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Impact of Size, Future Earning, and growth to the Sustainability performance of US Sustainable Corporate Bonds

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Abstract

One of the significant challenges towards the UNSDG (United National Sustainability Development Goals) is funding sustainable projects. Sustainable bonds are an essential financing instrument where the bond proceeds are used to finance or refinance an eligible sustainable project. This effort aims to analyze the sustainability commitment of US Corporate's sustainable bonds. We investigated the US corporate sustainable bonds SDG commitments to the "Firm size," "Future earning and growth potential," and the "Extent of institutional investors ownership." We found a positive relationship between sustainability commitment or score and "Future earning and growth potential."We discover no significant association between the sustainability commitment of sustainable corporate bond issuance in the United States and company size or ownership concentration. The critical implication of this research is to understand investment targets if the end goal is to factor in Sustainability in the investment strategy.

Keywords: Sustainable Bonds, UNSDG Goals, Stakeholder's theory, Sustainability, ESG.

Introduction

According to Merriam-Webster Dictionary, the meaning of Sustainability is "Able to be used without being completely used up or destroyed." As active users of the Environment and social resources, our utmost responsibility is to make these resources available to our future generations. Environmental issues, climate changes, excessive GHG (Green House Gas) emissions, and rising pollution levels have become genuine concerns in the last few years. Losses related to environmental disasters and climatic chaos has become significant.

National Centers for Environmental Information (NCEI) estimates that 298 weather and climate disasters have taken place in the United States since 1980, resulting in cumulative losses of $1.8 trillion, which is about equal to the GDP of a developed country like Canada. Therefore, it is a severe concern towards Sustainability.

Similarly, social issues, including access to health and education, have become a stretched goal. The US has suffered the sharpest rise in poverty. As per the United States, Census Bureau Poverty rates have gone up by 90 basis points (US Census Bureau, 2020). Environmental and Social issues have created challenges towards Sustainability, and it also forms the basis of environmental and social Sustainability. J Morelli (2011) explains environmental Sustainability as a state of balance, resilience, and connectedness that allows human society to continue using the Environment to satisfy their needs while maintaining the harmonies to be used in the long term. The UK sustainable Communities (2003) define social Sustainability as a society where people live in the present and keep society livable for future generations.

At the Rio+20 United Nations Conference on Sustainable Development, the international community agreed to promote sustainable development worldwide. Member states re-affirm their resolve to do the best possible to achieve the sustainability objectives (UN Report, 2012), While the goal was noble. One of the most critical aspects to ensure success is funding the development projects that promote Sustainability. A more dedicated and channelized approach is required to finance poverty eradication programs to help our society grow more holistically, bridge the income disparity, and create equal health and education opportunities. Special financing is required to improve the Environment, including building green and low carbon-emitting real estate, environment-friendly bridges, schools, hospitals, etc. UNTT working group on Sustainable Development Financing (UNTT, 2012) came up with a high-level estimate of financing needed to achieve the sustainability objectives. They estimated the financing need based on the various sector, namely MDG (Millennium Development Goals), Infrastructure, Land and Agriculture, Renewable Energy, Climate Change mitigation, Forests, Oceans, etc. Figure 1 depicts the breakdown of the funding requirement by sector.

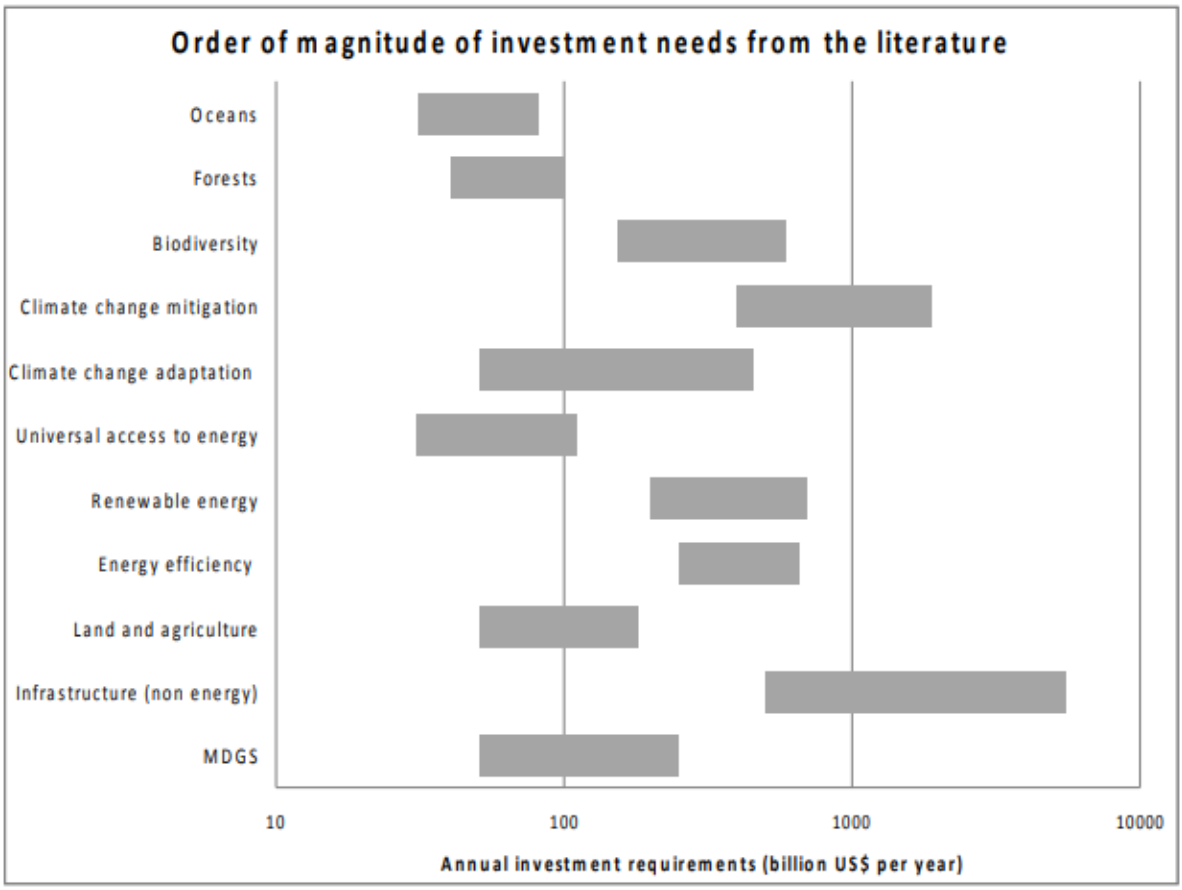

Figure 1: Orders of magnitude of Investment requirements for the various sector (Directly taken from Microsoft Word - Chapter 1-global investment requirement estimates.doc (un.org))

Public funding to carry out the projects to attain the sustainability targets is one of the effective ways to finance these sustainability-oriented development works. There are various financial instruments available to raise funding. Fixed Income securities (Martellini et al., 2003) are among the most popular debt financing instruments used for funding purposes. Fixed Income Securities or Bonds are standardized capital market instruments with greater liquidity to fund the project (OECD, 2015).

1.1 Introduction to Sustainable Bonds

Bonds or Fixed Income financing used to finance environmental or social projects are called sustainable bonds. Bonds whose revenues are used to finance or refinance social initiatives are sometimes referred to as "Social Bonds."Green Bonds are bonds whose incomes are used to fund or refinance a project that improves the environment or mitigates climate change. Sustainable bonds are a blend of both social and green bonds.

