



HARVARD Kennedy School

MOSSAVAR-RAHMANI CENTER
for Business and Government

Impact in Public Equities

Daide Veronese

June 2021

M-RCBG Associate Working Paper Series | No. 172

The views expressed in the M-RCBG Associate Working Paper Series are those of the author(s) and do not necessarily reflect those of the Mossavar-Rahmani Center for Business & Government or of Harvard University. The papers in this series have not undergone formal review and approval; they are presented to elicit feedback and to encourage debate on important public policy challenges. Copyright belongs to the author(s). Papers may be downloaded for personal use only.



Impact in Public Equities

Policy Analysis Exercise

Candidate

Davide Veronese, Candidate for Master in Public Policy, Class of 2021

Client

Eric Rice, Portfolio Manager, BlackRock, Inc.

Academic Advisor

Professor Shawn Cole, Harvard Business School

Seminar Leader

Professor John Haigh, Harvard Kennedy School

*This Policy Analysis Exercise reflects the views of the author and should not be viewed as representing the views of BlackRock, Inc or any of its affiliates, nor those of Harvard University or any of its faculty.
Submitted in partial fulfillment of the requirements for the degree of Master in Public Policy.*

Acknowledgments

My deepest gratitude goes to my advisor, Shawn Cole, and to my client, Eric Rice. I was constantly inspired by their thoughts and their dedication in mentoring me for this project. I also want to acknowledge John Haigh for his constant availability and precious feedback as seminar leader, as well as Nori Gerardo Lietz and Holger Spamann for the great conversations I shared with them. Without naming them in respect of confidentiality, I am grateful to the many professionals who gave their kind availability for interviews and generously offered comments, feedback and suggestions for further research.

Executive Summary

Over the last few years, some mutual funds have launched Impact investing vehicles in public equity markets. Impact investing currently happens in private markets for its most part, for a total value of \$715 billion in 2020. Public equity markets can help scaling up Impact investing by virtue of their size (excess of \$70 trillion). They also provide private impact investors with additional exit options.

We consider Impact strategies in public equities and assess to what extent they differ from existing sustainable funds and mutual funds in general. In the process, we discover gaps in the market that Impact funds are uniquely positioned to address. Leveraging quantitative analyses, expert interviews and a proprietary Impact Firm List developed at Harvard Business School, we find that:

- Funds that align their investment thesis to advancing the UN Sustainable Development Goals distinguish themselves for their **portfolio differentiation** (50% less common stocks) and **long holding periods** of up to 4 years.
- There is a gap in available sources of funding for small-cap Impact firms that go public. Moreover, existing sustainable funds show limited participation in initial public offerings.

To maximize access to capital for impact firms, we recommend that mutual funds further develop their public market Impact strategies by:

1. Focusing sourcing and coverage efforts on **Impact firms with a market cap under ~\$530 million**. In going public, these firms face barriers in accessing capital from existing sustainable investors.
2. Promoting **portfolio differentiation** and **long holding periods** as distinguishing factors that separate Impact from funds that market themselves as pursuing impact.
3. Engaging with market regulators and impact-oriented SPAC sponsors to promote SPAC legal structures that **reward long-term holders**.

Table of Contents

Executive Summary	3
0. Introduction	5
1. Why Impact in public equities?	7
Criteria for investing with impact	9
The role of mutual funds in the investing landscape	11
The role of ESG investing	12
Current status of public market impact funds	14
2. How can mutual funds deliver impact?	17
Data sources: Thomson Reuters S12, CRSP and the HBS Impact Firms List	18
Portfolio differentiation	19
IPO participation	23
Public alternatives to IPO: Special Purpose Acquisition Companies (SPACs)	27
Benefits ascribed to SPACs by commentators	28
Klausner and Ohlrogge's findings	29
Post listing: being a shareholder in the long term	30
3. Summary and recommendations	33
Summary of findings	33
Do Impact funds differ from ESG and other funds?	33
What needs can Impact funds uniquely address?	34
Are there opportunities for system-level change?	34
Final recommendations	35
Bibliography	37
Appendices	41
Preparation of S12 and CRSP data set from WRDS	41
Exhibits	43
UN Sustainable Development Goals overview, from official website	43
Investing shortfall breakdown by sector, UN Investment Report 2014	43
LeapFrog Investments strategy alignment to SDGs	44
IPO sizes over the last 5 years in the US	44

0. Introduction

The popularity of Impact investing is at all-time highs. Impact investing is commonly defined as “Investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return”¹ (GIIN). Building on the practice of “Socially Responsible Investing” in the 1960s and 1970s, impact investing has subsequently grown to an estimated size of \$715 billion. So far, the vast majority of impact investing happens in private markets.

This work considers the potential for public equity markets to address some of the current limitations of impact investing and to increase access to capital for impact firms.

Guiding questions are:

- a. To what extent mutual funds who claim to invest with Impact show distinct strategies in their asset allocations when compared to existing funds?
- b. What needs are Impact funds uniquely suited to meet?
- c. Do we see system-level opportunities for improving capital access for impact firms?

In Section 1, we introduce the main aspects of impact investing, the role of mutual funds and discuss the current status of impact investing in public equity markets.

In Section 2, we present quantitative evidence that supports the uniqueness of impact strategies adopted by long-equity mutual funds who aim to advance UN Sustainable Development Goals (SDGs). We find substantive differences between these strategies and the ones of ESG funds and funds which market themselves as pursuing impact. In particular, we document how ESG funds do not invest in Impact IPOs unless they have a relatively large market cap.

In Section 3, we summarize findings from Section 2 and offer final recommendations to maximize access to impact capital through public equity strategies.

¹ <https://thegiin.org/impact-investing/need-to-know/#what-is-impact-investing>

1. Why Impact in public equities?

In this section we introduce three empirical reasons for looking into impact in public equities:

1. In the face of a \$2.5 trillion/year capital shortfall, public equity markets (\$70 trillion globally) are much larger than overall impact investing activities
2. Impact-oriented public equities investments have been growing at 33% a year since 2015
3. Public equity markets can plausibly address the lack of suitable exits, a major bottleneck of the current impact investments ecosystem

According to the Global Impact Investor Network (GIIN), “Impact investors most commonly rely on the **United Nations’ Sustainable Development Goals (SDGs)** to shape their impact targets”². The 17 Sustainable Development Goals were officially adopted in 2015 by UN Member States as part of the 2030 Agenda for Sustainable Development³.

The UN defines the 17 SDGs as:

“An urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth - all while tackling climate change and working to preserve our oceans and forests.”

United Nations SDG webpage

The full list of 17 goals can be found in the Appendix. As an example of how impact investors align their strategy to the SDGs, LeapFrog Investments declares to target the following 5 goals among the SDGs: 1. No poverty, 3. Good health and well-being, 5. Gender Equality, 8. Decent work and economic growth, 10. Reduced inequalities. Their full statement is reported in the Appendix. LeapFrog Investments recently raised more than \$700 million in the largest private equity fund run by a dedicated impact manager⁴.

² Global Impact Investing Network, Annual Impact Investor Survey, 2020, p.48

³ UN official website on SDGs: <https://sdgs.un.org/goals>

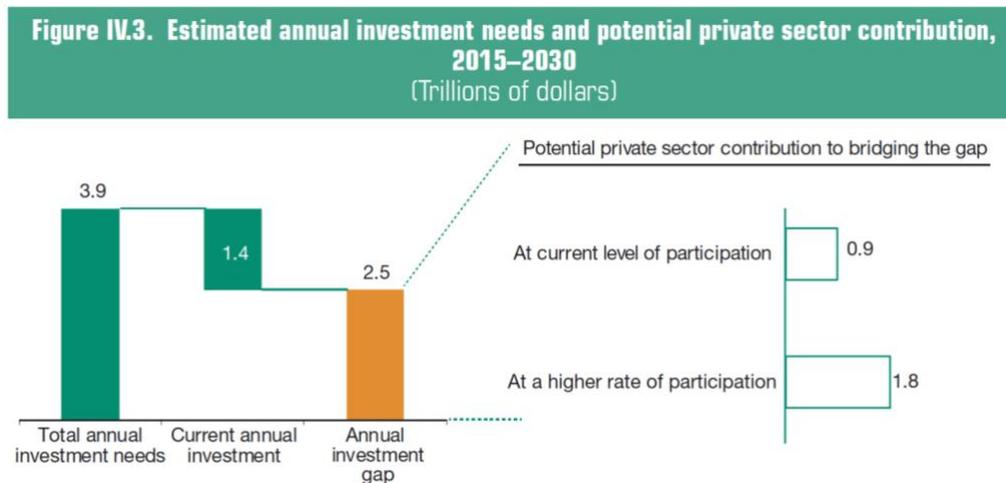
⁴ <https://www.rockefellerfoundation.org/news/leapfrog-breaks-impact-investing-record-700m-emerging-markets-fund/>

As a proxy for the need of impact investments in the near future, what are the capital requirements for the world to meet SDGs by 2030?

In its 2014 Investment Report, the UN exposes a stark \$2.5 trillion/year investment shortfall:

“The SDGs will require a step-change in the levels of both public and private investment in all countries. At current levels of investment in SDG-relevant sectors, developing countries alone face an annual gap of \$2.5 trillion.”

UN World Investment Report 2014 -
 “Investing in the SDGs - an action plan”, p.11



Source: UNCTAD based on table IV.2.
 Note: Totals are the mid-points of range estimates.
 Source: UN World Investment Report 2014, page 27

What is then the current size of impact investing? Is it growing quickly enough to close this gap?

The 2020 GIIN Impact Investor Survey estimates the overall impact assets under management (AUM) at \$715 billion. This level corresponds to a \$213 billion increase from 2019. Despite the remarkable relative growth (42.4%), the absolute positive flow is still **less than a tenth** of the aforementioned shortfall of \$2.5 trillion/year. Worldwide public equity markets have a capitalization of about **\$70 trillion**⁵, which is ~100 times larger than the size of impact investing in 2020. If only 4% of the capital in world equities could move to impact initiatives every year, that 4% shift would fully close the capital shortfall estimated by the UN.

Currently, impact investing happens in private markets for the most part.

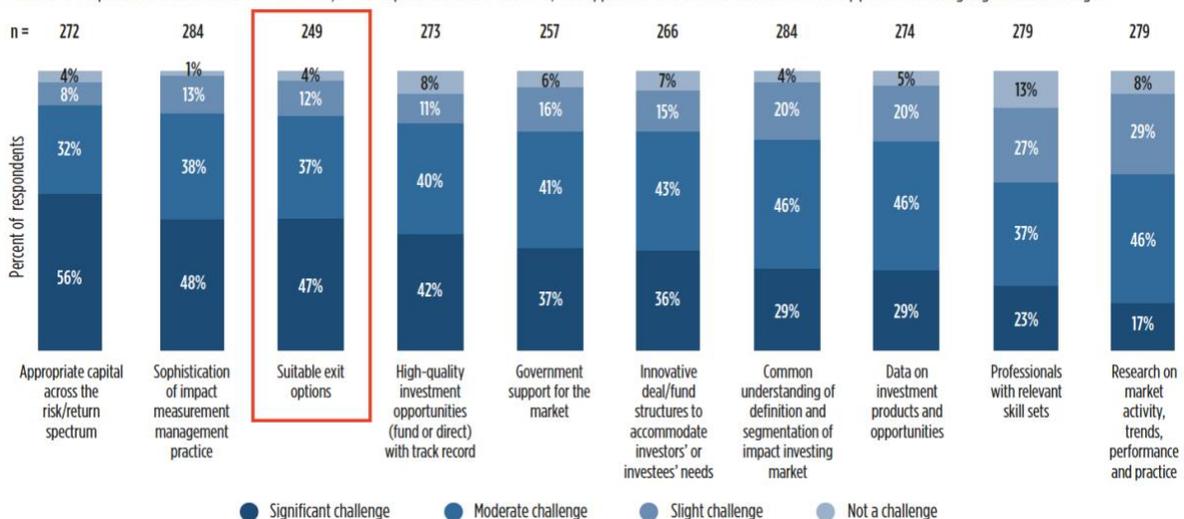
⁵ World Bank Data, 2018 - <https://data.worldbank.org/indicator/CM.MKT.LCAP.CD>

In particular, **public equities represented only 11% of the impact investment capital in 2019⁶**. Public markets, therefore, offer a large pool of capital that could be tapped to realize investments that drive social and environmental progress towards the SDGs. **Public equities impact investing** has grown at 33% each year between 2015 and 2019, yet its current size of \$78.7 billions is only 0.11% of total public equity markets.

