FOUNDATIONS OF ESG INVESTING

Part 3: Integrating ESG into Passive Institutional Portfolios

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EXECUTIVE SUMMARY

Motivated by a desire to improve long-term risk-adjusted returns, institutional investors increasingly are integrating Environmental, Social and Governance (ESG) criteria into their existing portfolios. According to recent surveys, asset owners' main focus has shifted to focusing on financial benefits, as opposed to social benefits. Thus, they likely seek to improve risk-adjusted returns without disturbing their main investment goals.

Overall, however, ESG integration is in its early stages and, in general, is applied inconsistently. ESG criteria are used in some but not all asset management allocations; even where ESG is integrated throughout the total portfolio, methodologies used may vary. This ad hoc approach can lead to sub-optimal results at a total portfolio level.

Part 2 of this paper examines how applying a consistent ESG framework using ESG policy and performance benchmarks may help investors fully exploit the potential benefits of ESG integration across all types of equity allocations — passive, factor-based and active.

In Part 3, we now focus on how ESG can be integrated into passive allocations using MSCI ESG Ratings, which, while not indicative of future results, provided better risk-adjusted returns from August 2010 to December 2017 than the MSCI ACWI Index.

Well-designed indexes are consistent, transparent, readily replicable and generally cost effective. We used existing best-in-class selection-based index methodologies (the MSCI ESG Leaders Index) for the creation of hypothetical global and regional passive allocations replicating these indexes. Using the MSCI ACWI ESG Leaders Index as the global universe, we created emerging markets, international (World ex U.S.) and U.S. sub-indexes, and used them as the basis for hypothetical regional allocations. The ESG profile of companies in these regions differed substantially, with developed markets (ex U.S.) showing, on average, the highest ESG ratings and emerging markets the lowest.

In the global and regional allocations, we found that ESG integration led to a reduction in risks and an increase in valuations compared to their respective parent index. Returns and risk-adjusted returns improved during the simulated and live histories of the MSCI Emerging Markets and MSCI World ex USA indexes. In these two regions, positive stock-specific return contributions came mainly from overweighting those stocks whose ESG profile was far above the average and underweighting stocks with ESG profiles far below the average.

In the U.S., ESG integration led to a reduction of returns in the live track record. The reason: Some large U.S. technology companies that were excluded from the index because of their low ESG ratings performed strongly in recent years. However, ESG integration provided a reduction of risk, as it did in other regions and globally.

INTRODUCTION

In 2006, the United Nations-supported Principles for Responsible Investment (UNPRI) set out six principles for integrating ESG into the management of financial assets.[1] The first two principles are the most relevant to integrating ESG into the portfolio management process: They ask signatories to incorporate ESG considerations in their financial analysis and decision-making processes, and to include ESG issues in their ownership policies and practices.

UNPRI has further provided guidance on how institutional investors can integrate ESG into their asset management processes.[2] However, the asset management industry still lacks best practice standards as well as sufficiently experienced staff to help them to integrate ESG strategically and consistently. As a result, ESG integration currently is often applied inconsistently and incompletely. The bottom line: Most asset managers do not fully exploit the possible benefits of ESG integration in their search for better risk-adjusted returns.

In Part 1 of this paper, we illustrated how ESG affected the valuation and performance of companies. We identified three fundamental channels that transmitted ESG characteristics into the financial world, as measured by MSCI ESG Ratings. In our sample study, high ESG-rated companies (as a group) experienced high levels of profitability and dividend yields, higher valuations and lower levels of stock-specific and systematic risk. ESG was a relatively low-intensity but long-lasting signal (especially for risk reduction), suggesting that an ESG integration methodology may benefit from use of a long time horizon. In addition, the ESG rating change (which we call ESG momentum) can be a useful measure in its own right.

In short, integrating ESG led to higher risk-adjusted returns during our study period, the top priority for institutional investors as reflected in recent surveys, as we discuss in the next section of this paper.

In Part 2, we illustrated how asset owners can use ESG policy and performance benchmarks to establish a consistent framework for ESG integration across all of their portfolios, using the MSCI ESG Leaders and Universal indexes as examples.

Parts 3 and 4 of this paper examine how to apply a consistent framework for ESG integration across all areas of asset management, including passive, active and factor-based allocations.