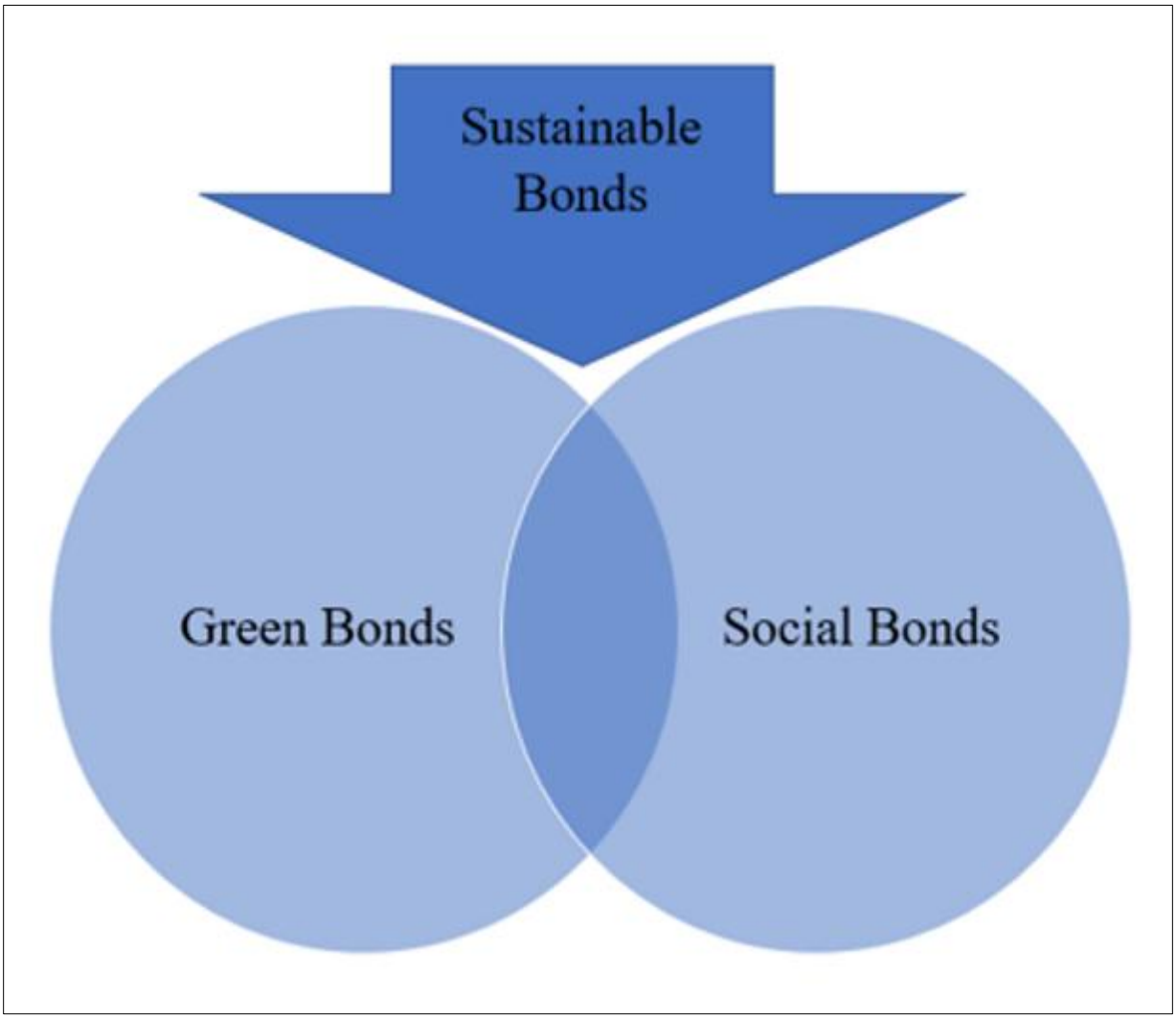

Figure 2: Sustainable bond as a blend of Green Bond and Social Bond (Author's depiction)

Bos (2018) defines sustainable bonds as a blend of social and green bonds used fully or partially to fund eligible projects (Figure 2). Four core guidelines as defined by ICMA around sustainability-related debt instruments are Sustainability Bond Guidelines (SBG), Social Bond Principles (SBP), and the Green Bond Principles (GBP) (ICMA, 2020a; Mehta et al., 2021). A green bond is connected with climate, and social bonds are associated with social upliftment. Sustainable bonds are connected with both via a direct relationship shown in Figure 3.

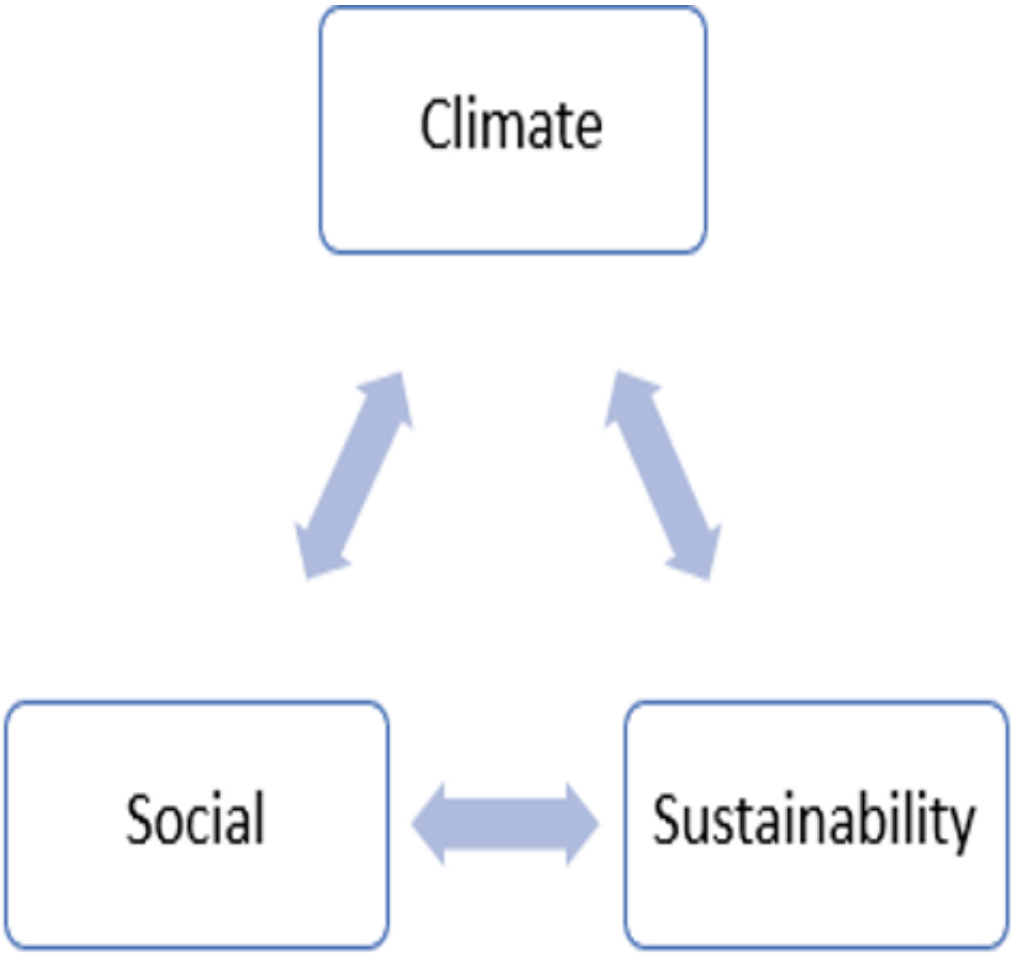

Figure 3: Climate Social and sustainable development is connected.

ICMA has categorized sustainable bonds broadly into the following five categories. Standard Sustainable Bonds, Sustainable Revenue Bonds, Sustainable Project Bonds, and Sustainable securitized bonds. Table 1 below gives a high-level overview of the categories of sustainable bonds.

Table 1: Sustainable bond product Category

Sustainable Bond Type	Details
Standard Sustainable Bonds	Standard Debt obligation with sustainable objectives
Sustainable Revenue Bonds	Credit Exposure is connected to the cashflows of the revenue streams like Fees, Payments, taxes, etc. of the sustainable projects
Sustainable Project Bond	Proceed used to fund a sustainable project
Sustainable Securitized Bond	A bond is collateralized by the revenue stream of a sustainable project.

Increasing concerns over climate risk, social issues, and ESG awareness in investment strategy and portfolio construction have given momentum to sustainable bond issuance. ICMA provides a database of sustainable bonds issued in various regional jurisdictions. The graph below shows that the US has pioneered sustainable bond issuance.

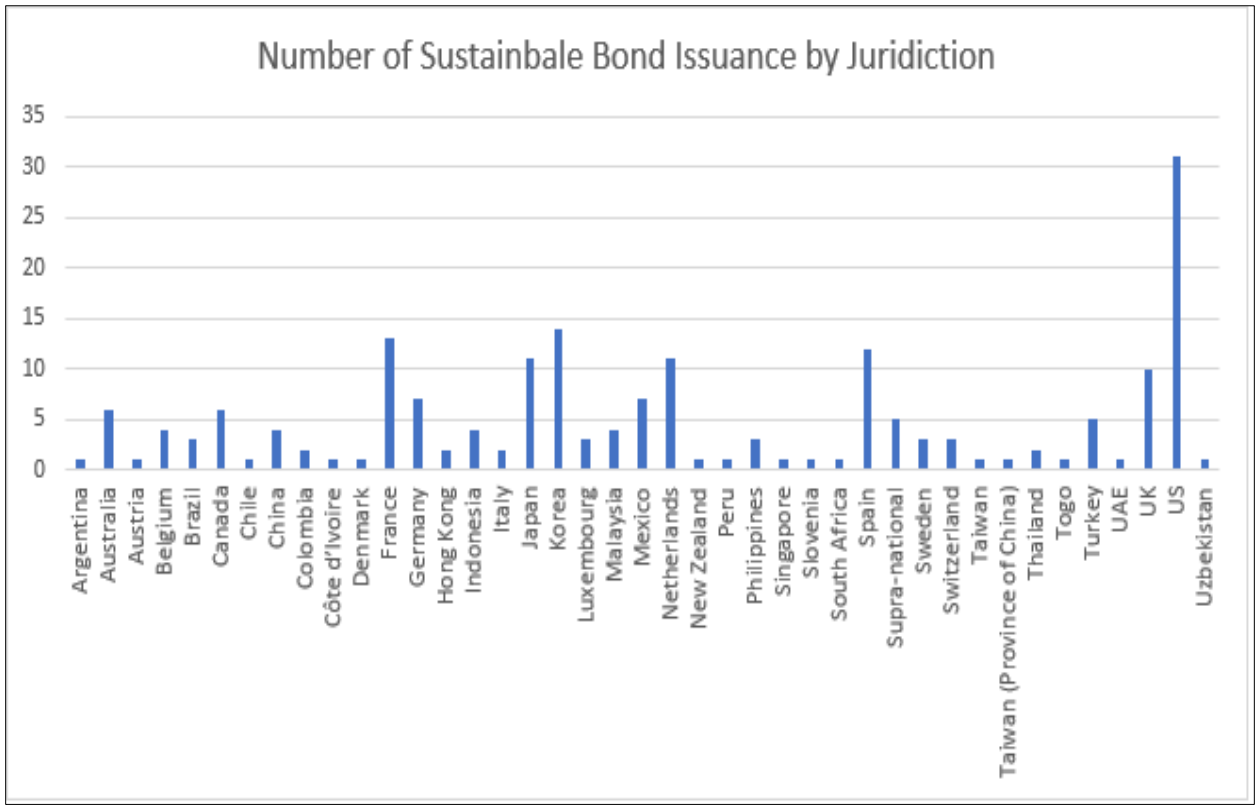

Figure 4: Sustainable Bond Issuance (ICMA)