What are the current challenges with impact investing, that prevent it from achieving a larger scale? Beside sheer size, are public equity markets well suited to address some of the most pressing challenges to scale impact investing? The lack of **suitable exit options** is perceived as a “significant challenge” by 47% of the GIIN survey respondents:

Figure 11: Remaining challenges for the market

Number of respondents shown above each indicator; some respondents chose 'not sure / not applicable' and are not included. Ranked by percent selecting 'significant challenge.'



Source: GIIN 2020 Impact Investor Survey, page 9

Public equity markets generally provide exit opportunities for private investments. They do so through Initial Public Offerings (IPOs) and publicly listed Special Purpose Acquisition Companies (SPACs); the latter have recently experienced an increase in popularity.

In the next section we analyze the specificities of impact investing, in order to discuss how it can be pursued in public equity markets.

Criteria for investing with impact

In 2013, a famous article by Paul Brest and Kelly Born on Stanford Social Innovation Review (SSIR) titled “*When can impact investing create real impact?*” triggered a rich debate that involved several industry practitioners and academic experts. Responders included Brian Trelstad (partner at Bridges Ventures at the time), Matt Bannick and Paula Goldman (Omidyar

⁶ Global Impact Investing Network, Annual Impact Investor Survey, 2020, p.48

Network) and David Wood (Harvard Kennedy School). For the purpose of our discussion, we report summary conclusion from both the original article and the responses, as presented by Born and Brest’s “Last Word” post following the responses to their article⁷.

Under the core tenet of “additionality”, the main dimensions for assessing impact that otherwise would not have happened are:

1. **Enterprise:** there is consensus that at the enterprise level the key drivers are the “**what**” (product), the “**how**” (operations) and the “**where**” (place, as mentioned by Trelstad). For our purpose, we map the “how” to the Environmental, Social and Governance considerations (ESG factors) and discussed those separately. Following the GIIN guidance, we consider the **alignment of the “what”** (as well as the “where”) **with UN SDGs** as more informative than the broader “how” of the firm’s operations, and we require that more than 50% of the enterprise revenue comes from activities that advance the SDGs.

Finally, we want to highlight what Bannick and Goldman call *sector-level* impact, defined as “the ability to prototype a generic business model that, if successful, can propel the development of an entirely new sector”. On the same line, Trelstad introduced the idea of *paradigm-shift* impact. This concept reiterates how impact enterprises often pursue untested business models. The learning and validation that comes from innovative models can be part of their impact.

2. **Investment:** Brest and Born write: “*we define the practice of “impact investing” capaciously, as actively placing capital in enterprises that generate social or environmental goods, services, or ancillary benefits (such as creating jobs), with expected financial returns ranging from the highly concessionary to above market.*”⁸. If we believe public markets are efficient, there seems to be little room for impact in public equities. David Wood argues:

*“Brest and Born reject impact investing in public equities markets because those markets are “essentially perfect.” But in reality they aren’t. [...] There are well-known **agency and time horizon** issues that lead public equity markets to favor short-term speculative strategies at the expense of long-term wealth creation. Impact investors—especially if the field engages larger institutional investors—have at least the potential to help shift the balance of investment in these markets toward the real economy.”*

⁷ https://ssir.org/up_for_debate/impact_investing/brest_and_born#

⁸ *Ibidem*

We agree that trading stocks in a perfect market is highly unlikely to be additional. But the point about markets being far from perfect is well-taken: the pathways to impact investing that we analyze all derive from imperfections of real markets.

3. **Non-monetary contributions by the investor:** Born and Brest identify a range of “non-monetary benefits” that investors can provide (in a way that is additional):
 1. *Improving the enabling environment for social enterprises and investors*
 2. *Finding and promoting impact investment opportunities*
 3. *Aggregating capital and providing other investment services*
 4. *Providing technical and governance assistance to enterprises, and helping them build strategic relationships*
 5. *Gaining socially neutral investors*
 6. *Securing and protecting the enterprise’s social mission*

Measuring these non-monetary contributions is not a simple task, but it’s important to acknowledge them part of the broader investor contributions.

Equipped with these solid definitions of what constitutes impact, we can analyze the role of mutual funds as prominent institutional investors in the public markets space.

The role of mutual funds in the investing landscape

Mutual funds control an increasing amount of managed assets. According to Statista, the total net assets of US-registered mutual funds went from \$11.83 trillion in 2010 to \$21.29 trillion in 2019. There are several types of mutual funds, ranging from short-term focused “money market funds” to long-only equity funds. Each of these types invests in a variety of domestic and international equities, as well as bonds and commercial notes. More often than not, funds also invest in stakes of other funds.

An important distinction within mutual funds is whether the management style is active or passive. Active funds are characterized by having either one or more fund managers who actively decide where to allocate the capital. On the other side, passive funds rely on indexing or scoring systems in order to define their portfolio. Given the high level of automation they employ, passive funds are able to charge significantly lower fees to their asset owners.

In the current landscape, impact investments are characterized by significant due diligence efforts and discretion. In this respect, they are more akin to private markets investments. For example, **there is currently no “Impact index”** that yields a list of the “Top 500” impact firms. As a result, impact investing belongs to the active management portion of mutual fund investing. This is in contrast with the automation efforts that are transforming the ESG investing

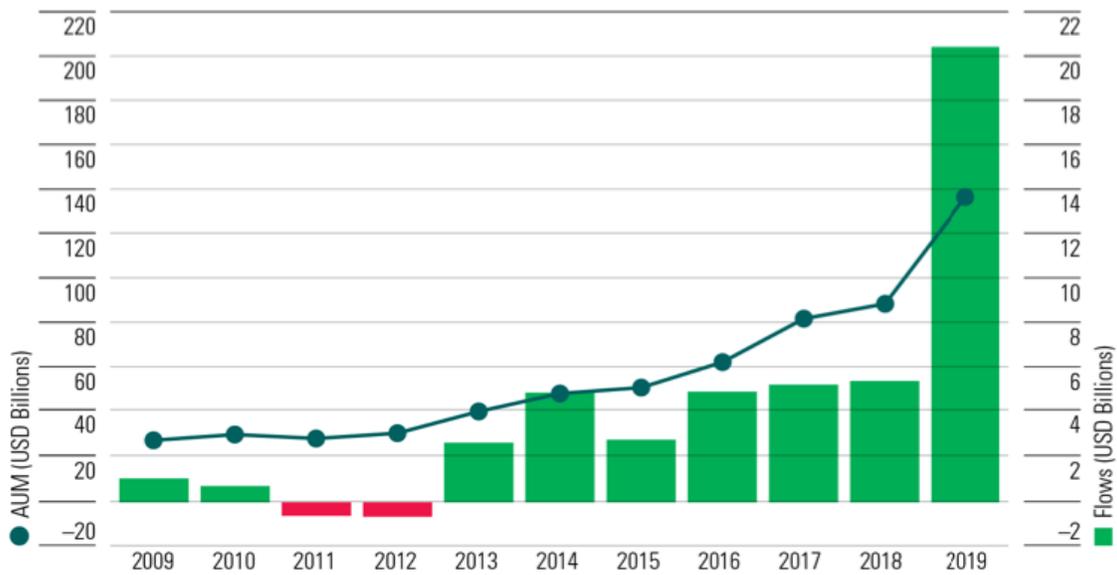
landscape, also known as “sustainable investing”. Within ESG investing, passive strategies that (for example) combine ESG screens with traditional indexes are widely available in the market.

Given there are fundamental differences between ESG investing and impact investing, it's worth spending the next section discussing the peculiarities of ESG investing before returning to our focus on investing for impact.

The role of ESG investing

Funds that integrate Environmental, Social and Governance (ESG) indicators in their investment decisions have experienced a tremendous capital inflow over the last decade:

Exhibit 12 Sustainable Funds Annual Flows Set Record in 2019



Source: Morningstar Direct. Data as of 12/31/2019.

State Street Global Advisor has published⁹ a framework for understanding and comparing ESG strategies. The three main strategies they outline are:

- **Exclusionary screening:**
 - Removing from the universe companies that do not respect investor’s ethical standards regarding human rights, fair labor practices (e.g. avoiding child labor), environment conservation and preventing corruption
Possible outcome: Excluding companies that generate more than 5% of their revenue from selling weapons.
- **Positive screening:**

⁹<https://www.ssga.com/investment-topics/environmental-social-governance/2018/10/esg-terminology.pdf>

- Directing the portfolio towards top X percent of firms according to ESG scores
Possible outcome: Investing in an oil and gas company who is the best in class in terms of minimizing their carbon intensity.
- **ESG integration:**
 - Actively incorporating ESG scores into the security selection process.
Possible outcome: Using ESG information on a case-by-case basis during the security selection process. For example, lowering the provided governance score by 5 (out of a 100) for a firm whose former CEO and chair of the board stayed on as chair after stepping down from its executive role, raising questions on the limits to the new CEO's autonomy¹⁰.

We can have a look at the 10 largest holdings of the MSCI World ESG Leaders:

INDEX CHARACTERISTICS			TOP 10 CONSTITUENTS			
	MSCI World ESG Leaders	MSCI World		Index Wt. (%)	Parent Index Wt. (%)	Sector
Number of Constituents	720	1,582	MICROSOFT CORP	6.73	3.28	Info Tech
			TESLA	2.39	1.16	Cons Discr
			ALPHABET C	2.22	1.08	Comm Svcs
			ALPHABET A	2.22	1.08	Comm Svcs
			JOHNSON & JOHNSON	1.73	0.85	Health Care
			VISA A	1.31	0.64	Info Tech
			NVIDIA	1.29	0.63	Info Tech
			PROCTER & GAMBLE CO	1.29	0.63	Cons Staples
			DISNEY (WALT)	1.23	0.60	Comm Svcs
			HOME DEPOT	1.18	0.57	Cons Discr
			Total	21.59	10.53	

Source: MSCI World ESG Leaders Index (USD) as of Jan 29th, 2021, page 2

While many of the Top 10 Constituents firms might be running specific impact initiatives, it's hard to argue that more than 50% of their revenue comes from activities that are driving progress towards the UN SDGs. The distinction between impact as driven by the “what” and ESG as related to the “how” seems appropriate at this stage.