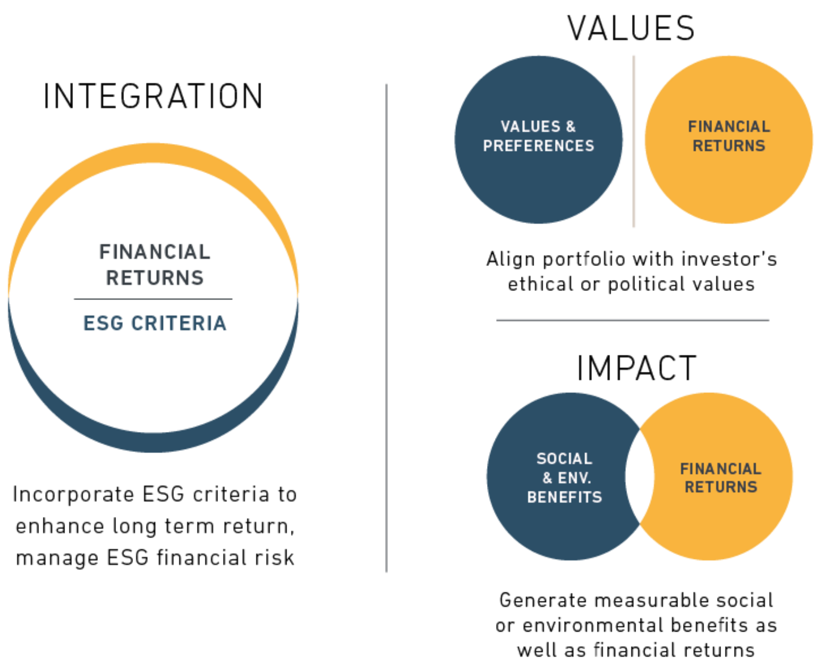
[1] Signatories commit to implementing these principles. The number of signatories to the UNPRI has grown from only about 100 in 2006, representing USD 6.5 trillion in assets under management, to about 1,900 with more than USD 68 trillion in AUM by the end of 2017. https://www.unpri.org

[2] The guide outlines basic principles as well as case studies covering practically all areas of the asset management value chain – fundamental financial stock analysis, integration into portfolio construction for passive, factor investing and active portfolios or products, sell-side research, manager selection, and portfolio risk management and reporting. See "A Practical Guide to ESG Integration for Equity Investing." https://www.unpri.org/download_report/22600

CURRENT PRACTICES IN ESG INVESTING

There are three different streams (or frameworks) within ESG investing, which are linked to three different investment objectives, as outlined in Exhibit 1.

Exhibit 1: Streams of ESG Investing and Their Respective Investment Objectives



There are six well-known ESG investment approaches[3,4] that correspond with the three main investment streams mentioned above:[5]

[3] Global Sustainable Investment Review 2016, http://www.gsi-alliance.org/

[4] USSIF uses seven categories that differentiate between ESG integration and best-in-class selection.

[5] Some of these approaches are used in more than one investment stream, e.g., corporate engagement is often used for impact investing as well as in ESG integration.

Integration
1. Corporate engagement and shareholder action
2. ESG integration/best-in-class selection

Values
3. Exclusionary screening
4. Norms-based investing

Impact
5. Impact investing
6. Theme-based investing

These ESG approaches were used in the industry surveys we analyze in the next section.

SUMMARY OF INDUSTRY SURVEYS

In recent years, various institutions, academics and asset managers have surveyed institutional investors to better understand the status quo and practices of ESG investing. In addition, MSCI has analyzed the current status of ESG integration by 40 asset owners, including some of the largest globally, to better understand their approaches to ESG.

In Exhibit 2, we display data collected by the Global Sustainable Investment Alliance (GSIA)[6] on different ESG integration approaches.