The year 2019 has witnessed tremendous growth in sustainable bond issuance. Some of the landmark deals s and issuers of sustainable bonds are depicted below.

Table 2: A summary of the most notable deals and long-term bond issuing (www.environmental-finance.com)

Largest Corporate	East Nippon Express Way	Value : $1,387M
Largest Municipal	California Health Facilities Authority	Value: $500M
Largest Financial Institution	Cassa Depositi e prestiti Spa	Value : $849M
Largest Single sustainability Bond	Federal State of NRW	Value: $2,547 M
Largest Issuer	World Bank	Value: $3,705 M
Largest Agency	T Corp	Value: $1,230M
Largest Sovereign	Republic of Korea	Value: $500M

Their role in sustainability goals has driven the Growth of Sustainable bonds. Maltais and Nykvist (2020) have revealed that companies that rely on sustainable finance can attract and retain most consumers. Gianfrate and Peri (2019) claim that sustainable bond investors do not expect higher returns. Instead, they expect a better risk-adjusted return with environmental and social objectives in mind. As a result, the Investor will focus on long-term initiatives that contribute to enhancing the natural ecosystem.

On the other hand, Paranque and Revilla (2017) observe that green bonds usually include ethical standards into firm operations by requiring companies to engage in fair, egalitarian, and pro-social behaviors. These principles will assist firms in avoiding widespread exploitation, a behavior that has historically been prominent among capitalists. Similarly, Leitao et al. (2021) demonstrate how green bonds such as Sol Green and S&P Green have helped the European Union's carbon market achieve net-zero emissions. The results emphasize the critical relevance of corporations placing a premium on long-term connections to benefit society as a whole.

1.2 Corporate Sustainable Bonds

On July 29, 2021, Moody published a report (Moody's 2021) that the sustainable bonds issuances may hit a new record high of USD 850 Billion, a mammoth jump of 59% from last year. Corporate issuance has a significant share to it. ICMA sustainable bond database reports 192 issuers globally spread across 41 countries. Our focus in this study is US corporates. The US has the maximum number of sustainable bond issuers. Thirty-one corporate issuers are being reported to have issued sustainable bonds. These issuers are shown in table 4.

Table 3: List of US Corporates issued Sustainable Bonds (As of November 1, 2021)

Aflac Incorporated
Alphabet Inc.
Amazon.com, Inc.
American Museum of Natural History
Bank of America
BlueHub Loan Fund
California Educational Facilities Authority Revenue Bonds (Stanford University)
Century Housing Corporation
Chester County Industrial Development Authority (Longwood Gardens, LLC)
City of Berkeley, CA
Equitable Holdings
FedEx Corporation
Freddie Mac Multifamily
Goldman Sachs Group, Inc.
Housing Authority of the City and County of Denver
HP Inc.
JPMorgan Chase & Co.
Kellogg
Low Income Investment Fund (LIIF)
Mastercard Incorporated
Metro, Oregon
National Rural Utilities Cooperative Finance Corporation
Oncor Electric Delivery Company LLC
Pfizer Inc.
Salesforce
Starbucks Sustainability Bond
Sysco
The Board of Education of the City of Newark
Truist Financial Corporation
United Services Automobile Association (USAA)
Whirlpool Corporation

1.3 Structure of the sustainable bonds

Sustainable Corporate bonds have a similar financial structure as any regular corporate bond, but it has a very definitive use of the bond proceeds. They can be zero-coupon bonds or traditional coupon-paying bonds. Their bond proceeds need to fund a sustainability project, and the detailed plan to proceed needs to be part of the bond prospectus or Bond supplement. Table 4 shows a sustainable corporate bond issued by Starbucks recently to fund their expansion and buy-back programs. Starbucks issued two bonds, one for the general corporate purpose (For Stock repurchase) and the second to finance their expansion project, which is eligible to be labeled as sustainable projects.

Starbuck Corporations Sustainable Bond Issuance

1. $1,000,000,000 3.550% Senior Notes due 2029 for corporate Activities
2. $1,000,000,000 4.450% Senior Notes due 2049 for financing sustainable development projects.

Details can be found on the SEC Website (Starbucks, 2016). As we can see in Table 4, the general financial structure of the bond remains similar to any corporate bond. Still, it has a very detailed description of the use of proceed into their sustainable development projects.

Table 4: Structure of a Sustainable bond issued by Starbucks Corp

Particulars	Details
Issuer	Starbucks Corporation, a Washington corporation.
Notes Offered	$1,000,000,000 aggregate principal amount of 3.550% Senior Notes due 2029. $1,000,000,000 aggregate principal amount of 4.450% Senior Notes due 2049.
Maturity	The 2029 notes will mature on August 15, 2029. The 2049 notes will mature on August 15, 2049.
Interest Payment Date	Interest on the 2029 notes will be paid semiannually in arrears on February 15 and August 15 of each year, beginning August 15, 2019. The 2049 notes will bear interest at 4.450% per year. Interest on the 2049 notes will accrue from May 13, 2019.
Use of Proceed	We intend to use the net proceeds from the sale of the 2029 notes for general corporate purposes, including the repurchase of our common stock under our ongoing share repurchase program, business expansion, payment of cash dividends on our common stock, or the financing of possible acquisitions. See "Use of Proceeds." We intend to allocate the net proceeds from the sale of the 2049 notes to one or more financings or refinancing in whole or in part in new or existing Eligible Sustainability Projects (as defined herein) (with refinancing limited to financings entered into within two years before the date of this prospectus supplement). See "Use of Proceeds."
Sustainability Structuring Agent	Morgan Stanley

Use of Proceed (Relevant Details only):

Investments made through the "Starbucks Greener Stores" initiative, a framework and commitment to be co-developed by leading experts, including World Wildlife Fund (WWF). Initiatives and stores will be audited and verified by SCS Global Services to design, build and operate 10,000 "Greener Stores" globally by 2025 (SDG 11 "Sustainable Cities and Communities"). Investments may include initiatives that support Greener Stores dimensions, initiative development/testing, or store development (design and construction) expenses, including:

a. *Green Building (new stores) — Store development and construction costs for new stores certified via the Greener Stores program.*

b. *Green Operations (existing stores, open at least 12 months) — Sustainability initiative costs that align with the Greener Stores certification criteria and certification program expenses; and*

c. *Renewable Energy — Investments and operating expenses to meet Starbucks' 100% renewable energy goal. Expenses related to renewable energy certificate purchases will only be included when sourced from wind, solar and low impact hydroelectric projects that meet the Green-e certification criteria and where Starbucks has traceability to the specific projects via supplier attestations*

Most corporates like Starbucks also issue a "Sustainable Bond framework (SBF)."The SBF explains how they plan to target the UNSDG (United Nations Sustainable development goals) and their focus areas. For example, Starbuck Sustainable bond framework (Starbucks SBF, 2016)reflects that they are targeting UN Sustainable Development Goals 1, 8, 9, 11, and 12 (See the UN SDG Goals section for details).

2.0 The objective of the study

This study aims to understand if coverage of the UNSDG goals by sustainable corporate bonds depends on the corporates' size and earnings. We wanted to see whether corporate size and market position in terms of profits and growth impacted the number of UNSDG objectives they covered. This study will help us understand the factors influencing the UNSDG coverage, and it will help the global community better understand how the UNSDG 2030 goals can be achieved. This study will also give a better understanding of Green washing if there is any in sustainable bond issuance. As a result, the following is the study's general goal:

(i) Do Size, Earning, and Growth factor influences the UNSDG number of goals that a sustainable corporate bond covers?

(ii) Does the Institutional holding influence the UNSDG goals coverage for sustainable corporate bonds?