On the same note, in a 2018 piece on the Financial Times, Wendy Abt, who sits on the board of Innovation for Poverty Action, argues that:

“A clear line between ESG and true impact investing (or “sustainable development goals” investing) is important because products that have direct impact on poverty are rare, plus the investments are usually illiquid, volatile, and require lots of long-term capital. Transaction costs are also high [...]. ESG investing

¹⁰ This example is taken from the 2020 ESG report of LGT Capital Partner, a firm who integrates ESG considerations: https://www.lgt.com/shared/.content/publikationen/cp/esg_download/200609-ESG-Report-2020_en.pdf

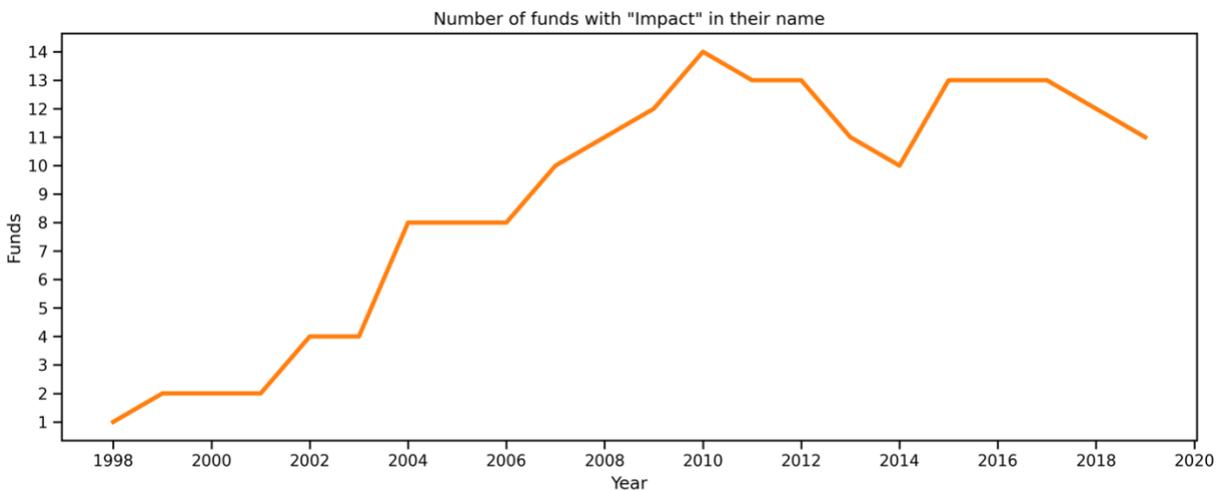
is important but does not operate under these constraints. SDG impact investors need to understand what they are getting into.”¹¹

“Impact investing must resolve its identity crisis” by Wendy Abt,
Financial Times May 1st, 2018

Current status of public market impact funds

Over the last decade there has been a steady increase in the number of funds to brand themselves as impact funds. The abundance of new funds raised under the premise of impact signals a clear interest from asset owners for this investment strategy. At the same time, investors have expressed concerns in the latest 2020 GIIN survey about “impact washing” as a major challenge for the future of the industry. We present below two graphs that summarize these trends.

Increasing number of public markets equity funds that mention “Impact”:

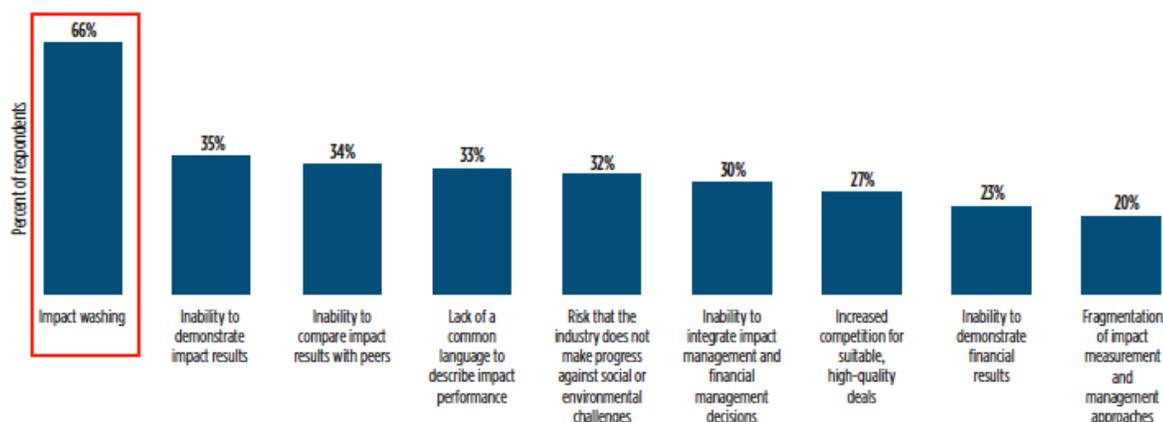


Source: writer's analysis

Challenges for impact investing, according to the GIIN:

Figure 12: Greatest challenges facing the market over the next five years

n = 294



Note: Each respondent selected three challenges. Indicators are ranked in order of the number of respondents that selected each as a challenge.

Source: GIIN, 2020 Annual Impact Investor Survey

What do we mean by “Impact washing”?

It’s the practice of labelling investment and activities as achieving positive impact without adequate intentionality and/or measures to support that claim. Let’s consider this example: a retailer of prescription glasses begins to serve the low-income population of a developing country by providing access to cheap fitted glasses that address prevalent sight disorders. If the glasses they sell for cheap are actually that cheap because they are manufactured in harmful, unsafe working conditions, then the retailer firm is not delivering a positive overall impact.¹²

Moreover, as discussed in the ESG section, the term “impact” has sometimes been used to mean both ESG and SDG-oriented investments. In 2012, a E.T. Jackson and Associates report for the Rockefeller Foundation advocated for the need of a “*tighter definition of impact investing*” in order to manage expectations and prevent impact washing.

Can we assess to what extent the funds who market themselves as pursuing impact are actually living up to their promises? While it’s hard task in general, public filings of mutual fund holdings offer a starting point to evaluate differences among investing strategies.

¹² We thank Professor Nori Gerardo Lietz for the insightful discussions on this case.

2. How can mutual funds deliver impact?

In this section, we discuss how mutual funds can invest with impact in public equities. These are the main pathways we consider for evaluation:

1. Differentiating their portfolio from other investors, providing capital and visibility to impact firms.
2. Participating and promoting IPOs of impact firms, either during book building or immediately after listing.
3. Participating in impact SPACs as alternatives to IPOs.
4. Committing to being long-term investors in the stock of impact firms

Another possible path to achieve impact that we do not include in our discussion is impact-directed investor stewardship. By investor stewardship we mean using shareholder voting power and other actions to steer corporate spending and investments towards goods and services that are aligned with the SDGs. Further research could consider the potential and efficacy of this pathway to impact. A starting point for assessing the potential of impact-directed stewardship are Impact-Weighted Accounts, started by George Serafim and Ethan Rouen at Harvard Business School¹³. Given the breadth of the subject and the different scope from direct investing activities, we do not include this pathway to impact in our discussion.

We plan to analyze the four pathways both qualitatively and quantitatively. To inform our qualitative assessment we conducted interviews with experts in asset management, philanthropy and the social entrepreneurship space.

For quantitative analyses, we leverage:

- a. Publicly available data on **mutual funds holdings**, accessed through Wharton Research Data Systems (WRDS)¹⁴
- b. A proprietary data set of both private and public **impact firms** from the Harvard Project on Impact Companies, a project supported by the Division of Faculty Development and Research at Harvard Business School

In the next section, we introduce these data sets in more detail. We then proceed to evaluating the pathways to impact for public equity strategies.

¹³ <https://www.hbs.edu/impact-weighted-accounts/our-team/Pages/default.aspx>

¹⁴ <https://wrds-www.wharton.upenn.edu>

Data sources: Thomson Reuters S12, CRSP and the HBS Impact Firms List

As a source for mutual funds holdings over the time period 2010-2020, we use the S12 Mutual Fund Holdings dataset by Thomson Reuters. We access S12 via the Wharton Research Data Systems (WRDS) and join it through the same platform with data from the Center for Research in Security Prices (CRSP) to get stock-level information and additional fields for funds. To prepare the data, we follow Coval and Stafford (2007)¹⁵ and Jordan and Riley (2016)¹⁶, except for the Total Net Assets criteria they employ. The Appendix offers more details on the data preparation methods we adopt.

Courtesy of Professor Shawn Cole, we are able to use data from the Harvard Project on Impact Companies, supported by the Division of Faculty Development and Research at Harvard Business School. We refer to it as “HBS Impact Firms List” and use it as an additional source for our quantitative evaluations.

¹⁵ Coval, J., Stafford, E., 2007. Asset fire sales (and purchases) in equity markets. *Journal of Financial Economics* 86, 479-512. <https://doi.org/10.1016/j.jfineco.2006.09.007>

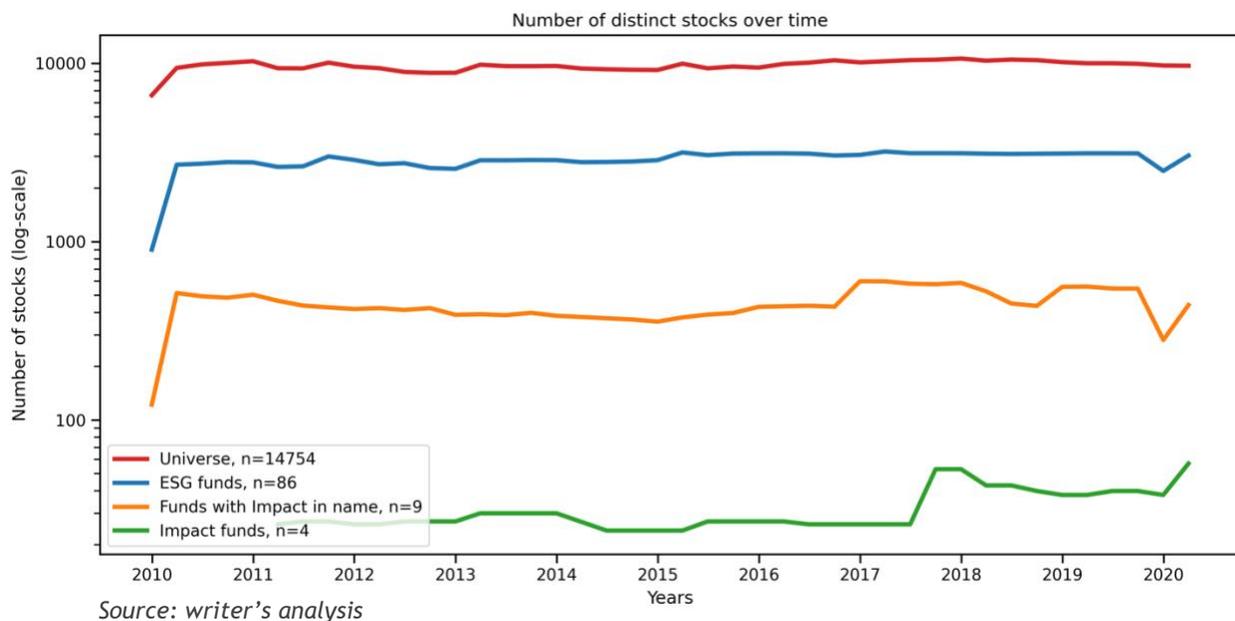
¹⁶ Jordan, Bradford D. and Riley, Timothy Brandon, Skill and Persistence in Mutual Fund Returns: Evidence from a Six-Factor Model (March 25, 2016). Available at SSRN: <https://ssrn.com/abstract=2717091>

Portfolio differentiation

Both Impact funds and sustainable (ESG) funds that invest in public equities have been on the rise in the recent years. As a first question, we ask: to what extent do holdings of ESG and Impact funds differ? Are funds who brand themselves as “impact” actually investing in different stocks from ESG funds?

