Is there a better way to invest sustainably?

--ESG Investing Team
Team Members

Zixin (Cindy) Zhou  
MSFQ  
zzixin@wustl.edu

Ge Yu  
BSBA 2022  
geyu@wustl.edu

Anthony Qiu  
MSFQ  
aqiu@wustl.edu

Brent Schiller  
BS  
Brentschiller@wustl.edu

Juliet Kamau  
BA Political Science ('21)  
Julietkamau@wustl.edu

Raheem Williams  
BA Environmental Policy ('21)  
Raheemwilliams@wustl.edu
01 Project Overview
02 Literature Review
03 Quantitative Analysis
04 Portfolio Construction
05 Conclusions and Insights
1 Project Overview
Objectives

Investment

• Determine if there is a better way to invest sustainably than McCartney Wealth Managements current approach

Impact

• Assess the measurable impact of the current sustainable portfolios
• Evaluate how impactful better corporate governance is on both environmental and social factors of ESG
• Determine what impact the COVID-19 pandemic has had on ESG investing

Education

• Develop a plan for ESG investing to engage and educate investors
What is ESG Investment?

ESG Investment is the consideration of environmental, social and governance factors alongside financial factors in the investment decision-making process.
Stakeholder Map

01 Make Informed Decisions
MSCI Index Provider, Blackrock

02 Manage with Transparency
Our valued client, Professor Solberg

03 Best Solution for Client
TA and Codirectors

04 Keep Update
Our colleagues and friends

Set Up

Keep Informed
Manage Closely
Monitor
Keep Satisfied
2 Literature Review
Why ESG?

1) Sustainability is one of the most significant trends in financial markets
2) Sound sustainability standards lower the cost of capital of companies
3) Solid ESG practices result in better operational performance of firms
4) Stock price performance of companies is positively influenced
5) Investors and managers consider sustainability in decision making has positive economic effect
6) Active ownership will have more influence by voting shares
7) The future of sustainable investing is likely to be active ownership
United Nations Principles for Responsible Investing

• Believes that an economically efficient, sustainable global financial system is a necessity for long-term value creation

• Achieved through growing visibility and with a sense of urgency

• Understanding of Investors roles in shaping real world outcomes and holding them accountable contribute to expectations

• Meeting International Standards leads to better financial risk management
How Do They Incorporate ESG in their Philosophies?

- Involve ESG in Decision Making and Investment Analysis
- Be Active Owners and include ESG issues within corporate policies
- Seek proper disclosure on ESG related issues via the very entities they invest in
- Promote these ESG supported policies in the Investment Industry
- Work cohesively towards making these policies effective
- Report on progress to track implementation of policies

Principles for Responsible Investing
**Causation**
- Through own business activities
- Seen through effect on staff

**State Duty to Protect**
- State must protect human rights
- Includes business enterprises and other organizations under their jurisdiction

**Corporate Responsibility to Respect**
- Avoid infringing on human rights
- Address any adverse human right outcomes

**Contributed to**
- Through a business you’re associated with
- Through a business relationship

**Direct Link**
- Manufactured products
- Services provided

**Access to Remedy**
- Allow affected people to heal through remedies
- Trauma can be due to business related activities

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**FOUNDATION AND GOALS**
3 Quantitative Analysis
Leading Fund Manager Analysis

Dimensional Funds Advisors (DFA)

**Investment Objectives:**
target specific environmental goals (greenhouse gas emissions) within a robust investment framework designed for higher expected returns.

**Principle Investment Strategies:**
purchases securities with a great emphasis on small capitalization, value, and/or high profitability companies while adjusting the composition of the portfolio based on sustainability impact considerations
Leading Fund Manager Analysis

BlackRock

Investment Objectives:
sustainability and climate-integrated portfolios can provide better risk-adjusted returns to investors over the long-term, and that sustainability-related data provides an increasingly important set of tools to identify unpriced risks and opportunities within portfolios.
Leading Fund Manager Analysis

Vanguard

**Investment Objectives:** Delivering long-term value using reliable reporting and research

**Principle Investment Strategies:** Vanguard’s ESG funds invest in stocks and bonds with differing investment styles and objectives
- 1 Active Fund: proprietary, bottom-up fundamental research
How to Analyze an Investment Portfolio