3.0 Methodology

We took a positivistic approach to the study. We sampled a set of corporates that have recently issued a Bond framework. Their bond framework document (SBF) explains their proceeds to use, which shows how many UNSDG goals they plan to cover. We assigned them a coverage score based on the number of UNSDG goals they cover. We analyzed their coverage score with the size, earning, and growth factors to understand if there is any significant relationship between the UNSDG goals coverage via sustainable bond issuance and the firm's financial and performance aspects. To explore the association, we utilized an ordinary least square regression model. We used "Market Capitalization" to represent the firm's size, and the "PEG ratio" captures the firm's earning and growth. We wanted to establish and validate a linear relationship between the UNSDG coverage score to the "Market Capitalization" and "PEG Ratio". The relevant section has provided a detailed discussion around the sample data and data collection.

4.0 Theoretical Framework

The Stakeholders theory highly influences our theoretical framework. Horisch, Freeman & Schaltgger (2014) explained the links, similarities, and conceptual framework connecting sustainability management to stakeholder theory. Garvare and Johansson (2010) also presented a conceptual model using stakeholders' theory.
They explained the relationship between organizational Sustainability and global Sustainability, which is one of our objectives in this study.

Garvare and Johansson (2010) also validate our approach of comparing organization sustainability objectives as laid out in their sustainability Bond framework to the global sustainability objectives set by UNSDG. Freudenreich et al. (2020) supported the value creation theory that management and transformation of business models along corporate sustainability lines can be attained. Along with very similar lines, Gibson (2012) also suggested that stakeholders' management positively promotes Sustainability. Stakeholder returns are rewarded in sustainable Growthper Filho & Brandi (2016). In their research, Phan, Luca, and Laia (2020) suggested that larger companies have prominently disclosed their nonfinancial information, including ESG and sustainability initiatives. In their analysis of SD (Sustainable development) and SRM (Stakeholders Relation Management), Steurer et al. (2005) had concluded that SD and SRM are related, and the strength of the relationship is measured by the performance of corporate Sustainability and corporate social responsibility. Evangeline Elijido-Ten (2007) finds that economic performance measures have no significant association with firms' environmental performance. In the context of sustainable development of cities, Queiroz (2009) evaluated the stakeholders' theory in sustainable city planning and relationship in the promotion of sustainable tourism. Based on the literature review in this section, we would like to put forward the performance of the sustainable bond as a measure of stakeholder theory. In our study, the performance parameter is characterized by the number of UNSDG goals that a sustainable bond intends to cover, as disclosed in their sustainable bond framework. Benson and Davidson (2010) also supported that the firms are likely to compensate their executives for pursuing the firm's goals, be it a shareholder's maximization or the maximization of stakeholders.

4.1 Model framework

4.1.1 Size effect and firm performance.

As per Crain (2011), the size effect in finance and investment is observed where smaller firms have higher returns than the bigger ones on a long-term horizon. With higher returns, they also carry higher risks. Banz (1981), in his observation, found that those smaller firms carry a higher risk-adjusted return than the bigger firms. Hashmi et al. (2020) also confirmed that total assets, total sales, and market capitalization are

essential indicators of firms' performance. Dang, Liu, and Yang (2018) also suggest incorporating the size effect to the financial performance analysis of the firm. Pervan M, Višić J (2012) also analyzed the profitability ratios of the firms under study and found that the firm Size influences the firm's profitability. Therefore, the Size effect is an essential indicator of the firm's financial performance. Menkveld and Thurik (1999) showed the size effect and explained the economics of size effect that impact the firm's efficiency. Orajali, Zadeh, and Eskandari (2012) found a relationship between firm size and the level of risk disclosures. Their finding suggests a positive relationship between firm size and the level of risk disclosure, and the firm's size is a driving factor in the level of the disclosure. As we can see, the firm's size is a prominent determinant of the firm's financial performance; we have taken firm size as one of the performance indicators while analyzing the sustainable bond issuers' performance in terms of a number of UNSDG goals there are covering.

4.1.2 Stakeholders' theory and size effect

Cornell & Shapiro (1987) explained that the payoff of a stakeholder is a measure of a firm's performance. Return of stakeholders is inevitable when the company is not close to bankruptcy. We have also noticed from the observation of Crain (2009) and other available literature (Sec 4.1) that the firm's size is an essential parameter of a firms' performance. We, therefore, argue that the Stakeholder return and size of the firms are related. Here Stakeholder's return is the coverage of UNSDG goals by sustainable corporate bonds. Bowen (2000) supported this theory in his research; he observed a correlation between firm size and environmental performance. The study conducted by Etzion (2007) had very similar findings. He concluded that larger firms have more proactive environmental strategies than smaller firms. Several pieces of literature that we have reviewed so far highlight that larger firms adopt more proactive environmental practices and are more concerned about Sustainability. Therefore, we suggest that UNSDG goals as a sustainability performance are associated with the firm size

4.1.3 Earning and Growth in Stakeholder theory

Stakeholders' theory suggests the value creation of all the firm's stakeholders and not just generating value for the shareholders. Istianingsih et al. (2020), in their research, found a positive relationship between CSR (Corporate Social Responsibility) disclosures and future earnings. Kuo-Jun Lee (2019) studied investors' perceptions towards CSR and sustainability initiatives and found a very positive response. The "Real option" approach concluded that companies with better CSR standing have significant future earnings. Adegbie et al. (2020) found that sustainability reporting significantly impacts turnover growth. Carp et al. (2019) researched the effect of sustainability reporting on firms' growth due to adopting environmentally and socially responsible behavior. In their bibliometric analysis, Maier et al. (2020) concluded that Sustainability

drives innovation, creating potential future earnings and growth. We, therefore, find a convincing argument that "Future Earning and Growth" are strong indicators of Sustainability. Since we propose UNSDG goals coverage as a measure of stakeholders, return in general connected via Sustainability, we must include future earning and growth as a variable in the equation.

4.1.4 Institutional holding

Sakawa and Watanbel (2020) tried to understand the role of the Institutional Investor with a scope of shareholder return measures under the Stakeholder framework. Their study revealed that the monitoring role of Institutional investors lets the company perform under a specific direction. With increased awareness of ESG reporting requirements sustainability reporting, as discussed in the previous section, the firm will take measures to improve Sustainability. Lin & Fu (2017) also concluded the same monitoring theory in their study. They observed that Institutional ownership is positively related to the firm performance. In a rather interesting observation, Duggal, James & Miller (1999) studied the influence of institutional investors influence on the corporate takeover and found a positive relationship. As we can see, there is strong evidence available in the literature which supports the inclusion of "Institutional Ownership" in firms' performance metrics under the Stakeholder's approach.

We, therefore, proposed a model as:

$$G = \lambda 0 + \lambda 1.MCAP + \lambda 2.PEG + \lambda 3.IO + \varepsilon$$

G = ΣUNSDGi

UNSDGi indicates one of the 17 United Nations sustainable development goals to be achieved by 2030.
MCAP = Market capitalization of the firm
PEG = Price- to-Earning-Growth ratio of the firm
IO = Percentage Institutional Holding

4.1.5Review of Variable in the Model
4.1.5(a) Market Capitalization

Market capitalization is one of the critical measures of a firm's value and performance. Kenneth (2009), in his research, showed that a company's brand value is highly correlated with the Market Capitalization of the firm, and therefore it's an essential measure of a firm's performance. Maurice (2009) also established a significant relationship between the book value of firms and a firm's market capitalization. In similar research, Matthew & Odularu (2009) found that Market Capitalization is positively related to a Company's equity value. In a study conducted by Prasetyantoko & Rachmadi (2008), they stated that the size of the firm and profitability do have a relationship if not necessarily related to market cap. In their work, Ming-Chin et

Al.(2005) explained that Firms' intellectual capital positively impacted market value and financial performance and might indicate future financial performance. Reinganum (1999), in his research on comparative analysis of portfolio returns of Russell 1000 (A large Cap index) to Russell 2000 (Small-Cap index), accepted the importance of Market capitalization as one of the critical determinants of portfolio returns.

4.1.5 (b) PEG Ratio

Javier Estrada (2005) explains the PEG ratio as the P/E ratio adjusted for expected Growth in EPS. Since the P/E ratio fails to incorporate future earnings growth features, an improved valuation metric is the Price-to-Earning-Growth (PEG) ratio can be used as explained by Trombley (2008) and also by Eston (2004) respectively. I'Ons and Ward (2011) also concluded that the PEG model is a valuable predictor of under-/over-valued shares. Estrada (2009), Trombley (2008), and Schnabel though advocated the incorporation of risk in the PEG consideration and suggested that the PERG ratio be used for better performance information than the PEG ratio.

4.1.5 (c) Institutional Ownership (IO)

IO is a direct variable that we have added into the linear model. This is the percentage ownership of the firm. It is the portion of a firm's equity held by the prominent Institutional investors, Institutional Asset Managers, Pension Funds, Hedge Funds, insurance firms, and corporate treasuries.