The S12 data reports holdings for a universe of 14753 mutual funds. Among them, we labelled:

- 86 ESG funds
- 9 funds with “Impact” in their name that do not mention the SDGs in their strategy
- 4 funds that actively adopt the SDG alignment criteria to select their investments



Let's start by looking at the most popular stocks among ESG funds. By “popular”, we mean the most frequent names that we find within ESG stock portfolios.

The table below shows that 6 stocks are held by 60% or more of the ESG funds. Many of these frequently found names belong to the MSCI top 10 Global ranking from the previous section.

ESG funds ownership fraction	
Company Name	
Cisco Systems, Inc.	69.3%
Microsoft Corporation	68.2%
Alphabet Inc.	62.5%
Intel Corporation	61.4%
The Procter & Gamble Company	61.4%
International Business Machines Corporation	59.1%
Texas Instruments Incorporated	56.8%
The Home Depot, Inc.	56.8%
Apple Inc.	55.7%
PepsiCo, Inc.	55.7%
3M Company	54.5%
CVS Health Corporation	54.5%
Gilead Sciences, Inc.	54.5%
Verizon Communications Inc.	54.5%
Ecolab Inc.	54.5%

Source: writer's analysis of ESG fund holdings

All top 15 ESG holdings are Fortune 250 companies in 2020¹⁷, meaning they are among the 250 largest companies in the US. At the same time, the kind of firms that private impact investors hold in their portfolios are very unlikely to be in the Fortune 500 list. The observed tendency for ESG funds to frequently hold large firms speaks to the issue of lack of exits within impact investing.

To what extent do impact funds, as well as funds who have “Impact” in their name, have differentiated positions from ESG funds?

To answer, we need to define how we measure overlap between groups of funds starting from holdings data. For our goals, we consider **name overlap** rather than weighted overlap. Name overlap happens when two different funds hold some amount of stock of a certain company. Given we want to assess if Impact funds choose or not different stocks than other kind of funds, we do not focus on the sizes of those positions and therefore adopt name overlap.

We can define the overlap between a fund and a reference group of funds using a stock-level reasoning. The process we adopt is:

For each stock in the portfolio, we derive the % of funds in the reference group that have held it at some point in time. We then aggregate this “popularity” at the fund level, by taking the median across stocks for a given fund. Finally, for a group of funds

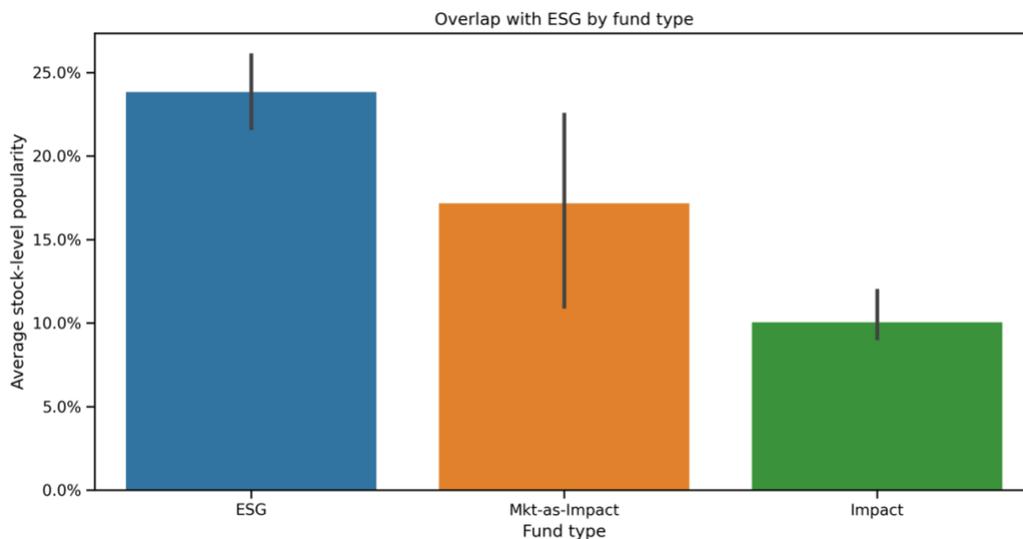
¹⁷ The lowest ranked in the Fortune 500 is Texas Instruments, #222. <https://fortune.com/fortune500/2020>

against a reference group, we average the median stock popularity computed at the fund level.

Let us see “Stock-level popularity” in action with an example. A value of 50% for a group of funds against a reference group (for example, all the ESG funds) means:

“On average, a fund in the examined group holds stocks that are also held by 50% of the ESG funds”.

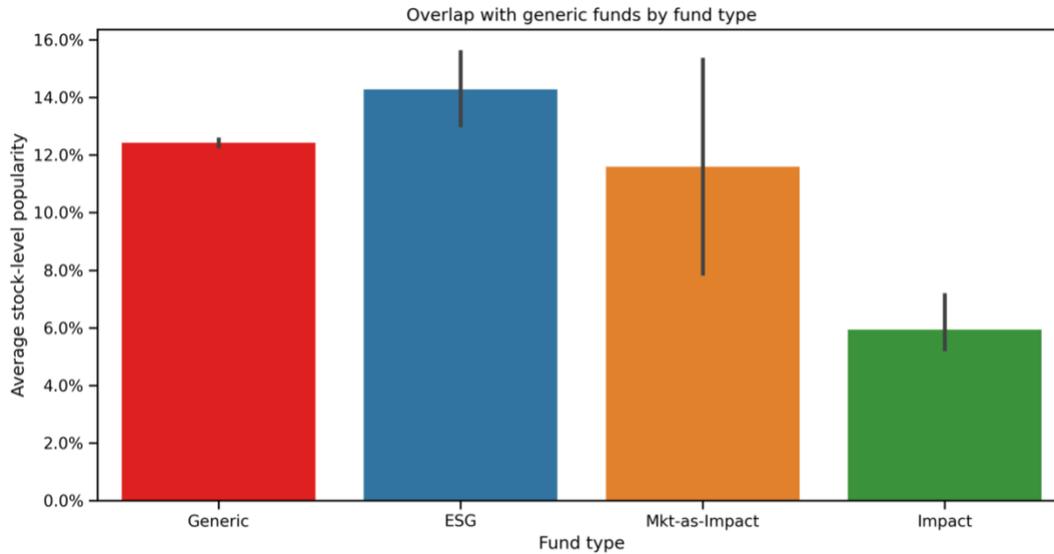
We can plot the stock-level popularity averages of ESG, Impact and market-as-impact funds against the ESG funds group:



Source: writer’s analysis

We observe that ESG funds tend to overlap more with each other than Impact ones overlap with them. Stocks held by Impact funds are on average held by 10.6% of ESG funds, while stocks in a given ESG portfolio can normally be found in 24.0% of ESG funds.

Interestingly, funds that have “Impact” in their name but do not mention SDG alignment (“marketed as impact”) show a larger variability; their median overlap is not significantly distinct from ESG funds. This shows that **Impact funds’ portfolios are differentiated from ESG funds ones**. How does stock overlap behave when measured against all non-ESG funds? Are the stocks chosen by Impact funds popular among other funds, or do Impact funds still stand out as distinct?



Source: writer's analysis

When compared to a generic mutual fund, Impact funds show less than half of the stock-level overlap metric. On the contrary, ESG funds are more “similar” to a generic fund. Their representative stock is also held by 14.3% of all mutual funds. This number is only 5.8% for Impact funds; finally, it varies widely for funds that market themselves as Impact.

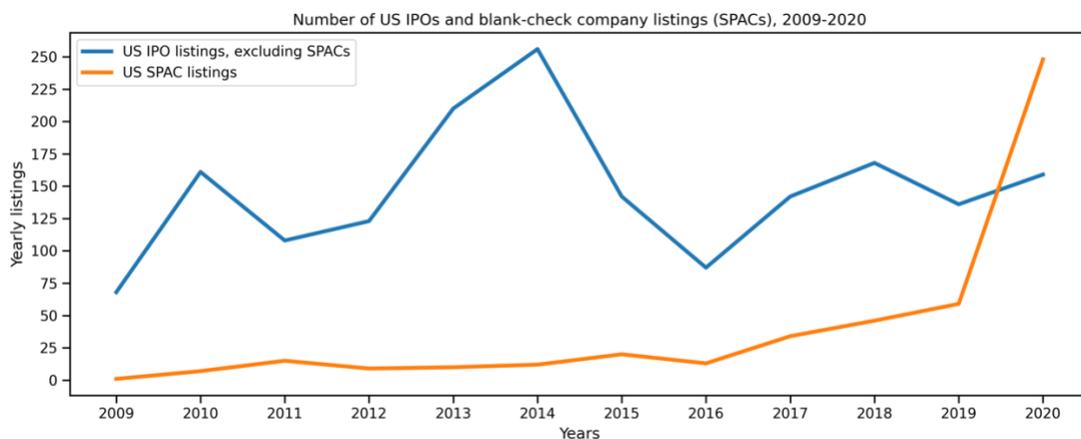
In conclusion, the overlap metric we introduced exposes a significant difference between the portfolios of Impact funds and all the other categories. Impact funds do invest in different, less popular stocks in comparison to both other sustainable investing vehicles and generic funds.

IPO participation

The core questions for this section are:

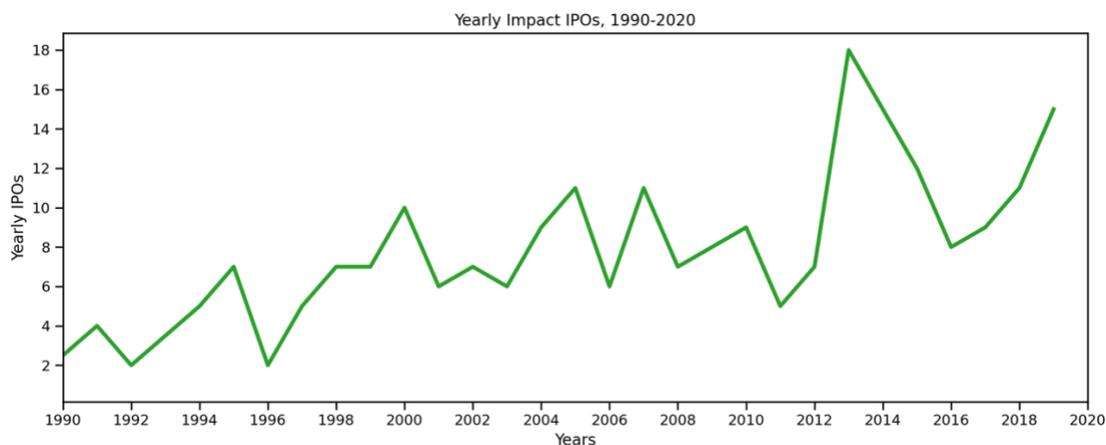
1. Does the **propensity to purchase an IPO** soon after its listing vary across ESG and impact funds?
2. How is it affected by the firm that is going public being (or not) an impact firm?