- **Avg Returns** – Percent change of closing value from the previous time period's close
- **R-Squared** – How closely the performance of a fund matches its benchmark
- **Alpha** – Excess returns after adjusting for market volatility
- **Beta** – The risk of a fund compared to the market
- **Standard Deviation** – The dispersion of data from the expected value
- **Sharpe Ratio** – Performance adjusted by risk
Example Analysis: DFSIX VS. Russell 3000

\[ R^2 = 0.9775 \]
Example Analysis: DFSIX VS. Russell 3000

- Monthly Returns
  - DFSIX: 1.2%
  - Russell 3000: 1.02%

- Alpha = .25%
  - The fund is doing well compared to the benchmark

- Beta = .909
  - This is less than 1. Thus, this is slightly less volatile than the market
  - Greater potential for higher returns
ESG Funds vs Benchmarks

3 Year Average Return: ESG vs Benchmarks

ESG Funds Correlation with Benchmark
**ESGU & SUSA vs S&P 500 Analysis**

*Takeaways 1:*
ESG funds outperform in short run
## Small Cap E, S, G Scores to Price Returns

**Russel 2000 Index (Sourced from CSRHub):**

<table>
<thead>
<tr>
<th>CORRELATION - 5yr Price Change</th>
<th>Overall</th>
<th>E - Environment</th>
<th>S - Social</th>
<th>G - Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>27.42%</td>
<td>31.26%</td>
<td>13.56%</td>
<td>9.53%</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>4.84%</td>
<td>11.56%</td>
<td>0.10%</td>
<td>-1.36%</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>-14.17%</td>
<td>-18.47%</td>
<td>-9.58%</td>
<td>8.32%</td>
</tr>
<tr>
<td>Energy</td>
<td>2.85%</td>
<td>15.93%</td>
<td>-9.39%</td>
<td>-2.46%</td>
</tr>
<tr>
<td>Financials</td>
<td>12.14%</td>
<td>13.80%</td>
<td>9.64%</td>
<td>-0.74%</td>
</tr>
<tr>
<td>Health Care</td>
<td>21.26%</td>
<td>17.61%</td>
<td>19.19%</td>
<td>9.14%</td>
</tr>
<tr>
<td>Industrials</td>
<td>7.67%</td>
<td>15.15%</td>
<td>1.85%</td>
<td>-3.80%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>5.12%</td>
<td>11.05%</td>
<td>-4.41%</td>
<td>7.79%</td>
</tr>
<tr>
<td>Materials</td>
<td>14.28%</td>
<td>3.18%</td>
<td>22.50%</td>
<td>5.78%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>19.84%</td>
<td>13.98%</td>
<td>21.64%</td>
<td>4.21%</td>
</tr>
<tr>
<td>Utilities</td>
<td>40.75%</td>
<td>50.86%</td>
<td>21.17%</td>
<td>24.07%</td>
</tr>
<tr>
<td><strong>OVERALL</strong></td>
<td>10.26%</td>
<td>10.12%</td>
<td>8.99%</td>
<td>2.66%</td>
</tr>
</tbody>
</table>
Large Cap E,S,G to Price Returns

S&P 500 (Sourced from CSRHub)

<table>
<thead>
<tr>
<th>Correlation - 5yr Price % Change</th>
<th>Overall</th>
<th>E - Environment</th>
<th>S - Social</th>
<th>G - Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Services</td>
<td>-27.325%</td>
<td>-26.217%</td>
<td>-23.781%</td>
<td>-29.277%</td>
</tr>
<tr>
<td>Communication Discretionary</td>
<td>5.586%</td>
<td>14.033%</td>
<td>-0.241%</td>
<td>-5.699%</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>-17.213%</td>
<td>1.397%</td>
<td>-29.642%</td>
<td>-15.411%</td>
</tr>
<tr>
<td>Energy</td>
<td>2.842%</td>
<td>-6.090%</td>
<td>4.779%</td>
<td>6.470%</td>
</tr>
<tr>
<td>Financials</td>
<td>-22.445%</td>
<td>-27.925%</td>
<td>-16.841%</td>
<td>-7.521%</td>
</tr>
<tr>
<td>Health Care</td>
<td>-34.856%</td>
<td>-39.445%</td>
<td>-29.506%</td>
<td>-19.147%</td>
</tr>
<tr>
<td>Industrials</td>
<td>-11.313%</td>
<td>-5.009%</td>
<td>-19.048%</td>
<td>-1.388%</td>
</tr>
<tr>
<td>Information Technology</td>
<td>7.688%</td>
<td>5.883%</td>
<td>7.880%</td>
<td>7.633%</td>
</tr>
<tr>
<td>Materials</td>
<td>12.249%</td>
<td>10.816%</td>
<td>13.174%</td>
<td>-1.945%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>-22.111%</td>
<td>-36.488%</td>
<td>-3.044%</td>
<td>-22.710%</td>
</tr>
<tr>
<td>Utilities</td>
<td>9.793%</td>
<td>3.196%</td>
<td>15.413%</td>
<td>13.970%</td>
</tr>
<tr>
<td><strong>OVERALL</strong></td>
<td>-0.86%</td>
<td>0.64%</td>
<td>-1.67%</td>
<td>-3.17%</td>
</tr>
</tbody>
</table>