5. Data

Sustainable Bond Framework (SBF)

We have chosen 19 US corporates who have recently issued their sustainability framework. Generally, companies who have issued sustainable bonds or plan to issue sustainable bonds also come up with a "Sustainable Bond Framework (SBF)" for general public access. Apart from other information like companies' information, plans, and further company-specific details, it contains the following information critical to our research:

(i) Firm's sustainability objectives.
(ii) The number of UNSDG goals the firm is committed to and plans to achieve.
(iii) Detailed plan to use the bond proceeds, including the timelines.

There are 31 sustainable bonds available in the US as per ICMA sustainable bonds database. After careful examination and study, we picked 18 corporate sustainable bond issuers. Our criteria of selection were as follows:

1. Our study focuses on corporate issuance, so we removed agency or supranational issuances from the sample.

2. We wanted to select issuers where data is publicly available.

We created our dataset of 18 issuers who recently published their corporate bond framework based on the above criteria. Table 5 shows our sample set of issuers of sustainable corporate bonds in our analysis.

Table 5: Corporate issuer in our dataset

Company	Legal Entity Name	Ticker	Date of Framework
Aflac	Aflac Incorporated	(AFL)	Mar-21
Alphabet	Alphabet Inc.	(GOOGL)	Oct-20
Amazon	Amazon.com, Inc.	(AMZN)	May-21
FedEx	FedEx Corporation	(FDX)	Apr-21
Goldman Sachs	The Goldman Sachs Group, Inc.	(GS)	Feb-21
HP	HP Inc.	(HPQ)	21-Jun
JP Morgan Chase	JPMorgan Chase & Co.	(JPM)	Jul-20
Kellogg	Kellogg Company	(K)	May-21
Master card	Mastercard Incorporated	(MA)	Feb-21
PNC	The PNC Financial Services Group, Inc	(PNC)	21-Aug
Salesforce	salesforce.com, inc.	(CRM)	Jun-21
Starbucks	Starbucks Corporation	(SBUX)	Mar-21
State Street	State Street Corporation	(STT)	21-Jan
Sysco	Sysco Corporation	(SYY)	Feb-20
Toronto Dominion	The Toronto-Dominion Bank	(TD.TO)	Aug-20
Truist	Truist Financial Corporation	(TFC)	Feb-21
Wells Fargo	Wells Fargo & Company	(WFC)	Mar-21
Whirlpool	Whirlpool Corporation	(WHR)	Apr-21

Sustainable Bond Framework (SBF)& UNSDG Score: Sustainable bond framework is a document issued by a Bond issuer to explain their commitment to finance or refinance eligible sustainable projects. They provide details of the use of proceeds and the expected number of UNSDGs they are planning to target. SBF gives an insight into their commitment towards UNSDG goals. We carefully examined the use of proceeds and provided a UNSDG Score to each issuer in our dataset. We provided 1 point for each UNSDG covered, and the cumulative sum of the points makes a total UNSDG Score for that issuer. Table 6 shows the link of the various companies' "Sustainable Bond framework."Please note that Starbucks and Whirlpool's SBF is taken from Sustainalytics as the company's original SBF document was not available.

Table 6: Website to download sustainable bond framework for the companies in the data set.

Company	Sustainable Bond Framework
Aflac	https://s24.q4cdn.com/367535798/files/doc_downloads/2021/03/01/AFL-Sustainability-Framework-2020.pdf
Alphabet	https://abc.xyz/investor/static/pdf/SustainabilityBondFramework2020.pdf
Amazon	https://s2.q4cdn.com/299287126/files/doc_downloads/2021/05/Amazon-Sustainable-Bond-Framework.pdf
FedEx	https://www.fedex.com/content/dam/fedex/us-united-states/sustainability/financing/FedEx_april2021_sustainabilitybond_framework.pdf
Goldman Sachs	https://www.goldmansachs.com/investor-relations/creditor-information/gs-sustainability-issuance-framework.pdf
HP	https://s2.q4cdn.com/602190090/files/doc_downloads/2021/HP_BONDFRAMEWORK_JUNE2021.pdf
JP Morgan Chase	https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/documents/JPMC-Sustainable-Bond-Framework-2020.pdf
Kellogg	https://s1.q4cdn.com/243145854/files/doc_downloads/2021/05/10/Kellogg-Sustainability-Bond-Framework.pdf
Master card	https://www.mastercard.us/content/dam/public/mastercardcom/na/us/en/vision/other/sustainability-bond-framework.pdf
PNC	https://www.pnc.com/content/dam/pnc-com/pdf/aboutpnc/CSR/PNC_Sustainable_Financing_Bond_Framework.pdf
Salesforce	https://s23.q4cdn.com/574569502/files/doc_downloads/2021/06/Salesforce-Sustainable-Bond-Framework.pdf
Starbucks	https://mstar-sustops-cdn-mainwebsite-s3.s3.amazonaws.com/docs/default-source/spos/starbucks-sustainability-bond-second-party-opinion_05012019.pdf?sfvrsn=26243a9_3
State Street	https://www.ssga.com/library-content/pdfs/ic/scbf-framework-and-paris-alignment.pdf
Sysco	https://investors.sysco.com/~/media/Files/S/Sysco-IR/documents/sustainability-reports/sysco-sustainability-bond-framework-final.pdf
Toronto Dominion	https://www.td.com/document/PDF/ESG/TD-Sustainable-Bonds-Framework-2020-EN.pdf
Truist	https://filecache.investorroom.com/mr5ir_truist/415/Truist%20Sustainable%20Financing%20Framework.pdf
Wells Fargo	https://www08.wellsfargomedia.com/assets/pdf/about/corporate-responsibility/sustainability-bond-framework.pdf
Whirlpool	https://s22.q4cdn.com/226840148/files/doc_downloads/2021/04/sustainability-bond-framework/Whirlpool-Corporation-Sustainability-Bond-Framework-Second-Party-Opinion.pdf

Now, after careful reading and analysis of each "Sustainable Bond Framework SBF," we prepared a UNSDG coverage score for each company. We assign a scope of 1 for each UNSDG goal a company would target or fulfill. The score was assigned after considerable reading and analysis of the sustainability objectives of the company and the "Use of Bond Proceeds."

UN SDG Goals

Below is a quick snapshot of UNSDG goals (UNSDG UNDP 2015). In 2015, Leaders from 193 countries of the world came together to discuss the sustainability challenges in the future. As a result of meetings and discussions, these countries created a "Sustainable Development Goals (SDG)" plan. These are 17 Primary

objectives that must be met in the next 15 years by 2030. Below is a quick snapshot of UNSDG goals (UNSDG UNDP 2015). A detailed breakdown of UNSDG has been provided on the UN website.

Figure 5: 17 UNSDG goals to be completed by 2030 (Source: undp.com)
Below is the scorecard of 18 companies under consideration

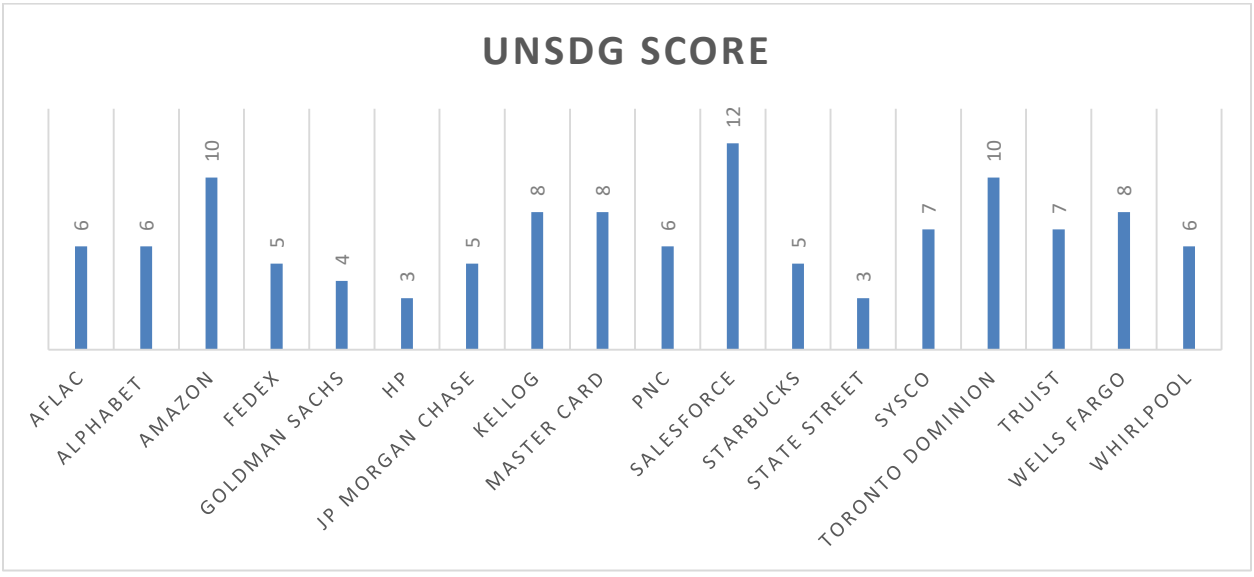

Figure 6: UNSDG Goals Scorecard for various companies in the dataset

International Journal of Business and Economics
Vol. 7, No. 1, 2022, pp. 24-52
http://ijbe.ielas.org/index.php/ijbe/index
ISSN (online) 2545-4137

We then researched and gathered these companies' size and future earning/growth parameters. Below is the data of Market cap (Size factor). A detailed discussion on Market capitalization is available in section 4.1.5 (a).

