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Master Thesis:

The economic impact of ESG on firms.

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Abstract

Sustainable finance and responsible investing has been influencing the business world more than ever. Otherwise traditional investment strategies were susceptible to business, tax, legal and economic frameworks; which were forced to adapt to sustainable growth and its influencing impact. However circumstances dictated the implementation of a global evaluation system in an attempt to cement the otherwise unsupported responsible investing.

The aforementioned system mostly emphasizes on environmental, social and governance factors which comprises the three main pillars of the ESG index. Furthermore the previously denoted index attempts to quantify multicultural inclusion, gender equity issues and other matters of relevant importance.

At the foundation of the issue lies a heavily debated matter. That is whether revenues should be reinvented in an attempt to grow business or be shared to various shareholders. The stakeholder point of view is the excess revenue should be reinvented in an attempt to increase the business. Contradicting this opinion the shareholder's reasoning propose any revenue to be given to the stock owners suggesting that a stock option that shares frequently and high will attract more investors.[1]

A case study of some leaders in their respective industry peers ties ESG and economic performance. The answers are provided by using a simple linear regression model that binds ESG to RoE, stock option performance and gross profit.

Chart Index

[1] **In an effort to measure the influence of the ESG in the industry the performance of stocks of various heavy industry players who excel in this domain as well as serious meta-analysis papers who provide relevant intelligence will be scrutinized. Following that a plethora of respected papers will be scrutinized and several results will be cross-referenced; solidifying an unbiased conclusion.**

Matrix Index

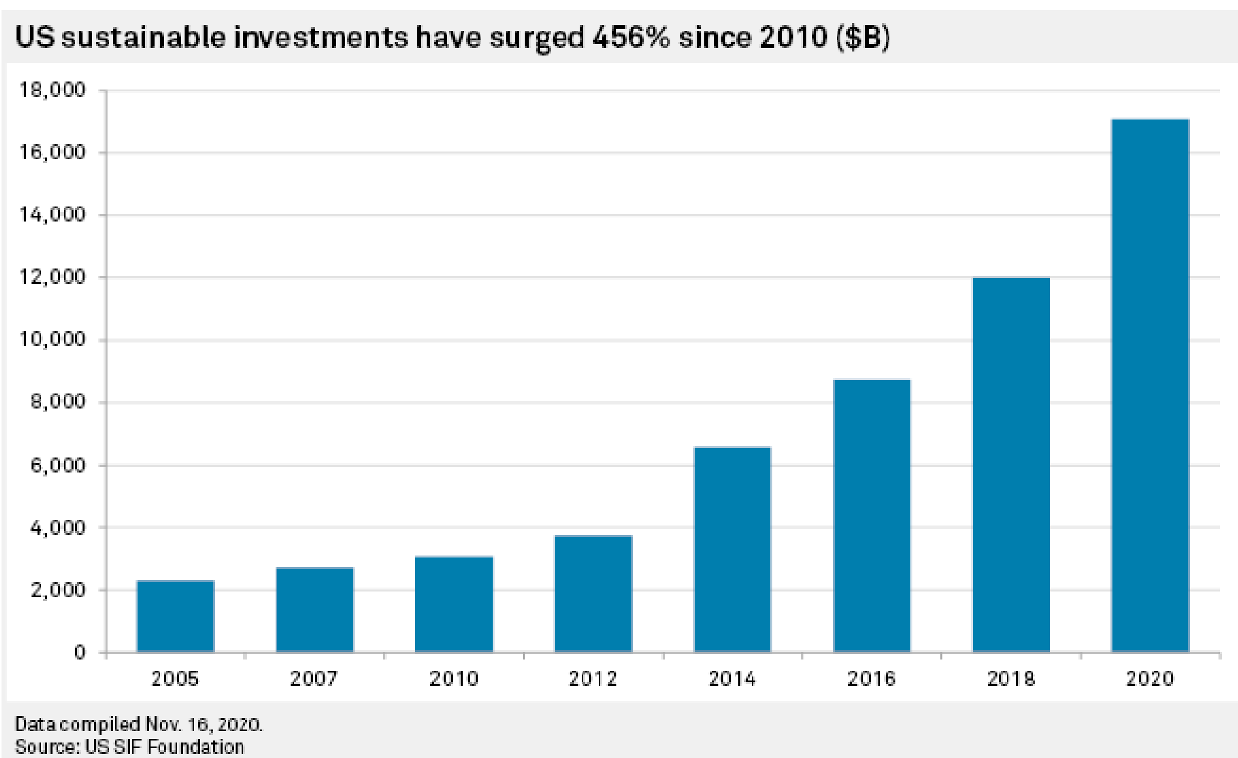
Picture Index

Chapter 1

1.1 Historic Reference

When it was established that the need for an environmental, social and governance framework was required several attempts were made in the name of progress. It should however be noted that not all of ESG factors were formulated at once, neither many of them were conceived until social and other factors demanded otherwise. As the creation and uptake of the term ESG took place gradually, then suddenly, its ubiquity has given way to assumptions that "everyone understands what they are referring to" (E. Pollman 2022).

Rise of sustainable investments in US



As seen in the chart an almost exponential explosion of ESG investment in the US[2], however how this index came to be provides valuable insight in the world of CRI.

Indeed the integration of corporate governance and third party relationships with stakeholders, communities, society and the environment has quite a long history. Notably is worth mentioning the colorful debate between Professors Merrick Dodd and Adolf Berle where both parties believed that corporations should incline towards the public interest through different means.[3] This debate has been on forefront of investing for the better half of the past century binding corporate social responsibility with the rise of corporate governance along with its ties to shareholder primacy.

The foundations of ESG can be traced back to the United Nations origins. Since its formulation in 1945 the UN has catalyzed and sponsored a plethora of initiatives regarding the global economy, environment, human rights and relevant issues with aftereffects on various business and markets. Some scholars claimed that "beginning in 1950s, the UN was prompted to keep its distance from the corporate sector by the Cold War environment and the need to display a relative impartiality toward market economy and planned economy advocates alike" (Thérien and Pouliot 2006 pp55-75). Yet as history unfolded, the UN could not afford a docile behavior in the business universe. Forward some years on May 1 1974 the New International Economic Order is founded with the sole purpose of "terminating economic colonialism and dependency through a new interdependent economy". Analytically a total of nine universal problems plus an additional special program were introduced.

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[2] **the US did not sing the Kyoto protocol in 1997 and has not up to date claiming unfairness between emissions the so called "US GAP"**

[3] **There are a lot of conflicting interpretations analyzing the debate where a lot of people misunderstand the debate believing Dodd supported the shareholder value**.

3202 (S-VI). Programme of Action on the Establishment of a New International Economic Order

The General Assembly

Adopts the following Programme of Action:

PROGRAMME OF ACTION ON THE ESTABLISHMENT OF A NEW INTERNATIONAL ECONOMIC ORDER

CONTENTS

The combined total of them was a decent attempt to bring reform in the governance of the world economy and embed the recently decolonized nations in the modern world of finance. It was arguably a needed undertake since the end of the Second World War left the world in chaos. Wartime experience demonstrated the impossibility of autarkic mobilization thus and convinced postwar leaders that each must find its place in a new worldwide division of labor (Harrison 2000 pp36). The economic gap between the developed and developing countries was too big and was it to be left unchecked would soon undermine the capitalistic nature of the planet. It should also be noted that there was no room for another crisis since no party could afford neither economic meltdown nor another militaristic undertake. Albeit a decent attempt NIEO was doomed to fail. As benevolence retreated to competition, inevitability caught up. An array of questions like how much will it cost, who will cover them and who benefits from the program soon flooded UN. Furthermore developing countries showed no sign of recession and in 1984 a decade long in the project the world showed no indication of improvement. By 1986 (when UN adopted the "right to development") the project was considered a failure (by public opinion) and was abandoned. Shortly after in 1990 the UN opened up to the corporate sector, a change described by some as "a turn of 180 degrees". It was at that time, that the then, secretary of the UN Kofi Annan laid the foundation for what would be later called ESG. The economic and social council of commission on transnational corporations of the UN had already contributed in cementing a preliminary foundation on corporate, finance and social transactions.

Globalization is an indisputable non signed pact of life, however it is the author's special opinion that its fragility is not globally comprehended. The expansion of the markets outmatches both the ability of their respected communities to adapt to the necessary change and any political, social or otherwise fruitful progress to adjust their course. Historically when this gap was left to grow unchecked, it often resulted to primitive solutions to address occurring disputes. A prudent example would be the great depression back in 1929.

And while social and economic factors were under constant scrutiny it took a lot longer to consider the environmental impact that the industry suffered. It fact the year was 1992 when the UN proposed a framework convention on climate regulation. A commendable beginning none the less that opposed climate change by regulating the greenhouse gas concentrations in the upper atmosphere. Informally known as the “Earth Summit” the treatise was held in Rio de Janeiro and negotiated the establishment of its headquarters in Bonn Germany, to supervise the environmental pact. The framework was later to be extended to what we know as the Kyoto Protocol in 1997 (effective in 2005). The main ground for the Framework Convention on Climate Change required further scrutiny, was the consensus that global warming is occurring and it is driven by human emissions.

The Kyoto protocol demanded restrictions on sever pollutants which were later expanded in the second round held in Doha Qatar in 2012 (effective in 2020). It should be noted that while all 36 countries bound to the first commitment complied with the restriction, 9 of them eventually resorted to flexibility mechanisms. Later in 2012 37 countries bound themselves to new targets in Doha, while others like Canada withdrew completely. A separate case would be the united states where although they signed the protocol it did not pass to the congress therefore its industry was not legally bound to comply, this is the so called “US gap”.

The next step in the climate regulation attempt would be the Paris agreement “accord de Paris” in 2015 (effective in 2016) which is the first almost global wide effort. This treatise attempts to keep the rise of the mean global temperature below 2C (3.6F) degrees and if possible further limit the increment to 1.5C (2.7F). Furthermore albeit not bound by specific date the agreeing parties are to reach a net zero emissions post haste by mid-21 century[4]. It should be noted that in contrast to Kyoto protocol and although each country should thoroughly report its progress and future plans alike there is no commitment defining how much a state pollutes with the restriction that it should be lower than its previous target.

1.2 Categories and quantifiable analysis of ESG

1.2.1 Categories of the ESG index

It is proven by the research of the Global Sustainable Investment Alliance that ESG investing can result to macroeconomic sustainable finance. Research by the World Bank suggests that broader financial inclusion can coincide with more financial stability, though sorting out lines of causation between those two sets of variables remains challenging (Vinay Kandpal et al 2023). As previously stated the ESG acronym stands for environmental, social and governance. The collective sum of the sub-elements of this trinity comprises the index and while its quantification may subject to methodology, there are a couple of ways to measure its performance.

Environmental is the first pillar of the index which measures the impact of the organization on the planet. Such measurements include but may not be limited to carbon emissions, air pollution, water consumption and pollution, deforestation, green energy initiatives and waste

[4] **Neutral emissions is quite different than net zero emissions where the later demands absolute zero pollutants the first allows the flexibility to sponsor other organizations superior pollutant policies in return for bypassing certain acknowledged limitations**.

management. Any decision that will result in change of the globes “health”, for better or worse, has the potential to be measured and affect the whole rating. There are some cases in which while simply abiding by current laws does lower the index, from this perspective however it does also not raise it. An example would be that if an organization whose emission would be within legal limits and allowances however not spending funds in renewable energy investments (while able to do so), would actually lower its ESG rating.

Another equally important part of ESG is the social policies that the company elects to follow. Not only restricted to how companies interact with their clientele and their respective b2b partners, but also how they treat inner-working relationships, male to female promotions, multicultural unbiased selection and several other factors that represent a just system which regulates day to day humanitarian transactions. In the social category also fall private data security and how the company itself reacts to injustice, like a sexual harassment policy.

Last but not list comes the governance. How and why the executive decisions are made, weather there is enough diversity in the board, or even if external investing is protected from internal malpractice. Furthermore how management policies, remuneration system and promotions are being handled, is an indisputable part of the governance pillar.

These three domains attempt to quantify the “sustainable” growth of the organization. Even though that none of the above indications holds any relation between economic or financial figures there is a strong connection between them and the value production in the organization.

1.2.2 Quantifiable analysis of the ESG index

There have been a lot of attempts to quantify the ESG index. Some considerable attempts some not, it should be noted that while it is neither easy nor fully achievable to create a universal classification, which scrutinizes every aspect of the multicultural diversity on the planet, it would be highly unethical not to be inclusive of all the parameters. Doing so would undermine ethics and standards, while any third party could argue foul play. The author of this paper after careful consideration decided that the Morgan Stanley Capital International has developed the most accurate method (which may be subject to debate) and as such will proceed accordingly. However in the latter analysis of the leaders of ESG other (third party) ratings may be utilized due to unavailability of data and the nature of this of the paper as meta analytic (that is to compare other published analysis).

The aforementioned method starts by further compartmentalizing the E, S and G factors in 35 further important categories as shown below.

Environmental	Climate Change	Carbon Emissions
		Financing Environmental Impact
		Product Carbon Footprint
		Climate Change Vulnerability
	Natural Capital	Water Stress
		Raw Material Sourcing
		Biodiversity & Land Usage
	Pollution & Waste	Toxic Emissions & Waste
		Electronic Waste
		Packaging Material & Waste
	Environmental Opportunities	Opportunities in Clean Tech
		Opportunities in Renewable Energy
		Opportunities in Green Building
Social	Human Capital	Labor Management
		Human Capital Development
		Health & Safety
		Supply Chain Labor Standards
	Product Liability	Product Safety & Quality
		Privacy & Data Security
		Chemical Safety
		Responsible Investment
		Consumer Financial Protection
		Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing
		Community Relations
	Social Opportunities	Access to Communications
		Access to Finance
		Access to Health Care
		Opportunities in Nutrition & Health
Governance	Corporate Governance	Ownership & Control
		Pay
		Board
		Accounting
	Corporate Behavior	Business Ethics
		Tax Transparency

To deduce a final ESG score, the weighted average of each of the 3 pillars is calculated and then normalized to the respective ESG rating of the industry peer. Beyond that committee-level overrides that may exist are taken into consideration to conclude into a final score. The firm may receive any rating between (AAA), which is rather difficult, and (CCC). It should be noted that the grading is not absolute, but subject to the relative industry peer. This is of course expected since there is no point calculating the carbon emissions of a heavy industry to the footprint of a law firm.

To better the attempt to quantify ESG rating a collaboration between MSCI and Standard and Poor's 500 was made. The aforementioned exclusive property is called Global Industry Classification Standards. The initiative divides the global industry into 11 sectors each with subcategories that a business may or not interact. So comparison of the firms, may only hold value if they are in the same group. As it is their common claim the classification is not based on entirely statistical models, or finance returns, since the multicultural diversity often yields irrational grouping, but on more objective approach that is not entirely mathematical.

Once the previously mentioned key issues have been elected from the classification, their respective weights may be selected. Usually most environmental and social key issues range between 5%-30% of the overall rating. The weights themselves account for the contribution to the industry relatively to the other industries weather negative, or positive impact on the environment and society, as well as the timeline within which the impact of the initiative to detonate.

		Expected Time Frame	
		Short Term (<2 years)	Long Term (>2 years)
Contribution Level	Major Impact	Highest Weight	
Social & Environmental	Minor Impact		Lowest Weight

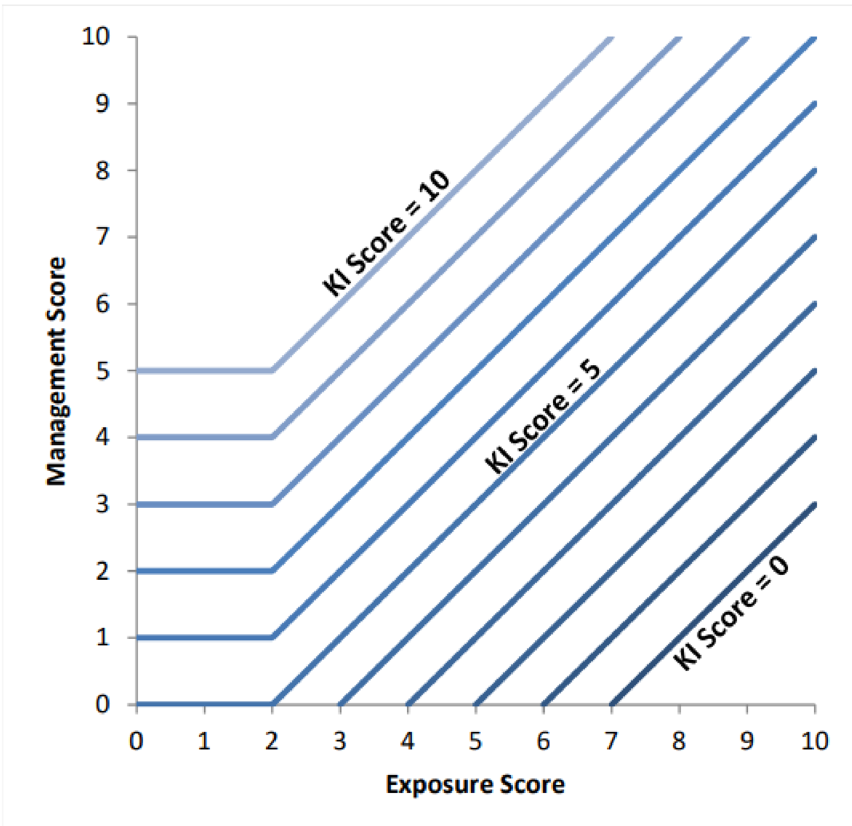
The 3 grades, high medium and low, are bestowed horizontally upon analysis of relevant data in the industry in the corresponding key issue. And vertically by assessing the entangled risk bound to present issues.

As for the governance pillar, after November 2020 it has been graded as high contribution for corporate governance and medium contribution (long term), for corporate behavior. Furthermore the weight of this pillar cannot be valued less than 33%.[5]

To comprehend whether a company is sufficiently utilizing a key ESG risk, it should a priori contemplate along with its strategies the depth it is exposed to the risk. And most of the recent models of ESG rating (including the one scrutinized), have taken it upon themselves to consider risk exposure in addition to risk management. To further debate it is unfair to expect, and hence rate, a company's management policies with scaling climax to its exposure, when it would be more just to employ a linear approach. As an example one would only need to consider that it not expected from a company like Easy Jet to maintain the same policies as American Airlines.