Takeaways 2:
1. Small-cap Stocks: Certain Industries (like utilities and Information technology) show a positive correlation, while industries (like health care and communication services) show a negative correlation.
2. Large-cap Stocks: ESG scores are not correlated to price changes.
S&P 500 1yr % Change

SPY – S&P 500 ETF
SNPE – S&P 500 ESG ETF
Over-Emphasis on Highly Successful Tech Stocks

Takeaway 3: FAANG stocks and other big tech stocks are overweighted in ESG funds
### Correlation With Market Cap

#### RUSSEL 3000 Top and Bottom 5%

<table>
<thead>
<tr>
<th>High/Low</th>
<th>Overall</th>
<th>E</th>
<th>S</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Cap</td>
<td>28.82%</td>
<td>33.14%</td>
<td>25.24%</td>
<td>17.87%</td>
</tr>
<tr>
<td>1yr</td>
<td>-11.55%</td>
<td>-12.37%</td>
<td>-9.95%</td>
<td>-12.04%</td>
</tr>
<tr>
<td>3yr</td>
<td>4.22%</td>
<td>4.55%</td>
<td>3.17%</td>
<td>6.52%</td>
</tr>
<tr>
<td>5yr</td>
<td>17.62%</td>
<td>16.61%</td>
<td>16.42%</td>
<td>19.95%</td>
</tr>
</tbody>
</table>

#### Average Results for Top 5% of ESG Scores

<table>
<thead>
<tr>
<th>Market Cap</th>
<th>1y Price Change</th>
<th>3y Price Change</th>
<th>5y Price Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 124,562,512,622.73</td>
<td>8.93%</td>
<td>32.78%</td>
<td>95.63%</td>
</tr>
</tbody>
</table>

#### Average Results for Bottom 5% of ESG Scores

<table>
<thead>
<tr>
<th>Market Cap</th>
<th>1y Price Change</th>
<th>3y Price Change</th>
<th>5y Price Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 5,250,620,486.77</td>
<td>33.83%</td>
<td>24.88%</td>
<td>40.60%</td>
</tr>
</tbody>
</table>

#### Total S&P 500

<table>
<thead>
<tr>
<th>Total S&amp;P 500</th>
<th>Overall</th>
<th>E - Environment</th>
<th>S - Social</th>
<th>G - Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Cap</td>
<td>19.09%</td>
<td>26.67%</td>
<td>10.35%</td>
<td>7.39%</td>
</tr>
<tr>
<td>1y</td>
<td>-1.41%</td>
<td>3.05%</td>
<td>-3.48%</td>
<td>-8.41%</td>
</tr>
<tr>
<td>3y</td>
<td>-2.72%</td>
<td>0.12%</td>
<td>-4.10%</td>
<td>-6.05%</td>
</tr>
<tr>
<td>5y</td>
<td>-0.86%</td>
<td>0.64%</td>
<td>-1.67%</td>
<td>-3.17%</td>
</tr>
</tbody>
</table>

#### Average Results for Top 10% of ESG Scores

<table>
<thead>
<tr>
<th>Market Cap</th>
<th>1y Price Change</th>
<th>3y Price Change</th>
<th>5y Price Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 124,360,465,220.00</td>
<td>7.74%</td>
<td>40.54%</td>
<td>101.20%</td>
</tr>
</tbody>
</table>

#### Average Results for Bottom 10% of ESG Scores

<table>
<thead>
<tr>
<th>Market Cap</th>
<th>1y Price Change</th>
<th>3y Price Change</th>
<th>5y Price Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 35,884,054,134.62</td>
<td>9%</td>
<td>38%</td>
<td>117%</td>
</tr>
</tbody>
</table>

*Sourced from CSRHub and the Bloomberg Terminal*
Conclusion:
There is a strong correlation between ESG score and Market cap (the higher ranked companies tend to be larger) for the top and bottom 5% scored companies in Russel 3000 and S&P 500 Index.

