage of renewable energy used in their operations.

Bucket 10 Example:

	JHI ESG SCORE	P/E Ratio (2018 – 2020)		
Temenos AG	**290** *(Leading Half)*	64x	60x	57x
Checkpoint Software Technology	**404** *(Laggard Half)*	21x	22x	20x

Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021. References made to individual securities should not constitute or form part of any offer or solicitation to issue, sell, subscribe or purchase, and neither should be assumed profitable. There is no guarantee that past trends will continue, or forecasts will be realised.

Temenos and Checkpoint Software Technology are both companies that operate in the software space and both screen into bucket 9. In this case, Temenos screens in the leading half of the bucket and Checkpoint in the laggard half. As per the example above, and with same caveats, again we saw a significant uplift in valuation multiple for Temenos over Checkpoint. With respect to our ESG scoring Temenos again shows lower carbon emissions and GHG emissions intensity on scope 1-3, has a carbon emissions reduction target and strong processes and compliance mechanisms to report on UN Global Compact Principles and OECD guidelines for multinational enterprises (MNEs).

Bucket 14 Example:

	JHI ESG SCORE	P/E Ratio (2018 – 2020)		
Sony	**342** *(Leading Half)*	12.9x	9.3x	14.45x
Nintendo	**458** *(Laggard Half)*	34.9x	24.5x	20.7x

Sony and Nintendo are both large, well established Japanese technology companies focused on video games. While Nintendo is a pure play video games company, the games division is also Sony's largest; both sell game console hardware and game software. Sony scores in the leading half of bucket 14 given a strong board and framework of policies and disclosures, supplemented by an annual ESG day where the CEO and senior management outline their ESG initiatives to shareholders, research analysts and the media. In contrast, Nintendo scores poorly in our scoring system due to perceived corporate governance weaknesses related to board composition and a lack of disclosure and transparency. As such, we would expect that Sony may trade at a valuation premium to Nintendo within bucket 14. However, as per the table (Bucket 14 Example) we can see that Sony has traded at a significant discount to Nintendo despite the strong ESG score. This highlights the difficulty in controlling for factors that alter the multiple. In this case, Sony being a conglomerate means it has traded at a valuation discount to the Nintendo pure play business, with many parts of the conglomerate that traditionally are lowly valued such as financial services and legacy consumer electronics likely dragging down the multiple.

Mega Cap Discussion (including bucket size):

Within the mega cap buckets (17 – 20), we observe some clear examples where the perception of ESG quality and standards has impacted on valuation. Microsoft and Apple score lowest on growth of the key mega cap companies but score strongly on ESG relative to our universe and have been awarded the highest valuations relative to their growth rates. Conversely, Facebook scores weakly on ESG within our universe and was awarded a lower valuation relative to the company's growth rate by the market.

Microsoft and Apple do not have advertising business models and as such have had fewer privacy issues to navigate in recent years. Apple previously suffered from supply chain concerns but has since significantly improved its supply chain monitoring and that has coincided with increased confidence in the sustainability of its business model. Microsoft became a UNGC signatory and has set aggressive targets to move towards a net carbon neutral future.

Over the last five years Facebook's sales growth and EBITDA growth has exceeded that of other mega caps including Microsoft, Alphabet and Apple. The margin structure of the company is also indicative of a valuation that the market may expect to be relatively higher. However, the company is also the only one among its peers to not establish alignment of ESG goals with senior management compensation and has suffered the greatest controversy risk over privacy and content moderation. The fact that Facebook has had the lowest valuation among these mega caps is not aligned by financial metrics alone, and hence we believe the valuation gap can be attributed in part to this gap on ESG standards.

Amazon's valuation is lowest relative to the others on EV/Sales. However, earnings growth and sales growth have been strong, and the PEG ratio relatively high. The company has recently introduced several climate and social pledges to employees, and it is our belief that this concerted effort could have contributed to an increase in valuation against mega cap peers.