As a first observation, we report that US markets have produced a relatively constant stream of traditional IPOs over the last decade. More recently, Special Purpose Acquisition Companies (SPACs), which are blank-check companies with a mandate to form a business combination, had a remarkable spike in popularity. We are going to discuss SPACs separately in a later section. The graph below reports observed trends in new listings:



Source: writer's analysis, data from

Zooming in on **impact IPOs**, what are the trends in impact firms going public? Do we observe that a larger number of impact IPOs are recently happening? Here below is the trend in impact IPOs, derived from the HBS Impact Firms List:

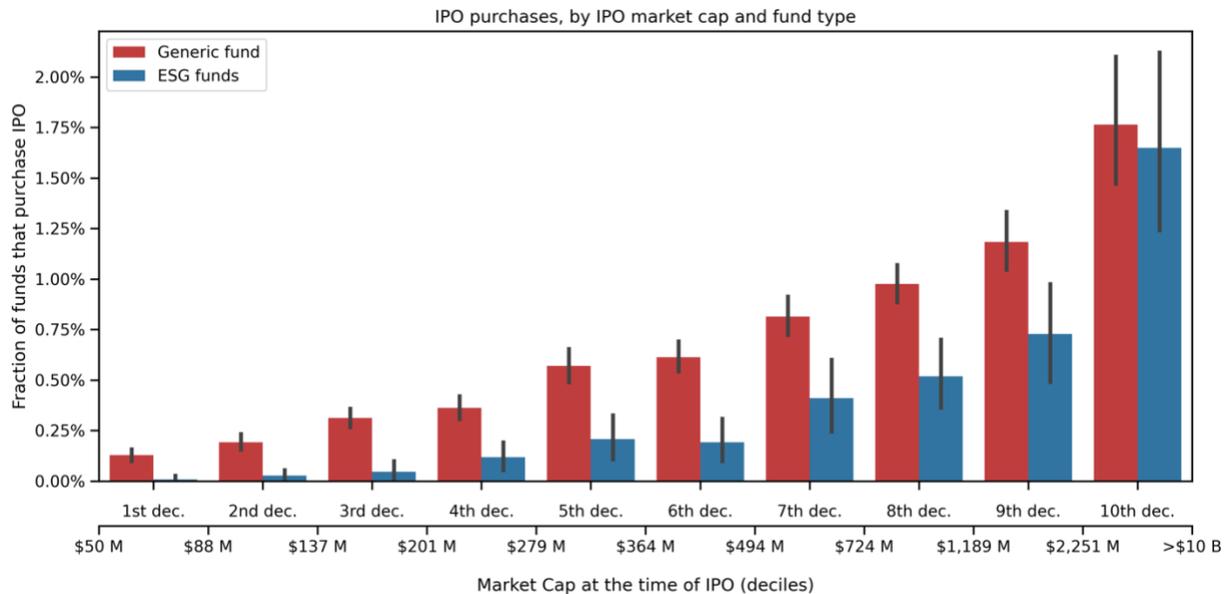


Source: writer's analysis, based on HBS Impact Firms List

Against this backdrop, the variables we employ to analyze investments in recent IPOs are:

1. *Dependent variable*: at the firm/ security level, what **fraction** of the mutual funds in the dataset held the stock soon after the IPO (i.e., less than 4 quarters away)
2. The fund types (Generic, ESG, etc.)
3. Whether the firm is flagged as Impact or not
4. The market capitalization at the time of the IPO

To start, we observe that the size of the firms affects funds participation. Larger firms attract more participation, as shown in the following chart:



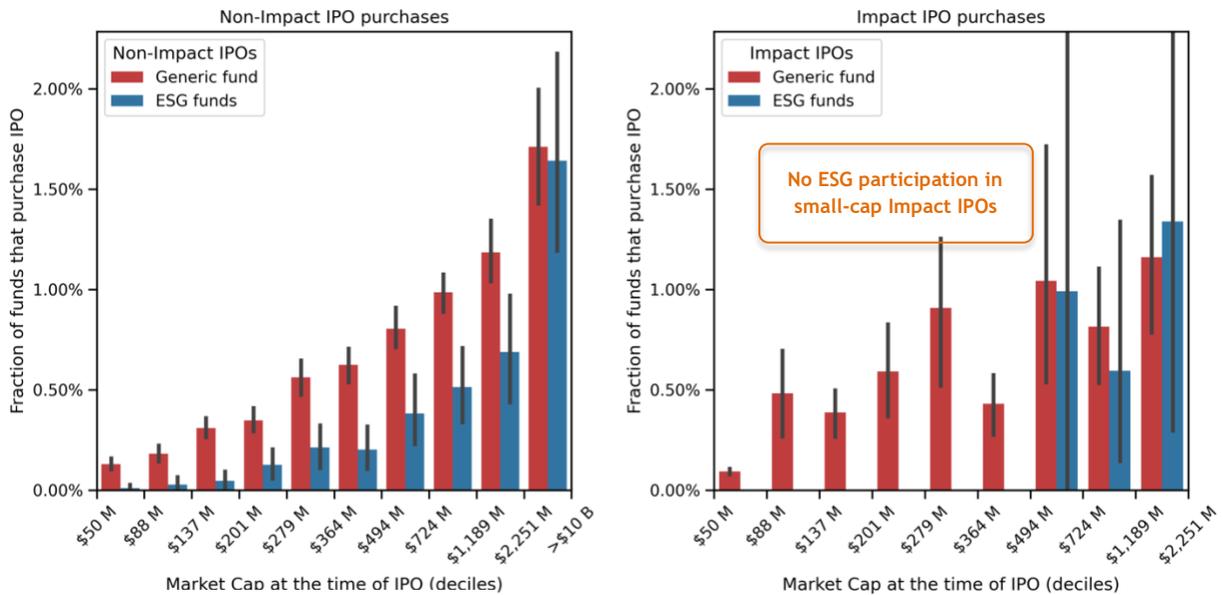
Source: writer's analysis

ESG funds participate significantly less than non-ESG ones. The gap in ESG IPO participation is large at every capitalization decile from 1st to 9th; only the largest IPOs (>\$2.25 billion) seem to receive comparable participation. Moreover, as firm capitalization get smaller, the ESG participation gap gets even wider.

Does IPO participation differ for impact and Non-impact firms? Thanks to the HBS dataset, we can analyze IPO participation according to whether the firm is Impact or not¹⁸. Based on our

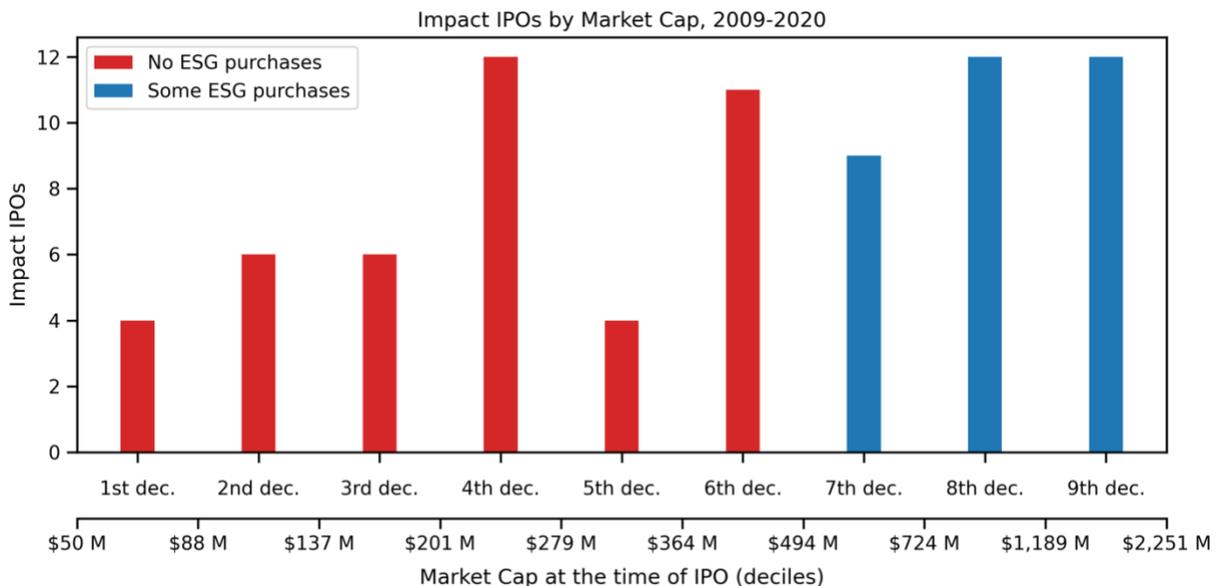
¹⁸ The highest decile is not represented for Impact IPOs as there is not enough data to do so. Decile thresholds are held constant across Impact vs Non-Impact IPOs.

fund classification, in the full decade covered by the data (2010-2020), no ESG fund bought into an Impact IPO under a market cap of ~\$530 M:



Source: writer's analysis

There is a significant number of Impact IPOs below ~\$530 M. As a reference point, the median market cap of the Russell 2000 in Apr 2020 was \$578 M¹⁹. Here below is the Market Cap distribution of Impact IPOs:



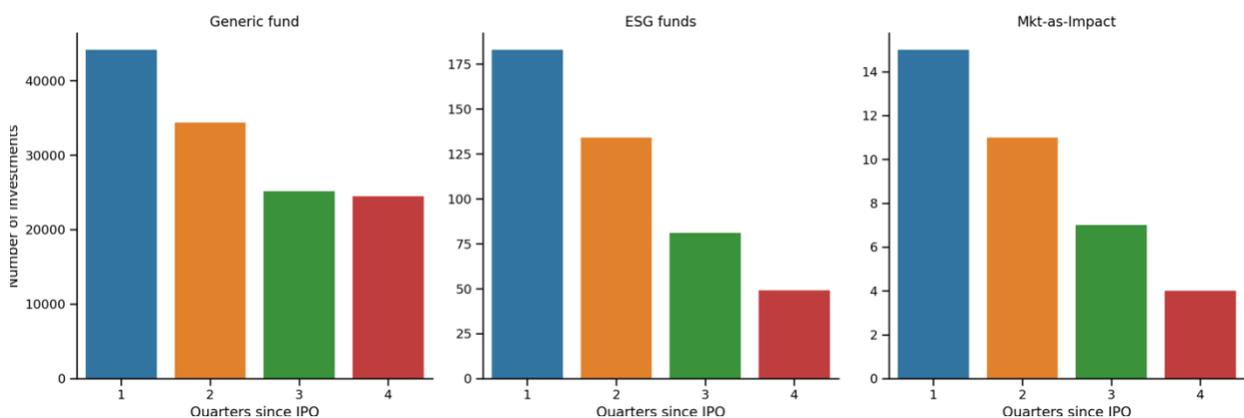
Source: writer's analysis

¹⁹ Source: FTSE Russell website, <https://www.ftserussell.com/analytics/factsheets/home/search>

From interviews, we heard of **constraints** for ESG funds to take equity positions in recently listed firms:

1. The overall sentiment is that funds that focus on IPOs generally have a “high turnover” strategy (e.g. aggressive growth), as opposed to “value funds” with longer holding periods. ESG funds are perceived to be of the latter kind.
2. Moreover, for individually managed accounts there can be specific provisions in place that prevent fund managers from purchasing IPOs. For example, if a bank underwrites a certain IPO, clients who have managed accounts with that bank cannot buy into the IPO as it would generate a commission for the bank in violation of “wrap fees” provisions.
3. For funds that track indexes, it takes some time for a new listing to enter these indexes and therefore be available within funds’ portfolios.