Exhibit 2: Growth of ESG Investment Approaches (2014 to 2016)

Strategy	AUM 2014 *(billion USD)*	AUM 2016 *(billion USD)*	Growth	Annual growth
Negative/exclusionary screening	12,046	15,023	25%	12%
ESG integration	7,527	10,369	38%	17%
Corporate engagement and shareholder action	5,919	8,365	41%	19%
Norms-based screening	4,385	6,210	42%	19%
Positive/best-in-class-screening	890	1,030	16%	8%
Sustainability themed investing	137	331	140%	55%
Impact/community investing	101	248	146%	57%

[6] http://www.ussif.org/files/Publications/GSIA_Review2016.pdf

Exclusionary screening remains the most prominent approach (as measured by size of assets), mainly for historical reasons: Applying exclusions has been the first step into ESG investing for many asset owners. However, ESG integration ranks second and is growing at a faster rate than exclusionary screening, which indicates that asset owners are moving from a social motivation to a financial objective when combining ESG with portfolio allocations. Impact and thematic investments are still relatively small but show relatively strong growth. Impact investing, which is made with the intent of providing social and environmental benefits as well as financial ones, became an increasingly important topic after the launch of the 17 United Nations Sustainable Development Goals (SDGs) in 2015.

Focusing on ESG integration, various international institutions and asset managers have surveyed institutional investors to assess the current status of ESG integration in portfolio management. We have mapped responses from different industry surveys into a summary table (see Exhibit A1 in the Appendix). Key conclusions are:

- **Key drivers for ESG adoption**: Pressure came from investors, asset owners and beneficiaries. In addition, asset owners sought to lengthen their investment horizons and to improve investment practices and industry standards as drivers for ESG integration.
- **Benefits of ESG integration**: The majority of survey participants expected to see improvements in the long-run risk-return characteristics of their portfolios, i.e., they expected a *financial* rather than a *social* benefit. An improvement in brand and reputation is seen as an additional benefit.
- **Methods of ESG integration**: Best-in-class selection and exclusions-based investing were the most prevalent, ahead of impact investing. In addition, about half of the asset management community considered integrating ESG into investment policies, investment training and investment decision-making processes.
- **Key barriers:** The lack of industry standards for ESG reporting by companies and for measuring ESG by rating providers were key obstacles. A lack of suitable investment solutions and a shortage of dedicated staff sufficiently experienced in ESG were seen as additional hurdles.

In short, asset managers emphasized that better standards for measuring ESG and better training for staff on ESG-related issues are essential to advance ESG investing.

MSCI MARKET ANALYSIS

MSCI also has analyzed 40 of some of the largest asset owners globally to identify the current level of ESG integration in their active, passive and factor allocations (as well as their policy benchmarks, which define the investable universe and provide a basis for performance measurement) and the methodologies they use for integrating ESG. The detailed findings are shown in the Appendix. The two major findings are:

1. About two-thirds of asset owners were in the midst of integrating ESG as of end of 2017. They have integrated ESG criteria in some but not all areas of the investment value chain.
2. The asset management industry has a very fragmented approach to integrating ESG. Market participants use various approaches, such as exclusionary screening or best-in-class selection, in parallel.

In short, ESG characteristics have been inconsistently applied across asset owners' portfolios. For example, an asset owner who integrated ESG criteria into only some of its allocations may benefit from the risk mitigation offered by excluding companies that have low ESG ratings. At the same time, however, the excluded securities may be overweighted in another allocation.

Consequently, at a total portfolio level, the asset owner may not fully benefit from consistent use of MSCI ESG Ratings in portfolio construction.

Existing literature and guidelines have not addressed consistency in integrating ESG across all allocations. For instance, UNPRI's guide for ESG integration[7] and the practical guide[8] by the Swiss Sustainable Finance Association contain useful case studies showing how to integrate ESG in certain areas of portfolio analysis and management, but fail to provide a comprehensive approach.

We identified two main approaches through which asset owners can navigate their way toward full ESG integration:

- **Top-down approach:** In this approach, the asset owner makes the strategic decision to change its policy benchmark to an ESG benchmark and then derives implementation methodologies across all passive, active and factor allocations. This way, consistency is applied from the beginning of the planning process to asset allocation decisions to implementation. However, a significant one-off turnover cost can result from a single big change.

[7] *Op cit.* "A Practical Guide to ESG Integration for Equity Investing."

[8] Swiss Sustainable Finance. (2016). *Handbook on Sustainable Investments*. http://www.sustainablefinance.ch.