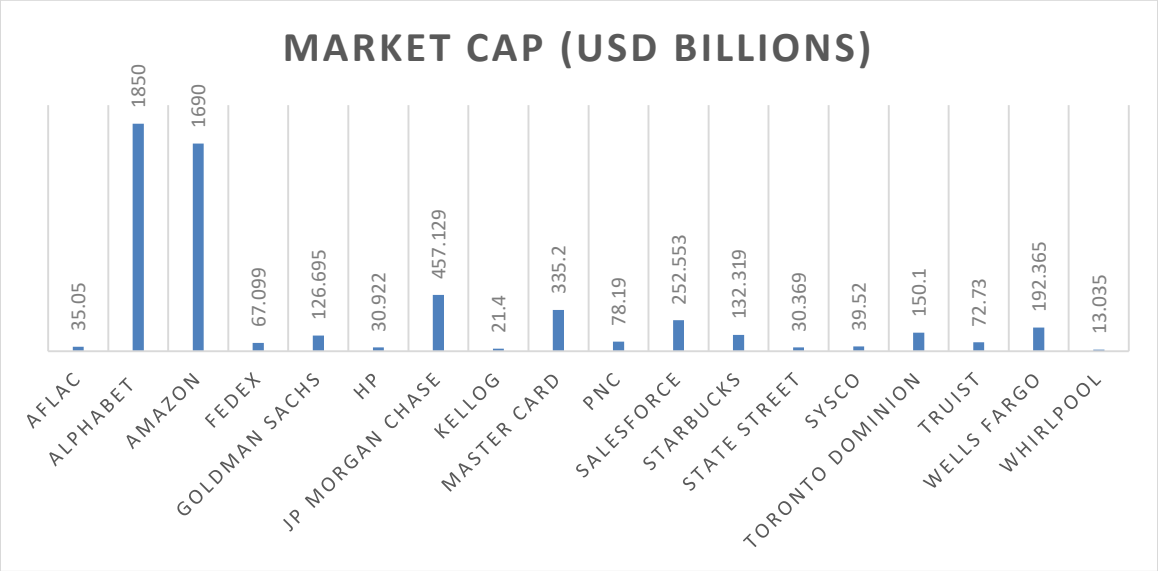

Figure 7: Market Capitalization of companies in the dataset (USD Billions)

We also collected the PEG ratio of these firms. PEG ratio is the parameter to represent a firm's future earning and growth. A detailed discussion on the PEG ratio is provided in section 4.1.5 (b).

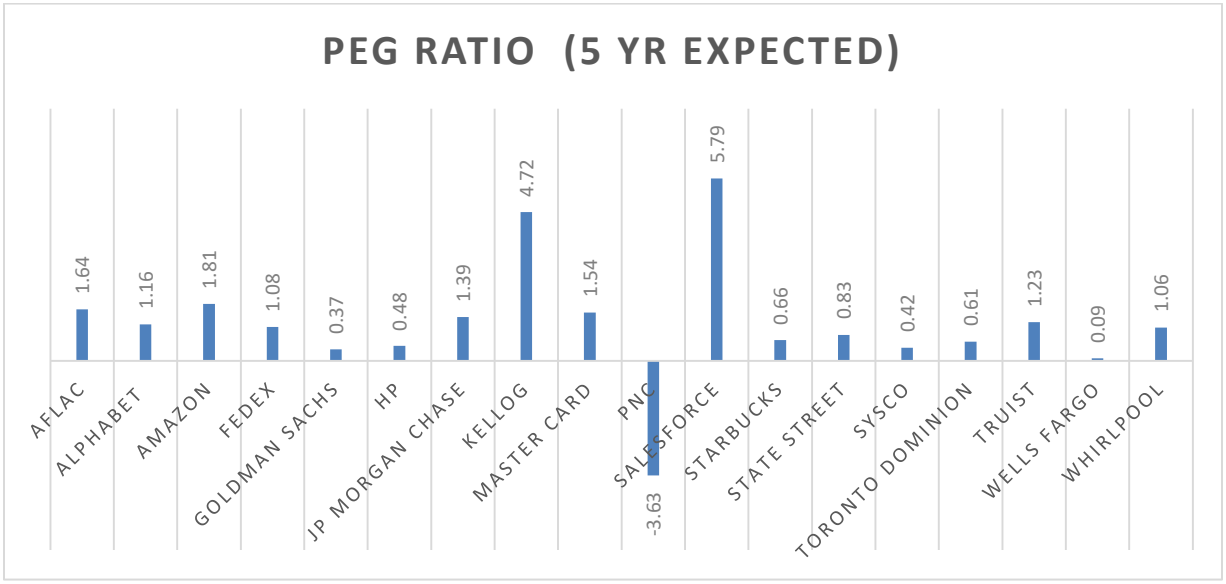

Figure 8: PEG ratio of companies in the dataset

Below are the companies' data in our data set by percentage Institutional Ownership.

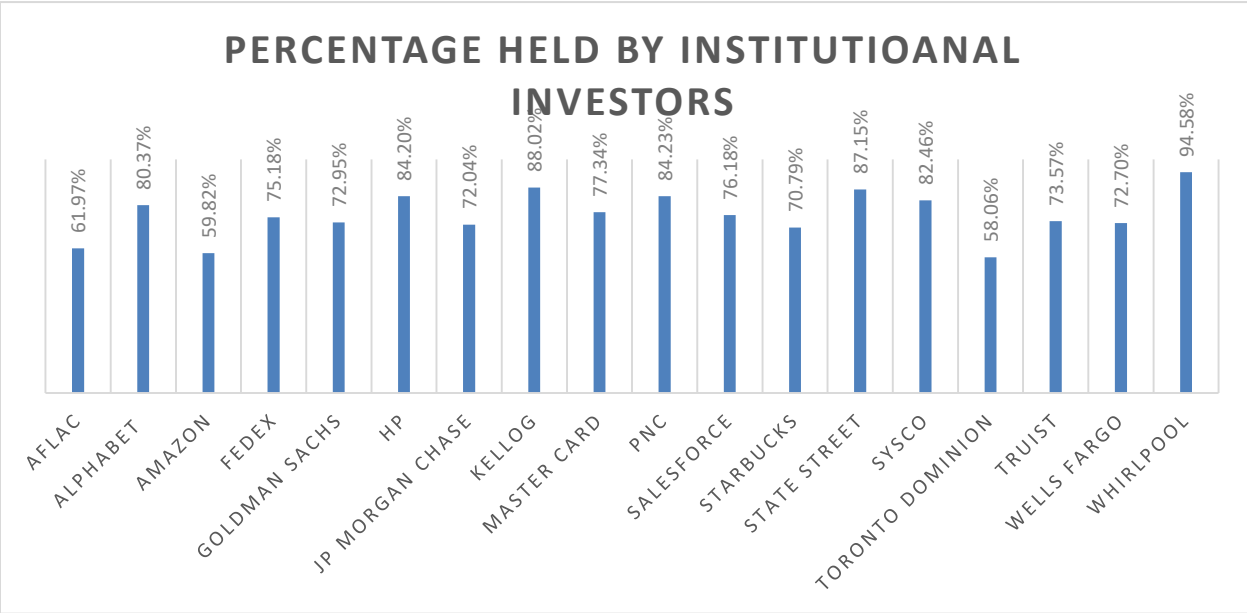

Figure 9: Percentage Institutional Ownership of the firm in the dataset

6. Results

Table 7: Summary Statistics
Summary statistics:

Variable	Observations	Obs. with missing data	Obs. without missing data	Minimum	Maximum	Mean	Std. deviation
UNSDG Score	18	0	18	3.000	12.000	6.611	2.429
Market Cap	18	0	18	13.035	1850.000	309.704	545.112
Percentage Held by Institution	18	0	18	0.581	0.946	0.762	0.099
PEG Ratio (5 yr. expected)	18	0	18	-3.630	5.790	1.181	1.900

Table 8: Correlation between dependent and independent variables

Correlation matrix:

	Market Cap	Percentage Held by Institution	PEG Ratio (5 yr. expected)	UNSDG Score
Market Cap	**1**	-0.271	0.090	0.248
Percentage Held by Institution	-0.271	**1**	-0.035	-0.381
PEG Ratio (5 yr. expected)	0.090	-0.035	**1**	0.484
UNSDG Goals	0.248	-0.381	0.484	**1**

Table 8: Goodness of Fit
Regression of variable UNSDG Score:
Goodness of fit statistics (UNSDG Score):

Observations	18
Sum of weights	18
DF	14
R^2	0.380
Adjusted R^2	0.247
MSE	4.444
RMSE	2.108
MAPE	31.367
DW	1.030
Cp	4.000
AIC	30.325
SBC	33.887
PC	0.975

Table 9: ANOVAtable for UNSDG Score
Analysis of variance (UNSDG Score):