[5] **Upon the event during which the Corporate Governance score cannot be determined due to insufficient disclosure the score of this pillar is determined in accordance to corporate behavior key issue.**

In an attempt to measure exposure to each key issue MSCI rating decides each company's influence to key ESG risks in accordance to relevance to its main business, location and other significant measures, including but not limited to outsourced production and dependence on government contracts. Then the exposure is rated a 0-10 scale with 0 indicating no exposure and 10 a very strong alignment to the key ratings. Current altercations or any happened within the last 3 years impact the overall management score on each disputed case. Again management is rated from 0-10 based in their efforts. The score of each key issue is calculated as shown below.

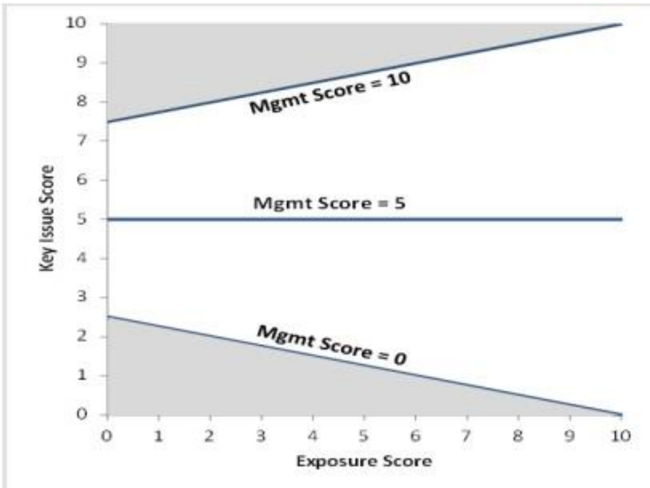


$$\boldsymbol{Key\ Issue\ Score = 7 - (MAX(exposure, 2) - management)}$$

(Constrained 0-10, rounded to one decimal)

As the formula suggest the risk exposure and management scores contribute in a way that demands a higher level of management in regards to given exposure. It should be noted that this calculation method is based upon routinely transactions and the state of the global economy and sustainable finance as it is viewed by MSCI and S&P500, which makes it by default subject to change should the occasion requires.

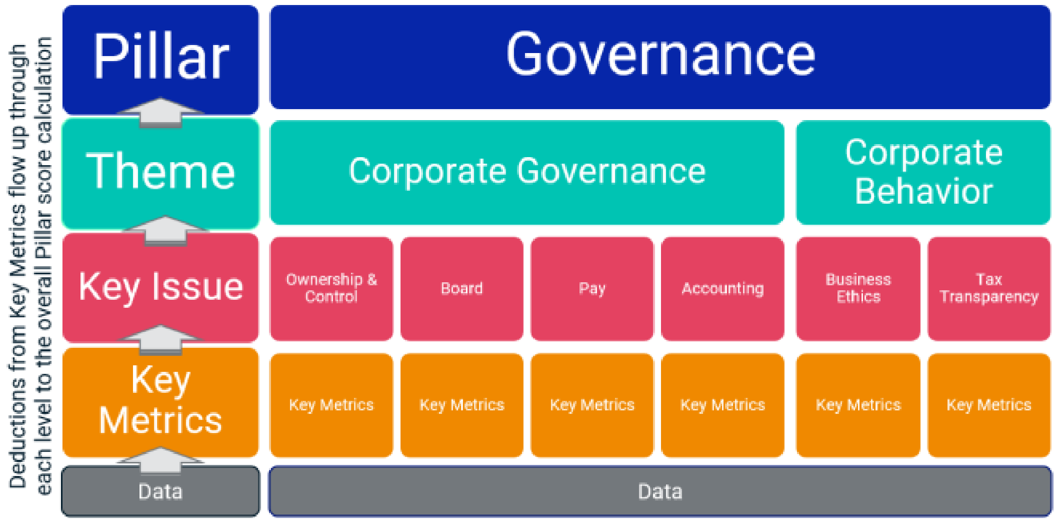
Evaluation of opportunities works much like the risks, however the model which combines the two is not the same. Exposure suggest the relevance of the opportunity to a business by taking into account current assets and geographic location. Management expresses the business capacity to exploit any given opportunity. As shown below constrained exposure binds the key issue score towards average values, while loosened exposure, release the afore-mentioned grip.



In regards to controversies the MSCI ESG rating states that each case is scrutinized by an expert to assess whether structural problems could potentially materialize as future risks in an attempt to determine how it should impact the key issue score. It should be mentioned that any state with an alleged negative environmental, social and or governance impact is deemed as a controversy case. Such cases may include, but not limited to, an accident, a spill, an alleged scandal or multiple allegation regarding the same instance. The matrix below can be used to assess a controversy case based on its impact in its surroundings.

Scale of Impact	Egregious	Serious	Medium	Minimal
Extremely Widespread	Very Severe	Severe	Severe	Moderate
Extensive	Very Severe	Severe	Moderate	Moderate
Limited	Severe	Moderate	Minor	Minor
Low	Moderate	Moderate	Minor	Minor

The governance pillar is indistinguishable evaluation of a business which is rated between 0-10. It is a penalty based evaluation in which the misdemeanors are based on key metrics over the underlying key issues.



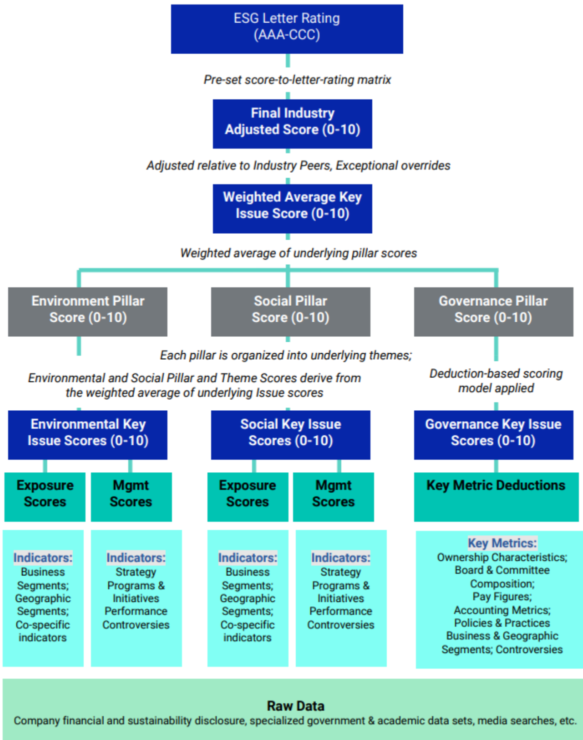
Finally the construction on the rating depends on the industry and is averaged after weights. Specifically in regards to environmental and social pillars, key issue weights are rated for each GICS sub-industry in regards to its overall impact on the key issue itself and the time issue in which it is expected to happen. At the end of the year key issues and weighted are reassessed. In extreme cases there may be, after committee approval, company specific key issues to help evaluate firms with diversified business models.

Following up the company is rated with an Industry-Adjusted Score (IAS), as it is calculated by the weighted average of the environmental and social pillars and the governance pillar and again normalized based on a database of evaluations. In this benchmark the lower and higher 5% percentiles[6] determine the highest and lowest ratings. The IAS is then attached to a rating ranging between (AAA) for the best and (CCC) for the worst score. The evaluation is purposely not absolute to be relevant to the industry associated peers.

Letter Rating	Leader/Laggard	IAS to Letter Correspondence
AAA	Leader	8.571-10.0
AA	Leader	7.143-8.571
A	Average	5.714-7.143
BBB	Average	4.286-5.714
BB	Average	2.857-4.286
B	Laggard	1.429-2.857
CCC	Laggard	0.0-1.429

The overall process can be easily summed up in the following diagram, which is property of the MSCI and not product of the writer.

[6] **As they were calculated in a range of approximately 9800 companies.**



Furthermore the data that MSCI used to build and maintain the model is gathered from the three following sources.

i) Macro data at segment or geographic level from academic, government, NGO datasets (e.g. Transparency International, World Bank).

ii) Company Disclosure (10-K, sustainability reports, annual reports, etc.)

iii) Government Databases, 3400+ media and third party stakeholder sources regarding specific companies.

1.3 Stakeholders vs Shareholders point of view

1.3.1 Stakeholders point of view

Who is credited as an actual or potential stakeholder is considered a matter for debate. Exemplary besides person other legal entities, or not, such as neighborhoods, institutions, society and the environment are eligible to qualify as such. While there are many definitions on what is a stakeholder there is none that is "all inclusive". The basis of the theory is that every decision management (at any level) makes; one way or the other impacts its surroundings (who-whatever that may be). As a result the aforementioned need to be mindful of the aftereffects of its employed strategy. The main point of view of the stakeholder theory is the commonly shared belief that, sustainable, growth should come through reinventing profits. And while the statement is only vaguely tied to ESG factors, sustainable finance strongly correlates with responsible investing. Stakeholder theory has evolved from a corporate-centric perspective into a more comprehensive research field which addresses business-society relations from various points of view (Steurer 2015).

1.3.2 Shareholders point of view

Symmetrically agency theory as (Priti Shokeen 2014) refers to as the shareholder theory suggests that the main objective of management is to maximize the shareholders' value. Furthermore the theory argues that responsible investing will come to materialize by sharing dividends, which in turn will attract more investors. The argument concedes that the ultimate owners of the company are the stakeholders and hence any opportunity to increase their value should be exploited. Analytically every shareholders works under the assumption that all assets are quantified under two metrics, dividends and share price.

1.4 Conclusion

After World War 2 it became abundantly clear that it is imperative to regulate companies in order to increase growth and contain what would be irreversible damage both to environment and societies alike. As such the United Nations took it upon themselves to compose and maintain a framework embedded in which the planet could demonstrate economic, environmental and humanitarian development. Aposteriori some decent attempts, an agreement was finally signed in Paris 2015 by almost everyone[7] that cements some foundation towards this goal. To that end two main ideas were proposed to achieve sustainable growth. One theory suggest that reinvesting revenues will achieve the desirable goal while the other insists that attracting investors through responsible investing is the decent approach.

Chapter 2

2.1 Historic course

In order to comprehend sustainable finance in its full capacity, it is imperative to review sustainable banking from its early development. The first banking systems could be traced back to ancient Greece, China and India where monetary transactions were usually held outside of temples. While these methods seem primitive today, it worth noting that there are still Islamic and other banks and other institutions whose loaning policies are heavily influenced by religious and other social pillars. Modern banking as it is perceived today can be traced back in middle ages in Italy. Mainly acting as liaisons those banks formulated ties between those who had and those who needed capital. As the law was not expanded to include banking at the time religious, ethics and other social factors were considered to determine an interest. It wasn't up to 16 century where the bank Monte di Pieta proposed a somewhat modern set of principles to be adopted by its organization (William Sumner Sumner 2017). The banking business saw its first blooming during the 18 during the industrial revolution and later during the aftereffects of the world wars. It should be noted that the word aftereffects does not contain itself in war industry, but since a lot of economies were impacted local banks helped businesses to rebuild themselves. Thus a timeline of sustainable banking is formed as is shown by the diagram bellow.

[7] **except Syria and Nicaragua**

Modern investment banking as it is perceived today usually fully incorporates ESG factors. Analytically in the environmental pillar there is reduced carbon footprint and paper usage as well as by extension of responsible investing only mindful of the environment[8] of potential clientele are being considered to accept the investment plan. Furthermore in regards to social pillar as it is considered unethical is most commonly discriminated or even lawfully challenging for any institution similar or closely revolved around banking, to be associated with "dirty" parties, engaging in actions commonly referred to as "money laundering" or financing allegedly dictatorships (Hoyle 1983). As such most organizations refrain from doing so. Finally for the governance of such institutions there is usually above average diversity in all almost all banking institutions and promotions are based mostly on skills and willingness to improve.

As stated in introduction elements of the early CSR can be traced quite back in history. Yet it was back in 1930 that ownership disengaged itself from management. It was necessity that brought this change since industrial expansion attempts made it impossible for an owner to manage all his assets. A decade forward considerations were given to social responsibilities of the companies at that point it was not only about making money (Carroll 2008 pp24). However CSR started to crystalize in 1950. A lasting definition derived at that time for CSR (or SR as it was stated at the time) which would impact business society for the years to come: It (CSR) refers to the obligation of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which desirable in terms of the objectives and values of our society (Bowen 1953). Following this reasoning, we can deduct that economic viability (sustainable economy in modern terms) is employed by business for itself as well as the society. CSR was furthermore tied with explicit ethics and it would have the opposite (of what was argued) effect at the time. After the end of World War 2 it was clear that another engagement was improbable and ultimately terminal for the planet. In another words it was a great opportunity for economic colonization. As it was, an exponential industrial blooming needed regulations for if left unchecked it endangered more than the planet. While the risks for the environment were quickly observed, humanitarian virtues were laggard to be employed. In 1980 CSR was referred to as a process whose outcome impacts corporate strategies (Agudelo et al 2019 pp7). At that time the coarse social and legal incorporation of the business environment was probed to adapt to circumstances. The change itself was not easy since the current culture, both social and corporate, was reluctant to evolve. A trait quite common in history which also applies to this case is that communities, of any sort, are resistant to change. Hesitation is more common in business since any deviation from the current course makes changes to the current economic league (both low and high) more probable. It was then that the influence of the stakeholders started exerting substantial pressure to the business community. Modern sustainable development as it is perceived today can be traced at that time (World Commission on Environment and Development 1987). The primitive policy used to diffuse corporate binds directly leads to the current ESG trinity (Elkington 1994). The movement came fast in the 1990s

[8] **that abides with the current law in the respected country**

as ESG was quickly adopted in portfolio management. The equity market for instance did (and still does) closely tie ESG to responsible investment (**https://www.cfainstitute.org/en/research/esg-investing**) which in turn is bound to sustainable investment for obvious reason. Modern sustainable investing started to formulate at the time. That is the monitoring of potential investments for the purpose of excluding any extremely deviant from ESG norms (in relation to their relative peers).

2.2 Separate Analysis of E S G and correlations between them

Since it is already stated that environmental, social and or governance considerations were not compiled at the same time or given the same scrutiny there is value in examining each and one separately along with correlations between them.

The impact on the environment was the first to trouble the world, when it was forced to reevaluate its stance towards the implications that came along with globalization. Before 1972, that is the Stockholm conference, little to no leverage had the relative organizations within the United Nations consequently the organization itself had minimal impact in environmental matters. The regulation of constriction on natural resources of the Food and Agricultural Organization (FAO), out shadowed any environmental focus (a gesture that most historians characterize reasonable, but incomplete at the time). The Educational, Social and Cultural Organization (UNESCO) assisted in cementing the International Union for the Conservation of Natura (IUCN) in 1948, an initiative with governmental and otherwise guidelines. By the latter's recommendation the World Wildlife Fund (WWF) was formed in 1961 for fundraising purposes; which would help other activities who predate the Stockholm conference.[9] The Stockholm conference initiated a barrage of several NGOs creations which assisted in the formulation of regulations that framed, a what would be, an uncontrollable environmental behavior. It is this conference that led to the creation of the UN Environment Program (UNEP) station in Nairobi. Albeit small the initiative was proven occasionally quite formidable. Furthermore two inquiries (open for debate up to date) were introduced: government resistant over overriding policies in terms to utilization of national resources and heated disagreements in development over environment. In 1983 were made the first attempts to combat deforestation mostly by NGOs encouraging nations to mandate forestry agriculture. By 1992 (when the UN conference on Environment and Development took place) the NGOs participation in the globe with regards to environmental benevolence was by all accounts immense. Forward to 1997 the Kyoto protocol, later to be expanded in 2012 in Qatar, restrained emissions by those who signed it to follow later in 2015 (accord de Paris).

In contrast to financial reporting, which albeit not completely accurate yet lawfully bound to disclose some information one way or another, companies in general do not impart with social information regarding their operations, unless ordered by court or lawful circumstance dictates

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[9] **These include but are not limited to the International Geophysical Year 1957-1958, IUCN's First World Conference on National Parks in 1962 and UNESCO's Biosphere Conference of scientific experts in 1968.**

otherwise. It should be noted that the extreme localization of cultural policies makes it impossible to summarize corporate social behavior in a paragraph as such the analysis will be abstract for the shake of completion.[10] A prudent example of this would be the American civil war implications (north versus south) or the Indian civil system. A common denominator would be the year 1970 where the first gathering intelligence organizations for CRS can be traced (Friede et al 2015) While business necessitated some of those changes, intellectual growth inspired others. This is why social evaluation usually takes into consideration in the addition to relative to the peer industries the geographical location of the facilities itself. It should be noted that this sector also enjoyed a substantial growth. Many companies opt for multicultural diversity where in some cases they are even obliged to do employ similar strategies[11]. In fact it is improbable to earn a high ESG rating without taking into consideration national equality, women administration percentage over men or integration of local culture.

Much like social policies governmental ones heavily depend on localization. Quite indifferently as above mentioned since it is impossible to compare multicultural politics and extract a catholically unbiased rating the governance pillar is evaluating by deducting penalty points. Historically there are few milestones worth mentioning in corporate governance, starting from industrial revolution where companies maintained the same hierarchical supervisory system. It should be noted that some places that used to only be achievable by nepotism have now been awarded through persistence, skill and ability to improve oneself. An exemplary example would be board diversity and ownership and control. In terms of accounting the IASB does expect some form information disclosure but it is argued that there is room for improvement. Corporate behavior on the other hand has been thoroughly scrutinized. Commercial and international law, explicitly restrain anti-competitive strategies and demand tax transparency (though arguably there is room for improvement). And while ethical discussions are underway corporate behavior has evolved a lot since the 1950s when there were little to almost none existing legal frames.

Not only the separate ESG factors impact the world but they also influence each other. Some more than others, however the bonds are worth mentioning.

The most clear of them is the relationship between the governance and environment. How corporate behavior affects the environment is in most places regulated by law, which not only demand minimum impact but as of 2015[12] expect the enhancement of the polluting processes. It is also notable that this bind is bidirectional. A lot of businesses elect to build their facilities on specific geographic locations.[13]

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[10] **In fact data over the last 30 years as it was gathered by different organizations (either they may be NGOs or other vendors) is so diverse and volatile that it is impossible to extrapolate verifying results.**

[11] **See US paradigm**

[12] **accord de Paris**

[13] **Intel on Middle East, Microsoft on arctic oceans.**

Yet another bidirectional relationship stands between the social and governance pillar. Besides legal frames that demand a certain comply (national events, etc.); a plethora of published researches argue that aligning with the local customs further improves production and efficiency of the working force. Inversely some companies promote locally specific events in an attempt to enhance the cultural environment.[14] In contrast to the previous two instances not much exist between the environmental and social pillar, albeit existent none the less. Social structure does impact the environment differently subject to localization and cultural wealth.