- **Bottom-up approach:** Instead of one coordinated shift, asset owners can integrate ESG on a portfolio-by-portfolio basis over a longer time period. At a certain point in time, changing the total portfolio benchmark may make sense to align the strategic asset allocation with portfolio construction. The advantage of this approach is that it is more cautious and allows for integrating ESG in smaller steps. It also avoids a big one-time turnover cost. The downside is that this step-by-step approach may lead to inconsistencies in implementing ESG across different allocations and portfolios.

As we have seen from the survey data, most large asset owners have started implementing ESG using a bottom-up approach — they are currently integrating ESG in some but not all of their allocations. Parts 3 and 4 of this paper focus on developing approaches to ESG integration across all types of equity allocations.

ESG INTEGRATION INTO PASSIVE PORTFOLIOS

Passive investing is a growing trend in the asset management world, because it enables investors to obtain exposure to the broad market in a transparent and generally cost-efficient way. Some passive investors also seek to integrate ESG characteristics into their strategies.

However, simply investing passively in funds that aim to replicate standard market-cap indexes and then using voting and engagement goes only partway toward meeting the financial objectives that we have highlighted in Part 1 of this paper. Unlike active investors who have multiple avenues for integrating ESG factors into fundamental analysis or portfolio construction, passive investors have little choice but to hold all or most index constituents. Active engagement has been widely recognized as an effective means to promote sustainable long-term growth and risk management, but such efforts can be costly and difficult to conduct at scale.[9]

Instead, investors can integrate ESG directly into the design of passive investments, affording them access to an approach that systematically integrates ESG ratings. The general advantages of passive investing, i.e., consistency, transparency and cost efficiency, also apply to passive investing in ESG. Embracing the ESG integration framework, passive approaches aim to achieve better risk-adjusted returns than the market-cap benchmark over the long run. Values-based and impact investing, which are more oriented toward social benefits, are beyond the scope of this paper.

ESG indexes can also be used as **policy benchmarks** or as strategic tools to define the investable universe and the global asset allocation breakdown as described in Part 2 of this paper. They can also be used as performance benchmarks for specific allocations or financial products.

In recent years, some of the largest asset owners in the U.S., Europe and Asia Pacific have adopted ESG benchmarks at both levels, i.e., for defining their overall policy benchmark and for setting and measuring performance of individual allocations. As discussed in Part 2 of this paper, Swiss Re has shifted their global equity and fixed-income policy benchmarks for its actively managed listed equities and corporate bond mandates to ESG benchmarks.

We have also seen several examples of asset owners making significant allocations to funds that replicate ESG indexes. For example, Taiwan's Bureau of Labor Funds pension scheme[10] made a USD 2.4 billion allocation to a portfolio replicating a combined ESG and factor index.

[9] They are also under scrutiny in the U.S., where the U.S. Department of Labor has provided recent guidance. See Field Assistance Bulletin No. 2018-01 (April 23, 2018).

[10] https://www.blf.gov.tw/8821/8905/8863/14552/?cprint=true

In addition, the California State Teachers' Retirement System (CalSTRS)[11] committed USD 2.5 billion to a low-carbon passive portfolio and Japan's Government Pension Investment Fund (GPIF)[12] committed about 10% of its global portfolio to various ESG-related allocations. The MSCI market analysis suggests that asset owners increasingly use ESG indexes at both the strategic policy benchmark level and at an allocation level.

This part for of the paper focuses on the role of ESG indexes for passive allocations. Part 4 will discuss the integration of ESG into factor allocations and active allocations.

INDEX METHODOLOGY FOR USE IN PASSIVE PORTFOLIOS

In general, ESG can be integrated into existing index methodologies using two components.

1. **An ESG signal**. Based on our findings in Part 1 of this paper, potential options are:
    a. Use of companies' ESG score. Part 1 of this paper illustrated that ESG ratings were associated with lower levels of systematic and idiosyncratic risks during our study period.
    b. Use of companies' ESG Momentum score, which was a useful financial indicator during our study period (see Part 1).
2. **An index methodology**. Options include:
    a. The ESG signal to perform a best-in-class selection of leading constituents and/or
    b. Tilts towards constituents with stronger ESG ratings and tilts away from those with weaker ESG ratings.