Company	Bucket	P/E Current	EV/Sales (est. 21)	EV/EBITDA (est. 21)	5yr. Revenue CAGR	Gross Margin (est. 21)	PEG (Cur. P/E / 5yr CAGR)
Amazon	19	66.2x	4.0x	25.0x	27.6%	41.7%	2.40
Facebook	19	23.7x	7.5x	13.8x	32.9%	80.7%	0.72
Apple	18	27.0x	6.7x	19.9x	11.2%	41.8%	2.42
Microsoft	18	40.4x	13.9x	27.7x	15.6%	68.9%	2.58
Alphabet	19	27.2x	8.8x	17.3x	23.7%	68.9%	1.14

Source: Bloomberg, Janus Henderson Investors, as at 31 December 2021. References made to individual securities should not constitute or form part of any offer or solicitation to issue, sell, subscribe or purchase, and neither should be assumed profitable. There is no guarantee that past trends will continue, or forecasts will be realised.

The other mega cap which sits as an outlier to the results of our study (ie. companies with strong ESG scores tend to receive a valuation premium), is Tesla (bucket 20 – high growth, low quality). As detailed in the following 'Further Work' section, we think this is a key example of where ESG analysis differs from the analysis of impact and climate change mitigation. Static ESG quantifiable measures take less account of companies like Tesla where the business case has a positive high environmental impact but where other factors around the operations of the company and governance can offset this positive impact. We believe this highlights the advantages of a fundamental and thematic overlay to assess the positive impact of a company's activities to compliment a data-driven analysis approach to ESG valuation.

With respect to bucket 18 and the size of buckets discussed earlier, we present some of the issues here. While overall we continue to find that the relationship between ESG scores and valuation holds strong for mega cap companies, bucket 18 with high quality low growth technology names did not represent that (33%). However, in further inspection of the companies in that bucket, (Comcast, Intel and Disney) we note that the main reason for this is that Disney's multiple was significantly higher than we would have expected. We would note that over the study's time period, (which included the pandemic) Disney was in the midst of shift to a direct-to-consumer (DTC) streaming Netflix-like platform and this transition, as well as the closure of Disney parks due to Covid, resulted in depressed earnings combined with an elevated multiple as the company was believed by the market to be shifting to higher growth. The small sample size obviously exaggerates the impact of particular dynamics at an individual company. The contrast in the other companies in the bucket with similar low growth high quality characteristics would see the relationship between ESG score and valuation premium hold.

FURTHER WORK

While the positive correlation established in this study between ESG metrics and valuation appear conclusive, it has led to additional questions and opportunities to further enhance our analysis and understanding of the role of non-financial metrics in driving stock valuation and returns.

1) Notably, there is a need to distinguish between ESG metrics that focus on how companies operate vs incorporating impact metrics that take greater account of what a company does. Tesla is a prime example where the revenue drivers could make a company inherently more ESG aligned than traditional measures may estimate. Within our investment process this is addressed by our thematic overlay, but we would look to incorporate this in a further quantitative study.

2) The concept of ESG momentum and the change function impact on company valuation. In short, are companies that are seeing the greatest improvement (or indeed greatest deceleration) in their ESG efforts rewarded by the market for that change? Which companies and regions are making the most progress and which sub sectors within technology have improved the most? Analysis of this nature has been conducted on inflections on Return on Invested Capital (ROIC) and Economic Value Added (EVA), so a logical next step would be to incorporate more dynamic attributes within EVA analysis.

3) We would also aim to repeat this study in the future using an enlarged data set with 2021 data included. Repeating the study should therefore provide us with the ability to track the valuation premium margin given to good ESG companies over time.