2.3 Analysis of the most recent ESG agreements and trends

This chapter will start by analyzing the later conference of parties (cop). For the purpose of completeness this document will cover back to cop21 (accord de Paris) up to date cop27 which was held in Egypt the November of 2022.

The so called Paris agreement was mainly proposed to reduce global warming. Specifically it is signed that global average temperature will be held below 2 degrees Celsius[15] and if possible limit the increment to 1.5 in recognition that it would contain the environmental implications. Furthermore the adaptability in regards to the adverse impact of climate and foster climate resilience and other pollutant risks are not to interfere with food production. Lastly all signed parties recognized agreed that finance flow will be parallel to a course tied to low greenhouse gas emissions[16]**.** Macro-environmentally it is stated that it will attempt to achieve a “climate neutral” world by mid-century. It mentioned in this analysis as a landmark since it was the first successful modern global attempt to bind nations to undertake friendlier to environment paths. Further scrutiny reveals that the implementations demands economic and social transformation involved on the at the time best available science. A five year time frame (that is 2020) requires parties to submit schedules for climate action otherwise noted as nationally determined contributions (NDCs). These plan are to include favorable environmental actions as well as schematics for adapting to the impending changes. Optionally the agreeing parties may include macro-environmental actions to combat greenhouse gas emissions. The Paris agreements strengthen its appeal for compliance by establish an economic framework to advocate less monetary evolved countries. This is logical because macro-environmental and otherwise benevolent to the environment long term changes require macro-economic planning and therefore the need to establish relevant frameworks. Lastly to observe the progress of the aforementioned proposal starting by 2024 all agreeing parties are bound to report transparently on implemented measures and support weather provided or received. It should be noted that albeit heavily debated the agreement made way for neutral-carbon solutions and made zero-carbon ones more appealing.

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[14] **See for instance bring your child to work day.**

[15] **above pre-industrial levels**

[16] **In recognition that the parties themselves may be affected by the impacts of actions taken in response to the climate change besides the effects themselves**

The 22 conference of parties (COP22) was held in Marrakech of Morocco in November 2016 and mostly server as the first session after the implementation on the Paris agreement, though decisions were proposed and elected. In fact 35 decisions were adopted, albeit most of them regarded the accord de Paris implementation, specifically the domains around transparency and accountability. Furthermore the session included a what is considered typical for similar occasions reaffirmation and commitment to the Paris agreement which was in return cemented by the grouped declaration of 48 developing countries to construct a 100% renewable energy network by 2030-2050. On top of that Germany, Mexico and Canada (with the latter having only agreed to the Paris agreement and not abiding to previous protocols) vowing attempts to decarbonize their economies by mid-century. It worth mentioning that the majority of the parties casted doubts on US on Obama's administration proposal for decarbonization with impending elections due to arrive.

Forward a year COP23 took place in Bonn with a promise of a technical approach to the agreed points. Notably Syria entered the agreement and US declared its intention to withdraw, at the moment Trumps administration**,** from the Paris agreement. A statement that would later come embedded into reality.[17] It is also the first time that controversies among parties especially developing versus developed countries are starting to escalate. The conflicts themselves surround controversial topics as well as damage control. Furthermore financial flows[18] has become a problem. That is because not to anyone's surprise the pledge to raise 100$ per annum was only achieved by 10% and demanding of more transparent reported was perceived as a threat by developing countries. Weather the conference was deemed as a success is a matter for debate.

The COP24 was held in Katowice Poland on December of 2018. It began by stating that the goal for the agreed 1.5 degrees was in peril to fail unless drastic measures were to be employed. The specified national determined contributions were placed under heavy scrutiny in order to lessen the chasm between developed and developing countries. Furthermore a framework for reporting standards was establish along with a committee to determine whether parties deviate from their set objectives. However this conference's attempts to regulate international cooperation between national pledges was deemed a failure. Lastly a rather arrogant vote was delegated to reach a net-zero global emissions by 2050, based on the fact that at the beginning of the conference there was acknowledgement of probable deviation on the targets based.

In 2019 the conference of parties was held in Madrid. It is worth noting that it is the first modern COP that considers official social factors specifically a gender-action plan to assist cementing climate action and finance. On the other hand the COP25 failed to establish a funding mechanism for damage and loss and had to resort in formulating a think tank to advice on the issue. The arguably expected rollback had to resort in confining the target carbon

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[17] **Under heavy protest from both US parties (that would indicate unstable political course) and the rest of signing parties some of which demanded US to be excluded from the rest of negotiations.**

[18] **An issue albeit expected, rather troublesome to resolve.**

emission to the COP23 standard.[19] At this point only the EU seemed relatively motivated to achieve the cause, a fact further strengthened by the announcement of the European Green Deal. Finally in response to the failure to reach an agreement diplomacy argued that "no agreement is better than an agreement with loopholes".

Originally planned to be held in Bonn in 2020 COP26 was forced to reschedule due to pandemic and finally took place in Glasgow in 2021. Finally after strenuous and lengthy negotiations a rulebook for the Paris agreement was established. Confidence emerged by many said and the chance to achieve a plethora of set goals was finally possible. The set rulebook and the immense progress towards establishing technical issues made possible the emergence of several commitments some of them multinational. The conference was deemed a huge success so much so that several optimistic parties argued that even the 1.5 goal was now within reach.

The COP27 was held in Sharm el-Sheikh Egypt and was mostly focused on loss and damage control though concerns were raised on food provisions. Although fossil fuel phase down was not included in the final texts, the conference itself was deemed as a success globally. Partly because of the 12year decarbonization plan and several financial control programs like the Global Shield against Climate Risks initiative and the Breakthrough Agenda. Furthermore there were talks about future loss and potential damage and a sizeable portion of the funding was transferred to sustainable finance under the form of priority healthy loans. Many opportunities were seized towards a greener development the outcome of which would hopefully align with the accord de Paris towards achieving the set goals.

2.4 Third party opinion analysis

It is clear by now that several parties have already adopted the concept of sustainable finance as well as they embraced the concept of ESG firmly believing it to be the modern path of the business world. Such parties include but are not limited MSCI (Morgan Stanley Capital International), J.P. Morgan, Goldman Sachs and other titans of the modern investing world. The economic media community (and by extension the general media community) also seems keen on promoting the particular "trend" as not only a solution to the current predicament that unchecked pollution brought, but also as an opportunity to promote humanitarian rights and help organizations refine their governing policies. However arguing that the aforementioned promote the concept of sustainable finance does not conclude that companies embrace it as well. Besides those whose business is by definition opposed to sustainable finance and ESG, a prudent example would be the oil industry, there also those who do not believe in the concept of ESG at all, weather it has a negative impact on their portfolio or do not embrace the stakeholder holder theory at all or even both. In the following paragraphs opinions on sustainable finance and ESG will be scrutinized.

[19] **That was 55% reduction by 2030.**

Before the analysis unfolds the reader may dwell on academic papers on the matter. Therefore several meta-analytic papers will be referenced to provide results of a plethora of descriptive statistics on the matter. Those papers aren't a product of this authors papers and therefore the hypothesis testing they may deduct are subject to the respective author's opinion. In fact out of the collective of a total of fifteen meta-analytic articles, that is articles or master thesis that used descriptive statistics on other research publications only one was of the opinion that sustainable growth does not appear to be tied [20] in relation to increased revenues. The rest of the articles showed a positive connection between the later. In conclusion both the media academia and modern business world concede that besides responsibility lies a margin in profit[21].

A meta-analysis of the relationship between corporate social performance and firm financial perfomance	1998
Does it pay to be good … and does it matter?	2009
From the stockholder to the stakeholder	2015
Shareholders vs stakeholders capitalism	2016
The robustness of the corporate social and financial perfomance relation: a second order meta analysis	2017
Firms' borad independence and corporate social performance: ameta-analysis	2017
Does good corporate governance lead to better firm perfomance?	2018
Systematic review and meta-analysis of links between coprorate social responsibility practices, employee engagement levels and corporate financial results	2018
Is socially responsible investment outperfoming conventional investment or not?	2020
Supply chain sustainability and performance of firms: a meta-analysis of the literature	2020
Does sustainability generate better financial performance?	2021
The effect of a corporate governance on the corporate social responsibility: a meta-analysis study	2021
The mediating role of corporate reputation, brand equity and innovation in the link between CSR and financial perfomance: a meta-analysis	2021
Corporate social responsibility and corporate performance: a meta analysis	2022
Board of director effectiveness and informal institutions: a meta-analysis	2022

It should be noted that localization[22] and culture play in important role in the industrial community therefore it may seem unreasonable to a certain extend comparing different values in different ages however as circumstance demand this thesis is to allow certain deviations at this specific point in order present third party opinions intact.

While the theory itself it is not only about leverage and corporate control the behavior of the majority of shareholders suggests wealth maximization by requesting profit share instead of reinvent and or mergers. In truth shareholder advocates are minimized by social media and investing-banking institutions. Yet however few though there are advocates.

Further evidence of the acceptance and endorsement of the sustainable finance will be provided by world-wide increments in SCR for the time period 2009-2019 by charts (source: **https://sustainableinvest.com/sustainable-investing-decade/**).

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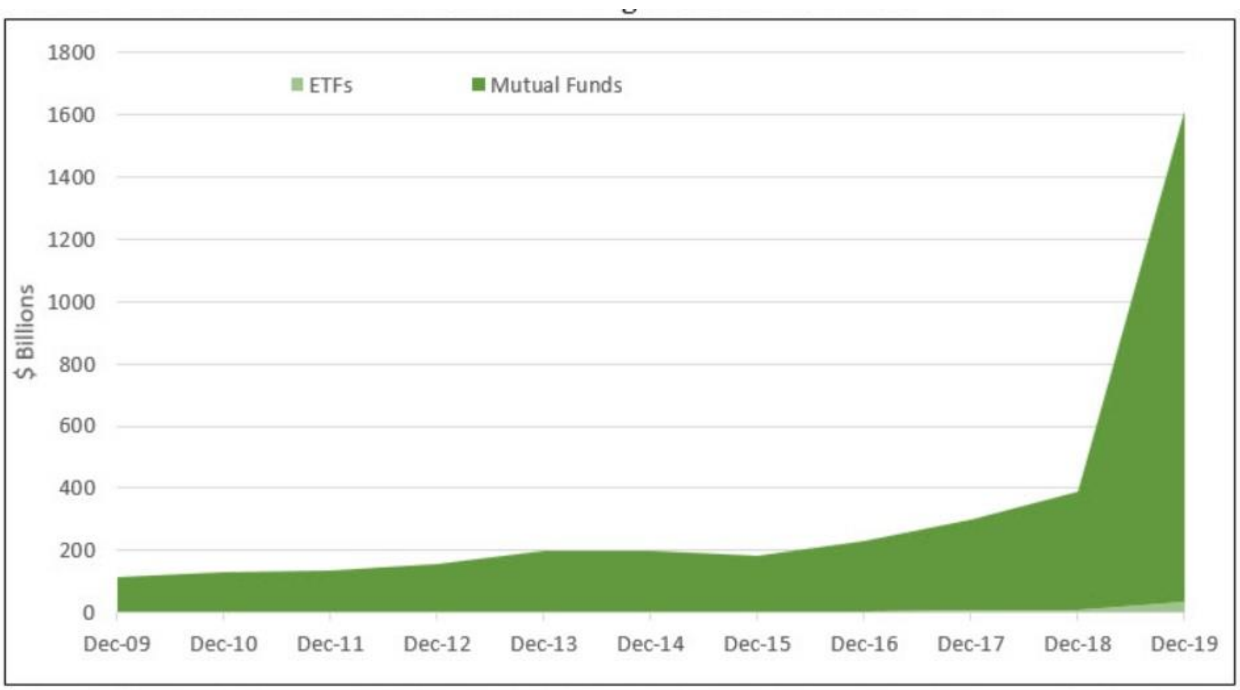
[20] **Or otherwise demonstrate statistical significance.**

[21] **In comparison to not following socially responsible investing.**

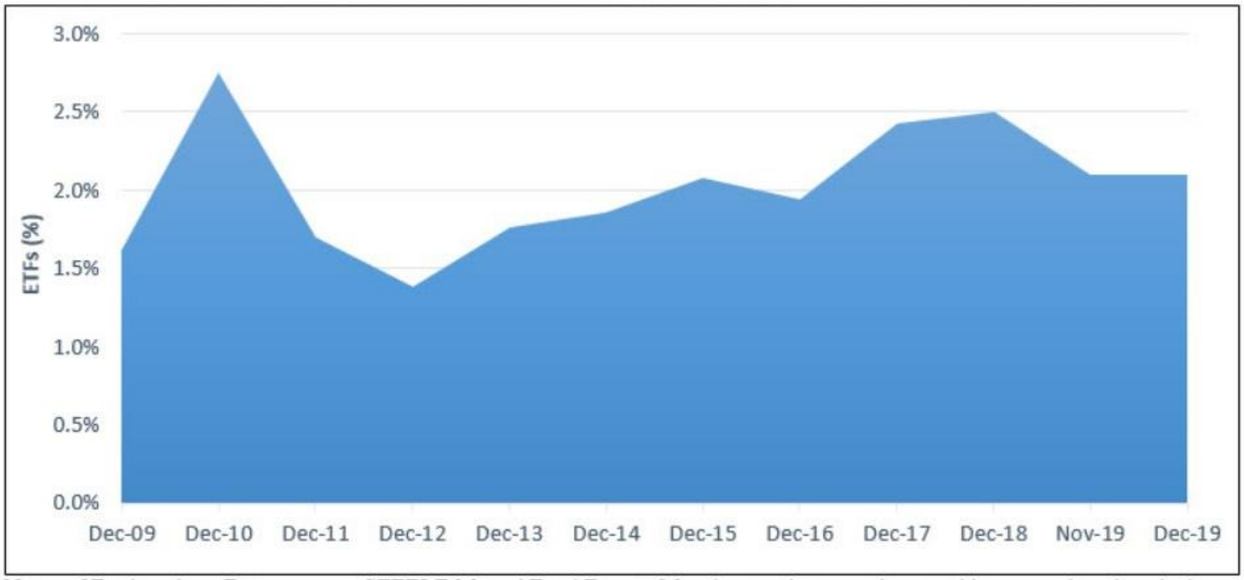
[22] **For instance Germany is considered a stakeholder country and the United States a shareholder one.**

Growth of mutual funds and exchange-traded funds



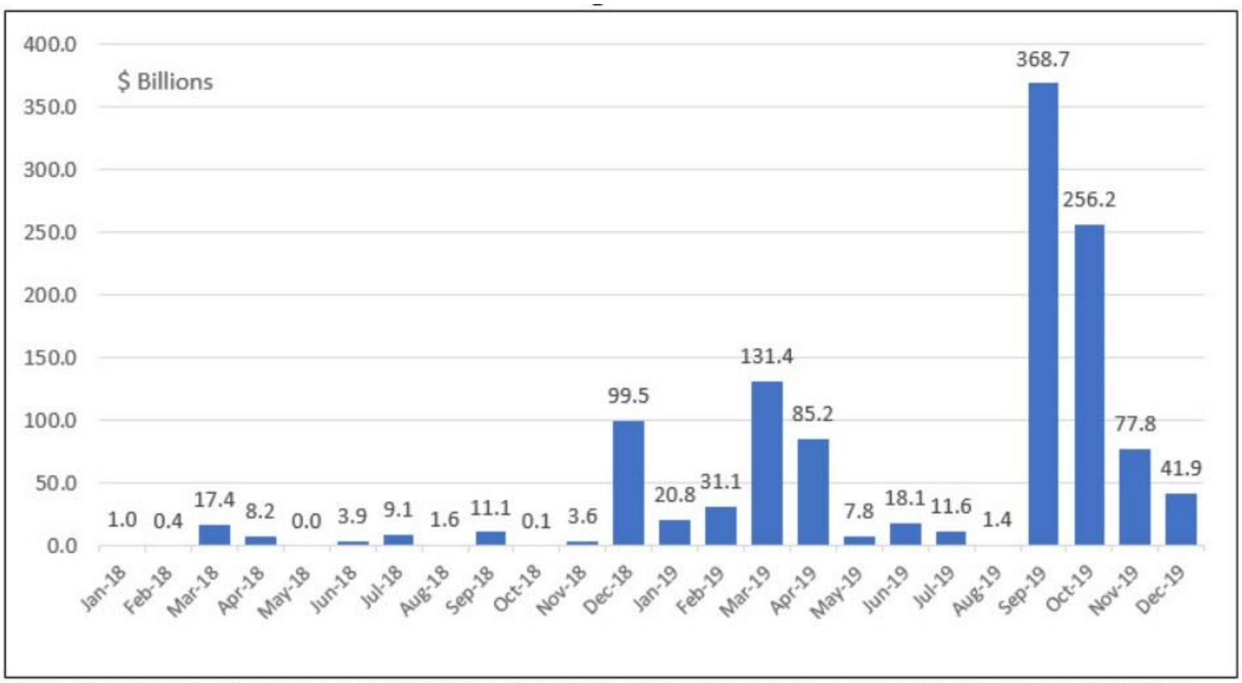
Notes of Explanation: Data sources: STEELE Mutual Fund Expert, Morningstar data, supplemented by research and analysis conducted by Sustainable Research and Analysis LLC.