However, when adjusting for market cap and analyzing the high and low score separately, there is still no correlation with returns.
4 Portfolio Construction
Portfolio

<table>
<thead>
<tr>
<th>Industries</th>
<th># of stocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Services</td>
<td>6</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>11</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>15</td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td>5</td>
</tr>
<tr>
<td>Financials</td>
<td>15</td>
</tr>
<tr>
<td>Health Care</td>
<td>19</td>
</tr>
<tr>
<td>Industrials</td>
<td>13</td>
</tr>
<tr>
<td>Information Technology</td>
<td>20</td>
</tr>
<tr>
<td>Materials</td>
<td>5</td>
</tr>
<tr>
<td>Real Estate</td>
<td>4</td>
</tr>
<tr>
<td>Utilities</td>
<td>12</td>
</tr>
</tbody>
</table>

Experimental Portfolio in ESG

Testing: Return only dependent on ESG scores

- Criterion:
  - Avoid FAANG Stocks overweight
  - Equal Weight
  - ESG scores above 60 for each industry
    - Top 5 percentile
    - Except for Energy
  - High Bloomberg ESG disclosure rate
  - Diversified among industries
## ESG Portfolio vs S&P 500

<table>
<thead>
<tr>
<th>Metric</th>
<th>ESG Portfolio</th>
<th>S&amp;P500</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 year return</td>
<td>7.93%</td>
<td>15.3%</td>
</tr>
<tr>
<td>3-year return</td>
<td>29.54%</td>
<td>36.79%</td>
</tr>
<tr>
<td>5-year return</td>
<td>73.58%</td>
<td>74.1%</td>
</tr>
<tr>
<td>Volatility</td>
<td>22.58%</td>
<td>25.89%</td>
</tr>
<tr>
<td>Sharpe ratio</td>
<td>0.31</td>
<td>0.56</td>
</tr>
</tbody>
</table>

- Less return
- Less volatile
- Less Sharpe ratio
- FAANG stock advantage is the reason why ESG mutual funds outperform their benchmarks in the short run
5 Case Study
The Way Investors Go About Choosing An ESG Portfolio: A Case Study Of Apple and Netflix

- **Apple** has an ESG score of **60.4**
  - This score is primarily **pulled up** by their ‘E’ or Environmental factor (76)
  - Apple continuously and outwardly announces "green" efforts and actions
  - This firm is transparent about their business activities that affect the environment

- **Netflix** has an ESG score of **48.3**
  - This score is primarily **dragged down** by their ‘G’ or Governance factor (43)
  - Netflix's approach to governance is "one-sided."
  - Stockholder interests ignored, decisions made by directors kept in secret, proxy votes ignored wherever legally possible.

https://miranda-partners.com/gri-vs-sasb-or-gri-plus-sasb/
https://www.corpgov.net/2018/07/netflix-approach-to-governance-one-sided/
What Organization Is Setting ESG Standards and Why It Matters

Global Reporting Initiative (GRI)

→ WHAT APPLE USES
- Broad universe of ESG issues that impact ALL stakeholders
- Focus on specific company operations and direct ESG outcomes
- More specific and stringent analysis
- More widely used

Sustainability Accounting Standards Board (SASB)

→ WHAT NETFLIX USES
- A subset of GRI Standards
- Focus on financial impact to company
- Serves mainly investors' interests
- Less widely used
6 Conclusion & Insights
**Conclusion:**
(1) ESG funds perform well in short run
(2) ESG funds are less volatile than the benchmarks, which means lower risks
(3) There is little correlation between ESG factor and equity return
(4) Overweighting on the tech stocks causes appreciation on ESG funds

**Insights:**
Even from the data side, ESG score is low correlated with equity return, but combining the literature research and more interests and ESG considerations from institution investors, individual investors, regulators, and governments, we believe ESG Investment is potential to drive the long-term value.