From an index construction perspective, one can consider additional constraints, such as:

- Limiting sector and country deviations from the benchmark
- Limiting tracking error
- Limiting index turnover by using buffer rules
- Excluding companies that are highly controversial from an ESG perspective

[11] https://www.calstrs.com/news-release/calstrs-commits-25-billion-low-carbon-index

[12] http://www.worldbank.org/en/news/press-release/2017/10/11/world-bank-group-and-gpif-join-forces-to-mobilize-capital-markets-for-sustainable-investments

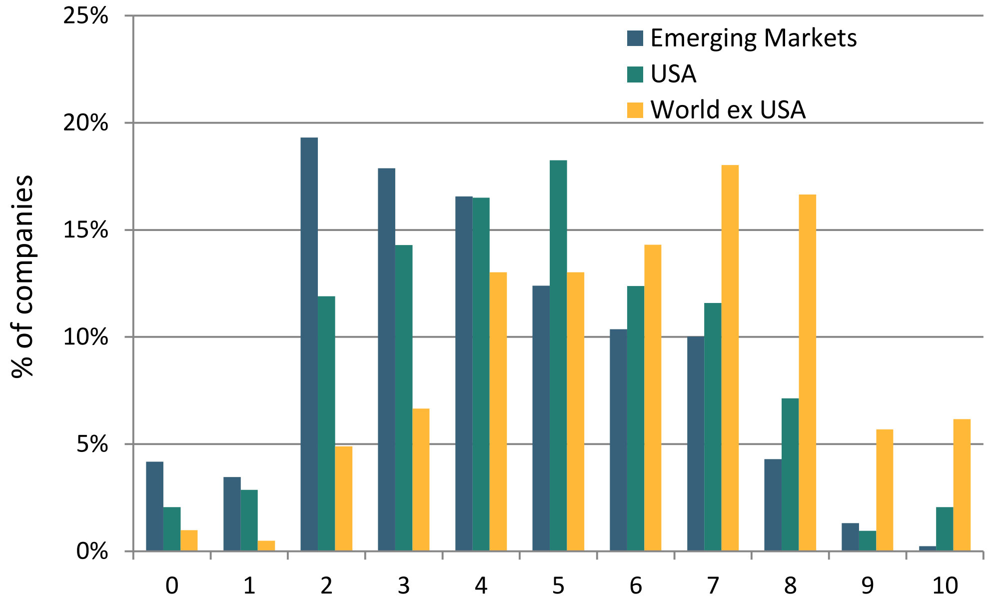
The two standard index methodologies that MSCI has created to support the integration of ESG into benchmarks are the MSCI ESG Leaders Index, which uses a best-in-class selection of the upper half of ESG-rated stocks per region and sector, and the MSCI ESG Universal Index, which re-weights the index towards companies with high MSCI ESG Ratings and high ESG Momentum.

These two indexes address different investment preferences: The ESG Leaders Index shows a much stronger integration of ESG due to its best-in-class selection than the ESG Universal Index. However, the ESG Leaders Index shrinks the universe to roughly half the number of constituents, which leads to a more concentrated index.[13]

Both index methodologies allow for regional breakdowns, analogous to their parent indexes. Most asset owners have separate allocations for emerging and developed markets. Within developed markets, the U.S. market is often managed separately due to its size and unique opportunity set. In addition, the ESG profile of these regions is very different (Exhibit 3), with emerging markets showing the lowest average level of ESG scores, developed markets (ex U.S.) the highest and the U.S. in between.

[13] In Part 2 of this paper, we assessed in greater detail the corresponding trade-offs in liquidity, turnover and diversification of the respective indexes and the impact on the opportunity set that the index represents versus the potential extent of ESG integration.

Exhibit 3: Distribution of Industry-Adjusted ESG Scores[14] for Three Sub-regions



As Dec. 31, 2017. Source: MSCI

We use the MSCI ESG Leaders Index,[15] with its stronger level of ESG integration, as the basis for our analysis because the index has a live track record since August 2010 and is the benchmark for a variety of funds and ETFs.

We first looked at a hypothetical global passive allocation and then delved into hypothetical regional allocations replicating the MSCI ESG Leaders Index. We restricted our analysis to the live period of each respective index, with the exception of the MSCI Emerging Markets ESG Leaders Index, which has a shorter live history, where we combined live history and simulated history data.[16] In all instances, references to allocations are to hypothetical portfolios replicating the indexes, not allocations to the indexes themselves.[17]

[14] Industry Adjusted ESG Scores are neutralized for industry biases and are used for the MSCI ESG Leaders Index. These scores are mapped linearly to the ESG rating classes shown in Exhibit A6 in the Appendix.