Sustainable ETFs as a % of total sustainable assets in funds



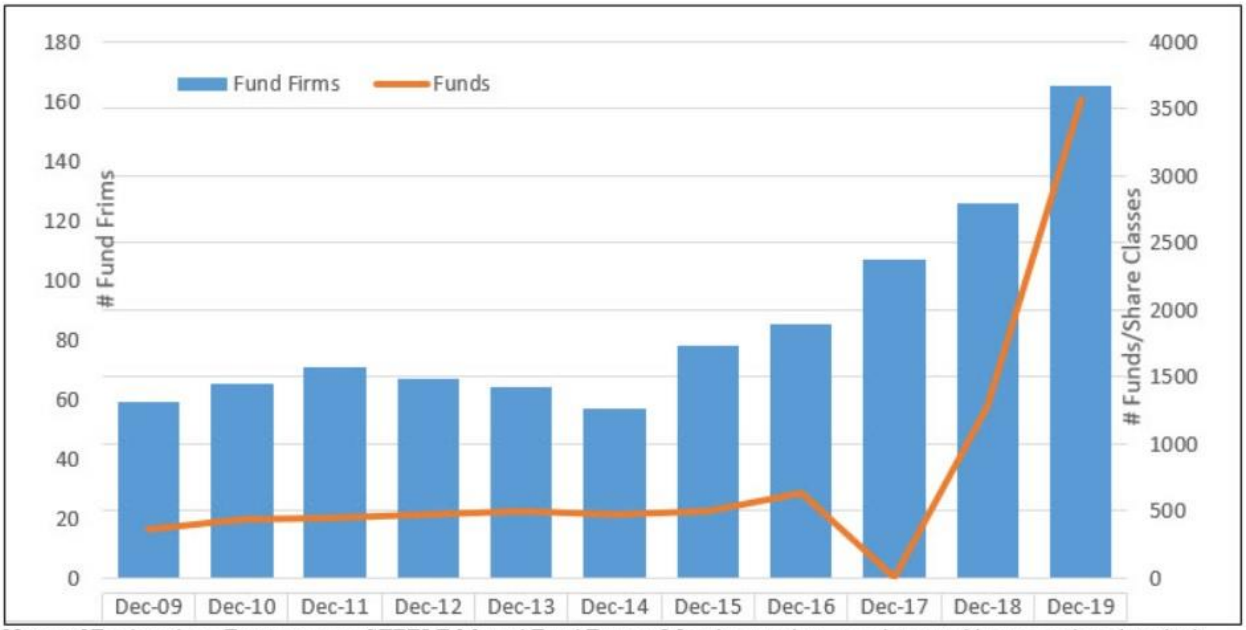
Notes of Explanation: Data sources: STEELE Mutual Fund Expert, Morningstar data, supplemented by research and analysis conducted by Sustainable Research and Analysis LLC.

Mutual funds and ETF re-brandings



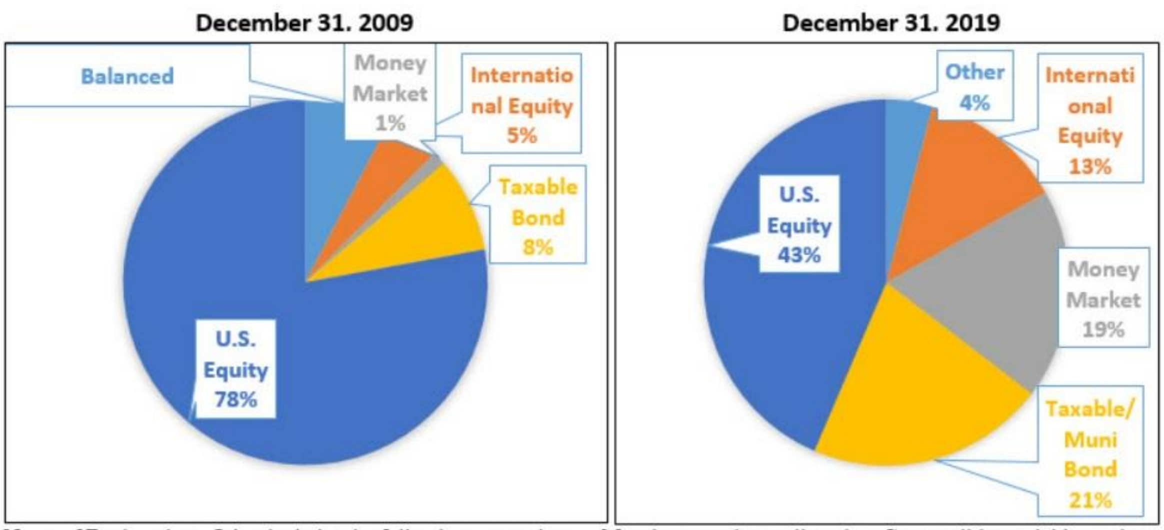
Notes of Explanation: Data sources: STEELE Mutual Fund Expert, Morningstar data, supplemented by research and analysis conducted by Sustainable Research and Analysis LLC; fund prospectuses and related offering documents.

Funds firms and mutual fund ETF and share classes



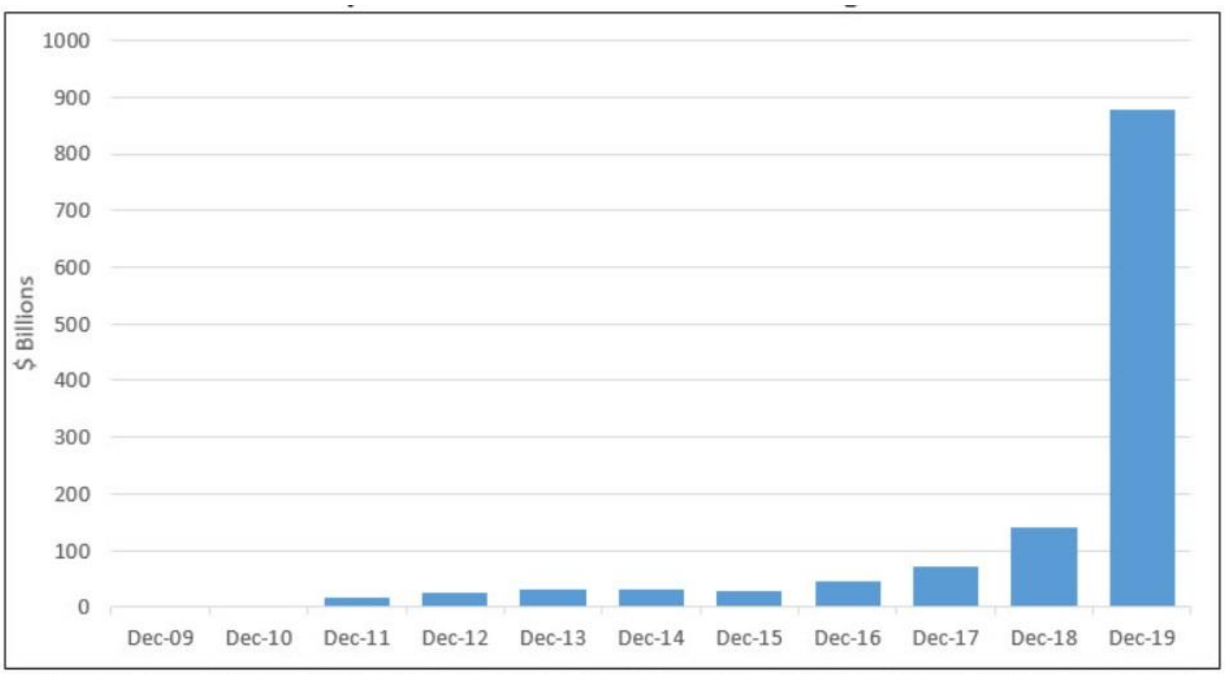
Notes of Explanation: Data sources: STEELE Mutual Fund Expert, Morningstar data, supplemented by research and analysis conducted by Sustainable Research and Analysis LLC; fund prospectuses and related offering documents.

Fund type-sector allocation of sustainable funds 2009 vs 2019



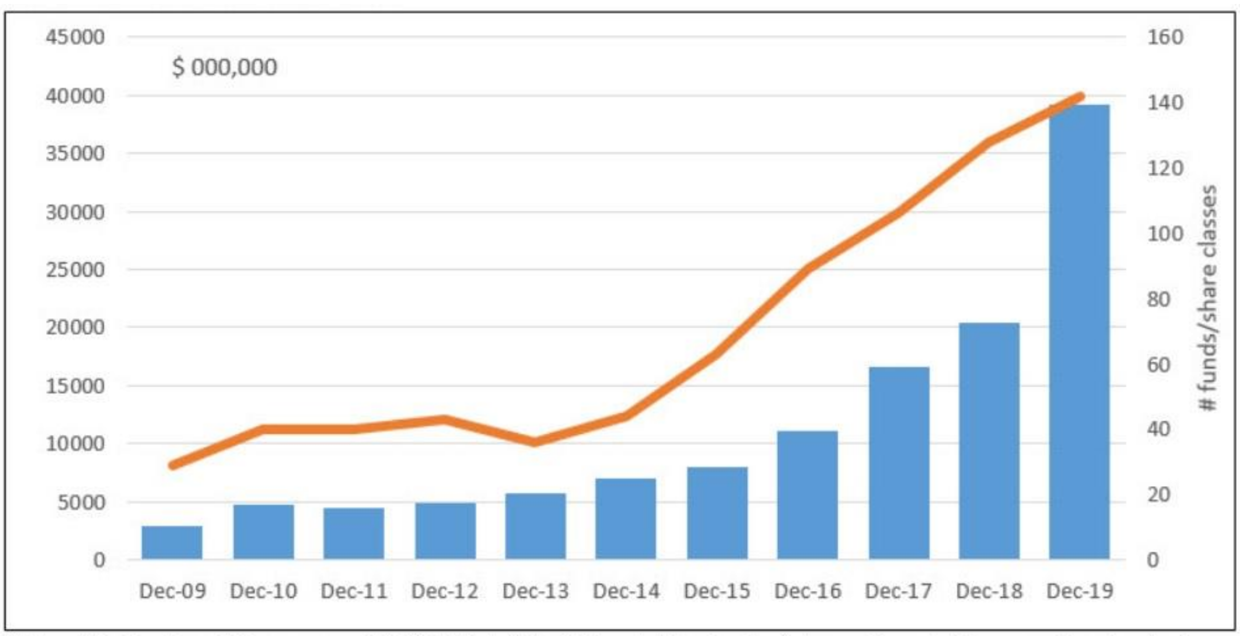
Notes of Explanation: Other includes the following categories per Morningstar: Asset allocation, Commodities and Alternatives. STEELE Mutual Fund Expert, Morningstar data; supplemented by research and analysis conducted by Sustainable Research and Analysis LLC.

Institutional only sustainable fund assets under management



Notes of Explanation: Based on mutual fund share classes intended for institutional investors. Data sources: STEELE Mutual Fund Expert, Morningstar data, supplemented by research and analysis conducted by Sustainable Research and Analysis LLC; fund prospectuses and related offering documents.

<u>Sustainable index funds assets under management and number of funds-share classes and ETFs</u>



Notes of Explanation: Data sources: STEELE Mutual Fund Expert, Morningstar data, supplemented by research and analysis conducted by Sustainable Research and Analysis LLC; fund prospectuses and related offering documents.

It these charts clearly demonstrate the adaptability of the market to adopt sustainable finance practices and the will to do so in an elegant way.

Chapter 3

3.1 Stock market analysis

During the past decade, arguably even before, stock market has seen increment in sustainable investing, investments like green bonds and ETFs, based on “green” indexes have enjoyed an undeniable blooming. It should be noted that while for some companies CSR presented a business opportunity there were some endorsed with forced roads increased costs and manage, an otherwise avoidable barrage of, risks. For instance the 2014 Volkswagen scandal[23] impacted their stock price by 18% is a prudent evidence of the consequences that environmental frameworks are vast and dangerous towards a company’s financial performance, in this case through compliance and harmed reputation. On a theoretical level higher stock returns are tied to a decent management of ESG factors. The argument is that external investors view the companies as recalibratable entities, which in return should manage themselves with consideration for the image and all stakeholders. Meaning that implemented ESG strategies act as a proxy for financial welfare. It is the authors’ of this paper opinion that from the accumulated research in the past decades the tipping point of the academic publishing lies between the inability to structure a uniformal ESG rating system and the deficit of reported data, firm attitude and risk exposure. The stock market analysis will begin by review analysis reports on European firms from the index Euro Stoxx 50. The reason behind this choice lies with the fact that Eurostoxx50 is considered by many a “blue chip” in the European investing stock market.

Analytically eurostoxx50 index is a market capitalization weighted stock index formulated to represent the 50 largest companies in the Eurozone. The index maintains stocks from a collective of 9 Eurozone countries: Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands and Spain. Compartments are selected from the EURO STOXX index including both large, medium and small stocks in the Eurozone.[24] Following a collective of 5 publications will be analyzed in attempt to determine whether SRI is tied to increased returns.

(Morea et al 2022) argue that ESG profiles are connected to higher stock performance. It should be mentioned that the way in which there is relevance is by assuming that ESG awareness on the private sector demands that the concept of circular economies is somehow tied to the “E” factor and therefore is of benevolent relevance to ESG scores.

(Mango et al 2020) claim recent findings suggested that highly rated in terms of ESG score reported lower volatility and higher excess returns. However the specific article contradicts the previous evidence.

[23] **regarding the reporting emissions where vehicles were presented “greener” by purposely reporting less carbon emissions**

[24] **Euro stoxx 50 is managed and licensed by stoxx ltd a subsidiary of Deutsche Borse AG. For any company to be included it must belong in Eurozone and be in the top 50 by market capitalization**.

(Bertelli and Torricelli 2022) support that under heavy data scrutiny the leaders of the ESG ratings merit investors who elect to adopt ESG investing strategies. There is also a very important, albeit logical and expected observation regarding the dynamics of the Sharpe ratio of ESG portfolios.

(Gardenier et al 2021) who attempt to evaluate whether risk-adjusted sustainable portfolios generate higher returns of their conventional counterparts, by reference of the Sharpe ratio and the use of descriptive statistics; argue that ESG portfolios yield superior risk-adjusted returns.

(Plataniotis et al 2021), support some of the above claims defending the lately popular opinion that it pays to be good.

In conclusion most of the articles argue that it is worth investing in ESG in European area. This result is somewhat expected since Europe is considered by many a stakeholder zone, therefore careful and uniformal consideration is by definition more vibrant in those portfolios.[25]

Moving to the American continent 5 opinions regarding returns of ESG investing will be presented in the SP500[26].

(Μαυρίδης 2021) proposes that after several portfolio analysis, using the Capital Asset Pricing Model (CAMP) or the Fama-French Three Factor Model (FF3FM) the cases with superior ESG ratings outperformed their counterparts.

(Charlotte Breitz, Per Jonas Partapuoli 2020) suggest mean-variant investors should opt for stocks with lower ESG rating. Furthermore the same paper pleads that high rated ESG portfolios cannot outmatch the market.

(Doshi and Deepak 2019) came up with mixing results. On the positive side a regression between the ESG score and other factors came positive for Free cash flow, earnings per share and market capitalization yet it was not aligned with return of assets, Tobin's Q and weighted average cost of capital per firm.

(Eriksson et al 2019) failed to discover by the elected study methods endorsed any ESG related financial performance over time. It should be mentioned that the study hypothesis measures ESG performance and firm value by Tobin's Q index.[27]

(Ademi and Klungseth 2022) argue very strong results tied between ESG and financial performance. In fact it makes claims about better relative financial performance even in crisis

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[25] **It is worth noting that a lot of the aforementioned papers referenced the Sharpe ratio. This number directly affected by portfolio performance since by definition ESG investing narrows the potential options an investor may elect to invest. However while increased Sharpe ratio may occur at some of those portfolios it cannot by solely attributed to the narrowed spectrum of ESG investments.**

[26] **The reason that the author elected to expand the reference of the spectrum 10fold (SP500 instead of the top 50, lies in the fact that as of the moment of the writing Eurozone is considered a "bear" market when US is a "bull"**.

[27] **An index regarding undervalued or overvalued markets.**

times with paradigms presented from the covid-19 pandemic. Furthermore it argues that ESG (and relevant non-financial) disclosure has also positives effects for the firms.

For the third and final part of the stock market analysis the author opted for 5 study cases for the Nikkei stock exchange and the ASEAN area. In truth the Shanghai stock market is quite larger by capitalization however the afore mentioned stock exchange holds 225 “blue chips” therefore in regards to scrutinizing best cases scenarios it is elegantly more suited and thus preferred, however for the shake of completion some papers generally expand to the ASEAN[28] zone.

(Kazakakou Powaski et al 2021), composed a fixed model regression between ESG and Nikkei returns which argues a positive relation. Furthermore a portfolio they created for the purpose of scrutinizing return-risk relationship between companies without and with ESG had positive returns. It should be noted that the portfolio underperformed the benchmark.

(Giron and Fajarito 2021) published contradictory results suggesting that Japan has not yet acknowledged the consequences of ESG initiatives and disclosure to their respected credit evaluation. The specific thesis also emphasizes the importance of localization since although Japans reporting law-frames are considerable the metrics of ESG credit performance are heavily influenced not only by the firm’s actions but by financial institutions. They are also highly impacted by nature due other strategies, one need only see keiretsu networks.[29]

(Author and Kuang 2022) claim both the relationships between foreign ownership and financial performance and managerial ownership and financial performance are U-shaped that means that middle scores are below linear while both low and high are above. In regards to institutional ownership effects on ESG however the relationship (calculated by regression) is both positive and linear.

(Okimoto and Takaoka 2023) examine ESG performance in corporate bond credit spreads. The analysis utilizing the bottom-up approach indicates that ESG performance decreases the credit spreads, also the increase of ESG performance is tied with the recognition of the importance of ESG independently in all pillars. It is worth noted that corporate bond credit spread is deemed to indicate default risk of the bond issuing firms.

(Korwatanasakul and Majoe 2021) argue that ESG firms (as the study defines the firms who take into consideration ESG parameters) show in general higher profitability. A stronger claim is also made according to which ESG investing the ASEAN helps lower costs and boost revenue. However there is a lack of framework regarding ESG investing in the ASEAN area.

In conclusion most papers generally argue that ESG investing is tied with higher profits and revenues. So this paper as a critic of analytic and meta-analytic papers also argues that ESG is in

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[28] **Association of Southeastern Asian Nations**

[29] **Where several interdependent firms with a bank in the middle acting as a guarantor purchase each other’s stocks in an attempt to “force” more linear cooperation**.

most cases aligned with higher profits. It should be noted that in a plethora of the reviewed papers the link between ESG investing and profitability, revenues and-or other financial figures is week however real. This result is to be expected not only some markets are volatile but all of them are laggard to adapt to changes, which means that immense aftereffects of ESG investing (benevolent or otherwise) have yet to manifest themselves.

3.2 Best cases scenario

In this paragraph companies that achieved the most in sustainable finance and far best in ESG test will be displayed. This paper was initiated by analyzing the MSCI rating method in order to give insight to how an ESG score may be deduced. In this part however the author believes it is out of the scope of this paper to rate companies and therefore third party ratings will be employed to be scrutinized.[30] Furthermore to provide an answer to the question does it pay to be good a five year ESG score as it was calculated by MSCI[31] will be cross referenced with RoE, stock price and gross profit.