Source	DF	Sum of squares	Mean squares	F	Pr > F
Model	3	38.058	12.686	2.854	0.075
Error	14	62.220	4.444		
Corrected Total	17	100.278			

Computed against model Y=Mean(Y)

Table 10: Model Parameters for UNSDG Score
Model parameters (UNSDG Score):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Intercept	11.993	4.230	2.835	**0.013**	2.921	21.064
Market Cap	0.001	0.001	0.529	0.605	-0.002	0.003
Percentage Held by Institution	-8.188	5.374	-1.524	0.150	-19.714	3.339
PEG Ratio (5 yr expected)	0.591	0.270	2.186	**0.046**	0.011	1.170

Table 11: Standardized Coefficients of UNSDG Score
Summary statistics:
Standardized coefficients (UNSDG Score):

Source	Value	Standard error	t	Pr > |t|	Lower bound (95%)	Upper bound (95%)
Market Cap	0.116	0.219	0.529	0.605	-0.355	0.587
Percentage Held by Institution	-0.333	0.219	-1.524	0.150	-0.802	0.136
PEG Ratio (5 yr expected)	0.462	0.211	2.186	**0.046**	0.009	0.916

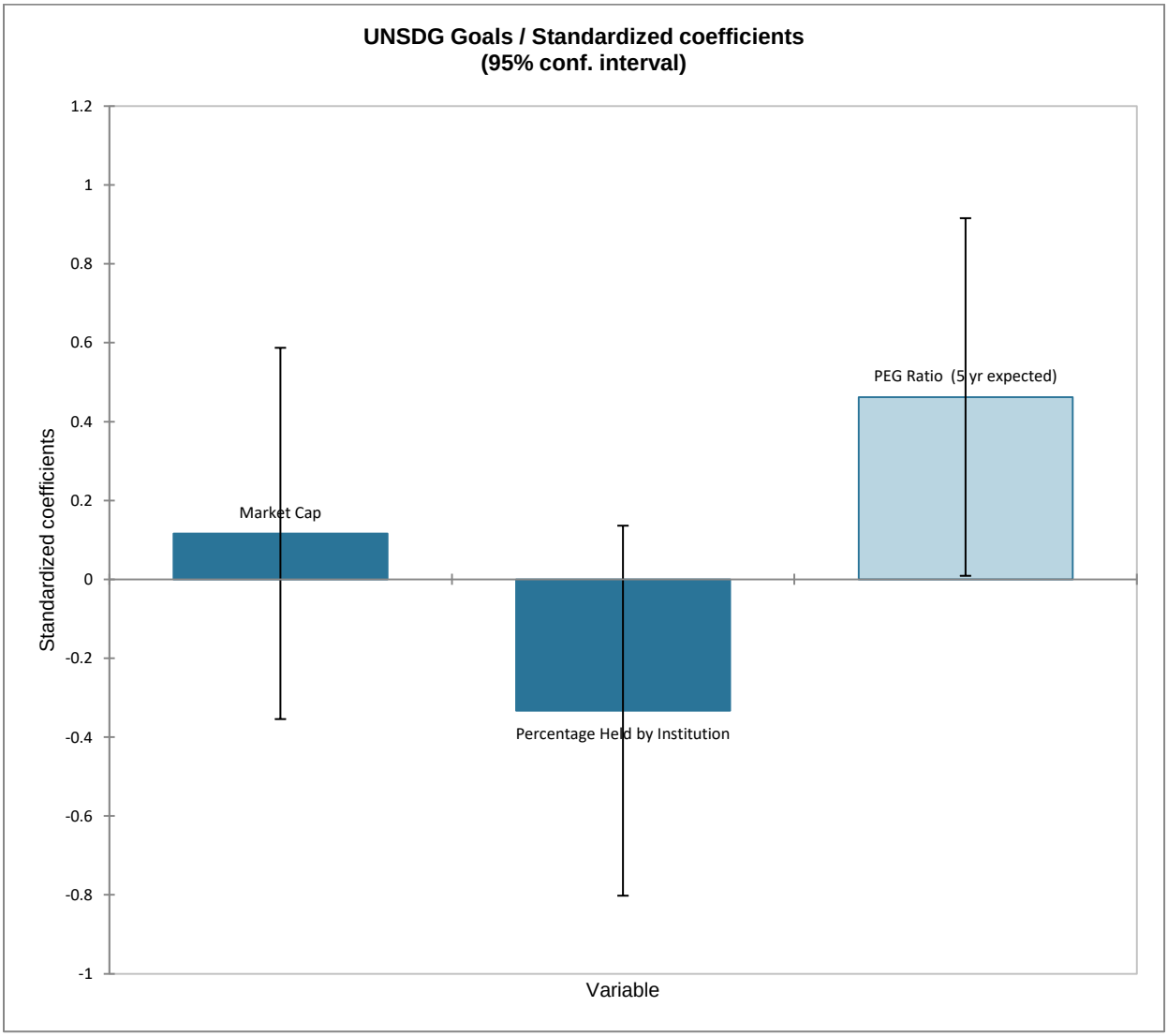

Figure 10: Standardized coefficients (95% conf. interval)

International Journal of Business and Economics
Vol. 7, No. 1, 2022, pp. 24-52
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Table 12: Prediction and residual analysis of the observations (18 firms)
Predictions and residuals (UNSDG Score):

Observation	Weight	UNSDG Goals	Pred(UNSDG Goals)	Residual	Std. residual	Std. dev. on pred. (Mean)	Lower bound 95% (Mean)	Upper bound 95% (Mean)	Std. dev. on pred. (Observation)	Lower bound 95% (Observation)	Upper bound 95% (Observation)
Obs1	1.0	6.0	7.9	-1.9	-0.9	1.0	5.7	10.1	2.3	2.9	12.9
Obs2	1.0	6.0	7.1	-1.1	-0.5	1.7	3.5	10.6	2.7	1.3	12.8
Obs3	1.0	10.0	9.0	1.0	0.5	1.5	5.9	12.2	2.6	3.5	14.6
Obs4	1.0	5.0	6.5	-1.5	-0.7	0.6	5.3	7.7	2.2	1.8	11.2
Obs5	1.0	4.0	6.3	-2.3	-1.1	0.6	5.0	7.6	2.2	1.6	11.0
Obs6	1.0	3.0	5.4	-2.4	-1.1	0.7	3.9	6.9	2.2	0.6	10.2
Obs7	1.0	5.0	7.2	-2.2	-1.0	0.5	6.0	8.3	2.2	2.5	11.8
Obs8	1.0	8.0	7.6	0.4	0.2	1.3	4.9	10.3	2.5	2.3	12.9
Obs9	1.0	8.0	6.7	1.3	0.6	0.5	5.6	7.8	2.2	2.1	11.4
Obs10	1.0	6.0	3.0	3.0	1.4	1.4	-0.1	6.1	2.6	-2.5	8.5
Obs11	1.0	12.0	9.3	2.7	1.3	1.3	6.4	12.2	2.5	3.9	14.7
Obs12	1.0	5.0	6.7	-1.7	-0.8	0.6	5.3	8.0	2.2	1.9	11.4
Obs13	1.0	3.0	5.4	-2.4	-1.1	0.8	3.7	7.0	2.2	0.6	10.2
Obs14	1.0	7.0	5.5	1.5	0.7	0.6	4.1	6.9	2.2	0.8	10.2
Obs15	1.0	10.0	7.7	2.3	1.1	1.2	5.2	10.1	2.4	2.5	12.8
Obs16	1.0	7.0	6.7	0.3	0.1	0.6	5.5	8.0	2.2	2.0	11.4
Obs17	1.0	8.0	6.2	1.8	0.9	0.6	4.9	7.5	2.2	1.5	10.9
Obs18	1.0	6.0	4.9	1.1	0.5	1.1	2.6	7.2	2.4	-0.2	10.0