Looking at the timing of first investments after IPO, we would expect to observe some “lag” among ESG funds, consistently with time requirements for ESG metrics being published and firms being added to indexes. Surprisingly, a time-independent analysis does not suggest so. **ESG funds present a similar time decay in participation** than other funds in the quarters after the IPO²⁰:



Source: writer’s analysis

In summary, in terms of IPO participation we find that:

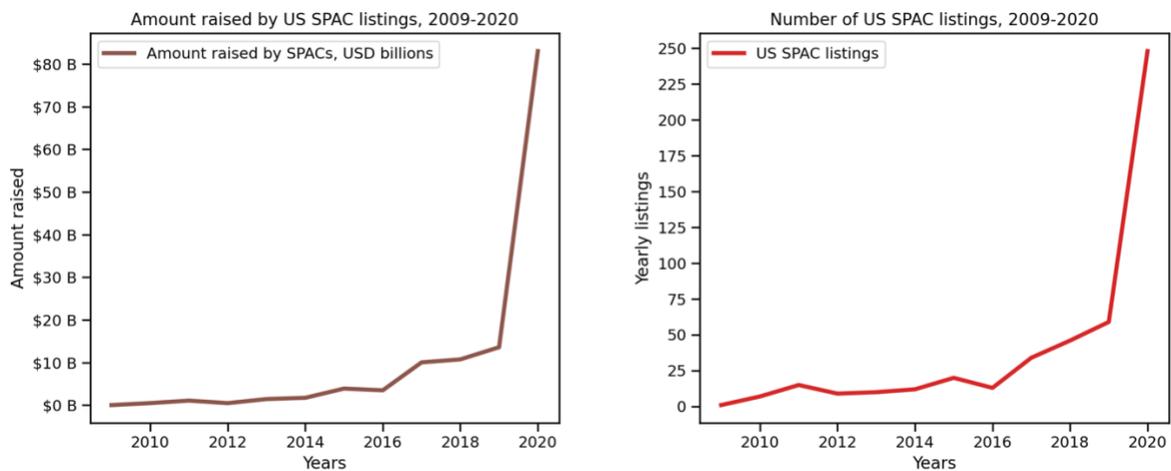
1. Overall, ESG funds are about 50% less likely to invest in IPOs.
2. Market Cap at the IPO affects the level of mutual funds participation, with smaller firms attracting fewer investors. The Market Cap effect is stronger for ESG funds.
3. Impact IPOs with a small market cap (less than ~\$530 M) struggle to attract capital from ESG funds.

The next section discusses SPACs as another channel for impact firms to raise capital.

²⁰ We did not plot a distribution for Impact funds, as data is not sufficient for it.

Public alternatives to IPO: Special Purpose Acquisition Companies (SPACs)

A SPAC is a blank-check company that raises money on the public markets through a regular IPO, with the intent of merging with a private target and forming a public business combination in the process (“deSPAC”). Typically, the merger happens within 2 years from the SPAC formation. SPAC listings have seen a remarkable spike in popularity in 2020. They exceeded the number of ordinary IPOs last year and raised more than \$80 billion in funding:



Source: writer’s analysis, based on data from Statista

This sudden trend received extensive media coverage. In August 2020, the *Economist* published an insert titled “*The SPAC hack - The latest twist in the power struggle between Silicon Valley and Wall Street*”. The piece highlights the opportunities offered by the SPACs and contrasts them with the perceived complaints on the tradition IPO process:

“Because this is a merger, and not an IPO, the selling firm can disclose more information to the buyer, including financial projections. The price is negotiated directly with the buyer—and after the money has been raised, not before. And it is all but certain, rather than at the mercy of the changing moods in the stock market [...].”

In contrast to this positive narrative, Michael Klausner (Stanford) and Michael Ohlrogge (NYU) assess both the incentives and performance of recent SPACs in an influential working paper titled “*A Sober Look at SPACs.*”²¹.

²¹ Klausner, Michael, and Michael Ohlrogge. 2020. “A Sober Look at SPACs.” *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3720919>.

They consider the materiality of four primary advantages that commentators attribute to the SPAC structure for going public:

Benefits ascribed to SPACs by commentators

<i>No “IPO Pop”</i>	Separate the listing on a public exchange from discussing the valuation at merger
<i>Pricing certainty for target firms</i>	The target firm can negotiate consideration in a private deal
<i>Improved access to public markets for “unconventional” firms</i>	Serving firms with complex business models that might not be able to otherwise go public through traditional IPO - for example, because of lack of existing comparables
<i>Retail access to “Private Equity” investing teams</i>	Allows retail investors to directly trust a private equity investing team with their money

With respect to impact investing, the last two benefits seem particularly relevant to the needs of impact firms:

- Impact firms often operate in geographies and industries that receive **imperfect analyst coverage**. Dealing with a specialized, experienced investment committee might give them better financing opportunities than a traditional IPO.
- As discussed in Section 1, Impact investing happens mostly in private markets. An “Impact SPAC” addresses this limitation by **financing the direct sourcing** of an impact firm with capital raised on the public markets.

The first Impact SPAC ever listed is “AEA-Bridges Impact Corporation”, which filed its S-1 in September 2020. Sponsored by AEA Investors and Bridges Fund Management, it raised \$400 M with the following mission:

“We will invest through the lens of the UN Sustainable Development Goals (“SDGs”), which reflect social and environmental mega-trends that are re-shaping our world. The most successful companies in the years to come will find scalable solutions to these challenges that contribute to positive outcomes and unlock lasting economic value. By investing in a more inclusive and sustainable future, we believe a company can consistently create both long-term economic value and measurable societal impact.”

AEA-Bridges Impact Corp. mission, from firm’s website

The central role of the SDGs in the Impact SPAC's investment strategy matches our previous characterization of Impact investing.

While the benefits we seem promising, let's now look at the findings on SPACs' cost and performance.

Klausner and Ohlrogge's findings

Klausner and Ohlrogge report significant misalignments between the incentives of SPAC sponsors and the investors who hold shares after the merger is consummated. As a result, most of the SPACs they consider prove to be expensive on a cash-basis and their shares *"tend to drop by one third of their value or more within a year following a merger"*.

In detail, Klausner and Ohlrogge consider 47 SPACs that merged between January 2019 and June 2020 and find that:

1. Buying into the initial IPO and redeeming at merger is a very profitable strategy, yielding an annualized return of 11.6% at basically no-risk. This is possible because redeeming shareholders can keep warrants and rights provided in the initial unit sale. Hence, they can profit from the sale of warrants while also getting back their initial cash with some interest.
2. As a result, redemption rates pre-merger are high (median: 73%) and this exacerbates dilution for the shareholders that hold shares at the time of the merger.
3. Given high redemption rates and subsequent needs to replenish the cash pool with newer investments, SPACs have a median total cost of 50.4% of the cash available at the time of merger. That seems high when compared to ~7% of a traditional IPO.

In conclusion, while the benefits of SPACs seem to align well with the specific needs of Impact firms, their costs might prove very high.

After considering traditional IPOs and SPACs as ways to enter the public markets, in the next section we discuss holding periods for different fund categories.

Post listing: being a shareholder in the long term

This section discusses how different kind of funds present different holding periods with respect to the names in their portfolio. Like before, our guiding question is whether Impact funds distinguish themselves from the rest, and if so to what extent they do.

Social enterprises often leverage innovative business models that might take some time to be validated and achieve a large scale. According to classic corporate finance theory, going public and having shareholders (investors) who are committed to hold a meaningful position over a long period is advantageous to firms because it:

- Offers a shield from short-term pressures coming from a potential decline in share price
- Improves the firm's ability to raise downstream capital (equity, debt and hybrid)
- Provides a certain price and liquidity to the firm's stock

From interviews, we heard that investor engagement can influence what firm executives focus on. Firms value learning about “what investors hear out on the buying side”. Having long-term, engaged investors who understand each firm's story allows both parties to have a mutually beneficial relationship.

How long is a “long holding period”? In the case of hedge funds, holding for a whole year would be considered long. As presented later in this section, some mutual funds also exhibit holding periods as short as a year. The mean duration we observe over the last decade is about two years. However, median holding times are shorter, suggesting that some longer holds compensate for a quicker name turnover that affects more than half of the stocks.

Leveraging the fund classification that we developed, we can derive holding periods from holding data. We proceed as follows:

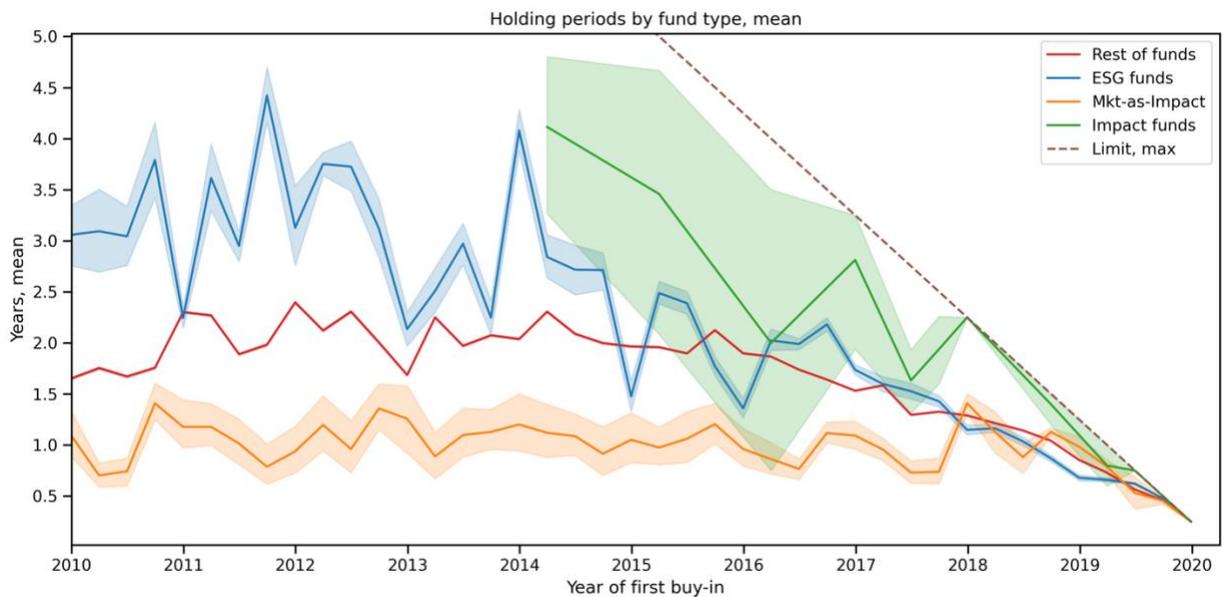
For each stock in a fund's portfolio, we determine the first quarter it entered the portfolio and the number of quarters it was held for. For a given fund category, at each quarter we aggregate (e.g., mean, or median) the observed duration of all the positions that funds in that category opened during that quarter.

For the decade 2010-2020, we consider 4,667,356 positions opened by 15,244 funds across 20,925 stocks.

The graph below represents mean estimates for holding periods with 95% confidence intervals across fund types. Reliable holdings data for Impact funds starts after 2014, so we do not report estimates before that date for the Impact fund category.