The Coca-Cola Company is a multinational corporation that produces beverages founded in 1892 mostly known for its production of the Coca Cola. The company does produce and distributes a concentrated juice that when mixed with water produces the final product. The company itself albeit opted to not affiliate with the drink oversees very closely the original product distribution and generally does not allow third parties to handle logistics. This is why and this is a major issue for the company the final products taste is subject to regional constrains, since the drinkable water does not taste the same all over the world.

Historically the drink was originally distributed as medicine for the stomach and was bottled on demand at a local pharmacy in America. After a limited funded promotion a company was finally created in Atlanta in 1892. By 1948 the company dominated 60% of the markets share which was due fall to 22% against hard pressed competitors. After a series of an arguably successful strategy of buying and selling enterprises (notably selling Columbia Pictures to Sony for 3$ billion in 1989) the company managed to purchase most of its overseas counterpart competitors. Until 2020 after a lengthy takeover battle Coca-Cola Company has established itself as the dominant carbonated product in the global markets. While there is margin for competition and it is leveraged adequately the company has clearly the better portion of the market.

Financial Analysis

In regards to competition the only comparison that to the author's view holds ground against Pepsi Co therefore an analysis will be made on the aforementioned companies. The analysis will initiate by stating that Coca Cola is a company where Pepsi Co is incorporated (that means

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[30] **A main reason for this is that all ESG rating methods are one way or another subject to individual opinion, for example in MSCI rating one can argue that one company pillar is 25% of the overall score while another 30%.**

[31] **Since Morgan Stanley uses a scale from AAA to CCC the author opted to transform the rating in his model ranking from top (7) to laggard (1).**

limited liability and shareholder are not responsible neither for the actions of the company nor anything beyond than the invested capital). Furthermore unlike competition Coca Cola elects not to bottle (there is however a company that bottles named Coca Cola Consolidated) but in general the company delivers its product to be bottled remotely and by closely monitored third party companies.

Coca-Cola Co and Coca-Cola Consolidated stock price

All though there is no comparison here, it is an indication of well fares the official bottling company (this is an ltd organization) against the original manufactor.

Coca-Cola Co versus PepsiCo Inc. stock price

While Coca Cola is bigger than Pepsi Co both in terms of capitalization and market share it is clear that there is a difference between the two companies in the stock market.

Coca-Cola Co on NYSE Composite

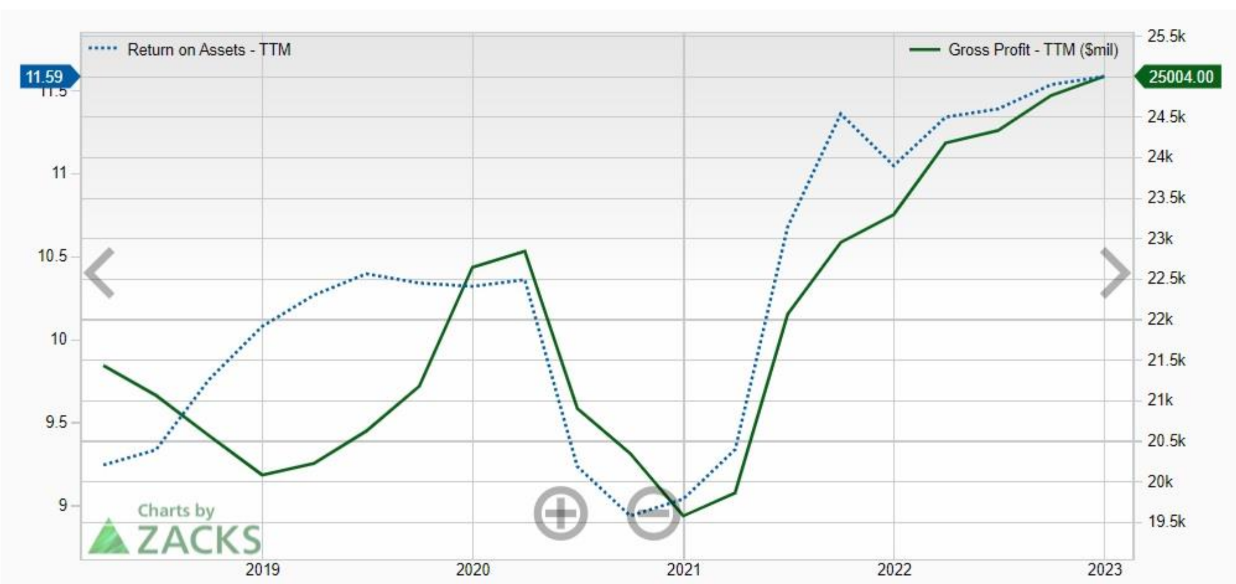
A noteworthy historic reference is that the legislation for the incorporated companies was proposed in New York in 1811. Where one could simply go the town hall and with a relative simple for the time process could make a company responsible only for its initial capital. In response to this action Massachusetts (in the south, it is important since we are behind 1864 and there was tension which eventually led to a civil war in 1861) comprised a law that made the shareholders fully accountable for their company's actions. That eventually led to New York being the financial center of America due to its concentration in investing capital.

Here a chart of return on equity with market volatility (measured by beta) are compared. In mid-2021 a rising beta is observed that follows a rise on return on equity that could probably be a gamble that paid off.

Coca-Cola Co Beta versus RoE

Following up gross profit is cross referenced with return on assets in an attempt to evaluate to what extend the company takes advantage of its current assets. As it is clear there is a gap in 2019 which (besides obvious reasons to attribute to) there is a huge margin to take advantage on companies assets.

Coca-Cola Co RoA versus Gross Profit



Sustainability Analysis

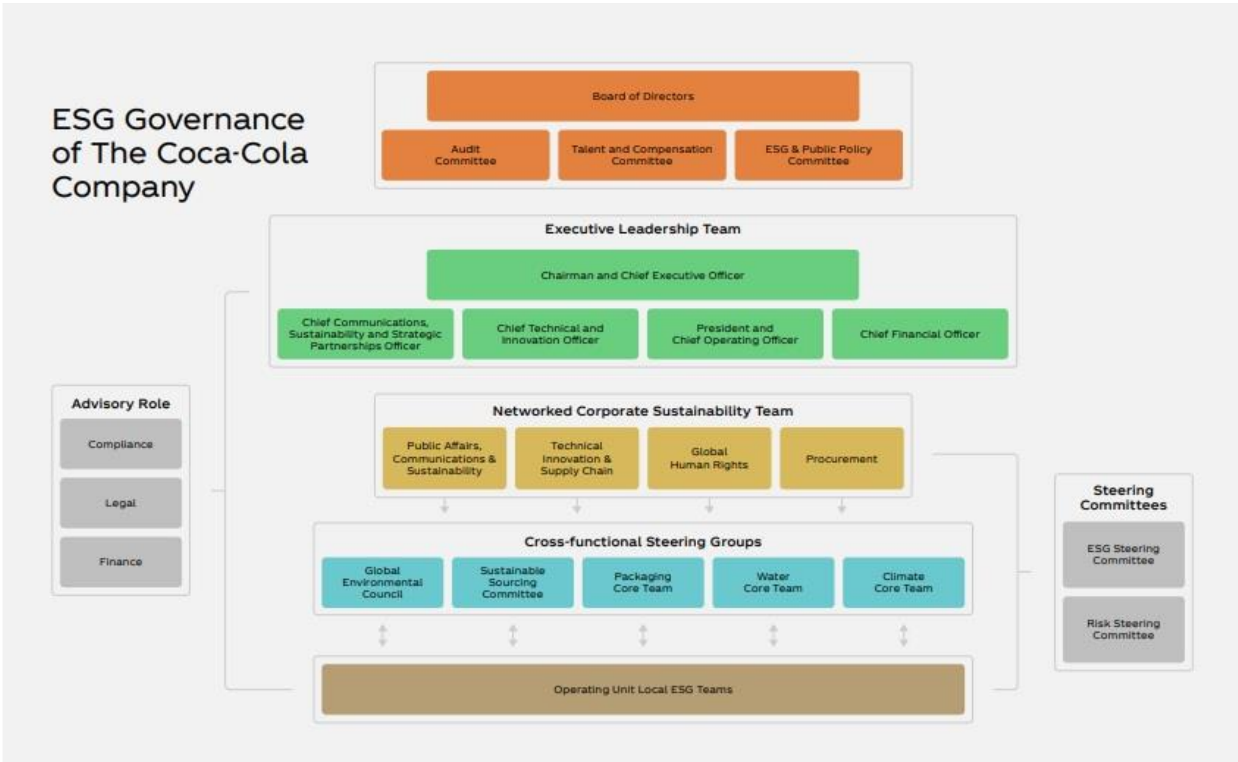
The results here are copied from the company's latest sustainability report on 2021. For the environment there are several points that the company takes advantage and according to their opinion they see fit to return. The company claims that 167% of water used in their finished beverages is returned to nature and communities and they have provided drinkable water and sanitation to more than 18.5 million people since 2010. A rather bold claim was also made to make 100% of the packaging recyclable by 2025 and use at least 50% of recycled material by 2030. Further claims were made to reduce virgin plastic (that is any and all source of polyester extracted from the environment) by a collective of 3 metric tons by 2025 and collect and recycle a bottle per/unit sold by 2030. The company also pledged to reduce greenhouse gas emissions by 25% and are hopeful to achieve net zero carbon footprint by 2050. Finally the board opted to partner with more sustainable agricultural parties, marking a collective of 58% of their total ingredients subject to sustainable methods and demanded sustainable principles by their bottlers.

While not related to environment but to public health the company also claims that average sugar per 100ml declined (as measured by sales) and unit case volume grew with the exception of 2020 adverse results which allegedly are due to pandemic. In the same topic 28% of their final volume sold was low or no calorie beverages.

In regards to social policies coca cola was nominated twice. Once by Bloomberg 2021 Gender-Equality index and once Disability Equality Index marking the company as a leader in diversity equity and inclusion. In fact only 14.8% of their people are white and more of them African American with the majority being Hispanic.

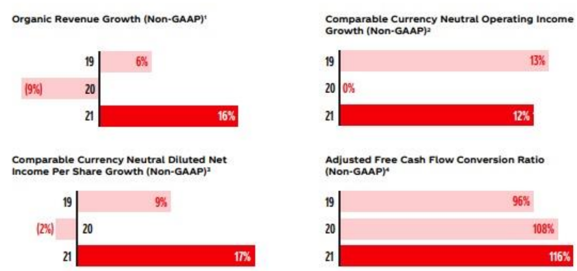
In regards to governance the coca cola company runs day to day business in accordance to this chart.

ESG Governance Coca-Cola Co

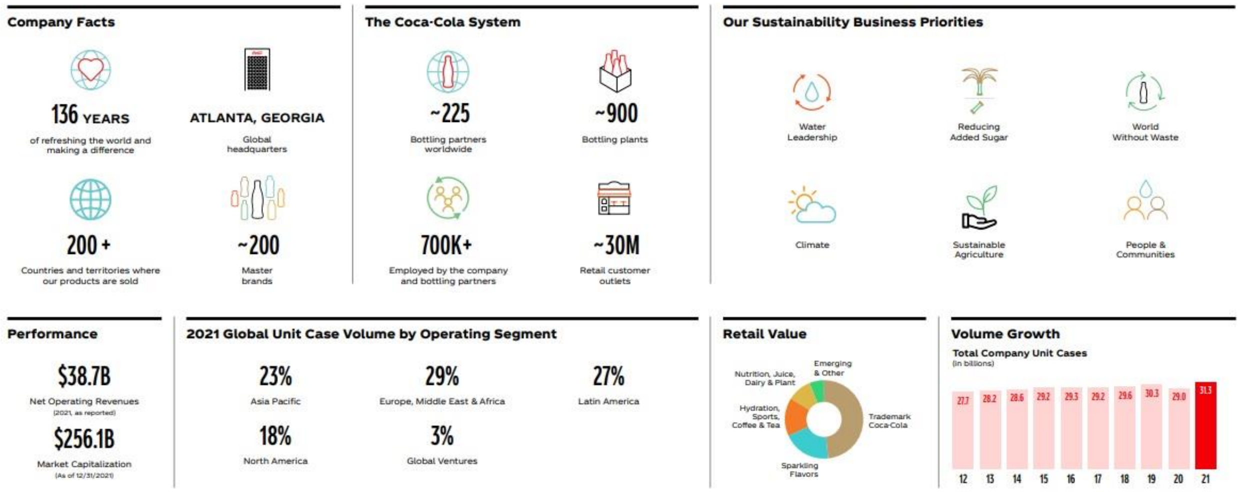


And according to the financial highlights of the company their revenue grew even while they invested more in ESG policies.

(in millions except per share data)	2021	2020	2019
Summary of Operations			
Net operating revenues	$ 38,655	$ 33,014	$ 37,266
Operating income	10,308	8,997	10,086
Net income attributable to shareowners of The Coca-Cola Company	9,771	7,747	8,920
Per Share Data			
Basic net income	$ 2.26	$ 1.80	$ 2.09
Diluted net income	2.25	1.79	2.07
Cash dividends	1.68	1.64	1.60
Balance Sheet Data			
Total assets	$ 94,354	$ 87,296	$ 86,381
Long-term debt	38,116	40,125	27,516



Finally to sum up the ESG reporting of the company follows a figure of relative collective numbers.



In regards to the question does it pay to be good below are provided descriptive statistics. The data was gathered by MSCI (https://www.msci.com/our-solutions/esg-investing) and Macrotrends (https://www.macrotrends.net/).

Coca-Cola ESG

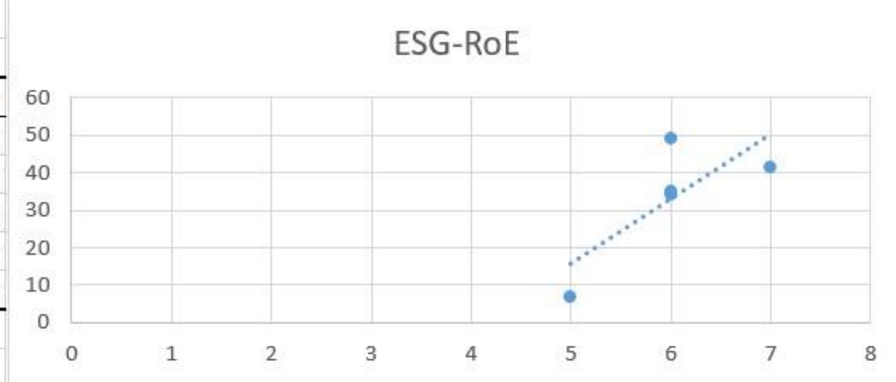
In the past 5 years the Coca-Cola co has made advancements towards improving its ESG score even under the pressure of global events such as covid19 and the Ukrainian conflict.

Coca-Cola ESG Pivot Table

Year	ESG Score	ESG Score Normalized	RoE %	Stock Price $	Gross Profit *10^6$
2018	A	5	6.76	37.08	21.23
2019	AA	6	34.05	41.39	22.64
2020	AA	6	48.92	40.32	19.58
2021	AA	6	34.73	49.65	23.29
2022	AAA	7	41.19	60.21	25
Average	AA	**6**	**33.13**	**45.73**	**22.348**

Linear Regression Coca-Cola ESG Score with RoE

SUMMARY OUTPUT



Regression Statistics	
Multiple R	0.764895
R Square	0.585065
Adjusted R	0.446753
Standard E	0.52595
Observatic	5

ANOVA

	df	SS	MS	F	ignificance F
Regressior	1	1.17013	1.17013	4.230049	0.131912
Residual	3	0.82987	0.276623		
Total	4	2			

	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%	pper 95.0%
Intercept	4.874051	0.595842	8.180102	0.003822	2.977815	6.770288	2.977815	6.770288
X Variable	0.033986	0.016524	2.056708	0.131912	-0.0186	0.086574	-0.0186	0.086574

<u>Linear Regression Coca-Cola ESG Score with Stock Price</u>

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.876787
R Square	0.768755
Adjusted R	0.691674
Standard E	0.392636
Observatic	5

ANOVA

	df	SS	MS	F	ignificance F
Regressior	1	1.537511	1.537511	9.973278	0.050948
Residual	3	0.462489	0.154163		
Total	4	2			

	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%	pper 95.0%
Intercept	2.960209	0.978438	3.025442	0.056515	-0.15362	6.074036	-0.15362	6.074036
X Variable	0.066473	0.021049	3.15805	0.050948	-0.00051	0.133459	-0.00051	0.133459

<u>Linear Regression Coca-Cola ESG Score with Gross Profit</u>

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.648125
R Square	0.420066
Adjusted R	0.226754
Standard E	0.62179
Observatic	5

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	0.840131	0.840131	2.172998	0.236891
Residual	3	1.159869	0.386623		
Total	4	2			

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	1.019828	3.389853	0.300847	0.783176	-9.7682	11.80785	-9.7682	11.80785
X Variable	0.222846	0.151174	1.474109	0.236891	-0.25826	0.703948	-0.25826	0.703948

Linear Regression Coca-Cola ESG Score with the Collective Data[32]

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.9794948
R Square	0.95941007
Adjusted R Squ	0.83764027
Standard Erro	0.28492081
Observations	5

RESIDUAL OUTPUT

Observation	*Predicted Y*	*Residuals*
1	4.96357784	0.03642216
2	5.9295122	0.0704878
3	5.97836853	0.02163147
4	6.24614346	-0.24614346
5	6.88239797	0.11760203

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	1.91882013	0.63960671	7.87888361	0.25477278
Residual	1	0.08117987	0.08117987		
Total	4	2			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.62696126	2.51606636	0.64662891	0.63457915	-30.3426931	33.5966156	-30.3426931	33.5966156
X Variable 1	0.02577709	0.01324177	1.94665008	0.3021078	-0.14247553	0.1940297	-0.14247553	0.1940297
X Variable 2	0.02839138	0.04323646	0.65665362	0.63009945	-0.5209799	0.57776265	-0.5209799	0.57776265
X Variable 3	0.09936935	0.17642741	0.56323077	0.67344944	-2.14235346	2.34109215	-2.14235346	2.34109215

[32] **While much information is forfeit by combining the collective economic data into an "all inclusive" linear regression. An overall model is formulated in the name abundancy.**

In the case of Coca-Cola it appears that there is a strong connection between ESG and financial performance. In fact in this case changes in RoE are strongly tied to the ESG score with a rather high statistical significance.