4) While our area of expertise is the technology sector, we believe this study could also provide additional insight into other sectors, for example healthcare and natural resources. We anticipate similar results given the increasing ESG focus across the investment industry, with the results potentially reinforced or clearer in sectors such as energy/natural resources.
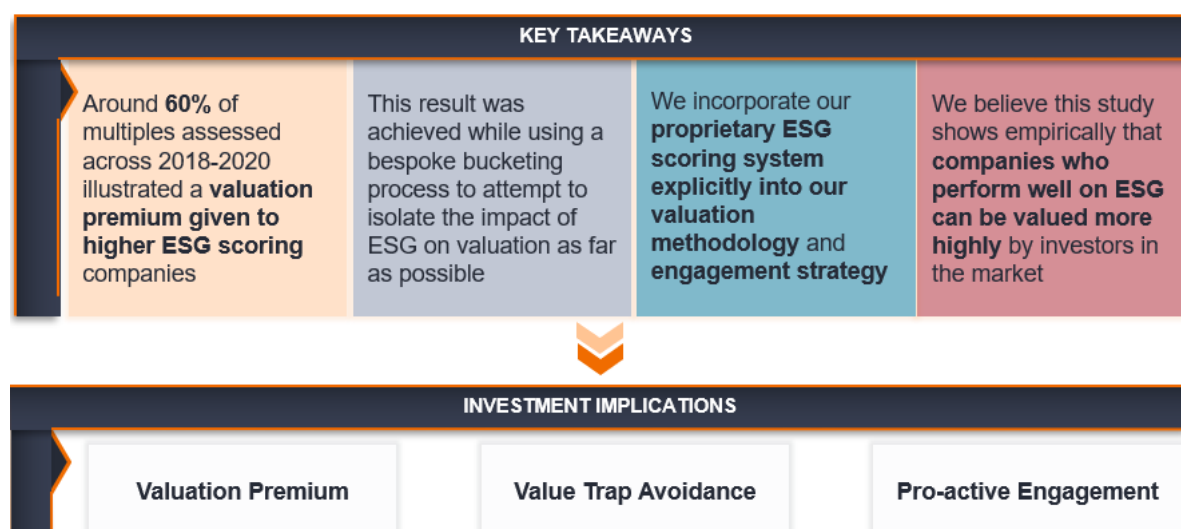
This research piece serves as a foundation upon which the team intends to build an ongoing body of empirical research, using different statistical methods such as regression analysis, to further examine this relationship and its dynamics over a longer period of time.

CONCLUSIONS

This paper set out to test the hypothesis that companies with strong ESG credentials/scores receive a valuation premium from the market with respect to the common valuation multiples P/E, EV/Sales and EV/EBITDA. The results of our study empirically illustrate that in over two thirds of our analysis **higher scoring ESG companies received a higher valuation from the market.** In addition, our study concluded that the percentage **premium for valuations increased across all regions, most markedly in Europe, Oceania and Africa.** We also conclude that the **valuation premium was the highest for larger market cap companies, and most strongly observed in EV/Sales and EV/EBITDA multiples.**

The results of this study adds to the body of literature supporting the integration of ESG considerations into the investment process. We fundamentally believe that incorporating these factors into our investment process drives value for our clients and this study gives comfort to that philosophy. In addition, our focus on robust ESG credentials helps to ensure we allocate capital effectively and to companies that share our ESG philosophy.

In summary, this study illustrates that a focus on ESG and sustainability may not involve a sacrifice to company valuation, but in fact could be a significant contributor to valuation multiple expansion.

KEY TAKEAWAYS			
Around **60%** of multiples assessed across 2018-2020 illustrated a **valuation premium given to higher ESG scoring** companies	This result was achieved while using a bespoke bucketing process to attempt to isolate the impact of ESG on valuation as far as possible	We incorporate our **proprietary ESG scoring system explicitly into our valuation methodology** and **engagement strategy**	We believe this study shows empirically that **companies who perform well on ESG can be valued more highly** by investors in the market

INVESTMENT IMPLICATIONS		
Valuation Premium	Value Trap Avoidance	Pro-active Engagement

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APPENDIX

ESG Ranking Screen Methodology

- Binary fields (y/n) can have a max weighting of 2%.
- Areas of low disclosure and low quality data will be reduced in weighting (for example Forests).
- Disclosure or alignment to a 3rd party can be max 5%.
- Each sub-category of ESG (E+S+G) cannot exceed 50%. We aim to consider all three as equal as possible. This can be altered dynamically as is relevant to our transitioning economy, the world of tech and ESG.
- We have selected 25 metrics based on the explanations below. A basic rating of 5% is applied, this is scaled with 1) Data quality, 2) Data relevance to our tech universe and 3) ESG focus and relevance.
- Alignment to CDP, SBTi, UN GC, OECD MNE and TCFD is seen as best practice.