The dashed line represents the time boundary in the graph. Indeed, we cannot foresee the duration of recently started positions beyond the end of the available data. For example, in 2021 it's impossible to record a duration of 5 years for positions that were opened in 2018. The

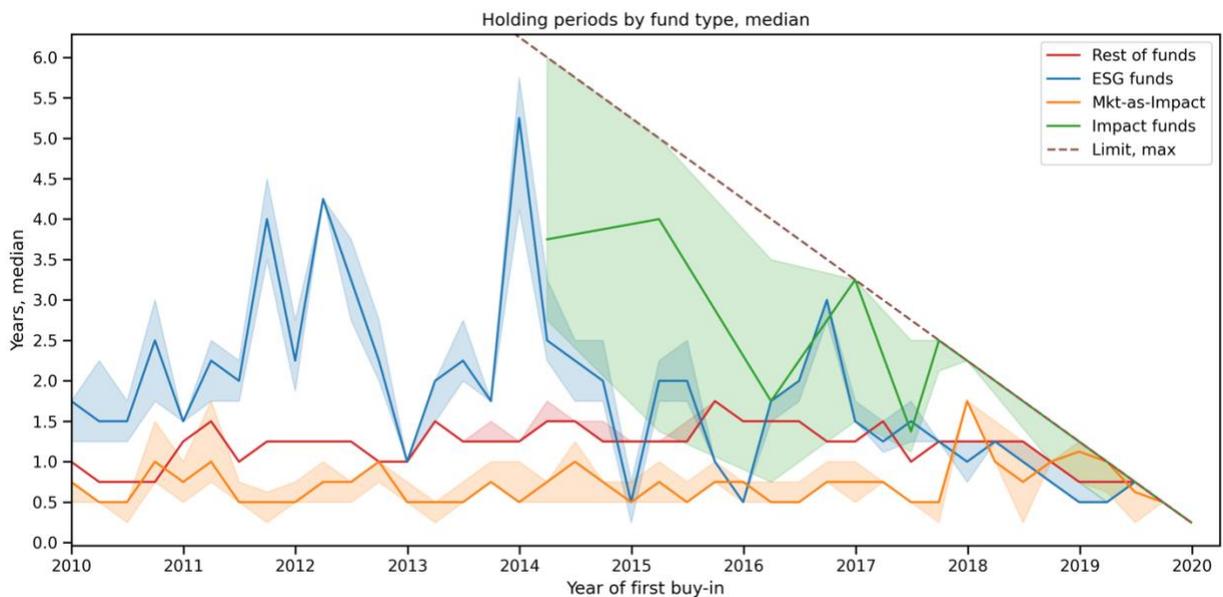
dashed line therefore represents the maximum possible duration with respect to the end of the dataset (Q1 2020).



Source: writer's analysis

Average holding durations differ significantly by fund type.

In particular, funds who market themselves as impact behave as a distinct group and show a low holding duration. On the contrary, Impact funds hold their position for even longer than ESG funds. This is consistent with their intention to be long-term investors in the firms they choose. Median values present similar trends:



Source: writer's analysis

Can we say something about how ESG scores affect holding periods?

From interviews, we learnt that ESG scores can often act as a filter or a driver for including a certain stock to the portfolio. However, ESG scores alone do not typically determine the length of time over which investors hold their positions. Other considerations determine if the firm stays in the portfolio after entering it. Moreover, once a firm has achieved good ESG scores, it's unlikely that those scores will suddenly drop to a point where the firm needs to be screened out of the investable universe and therefore removed from the portfolio.

Finally, market capitalization could play a role in observed holding periods. Further research could examine how holding trends differ across fund categories across small, medium and large cap stocks. Given the abundance of Fortune 250 firms in ESG portfolios, we expect to find some interesting insights on the interaction of market capitalization and holding duration.

3. Summary and recommendations

In this final section, we summarize our findings on the four pathways to Impact and offer recommendations to maximize capital access for impact firms.

Summary of findings

	Pathways for Impact in public equities			
	<i>Name differentiation</i>	<i>IPO participation</i>	<i>SPAC investment</i>	<i>Long-term commitment</i>
Do Impact funds differ from ESG and other funds?	YES Impact funds choose stocks that are 50% less popular.	TOO EARLY Few Impact funds, but needs were identified.	TOO EARLY Few funds and impact SPACs yet, but needs were identified.	YES Their holding time is significantly higher.
What needs can Impact funds uniquely address?	N/A We did not evaluate the effects secondary trading on firms.	MANY ESG funds are less likely to invest in IPOs. Small-cap Impact IPOs receive no interest from current “ESG capital”.	SOME SPAC conditions and sponsor expertise aligned with Impact. Research says they are quite expensive.	N/A Many firms want long-term investors. We did not assess how Impact firms benefit from long investor commitments.
Any relevant system-level opportunities for change?	MINOR Public information is available for listed stocks, although with little analyst coverage.	YES Some confusion on ESG vs Impact for firms, but increasing attention.	YES Need for more long-term incentives alignment with SPAC sponsors.	YES Public Impact differs from “value” strategies (less IPOs, long hold) and “aggressive growth” (more IPOs, shorter hold).

Do Impact funds differ from ESG and other funds?

Yes, they do. While not every fund that has “Impact” in their name behaves consistently, funds that choose the 17 UN SDGs as cornerstone of their investing strategy show unique characteristics when compared to others:

- a. Their portfolios are significantly different from both ESG and socially neutral funds. On average, the stocks in their portfolios are 50% less popular.
- b. Once a firm enters their portfolio, Impact funds hold it for a significantly longer period of up to 4 years in median duration, when a generic fund hovers between 1 and 1.5 years.

- c. We could not assess to what extent the IPO and SPAC involvement of Impact funds differs from other funds. The available data at the intersection of Impact funds and IPO/SPACs is indeed very limited. However, we observed gaps in ESG involvement in IPOs that seem to particularly affect Impact firms (see next section).

What needs can Impact funds uniquely address?

We reported evidence of a gap in the current market at the intersection of long-term holding and IPO participation. Moreover, this gap negatively affects Impact firms more than others, especially if they go public with a small market cap (below Russell 2000 median).

Indeed, a generic fund does participate in IPOs but does not show a commitment to a long holding period. At the same time, funds that are socially responsible and systematically hold for longer times, such as ESG funds, are significantly less involved in IPOs and recent listings. For an impact firm that would like to enter the public markets, it might be hard to find investors committed to their positive mission who can also get involved at the listing stage.

Due to time constraints, we did not design a systematic evaluation of the effects of:

- a. Investing in an overlooked public impact firm, and
- b. Holding for a long time as an impact investor

Future work could investigate these mechanisms and quantify their benefits and risks. From interviews, we heard that firms largely benefit from guidance from investors. It would be interesting to consider how Impact investors can combine strategic and financial guidance with mission-related support as they engage over long holding periods.

Finally, given the small-cap IPO market gap we identified for impact firms, future work could estimate how many impact firms across industries could benefit from accessing the public markets under better conditions. The HBS Impact Firm List offers a great starting point, but it's important to investigate other possible barriers to listing (e.g. geography, capital flows regulations) that impact firms face in different countries.

Are there opportunities for system-level change?

Overall, we found uneven definitions in the sustainable, mission-driven investing space. For example, the characterization of Impact as “Sustainable Development Investing” and its distinctiveness from ESG strategies (as presented by Wendy Abt) does not seem common knowledge for both investors and firms. We noticed that some currently public firms who are materially delivering products with Impact did not mention any impact framework in their S-1 when they first entered the market.

Some private market impact investors expressed moderate skepticism about the ability for public investors to source overlooked companies and to successfully take them public. In their views, private impact investors face less regulatory constraints and have better visibility on

under-the-radar firms in specific geographies. At the same time, they acknowledged the potential for public impact exits to support the work of earlier-stage impact investors and the importance of raising awareness around impact investing among asset owners.

With respect to SPACs, it's important to note that the available observations are concentrated over a short, recent period. Future research will benefit from having access to SPAC returns and outcomes over longer time horizons. Within these limitations, the work by Klausner and Ohrlogge emphasizes how it can be expensive to be a long-term investor via SPAC vehicles. While performance widely varies among sponsors, the dilution that comes with the most popular SPAC structures does not seem to reward long-term investors.

Final recommendations

To maximize access to capital for impact firms, mutual funds committed to Impact can:

1. Focus sourcing and coverage efforts on **Impact firms with a market cap below ~\$530 M**, which are currently facing the highest barriers in accessing sustainable capital during their public listings.
2. With both firms and asset owners, promote **portfolio differentiation** and **long holding periods** as distinguishing factors that separate Impact from funds that market themselves as Impact. Without intentional and informed demand by asset owners and firms, public impact strategies face an uphill battle.
3. Engage with market regulators and impact-oriented SPAC promoters to design investment structures that offer **better return profiles to long-term holders**. In the medium term, we can imagine that funds committed to Impact could form a consortium and select SPAC sponsors that meet both quality and long-term commitment criteria. Such long-term commitment should be evident from warrants timing, redemption limits and other aspects of the SPAC structure.

Finally, further research could investigate how to best engage with private Impact investors to **bolster the pipeline** of impact firms that successfully raise funds in the public markets.

Bibliography

Armeni, A. (2017) 'Innovations in financing structures for impact enterprises: spotlight on Latin America', *Inter-American Development Bank Report*, p. 64. Available at: <https://publications.iadb.org/en/innovations-financing-structures-impact-enterprises-spotlight-latin-america>.

Barber, B. M., Morse, A. and Yasuda, A. (2020) 'Impact investing', *Journal of Financial Economics*. doi: [10.1016/j.jfineco.2020.07.008](https://doi.org/10.1016/j.jfineco.2020.07.008).

Barton, D. and Wiseman, M. (2014) 'Focusing Capital on the Long Term', *Harvard Business Review*, 1 January. Available at: <https://hbr.org/2014/01/focusing-capital-on-the-long-term> (Accessed: 3 April 2021).

Bolis, M. et al. (2017) *Impact Investing: Who are we serving? A case of mismatch between supply and demand*. Oxfam; Sumerian Partners. doi: [10.21201/2017.9453](https://doi.org/10.21201/2017.9453).

Boulou-Reshef, B., Kuechle, G. and Rohland, L. (2019) *Signaling Trustworthiness with Impact Investments: An Experimental Study*. SSRN Scholarly Paper ID 3190425. Rochester, NY: Social Science Research Network. doi: [10.2139/ssrn.3190425](https://doi.org/10.2139/ssrn.3190425).

Carter, P., Van de Sijpe, N. and Cael, R. (2018) 'The Elusive Quest for Additionality', *SSRN Electronic Journal*. doi: [10.2139/ssrn.3310521](https://doi.org/10.2139/ssrn.3310521).

Chu, M. and Cuellar, R. G. (2008) 'Banco Compartamos: Life after the IPO'. Available at: <https://www.hbs.edu/faculty/Pages/item.aspx?num=35590> (Accessed: 6 October 2020).

ClearlySo, D. G., Alternative Fund Advisory and Placement at (2021) 'Diligencing Private Market Impact Investments', *RankiaPro*, 3 February. Available at: <https://en.rankipro.com/diligencing-private-market-impact-investments/> (Accessed: 3 February 2021).

Coggan, P. (2020) 'The SPAC hack', *The Economist*, 30 July. Available at: <https://www.economist.com/finance-and-economics/2020/07/30/the-spac-hack> (Accessed: 3 April 2021).

Coval, J. and Stafford, E. (2007) 'Asset fire sales (and purchases) in equity markets', *Journal of Financial Economics*, 86(2), pp. 479-512. doi: [10.1016/j.jfineco.2006.09.007](https://doi.org/10.1016/j.jfineco.2006.09.007).

Findlay, S. and Moran, M. (2019) 'Purpose-washing of impact investing funds: motivations, occurrence and prevention', *Social Responsibility Journal*, 15(7), pp. 853-873. doi: [10.1108/SRJ-11-2017-0260](https://doi.org/10.1108/SRJ-11-2017-0260).