Intel Corporation is a multinational of American interests (headquarters are in Santa Clara, California) that produces semiconductor chips. The aforementioned product is a basic material for companies like Acer, Lenovo, Xiaomi and other major tech manufacturing giants. The company itself was founded on 1968 and is credited a major impact in the creation and current league of Silicon Valley. In fact integrated microchips and circuit boards were made worldwide famous because of this company (until then cables used to run from one place to another). The major stepping stone in expanding business was the creation of the personal computer (PC). At the time forecasting a blooming in the business Intel heavily invested in the industry. A rather aggressive at the time competitive strategy forced almost all competition to abandon the industry (except for AMD), since all architectonic structure (both x86 and x64 systems) are locked behind patents (in theory it is possible to make another system however since both hardware and software need to be "invented" and augmented to the point of consumer friendly status, both of which require excessive funding and state of the art facilities, it is considered impossible to compete against the two giants). Before exploring financial figures it should be noted that Intel and AMD have three possible markets against they compete. The first being federal contracts, where the government is outsourcing projects to private sector. For this part Intel had chronically advantage over AMD. Following up comes the business market. Private companies in need for industrial microprocessors and other electronics. For the better of the last decade Intel also dominated the market (there were exceptions). While Intel has proven time after its dominance on B2B transaction it is worth noting that AMD offered lesser affordable solutions to small businesses in need of computing services. Finally is the consumer market with the biggest idiosyncratic revenues and the giants going head to head (to clarify both industries were forced several times to launch a consumer option early due to high competition for fear of losing market share) offering solutions (mostly to the gaming industry) that have different compelling points, with AMD lately on top offering the most value for money solutions.[33]

Financial Analysis

As stated before the only comparison that makes any is with AMD. While AMD also opt for graphic processing units (GPUs) and there is another tech giant that produces directly GPUs namely NVDIA the latter does not have a license to produce processors but only graphic cards. Hence the comparison will be made between only Intel and AMD.

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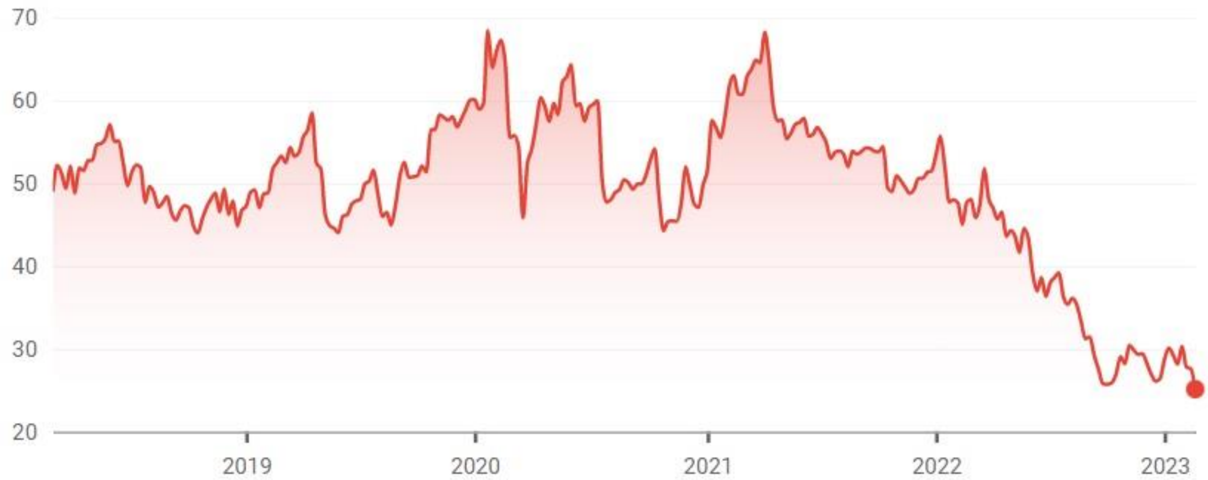
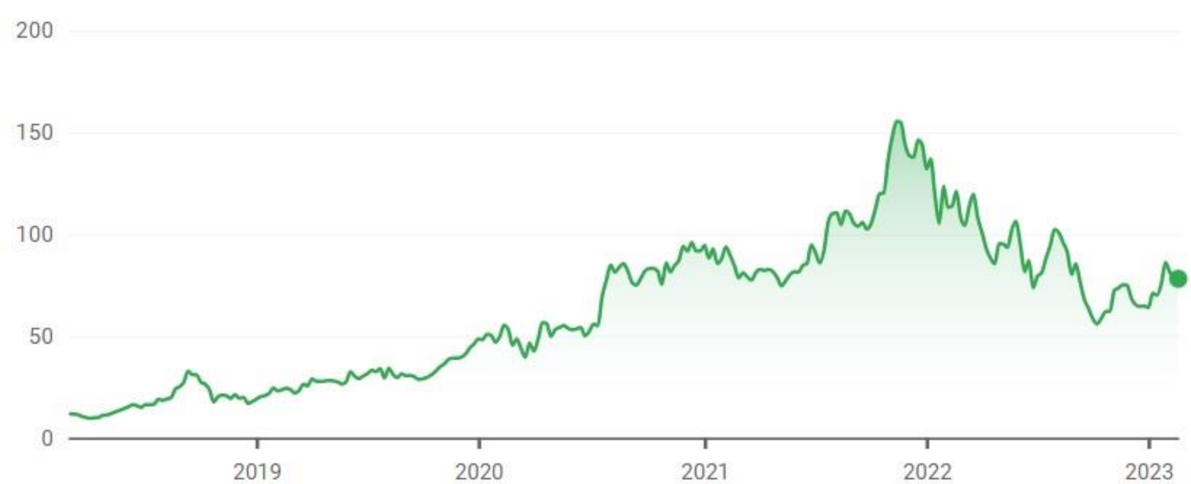
[33] **The term micro-processor refers mostly to central processing units CPU, however it may or may not include (depending on the fiscal year) storage systems, GPUs, artificial intelligence systems and memory solutions.**

Intel stock price



AMD stock price

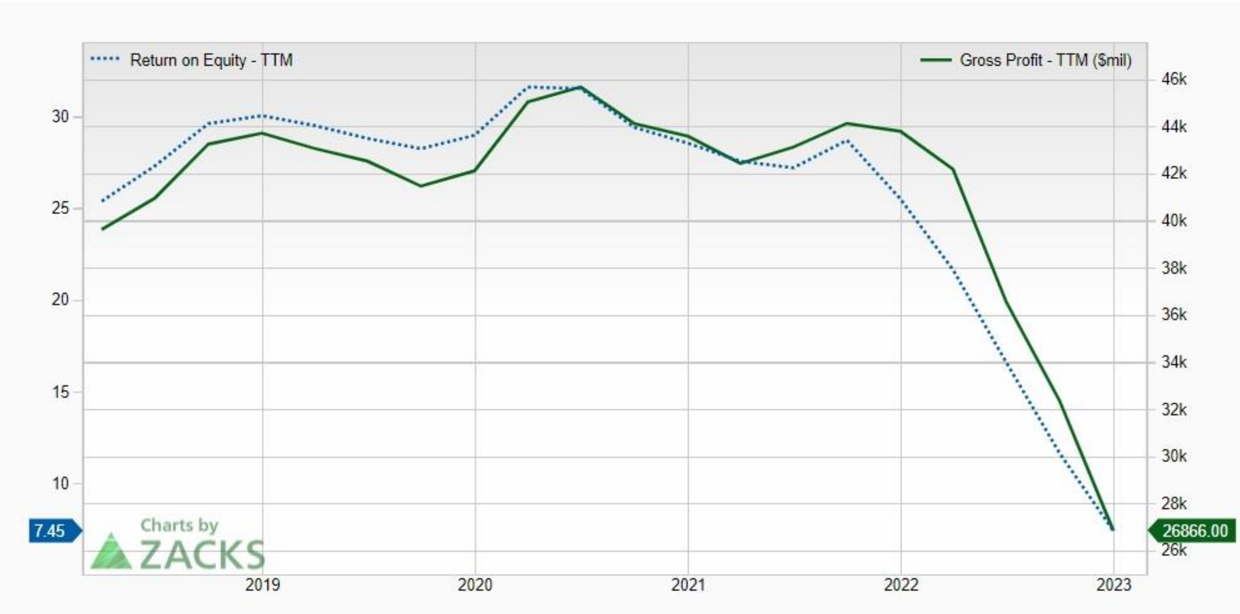


Direct competition symmetrically enjoyed a steep boost in last 5 years due to their value for money products to consumer markets.

Intel Beta versus RoA

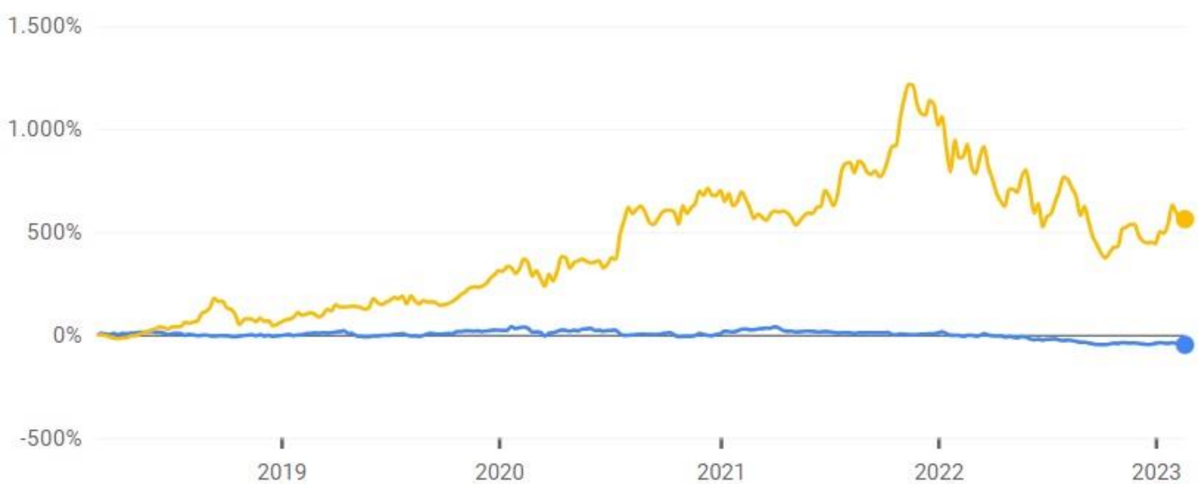
The lack of inversity on first years of the chart is that due to pandemic lockdowns a lot of people opted for electronic leisure and although there was volatility at the market the supply outmatched the demand to the point of not having enough sand to produce silicon for the chips.

Intel RoE versus Gross Profit



The aforementioned decline is very obvious here as well.

<u>Intel versus AMD</u>



Finally as it is depicted in the above chart competition fares well against Intel enjoying a fair advantage across the charts.

Before proceeding to the sustainability analysis it worth noting that tech market is extremely volatile and subject to technological invention that may disrupt the market "overnight".

Sustainability Analysis

In terms of ESG Intel has been a protagonist in the matter for several years. For the environment Intel promises a neutral carbon computing environment and demands rather high sustainability goals from their partners. Their headquarters announced a 2% greenhouse gas emission reduction in 2021 and a reduced consumption of kWh of the magnum of 162 million. Furthermore the company conserved 9.3 billion gallons of water worldwide. The company also implemented circular economy and advanced recycling for radioactive material. In terms of social responsibility Intel is an all-inclusive company hosting a multi diverse company, which is harder than it may seem because although the company is eager to provide equal chances to all personnel, most of the workforce requires access to higher education which is something that is not available to all their facility locations (see the factor in Saudi Arab for instance). They are also proud to have announced more than 848,000 hours of local communities services time donated by their employees. Their supplier diversity program reached a net budget of 1.4 billion. All in all their efforts towards ESG are intensive enough to have awarded them several recognitions and awards as they proudly announce.

Awards and Recognitions

Third-party ratings and rankings give us valuable feedback on our programs and practices, and help drive continuous improvemei corporate responsibility-related awards and recognitions that Intel received in 2021 and in the first quarter of 2022.

3BL Media. 100 Best Corporate Citizens

AISES. Top 50 Workplaces for Indigenous STEM Professionals

American Association of People with Disabilities and Disability:IN. Disability Equality Index

As You Sow. Clean200

AnitaB.org. America's Top Corporations for Women Technologists

Barron's. #1 Most Sustainable Company

Bloomberg. Bloomberg Gender-Equality Index

CDP. "A" Water Security Rating, "A" Climate Change Rating, Supplier Engagement Leadership Rating

Center for Political Accountability. CPA-Zicklin Index of Corporate Political Disclosure and Accountability—Trendsetter Company

Center for Resource Solutions. Renewable Energy Markets Asia Award

Corporate Knights. Global 100 Most Sustainable Corporate Citizens

DisabilityIN. ERG of the Year

Dow Jones Sustainability Index. North America Index

Ethisphere Institute. World's Most Ethical Companies

Forbes. World's Best Employers, America's Best Employers for Women, America's Best Employers for Diversity, America's Best Employers for New Grads, and America's Best Employers for Veterans

Fortune. Top 20 Fortune 500 Companies on Diversity and Inclusion

FTSE Group. FTSE4Good Index[1]

Gartner. Supply Chain Top 25

Hispanic Association of Corporate Responsibility. Corporate Inclusion Index 5-Star Rating for Governance

Human Rights Campaign. Corporate Equality Index

ISS. 1 rating in both Environment & Social QualityScore[2]

JUST Capital and Forbes. JUST 100

LATINA Style 50. Top 50 Best Companies for Latinas to Work in the US

Minority Engineer. Top 50 Employers

MSCI. World ESG Leaders Index[3]

National Business Inclusion Consortium. Best-of-the-Best Corporations for Inclusion

Newsweek. America's Most Responsible Companies

Religious Freedom & Business Foundation. Corporate Religious Equity, Diversity and Inclusion Index

RepTrak. 2021 Global RepTrak® 100

US Environmental Protection Agency. #3 Ranking on Green Power Partnership National Top 100

Wall Street Journal. Management Top 250

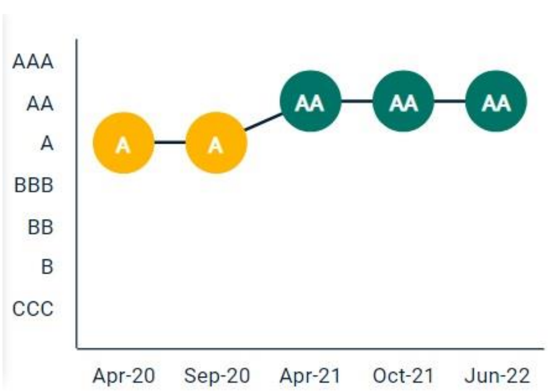
Women's Business Enterprise National Council. Top Corporations for Women's Business Enterprises

WE Connect International. Top 10 Global Champions for Supplier Diversity Inclusion

Women Engineer Magazine. Top 50 Employers – Reader's Choice

Working Mother. 100 Best Companies for Multicultural Women

Intel ESG



Intel fares relatively well on ESG and according to Stanley Morgan did a better a job in managing its behavior to itself and the environment. Below the regression will examine whether this behavior is significantly tied with changes in economic revenues.

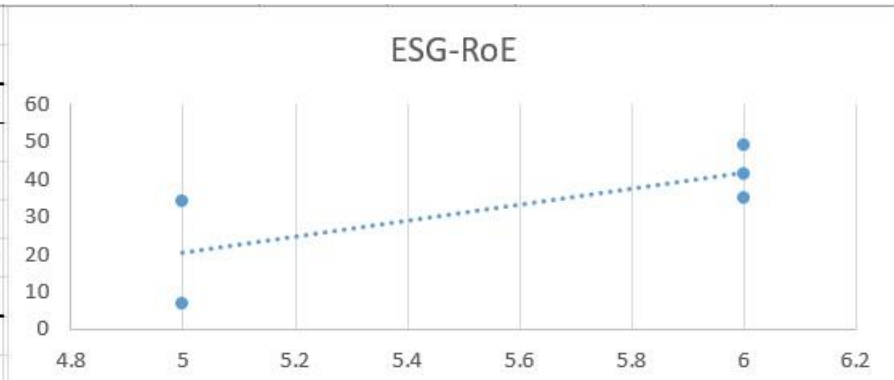
Intel ESG Pivot Table

Year	ESG Score	ESG Score Normalized	RoE %	Stock Price $	Gross Profit *10^6$
2018	A	5	6.76	37.08	43.73
2019	A	5	34.05	41.39	42.14
2020	AA	6	48.92	40.32	43.62
2021	AA	6	34.73	49.65	43.81
2022	AA	6	41.19	60.21	26.86
Average	A-AA	**5.6**	**33.13**	**45.73**	**40.032**

Linear Regression Intel ESG Score with RoE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.729923
R Square	0.532788
Adjusted R	0.377051
Standard E	0.432302
Observatic	5



ANOVA

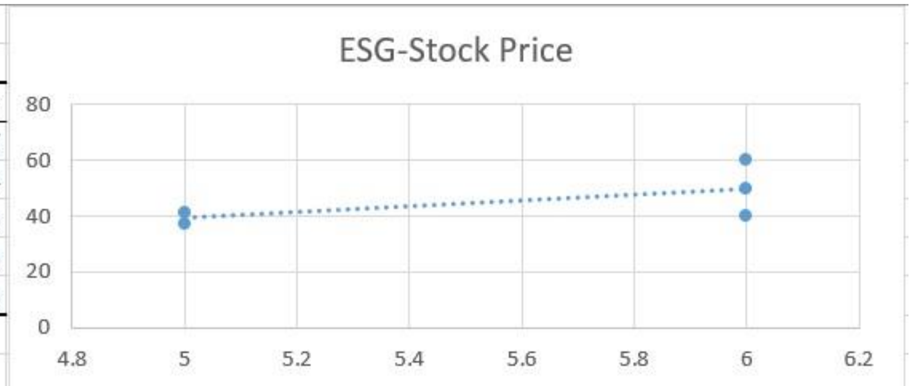
	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	0.639346	0.639346	3.421068	0.161487
Residual	3	0.560654	0.186885		
Total	4	1.2			

	Coefficients	*andard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	4.76772	0.489749	9.735019	0.002303	3.209119	6.326322	3.209119	6.326322
X Variable	0.025122	0.013582	1.849613	0.161487	-0.0181	0.068346	-0.0181	0.068346

Linear Regression Intel ESG Score with Stock Price

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.6357
R Square	0.404114
Adjusted R	0.205485
Standard E	0.488215
Observatic	5