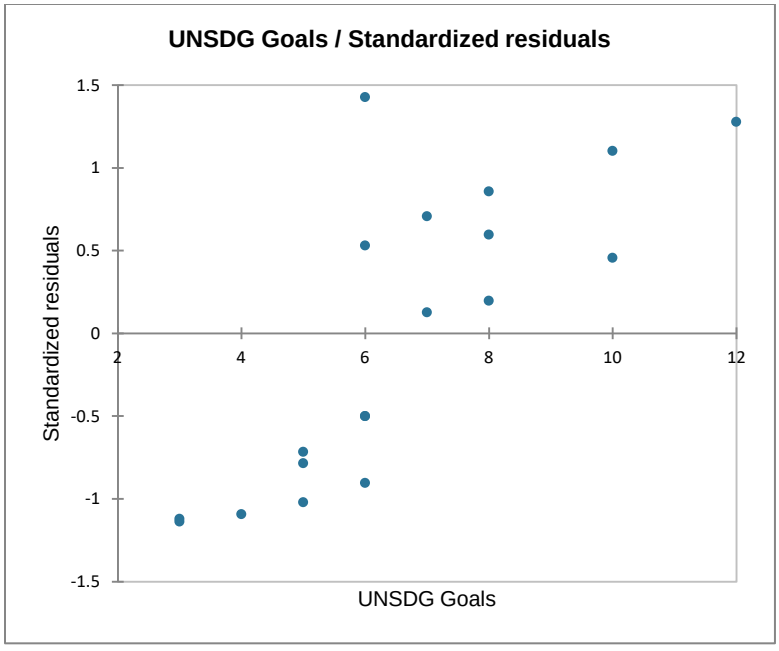

Figure 11: UNSDG Goals / Standardized residuals

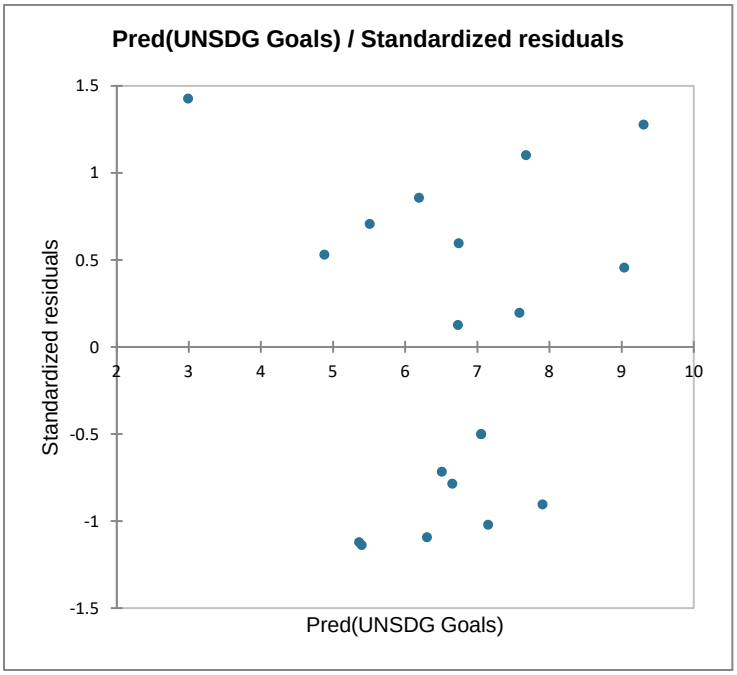

Figure 12: Pred (UNSDG Goals) / Standardized residuals

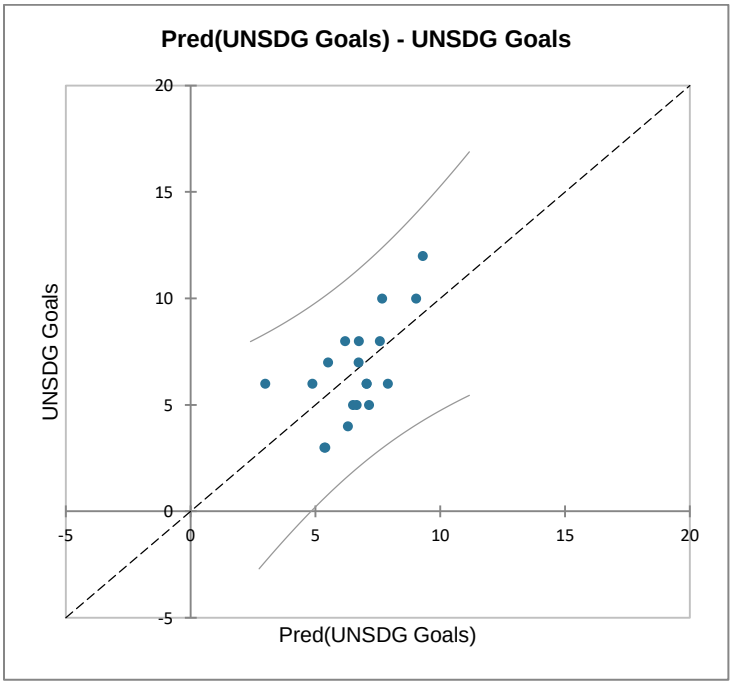

Figure 13: Pred (UNSDG Goals) - UNSDG Goals

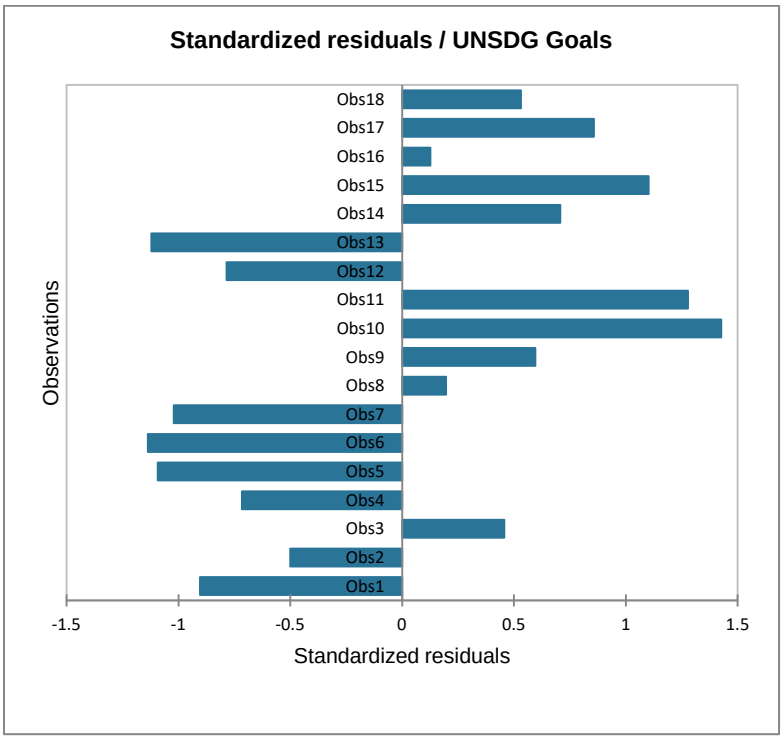

Figure 14: Standardized residuals / UNSDG Goals

7. Analysis and Discussions

In this research, we used a stakeholder theory framework to analyze the United Nations Sustainable Development Goals (SDGs). We wanted to check this sustainability commitment of the sustainable bonds issued by selected US corporates against the following parameters

1. Size of the firm (Market Capitalization): We found no relationship
2. Future earning and growth potentials (PEG Ratio): We found a positive relationship
3. Institutional Ownership (Proportional holding by Institutions): We found no relationship

Our statistical test rejects any relationship between the size of the firm and sustainability commitment via sustainable bonds. We find a positive relationship between sustainability commitment and future earning and the Growth potential of the firms. We find no evidence to support the premise that the commitment of a sustainable bond is related to the amount to which Institutional Investors hold the issuers of such sustainable bonds.

Size of the firm and Sustainability commitment

Meiryani et al. (2020) found that (1) a firm's size does not affect a firm's financial performance, which is proxied by return-on-assets; (2) a firm's size does not affect firms.

Gupta & Gupta (2014) found similar results. One explanation is that the existing literature has established a positive relationship of a firm's performance under the shareholder's theoretical framework. The relationship between a firm's size its performance under the stakeholders' theory framework may not be the same. Literature suggests that larger firms disclose Sustainability, so like earning management, there could be evidence of sustainability reporting management or, possibly, a "Greenwashing."

Literature has supported that innovation drives Sustainability. There is no solid evidence that just the most well-known corporations spurred innovation. There is considerable literature available that has successfully rejected the Schumpeterian hypothesis that only large firms could induce technological changes because small firms were incapable of "Optimal" expenditure for R&D. Tatsuo Kinugasa (1998) had rejected the Schumpeterian hypothesis in this research. Lizarralde (2018) also argued against Schumpeterian theory by presenting his data and analysis about technology-savvy startups.

Therefore, our conclusion of the firm's size not impacting the sustainability commitment is based on the fact that innovation drives Sustainability, and innovation is not necessarily related to the firm's size. All the new startups and technology disrupters have attained a very high level of innovation, which is very small in size. This explains our first result.

Future earning and growth potentials

Our second result shows a positive relationship between the PEG ratio and the sustainability commitment of the sustainable bond issued by the US corporates. PEG ratio essentially represents the earning-to-growth potential of the company. In section 4.1.3, we have reviewed several pieces of literature which conclude that Innovation that drives the firms' future earning and growth potential drive sustainability. Therefore, we can conclude that our result of "Future earning and growth potential" positively impacts the sustainability commitment of the sustainable bond issuers in US corporates.

Institutional Ownership

Our analysis does not support that institutional ownership impacts firm sustainable commitment via sustainable bond issuance. One explanation we put forward is that higher institutional ownership increases the monitoring, and under excessive monitoring, the shareholder's return becomes the primary objective. Mohamad Masary (2016) established a positive relationship of ROE with the institutionally held firms. While various literature suggests that institutional ownership positively impacts the firm's ESG performance and Sustainability, we didn't find that in our study of sustainable US corporate bonds. This needs more research with a more extensive database of sustainable bonds. As per ICMA, only 30 sustainable bonds are issued by US corporates. Due to data limitations, our sample is only 18 bonds, so this research should be further expanded to include more bonds when issued in the future.

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