Frazzini, A. (2006) 'The Disposition Effect and Underreaction to News', *The Journal of Finance*, 61(4), pp. 2017-2046. doi: <https://doi.org/10.1111/j.1540-6261.2006.00896.x>.

Gray, J. et al. (2015) *Great Expectations: Mission Preservation and Financial Performance in Impact Investing*. SSRN Scholarly Paper ID 2694620. Rochester, NY: Social Science Research Network. doi: [10.2139/ssrn.2694620](https://doi.org/10.2139/ssrn.2694620).

Hart, O. and Zingales, L. (2017) *Companies Should Maximize Shareholder Welfare Not Market Value*. SSRN Scholarly Paper ID 3004794. Rochester, NY: Social Science Research Network. doi: [10.2139/ssrn.3004794](https://doi.org/10.2139/ssrn.3004794).

Hartzmark, S. M. and Solomon, D. H. (2019) 'The Dividend Disconnect', *The Journal of Finance*, 74(5), pp. 2153-2199. doi: <https://doi.org/10.1111/jofi.12785>.

Hillebrandt, H. and Halstead, J. (2018) 'Impact Investing Report, Founders Pledge', p. 58. Available at: <https://founderspledge.com/research/fp-impact-investing>.

<https://plus.google.com/u/0/113361710114604856476> (2013) 'Hong Kong Stock Exchange Publishes Guidance Letter GL51-13 Disallowing Additional Benefits for Cornerstone Investors'. Available at: <https://www.charltonslaw.com/hong-kong-stock-exchange-publishes-guidance-letter-gl51-13-disallowing-additional-benefits-for-cornerstone-investors/> (Accessed: 22 September 2020).

Jenkinson, T. and Sousa, M. (2011) 'Why SPAC Investors Should Listen to the Market', (2), p. 21.

Jordan, B. D. and Riley, T. B. (2016) *Skill and Persistence in Mutual Fund Returns: Evidence from a Six-Factor Model*. SSRN Scholarly Paper ID 2717091. Rochester, NY: Social Science Research Network. doi: [10.2139/ssrn.2717091](https://doi.org/10.2139/ssrn.2717091).

Kacperczyk, M. T., Sialm, C. and Zheng, L. (2008) *Unobserved Actions of Mutual Funds*. SSRN Scholarly Paper ID 1315602. Rochester, NY: Social Science Research Network. doi: [hh041](https://doi.org/10.2139/ssrn.1315602).

Klausner, M. and Ohlrogge, M. (2020) 'A Sober Look at SPACs', *SSRN Electronic Journal*. doi: [10.2139/ssrn.3720919](https://doi.org/10.2139/ssrn.3720919).

Kostovetsky, L. and Warner, J. B. (2020) 'Measuring Innovation and Product Differentiation: Evidence from Mutual Funds', *The Journal of Finance*, 75(2), pp. 779-823. doi: <https://doi.org/10.1111/jofi.12853>.

Kumar, R., Dayaramani, N. and Rocha, J. D. (2018) *Understanding and Comparing ESG Terminology*. State Street Global Advisors, p. 6. Available at: <https://www.ssga.com/investment-topics/environmental-social-governance/2018/10/esg-terminology.pdf>.

Lanza, A., Bernardini, E. and Faiella, I. (2020) 'Mind the gap! Machine Learning, ESG Metrics and Sustainable Investment', *SSRN Electronic Journal*. doi: [10.2139/ssrn.3659584](https://doi.org/10.2139/ssrn.3659584).

'Leapfrog Breaks Impact Investing Record With \$700M Emerging Markets Fund' *The Rockefeller Foundation*. Available at: <https://www.rockefellerfoundation.org/news/leapfrog-breaks-impact-investing-record-700m-emerging-markets-fund/> (Accessed: 24 March 2021).

Levine, M. (2020) 'SPACs Aren't Cheaper Than IPOs Yet', *Bloomberg.com*, 27 July. Available at: <https://www.bloomberg.com/opinion/articles/2020-07-27/spacs-aren-t-cheaper-than-ipos-yet> (Accessed: 3 April 2021).

louse (2020) 'The difference between ESG and Impact', *Tribe Impact Capital*, 24 September. Available at: <https://tribeimpactcapital.com/the-difference-between-esg-and-impact/> (Accessed: 28 December 2020).

'MSCI World ESG Leaders Index' (2021), p. 3.

'Our Impact Framework' *Omidyar Network India*. Available at: <https://www.omidyarnetwork.in/impact-framework> (Accessed: 22 September 2020).

Passoni, C. and Purtil, A. (2019) 'Private Equity and Impact Investing: Rethinking Exit Opportunities', 20 March, p. 2. Available at: <https://privateequity.weil.com/thought-leadership/private-equity-and-impact-investing-rethinking-exit-opportunities/>.

Rice, E. (2020) 'BlackRock: The case for impact in public equities', *Impact Alpha*, 2 September. Available at: <https://impactalpha.com/blackrock-the-case-for-impact-in-public-equities/> (Accessed: 3 April 2021).

Riedl, A. and Smeets, P. (2017) 'Why Do Investors Hold Socially Responsible Mutual Funds?', *The Journal of Finance*, 72(6), pp. 2505-2550. doi: [10.1111/jofi.12547](https://doi.org/10.1111/jofi.12547).

Schwartz, A. and Finighan, R. (2020) 'Impact Investing Won't Save Capitalism', *Harvard Business Review*, 17 July. Available at: <https://hbr.org/2020/07/impact-investing-wont-save-capitalism> (Accessed: 10 March 2021).

UNCTAD (2020) *International production beyond the pandemic*.

United Nations Conference on Trade and Development (2014) *World investment report 2014: Investing in the SDGs - an action plan*. UN (United Nations Conference on Trade and Development (UNCTAD) World Investment Report (WIR)). doi: [10.18356/3e74cde5-en](https://doi.org/10.18356/3e74cde5-en).

Appendices

Preparation of S12 and CRSP data set from WRDS

We rely on the Thompson Reuters S12 (“s-one-two”) dataset to analyze mutual fund holdings over the last decade. This dataset, according to the official manual:

“[The S12] covers almost all historical domestic mutual funds plus about 3,000 global funds that hold a fraction of assets in stocks traded in U.S. exchanges as well Canadian stock markets. Because it keeps virtually all U.S.-based mutual funds in existence since 1980, this set is largely free of the survivor-bias that has been a major concern in the mutual fund research.”

“The primary source for the mutual fund holdings data is SEC N-30D filings. These filings, which include semi-annual reports to shareholders, are required to be filed with the SEC twice a year by mutual fund companies. To a lesser extent, Thomson taps fund prospectus and contacts mutual fund management companies to increase update frequency.”

Data access has been obtained through Wharton Research Data Services (WRDS). The same service provides access to the CRSP data, and we employ Jupiter notebooks running Python 3.6 kernels to perform aggregations and analysis.

We mentioned earlier how we followed Coval and Stafford (2007) and Jordan and Riley (2016) as much as possible in order to prepare the data. Their approach leverages filters that act on:

- Keyword exclusions for funds
- Number of distinct holdings a fund has
- The value of total net assets (TNA), joined across the S12 and the CRSP data set

In our analysis, we focus on equity holdings. Therefore, as additional step we first exclude all the 8-digit CUSIPs that have non-numeric endings in the last two digits (representing a non-stock asset), then we use keywords such as “debt”, “bond” and “money market” to screen out funds that do not hold a majority of equity holdings.

Consistently with Coval and Stafford (2007), we then rule out funds who never had more than 20 distinct holdings at any point in time, by looking at the number of different stocks held by funds at each reporting period.

With respect to the filters based on Total Net Assets value derived from CRSP, we cannot safely apply them. Indeed, Coval and Stafford use MFLINKS tool to access Total Net Assets from CRSP for funds that are in the S12 data. However, MFLINKS has not been updated after 2018 and our analysis utilizes data until March 2020 in order to capture the latest changes.

We instead merged S12 with CRSP data through ticker indicators to access complete fund names rather than the shorter versions reported in the S12. This allowed us to perform a more accurate search when using keywords for fund names.

For more details on the S12 dataset, the official manual referenced earlier can be found at: https://wrds-www.wharton.upenn.edu/documents/534/WRDS_Overview_of_Thomson_Reuters_Mutual_Fund_and_Investment_Company_Data.pdf.

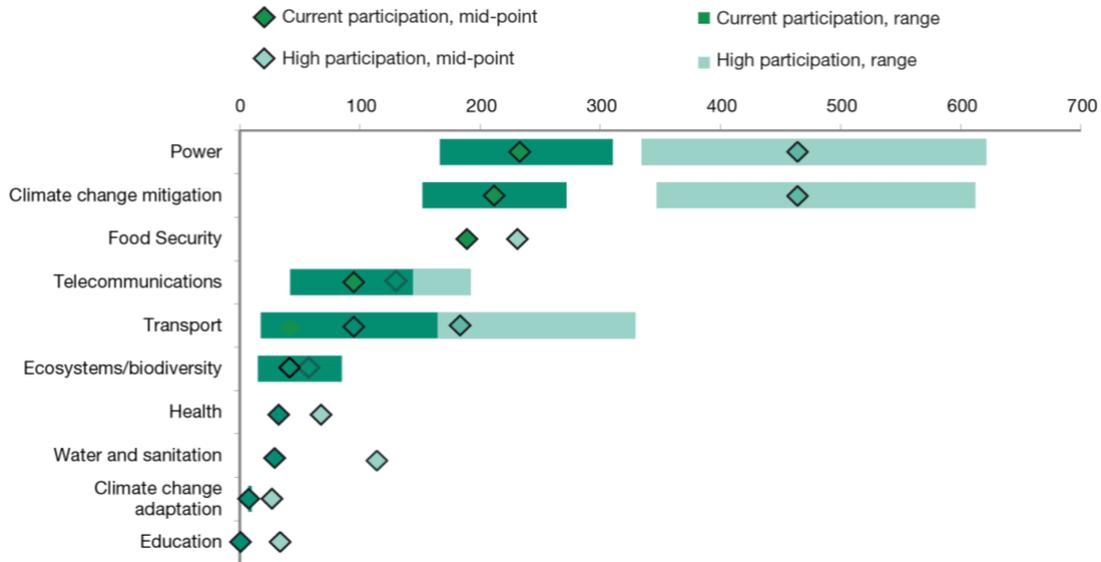
Exhibits

UN Sustainable Development Goals overview, from official website



Investing shortfall breakdown by sector, UN Investment Report 2014

Figure IV.4. Potential private-sector contribution to investment gaps at current and high participation levels (Billions of dollars)



Source: UNCTAD.

Note: Private-sector contribution to investment gaps calculated using mid-points of range estimates in table IV.2. The higher participation level is the average private-sector investment shares observed in developed countries. Some sectors do not have a range of estimates, hence the mid-point is the single estimated gap.

LeapFrog Investments strategy alignment to SDGs

The United Nations Sustainable Development Goals set out a plan for every industry, from private enterprise, to governments and civil society, to build a more just and equal world by 2030.

LeapFrog adheres to, and measures its performance against these goals, working with our portfolio companies and investors to build understanding and awareness and to ensure that we are all playing our part in driving sustainable impact at global scale.

LeapFrog has identified five key goals that we aim to address through our own efforts, and in partnership with our portfolio companies. These are:



LeapFrog Investments aims to tackle goals 1, 3, 5, 8 and 10 through our work.

Source: LeapFrog Investments website: <https://leapfroginvest.com/our-impact/sustainable-development-goals/>

IPO sizes over the last 5 years in the US