ANOVA

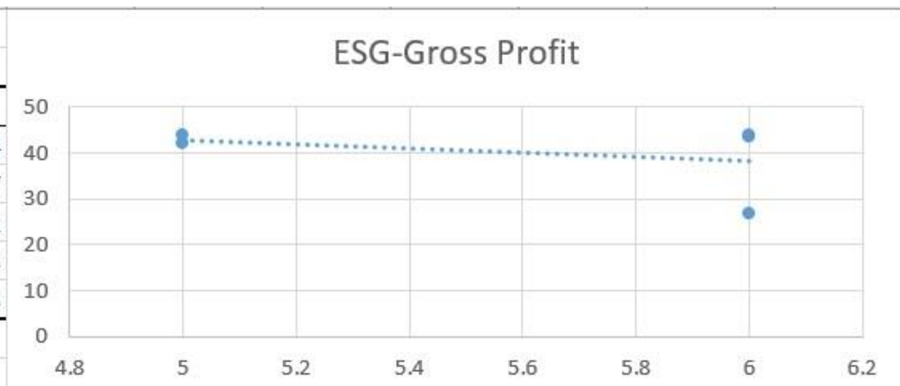
	df	SS	MS	F	ignificance F
Regressior	1	0.484937	0.484937	2.034521	0.249021
Residual	3	0.715063	0.238354		
Total	4	1.2			

	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%	pper 95.0%
Intercept	3.892828	1.21662	3.199708	0.049343	0.021001	7.764655	0.021001	7.764655
X Variable	0.037332	0.026172	1.426366	0.249021	-0.04596	0.120624	-0.04596	0.120624

Linear Regression Intel ESG Score with Gross Profit

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.35834
R Square	0.128407
Adjusted R	-0.16212
Standard E	0.590455
Observatic	5



ANOVA

	df	SS	MS	F	ignificance F
Regressior	1	0.154089	0.154089	0.441975	0.553709
Residual	3	1.045911	0.348637		
Total	4	1.2			

	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%	pper 95.0%
Intercept	6.662433	1.619764	4.113212	0.026029	1.507621	11.81725	1.507621	11.81725
X Variable	-0.02654	0.03992	-0.66481	0.553709	-0.15358	0.100505	-0.15358	0.100505

Linear Regression Intel ESG Score with the Collective Data

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.85556264
R Square	0.731987431
Adjusted R Squai	-0.072050278
Standard Error	0.567111174
Observations	5

RESIDUAL OUTPUT

Observation	Predicted Y	Residuals
1	4.845381227	0.154618773
2	5.476233857	-0.476233857
3	5.737741808	0.262258192
4	5.983894553	0.016105447
5	5.956748556	0.043251444

ANOVA

	df	SS	MS	F	Significance F
Regression	3	0.878384917	0.292794972	0.91038943	0.628397087
Residual	1	0.321615083	0.321615083		
Total	4	1.2			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1.035156211	5.565040209	0.186010554	0.882920084	-69.67538405	71.74569647	-69.67538405	71.74569647
X Variable 1	0.017287011	0.020171723	0.856992285	0.548929767	-0.239019032	0.273593054	-0.239019032	0.273593054
X Variable 2	0.051850134	0.063825904	0.812368185	0.565674341	-0.75913487	0.862835137	-0.75913487	0.862835137
X Variable 3	0.040493068	0.075630617	0.535405757	0.68705719	-0.920485041	1.001471177	-0.920485041	1.001471177

Albeit not strong there seems to be a correlation between ESG scores and financial performance. Specifically while there does not seem to exist any connection between ESG score and gross profit[34]; there exists a weak one between the ESG performance and stock price and a rather stronger with RoE.

Mastercard is a company that was founded in 1967 (at the time was called The Interbank Card Association). It should be noted that at the time Bank of America was just about unable to hide profits (a tactic employed to ward of competition). When the news reached the business world the number of credit cards introduced jumped from 10 (1960-1966) to over 440 (1966-1968). The new credit cards mostly banded collectively into regional bankcard associations. The logic behind this strategy lies in current legislations in accordance to which 16 states narrowed the capacity of banks to operate through branches, while 15 demanded even more confining policies by demanding unit banking. While it is clear that the regional constrains limited the potential for expansion of banks associations allowed banks to tie their cards in a number of financial services and products. Thus the only profit for margin tactic was for a bank to join an association outsourcing back office task to the

[34] A negative slope on the regression does not indicate that the adverse of the question is wrong, it does however suggest that the evidence under process do not support the claim.

latter. This was also the only allowed portal to access trade networks (needed to incorporate B2C transactions). A series of events regarding competition lead in 1966 for several banks and bankcard associations to join forces as InterBankCard Inc. which soon became known as the Interbank Card Association listing over 150 members in 1967. The multivariable shareholder environmental forged the need for the known logo on a side of a card to indicate it is part of the organization while the rest of the branding was (and is still up to date) to the respectful stakeholder's discretion. Notably as one of the few cases in finance that necessity did not inspire invention the Interbank Card Association allied with Eurocard in 1968 (it was not before that 1981 that SWAPS started taking place). In 1972 the Access card system for the United Kingdom joined the alliance. The Interbank card acquired its known name MasterCard in 1979. A rapid increase in the network came in 1985 when MasterCard deployed a network of automatic tellers (ATMs) in their service significantly reducing back office work while increasing the number of associated transactions. On 2006 the reorganizes as a collective of cooperative of banks placed an initial offering on NYSE selling 95.5 million shares at 39$ each. A notable green initiative was marked in 2021 when MasterCard created a calculator that allows consumers to estimate their contribution in carbon footprint and global warming.

Financial Analysis

Since comparison only holds ground when comparing similar firms the analysis will begin by comparing MasterCard to the "big 4" that is American Express, Visa and Discover. While there are other competitors namely PayPal or Capital One they are not exactly competing in the exact business, for instance Capital One is a bank, contrary to the somewhat popular opinion MasterCard is not bank itself; it only acts as a liaison between banking institutions and other businesses and consumers.

<u>MasterCard Inc. versus Visa Inc.</u>

Mastercard Inc versus American Express

Even though MasterCard entered the market somewhat late (2006) it fares well against competition. It also closely follows the SP Global index suggesting a close tie to the market.

MasterCard Inc. versus S&P Global

To better understand the previous statement a five year chart of the collective companies will be presented.

MasterCard Inc. versus competition

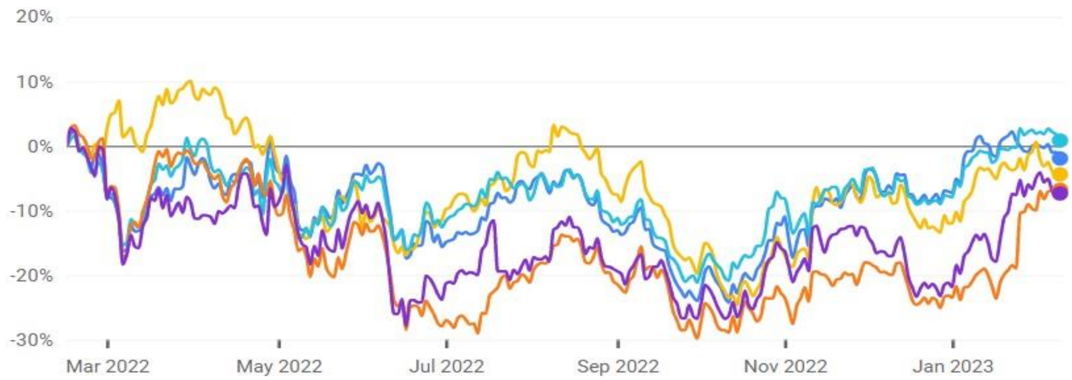
Mastercard Inc	$366.83	+$191.18	↑108.84%
American Express ...	$179.25	+$82.46	↑85.19%
Visa Inc	$227.20	+$105.35	↑86.46%
Discover Financial ...	$115.00	+$35.47	↑44.60%

MasterCard Inc. versus S&P Global

Mastercard Inc	$366.83	+$191.18	↑108.84%
S&P Global Inc	$363.86	+$174.58	↑92.23%

In this chart MasterCard is obviously above the market almost all across the board suggesting successful tactics and idiosyncratic profit.

MasterCard Inc. versus competition on S&P Global



Mastercard Inc	$366.83	-$7.33	↓1.96%
S&P Global Inc	$363.86	-$16.85	↓4.43%
Visa Inc	$227.20	+$1.86	↑0.83%
American Express ...	$179.25	-$13.10	↓6.81%
Discover Financial ...	$115.00	-$9.16	↓7.38%

As expected liaisons for monetary transactions follow closely the markets imitating ups and downs since they are directly tied to the cash flow.

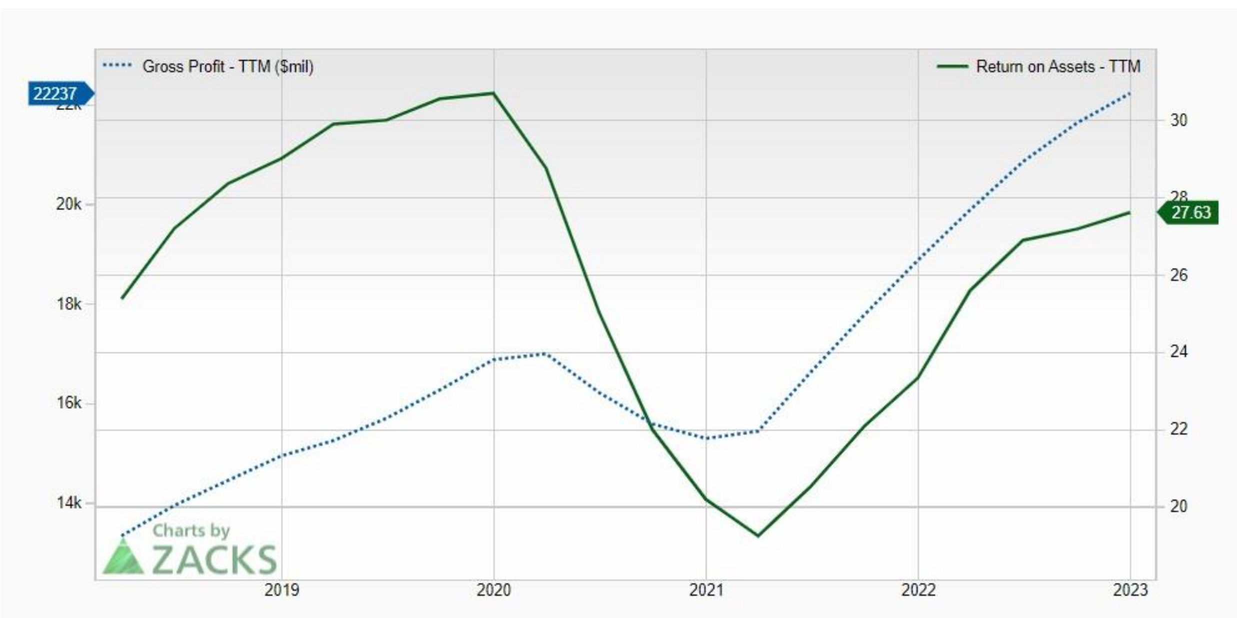
Visa Inc. versus American Express versus Discover Financial

In regards to the direct competition the leader is Visa following American Express and last comes Discover.

MasterCard Inc. Beta versus RoE

The latter chart shows beta cross referenced with ROE. The inverse graphs suggest a decent handling of assets on a stable markets where volatility shows how effectively the board responds in "uncharted waters".

MasterCard Inc. RoA versus Gross Profit



Finally this chart depicts return on assets over gross profit over a five year period. To sum up the analysis it should be mentioned that besides the obvious pandemic dates in 2022 all companies complied with the current US sanctions to bar transactions in Russia. For MasterCard this accounted for 4% of their revenue.

Sustainability analysis

In regards to ESG reporting according to MasterCard sustainability report (of the year 2021 most recent at the time) they believe in doing well be doing good further arguing that one ESG pillar should not prosper on the expense of another. The report unfolds by stating the company's purpose and belief. The company has helped more than 675 million people connect to modern financial environment and has the rather ambitious claim that it will reach over a billion by end 2025. In an attempt to lessen the racial wealth and opportunity gap the company made multi-million dollar investment in minority owned startups and provided financial and STEM education. They also opted to diversify their recruiting and talent pipeline. Finally the company approved a program by which they funded more than 260 million in 143 organizations over 94 countries.

On the environmental section of ESG they claimed a net-zero emissions by 2040, contributed through programs to restore 100 million trees and created a sustainability innovation lab to co-create solutions towards sustainable commerce. One of the labs products is a calculator that allows people to approximate their purchases carbon footprint.

On the social pillar MasterCard announced plans to equal pay parity and balance LGBTQ+, disability and accessibility inclusion. Flexibility on working schedules and remote access was established and launched an AI-based platform that supports their workforce's career developments.

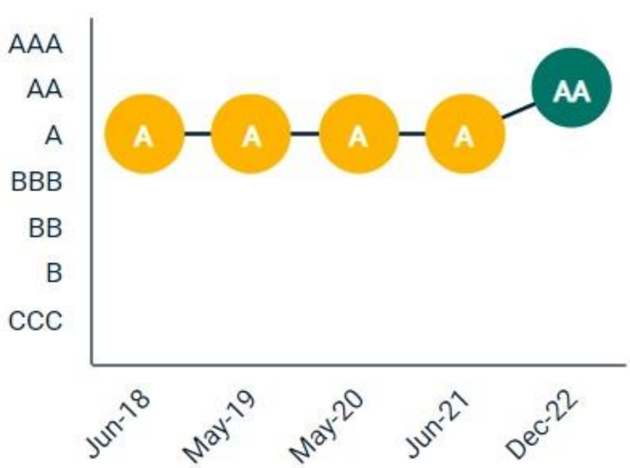
Contributions towards the governance structure include the publishing of the cybersecurity principles that secure monetary transactions and linking compensation towards carbon neutrality, financial inclusion and gender pay parity.

To sum up there are some collective figures representing the company's growth.

GAAP		
Net revenue **$18.9B** up 23%	Net income **$8.7B** up 35%	Diluted EPS **$8.76** up 38%
Non-GAAP [1] (currency-neutral)		
Net revenue **$18.9B** up 22%	Adjusted net income **$8.3B** up 28%	Adjusted diluted EPS **$8.40** up 30%
$7.6B in capital returned to stockholders	**$5.9B** Repurchased shares **$1.7B** Dividends paid	**$9.5B** cash flows from operations
Gross dollar volume (growth on a local currency basis) $7.7T up 21%	Cross-border volume growth (on a local currency basis) up 32%	Switched transactions 112.1B up 25%

According to their sustainability report it does pay to be good and a large part of their growth is based on sustainable investing.

MasterCard ESG



MasterCard achieved an average score for the most part of the 5 year period. As mentioned above the company decided to comply with US regulations restricting financial flows to Russia as retaliation for the ongoing hostilities. Business with Russia accounted for about 5% of the company's total revenue at the time a fact that should be taken into consideration while reading the results of the regression.

MasterCard ESG Pivot Table

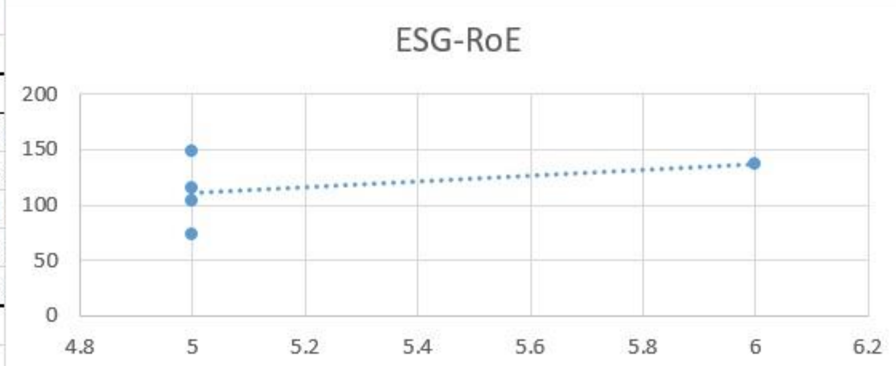
Year	ESG Score	ESG Score Normalized	RoE %	Stock Price $	Gross Profit *10^6$
2018	A	5	73.4	193.58	14.95
2019	A	5	114.91	276.2	16.88
2020	A	5	148.93	318.57	15.3
2021	A	5	103.63	343.32	18.88
2022	AA	6	136.56	351.4	22.23
Average	A-AA	**5.2**	**115.486**	**296.614**	**17.648**

Specifically the impact results in a RoE reduction which would in turn lessen the significance of the question that ties is to ESG score.