Modifications have been made as follows:

Looking at **Environmental**, we believe the key areas of focus are:

- Carbon, followed by greenhouse gas (GHG)equivalents, biodiversity, deforestation, water and waste. We believe the focus should not solely be on carbon and thus the weights are set accordingly.
- Absolute emissions are adjusted lower than future ambitions, as we believe the main focus should be on a low carbon future of tomorrow, permitting companies to transition and not penalising smaller companies with fewer resources and disclosure. Carbon emissions reduction targets are thus seen as most important, in alignment with our engagement, and thus receive the highest weighting. Our approach factors in the size and age of company by using relative metrics. We believe this gives a better representation of the scale of the issue and therefore GHG emissions intensity is rated higher than absolute carbon emissions. We prefer GHG emissions over solely carbon-focused metrics, as this gives a more holistic overview and accurate link to climate change. We view CDP* and SBT** as industry leaders/best practice and thus we encourage disclosure and alignment to these two frameworks. Scope 3 carbon emissions is corrected downwards due to lack of appropriate estimation methodology and general poor disclosure.
- Access to clean energy sources, a reduction in absolute energy usage and absolute carbon emissions is key. We therefore focus on access to renewables and believe PPAs or building your own renewable power is higher quality than carbon offsets. Carbon offsets tend to overestimate their positive impact and vary greatly in effectiveness and quality and are thus not considered. As access to renewables is part of a low-carbon strategy, the weighting is adjusted lower to ensure carbon does not overpower any other environmental aspects. Further, this level of data is still scarce.

Looking at **Social**, we believe the key areas of focus are:

- As minimum social safeguards we believe United Nations Global Compact (UNGC) Principles and OECD Guidelines for Multinational Enterprises (OECD MNE) alignment is mandatory. We do not invest in non-compliant companies and require clear engagement for companies on a watchlist. We apply a factor of 3 to signify its importance. These frameworks cover a range of important factors such as human rights, freedom of association, forced labour, discrimination, anti-corruption, taxation, consumer interests, competition, and intellectual property (IP).
- Board gender diversity is a key indicator to how a board approaches diversity & inclusion (D&I) across the organisation. D&I is a major focus for us, and directly correlated to innovation. As we wait for data and disclosure to improve across all areas of LGBTQ+, gender and race, this metric will be used as a proxy. This factor is scaled up to factor of 1.5x due to its importance and breadth. This factor is also seen as a high quality data point.
- As positive stewards to the community and innovators and leaders in tech we believe companies have a responsibility to leverage their expertise to benefit our wider society via philanthropy. We also believe this extends to educating and upskilling their employees, as well as organising external education outreach programmes. This is becoming more and more important as the skillset navigates towards industry 4.0. UN SDG 4 alignment and philanthropic investments that leverage a company's resources and expertise are thus important metrics to ensure information and education is passed along. Higher levels of education are associated with a wide range of positive outcomes, including

better health and wellbeing, higher D&I, lower hostile attitudes towards immigrants and higher social trust. However, the data quality here is low and thus we decrease the weighting accordingly.

Looking at **Governance**, we believe the key areas of focus are:

- R&D/innovation is key in a transitioning and changing world. This metric is scaled up by a factor of 2x to signify its importance within the world of tech. We want our companies to be sustainable in the long term, this is only possible if they continuously innovate.
- Controversies is a good proxy of governance quality and industry focus.
- As tech investors data privacy and security is key.
- Changing tax practices and general company attitude to paying taxes is a good indicator of transparency.
- We believe where there is a policy, there is a focus, where there is a target, there is a measure. Therefore where ESG factors are linked to compensation, management is more likely to be focused and drive real change.

ESG factors weightings:

- Environmental: 33%
- Social: 32%
- Governance: 35%

Note : These weightings are correct at the time of publication and are subject to change.

*CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.

**The Science-Based Targets initiative (SBTi) drives ambitious climate action in the private sector by enabling companies to set science-based emissions reduction targets. The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF). The SBTi call to action is one of the We Mean Business Coalition commitments.

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