Linear Regression MasterCard ESG Score with RoE

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.399706
R Square	0.159765
Adjusted R	-0.12031
Standard E	0.473353
Observatic	5



ANOVA

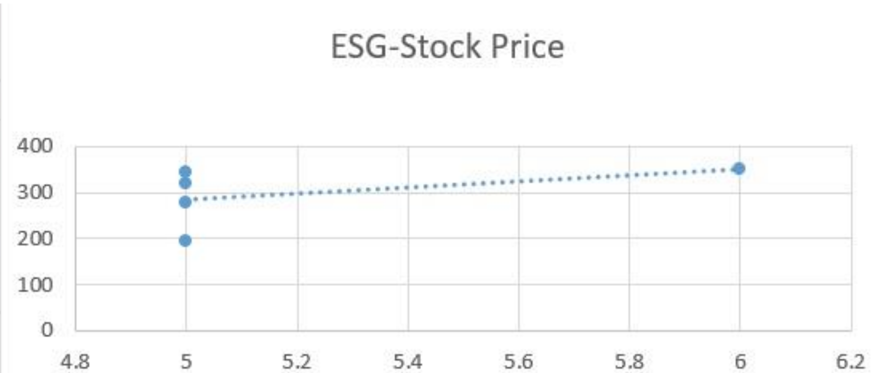
	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	0.127812	0.127812	0.570429	0.504975
Residual	3	0.672188	0.224063		
Total	4	0.8			

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	4.499588	0.951224	4.730315	0.017906	1.472369	7.526806	1.472369	7.526806
X Variable	0.006065	0.00803	0.755268	0.504975	-0.01949	0.03162	-0.01949	0.03162

Linear Regression MasterCard ESG Score with Stock Price

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.474019
R Square	0.224694
Adjusted R	-0.03374
Standard E	0.454696
Observatic	5



ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	0.179755	0.179755	0.869439	0.419893
Residual	3	0.620245	0.206748		
Total	4	0.8			

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	4.226798	1.063343	3.975008	0.028471	0.842765	7.610831	0.842765	7.610831
X Variable	0.003281	0.003519	0.932437	0.419893	-0.00792	0.014479	-0.00792	0.014479

Linear Regression MasterCard ESG with Gross Profit

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.855057
R Square	0.731122
Adjusted R	0.641497
Standard E	0.26777
Observatic	5

ANOVA								
	df	*SS*	*MS*	*F*	*ignificance F*			
Regressior	1	0.584898	0.584898	8.157494	0.064782			
Residual	3	0.215102	0.071701					
Total	4	0.8						
	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	2.947211	0.797794	3.694203	0.034416	0.408276	5.486146	0.408276	5.486146
X Variable	0.127651	0.044694	2.856133	0.064782	-0.01458	0.269887	-0.01458	0.269887

Linear Regression MasterCard ESG Score with the Collective Data

SUMMARY OUTPUT			RESIDUAL OUTPUT		
Regression Statistics			*Observation*	*Predicted Y*	*Residuals*
Multiple R	0.971951263		1	4.926443791	0.073556209
R Square	0.944689257		2	5.181694384	-0.181694384
Adjusted R Squai	0.778757029		3	4.937836409	0.062163591
Standard Error	0.210353498		4	4.998274011	0.001725989
Observations	5		5	5.955751406	0.044248594

ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	3	0.755751406	0.251917135	5.693223489	0.296659708			
Residual	1	0.044248594	0.044248594					
Total	4	0.8						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.513208398	0.684920142	3.669345146	0.169383349	-6.189527152	11.21594395	-6.189527152	11.21594395
X Variable 1	0.010587465	0.005916488	1.789484941	0.324414806	-0.064588637	0.085763568	-0.064588637	0.085763568
X Variable 2	-0.006861995	0.003621406	-1.894842955	0.30914191	-0.052876315	0.039152326	-0.052876315	0.039152326
X Variable 3	0.198291664	0.055143085	3.595947973	0.172675101	-0.502367662	0.898950991	-0.502367662	0.898950991

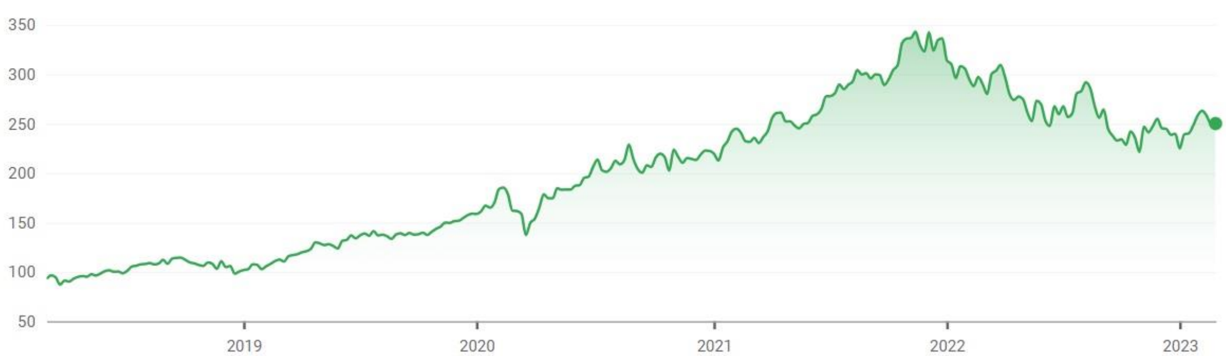
Albeit not directly visible just by looking and the numbers the graphs indicate a relationship between ESG scores financial performance.

Microsoft is a firmware company founded in 1975 in the United States of America. While the company tried to expand in several industries (cell phones, gaming, search engines etc.) they are mostly known for their operating system and office software solutions. Microsoft had several competitors back in the 80s but dominated the market in collaboration with IBM creating a user friendly environment for the personal computer that IBM made at the time. Its only viable competition is consider apple who opposing Microsoft offers all-inclusive systems which although arguably friendlier to user[35] are harder to maintain. Over the latter course of their history they have been neck to neck with the apple in a war for market domination. Besides that Microsoft also had several federal multi-million contracts with huge organizations such as N.A.S.A. and several other companies of the private sector.

Financial Analysis

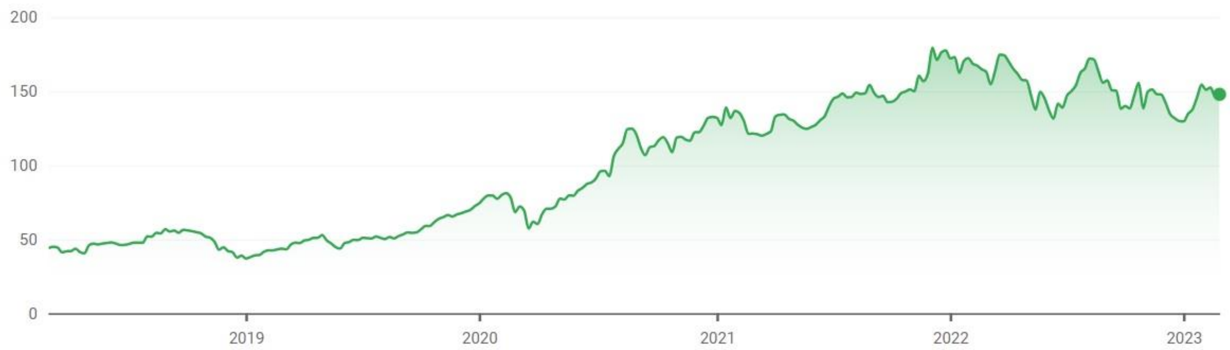
While Microsoft has a diverse enough market this paper will only compare the company against Apple, since it the only other company that develops and maintains operating systems for personal computers that poses a direct threat to the company. There are however other competitors that directly influence the market such as google (being a leader in search engines and software for mobile devices).

Microsoft stock price



Apple Inc. stock price

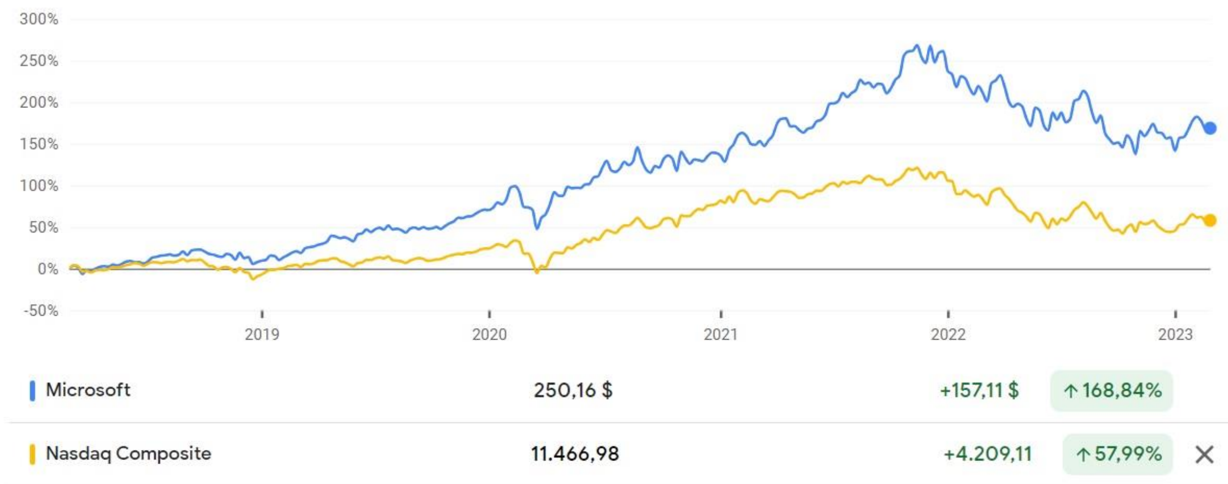
[35] **While back in the days friendly software environments were in need since the integrated interface of the machines were designed to be used by scientists, now it is only a matter of preference.**



Microsoft versus Apple

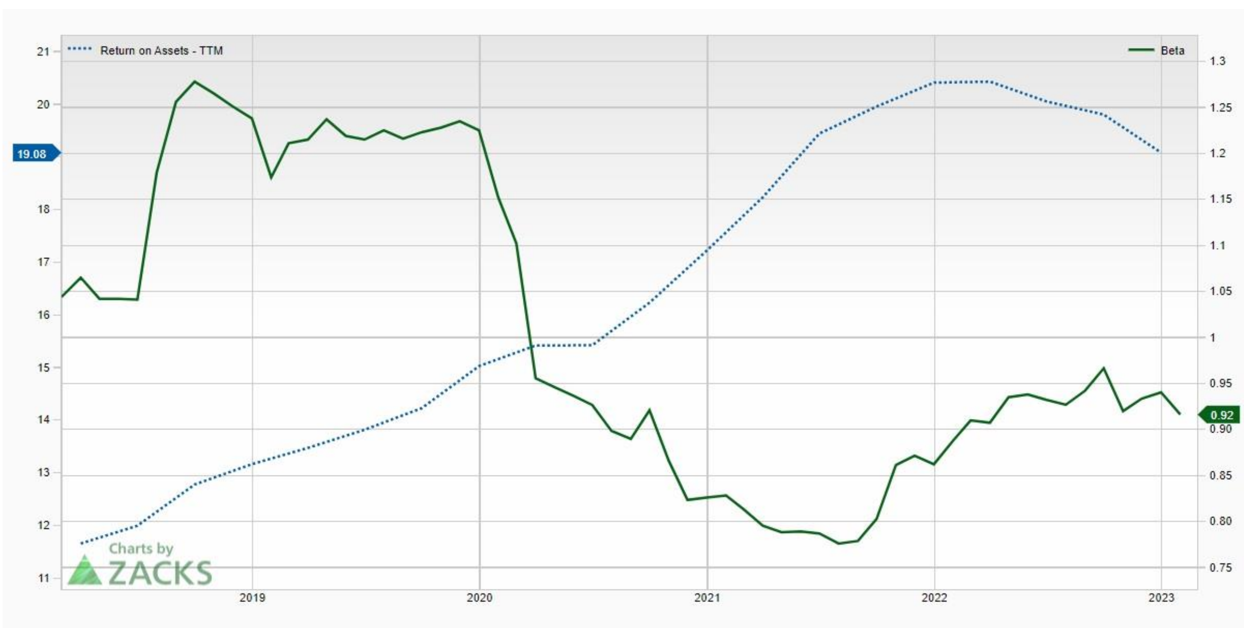
While the diagram reveals a somewhat even battle across the chart it was not always the case.

Microsoft versus NASDAQ



While the fluctuations resemble the market the idiosyncratic choice of investors is quite clear giving Microsoft quite an advantage in attracting investors and possibilities for growth without leverage.

<u>Microsoft Beta versus RoA</u>



Following the classic analysis there is a standard Beta chart cross referenced with the return on assets index.

<u>Microsoft RoE versus Gross Profit</u>

It is worth noting that while these charts indicate otherwise Microsoft was also affected by global events like the covid pandemic. Yet its trillion dollar value allowed for linier consequences.

Sustainability Analysis

Microsoft as a trillion dollar company prides itself on being on top of ESG going even as far as pledging for carbon negative plans (that is plans to remove more pollutant carbon from the environment than they emit. Furthermore they opt for zero waste policies to some data centers with plans for expansion and have even created databases worth of 24 petabytes (a petabyte is 1.024 terabytes) in environmental analysis for both businesses and individuals to use.

The company's board even went as far as to disclose how they collect their ESG findings above and beyond the legal mandatory framework.

Population growth in our broader Microsoft business*

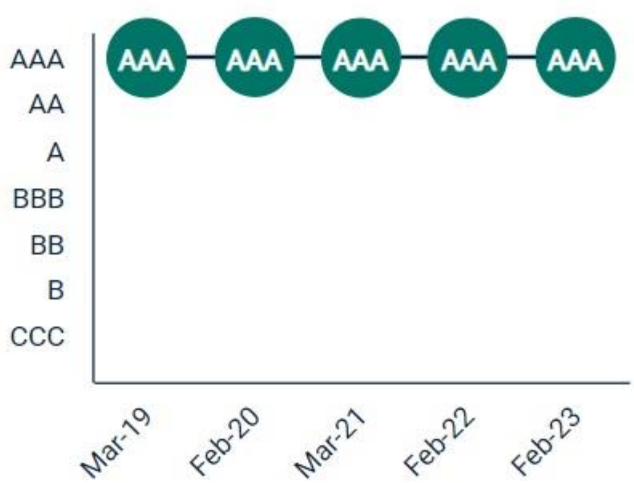
	2021-2022	2018-2022
GLOBAL DATA		
GLOBAL WORKFORCE GROWTH	+22.0%	+69.2%
WOMEN	+29.1%	+96.9%
MEN	+18.9%	+58.3%
US DATA		
US WORKFORCE GROWTH	+18.2%	+57.7%
ASIAN	+15.8%	+67.0%
BLACK AND AFRICAN AMERICAN	+46.3%	+169.9%
HISPANIC AND LATINX	+29.1%	+101.4%
NATIVE AMERICAN AND ALASKA NATIVE	+4.8%	+24.7%
NATIVE HAWAIIAN AND PACIFIC ISLANDER	+22.7%	+42.3%
WHITE	+15.3%	+37.5%
MULTIRACIAL	+24.9%	+123.7%

Representation levels 2018-2022*

	2018	2019	2020	2021	2022
GLOBAL DATA					
WOMEN	28.1%	29.2%	30.2%	30.9%	32.7%
MEN	71.8%	70.7%	69.6%	69.0%	67.2%
US DATA					
ASIAN	32.3%	33.3%	34.9%	34.9%	34.2%
BLACK AND AFRICAN AMERICAN	4.0%	4.4%	4.7%	5.6%	6.9%
HISPANIC AND LATINX	5.9%	6.2%	6.4%	6.9%	7.5%
NATIVE AMERICAN AND ALASKA NATIVE	0.5%	0.5%	0.4%	0.4%	0.4%
NATIVE HAWAIIAN AND PACIFIC ISLANDER	0.2%	0.2%	0.2%	0.2%	0.2%
WHITE	54.1%	52.1%	49.2%	48.3%	47.2%
MULTIRACIAL	1.9%	2.1%	2.3%	2.5%	2.7%

In terms of social policies diversification and inclusion the company has transformed a what used to be a white male environment to a gender unbiased and multinational work force globally.

Microsoft ESG



Microsoft excels in ESG scores according to Stanley Morgan who rates the company with AAA for five consecutive years. Unfortunately without any change in its rating, it is impossible to conduct linear regression and get any results whatsoever regarding ties between ESG and financial performance. Instead an empirical analysis will be made by scrutinizing the available data.

Microsoft ESG Pivot Table

Year	ESG Score	ESG Score Normalized	RoE %	Stock Price $	Gross Profit *10^6$
2018	AAA	7	18.83	94.2	72
2019	AAA	7	39.28	131.82	82.93
2020	AAA	7	42.74	203.66	96.96
2021	AAA	7	44.24	282.07	115.85
2022	AAA	7	46.98	260.89	135.62
Average	AAA	**7**	**38.414**	**194.528**	**100.672**

Starting with RoE a non-linear increment is observed which raises the index sharply the first fiscal year and then immediately smooths out indicating an average increment of 2.5 per year. Albeit not directly visible a pattern here exists between the later index and an increase in the SRIs and the capital that the company spend over the last five years in recycling, becoming "greener" and other environmental factors. In regards to the stock price the analysis is not so simple since there does not appear an immediate pattern between its fluctuations and the company's SRIs. Therefore in addition with the lack of a modeled correlation the author concludes that there are not any obvious ties between ESG score and the stock price. The previous argument applies to gross profit as well since there is a clear increment in the annual gross profit with the increment itself increasing every year.

To summarize the analysis in every company selected there is a positive relationship between return on equity and their ESG rating while only one of them failed to show any statistical significance in the question whether ESG performance affects stock price. Furthermore another company also did not manage to indicate any correlation between ESG score and gross profit.

However for the most part the questions whether ESG ratings are bonded with RoE, stock price and gross profit came back positive verifying the saying "it pays to be good".

Chapter 4

4.1 Summary

The paper started by giving a brief a historical reference on sustainable finance. The thesis then proceeded to scrutinize the categories of ESG as well as analyze the methodology under which Stanley Morgan elected to classify and quantify in order to rate most of the companies in the world. The introduction is completed by presenting stakeholder versus shareholder theory enlisting advocating opinions of both sides. The first chapter initiates by presenting an analysis on sustainable finance demonstrating a rather laggard, still under progress, initiative for the world to realize and most importantly legislate, the necessary framework to hopefully achieve pre industrial level temperatures globally, advance financial structure of underdeveloped countries, promote SRIs and the governing framework of the companies.[36] The impact of ESG on past industry introduced a transition of current opinions, presented by recent articles and books. Finally the chapter ends by providing a compartmentalized analysis of the ESG, along

[36] Subject to localization, ethics and culture of the region.

with correlations between them. A brief analysis of the stock market is followed by a five year scrutiny of some leaders in their industry sector. The paper uses simple linear regression to tie ESG score with some financial figures including RoE and stock price returning mostly a positive answer to the question whether there is a connection between ESG and financial performance. Therefore this paper concludes that there is a positive economic impact of ESG in firms.

4.2 Limitations

The MSCI rating method is to the author's opinion the most complete and sophisticated method in evaluating ESG in firms taking into account a plethora of parameters even going as far as classifying the industry to compartmentalized various business sectors. However it is quite difficult to create an accurate rating system. It suffices to imagine that factor like multicultural diversity cannot be universally graded.[37] This is also a reason why the index rates between AAA and CCC, a seven scale unit. Furthermore universal factors in need of immediate refinement like frameworks proposed by UN regarding emissions, are historically laggard in been conceived, proposed and implemented; with little to no monitoring embedded. While it is understandable that not all parties not being ready to exit the carbon revolution, with some countries not having entered it yet, the now problem of the global warming is dire along with its aftereffects, which are increasingly blooming.

4.3 Future Research

The economic impact of ESG is subject worth studying since its macroeconomic aftereffects are yet to be fully observed. Furthermore it is arguably the most important part since SRIs are not to be perceived as a temporal fix, but rather as long term sustainable solution. Obvious factors that are under development such as the developing decisions of the COP present decent study cases. Specifically a more generic approach of the impact of ESG of firms is worth scrutinizing. Finally each pillar's impact on the business world is an intriguing subject. Since ESG is yet under development research on the aftereffects of the policies employed stands to reason.

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[37] For instance there are countries whose culture prohibits women to achieve leading positions.

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