[15] See MSCI ESG Leaders Indexes Methodology
https://www.msci.com/eqb/methodology/meth_docs/MSCI_ESG_Leaders_Indexes_Methodology_June_2017.pdf

[16] The MSCI Emerging Markets ESG Leaders Index was launched in June 2013. We used index histories since August 2010 across all regions. Thus, we combined a simulated history from August 2010 to May 2013 and live history from June 2013 to December 2017 for this index. This report contains hypothetical, backtested or simulated performance results. There are frequently material differences between backtested or simulated performance results and actual results subsequently achieved by any investment strategy. The analysis and observations are limited solely to the period of the relevant historical data, backtest or simulation. Past performance — whether actual, backtested or simulated — is no

GLOBAL MARKETS ALLOCATION

We compared the risk and performance profile of the MSCI ACWI ESG Leaders Index to the parent MSCI ACWI Index (Exhibit 4). The results reflected our finding in Part 1 of this paper: Risk, return and risk-adjusted return all were significantly improved, while tracking error was only 1%, which is important for asset owners who may enforce strict limits on passive allocations. We also observed higher levels of valuation as measured by book-to-price as well as price-to-earnings ratios.

In addition, Exhibit 5 shows that all relevant risk measures, such as Value at Risk (VaR) and expected shortfall, as well as tail-risk measures such as drawdowns and kurtosis, experienced a clear improvement over the parent index.

Exhibit 4: Key Performance Indicators for MSCI ACWI ESG Leaders Index

	MSCI ACWI Index	MSCI ACWI Leaders
Total Return (%)	11.5	11.7
Total Risk (%)	12.4	12.0
Return/Risk	0.93	0.98
Sharpe Ratio	0.90	0.95
Active Return (%)	0.0	0.2
Tracking Error (%)	0.0	1.0
Information Ratio	NaN	0.19
Historical Beta	1.00	0.97
No of Stocks	2457	1141
Turnover (%)	2.0	6.8
Price To Book	1.9	2.1
Price to Earnings	16.6	17.3
Dividend Yield (%)	2.6	2.6

Data from Aug. 31, 2010 to Dec. 31, 2017

indication or guarantee of future performance. None of the information or analysis herein is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision or asset allocation and should not be relied on as such.

[17] It is not possible to invest directly in an index. Please refer to the disclaimers at the end of this paper.

Exhibit 5: Key Risk Indicators for MSCI ACWI ESG Leaders Index

	MSCI ACWI Index	MSCI ACWI ESG Leaders Index
Absolute Risk Metrics		
Total Risk* (%)	12.4	12.0
Annualized Downside Deviation* (%)	7.4	7.0
Sortino Ratio*	1.56	1.67
VaR @ 95%	-6.1	-5.8
VaR @ 99%	-9.2	-8.7
Expected Shortfall (CVaR) @ 95%	-8.1	-7.7
Expected Shortfall (CVaR) @ 99%	-9.4	-8.9
Max Drawdown (%)	22.9	21.3
Max Drawdown Period (in months)	5	5
Skewness	-0.24	-0.18
Kurtosis	4.10	4.03
Relative Risk Metrics		
Tracking Error* (%)	0.0	1.0
Max Drawdown of Active Returns (%)	0.0	2.0
Max Drawdown of Active Returns Period (in months)	0	10

Data from Aug. 31, 2010 to Dec. 31, 2017

In addition, Exhibits 6 and 7 compare the ESG profile and diversification profile. We observe a clear improvement in the average level of ESG scores as well as the exposure to the ESG leaders (i.e., companies rated AA or AAA). At the same time, the universe of the MSCI ACWI ESG Leaders Index covers less than half of the opportunity set of its parent index and slightly less than half of its market cap, with a proportional representation of the size segments.

Exhibit 6: Index Profile of MSCI ACWI ESG Leaders Index

	MSCI ACWI Index	MSCI ACWI ESG Leaders Index
Integration		
Key Integration Metrics		
ESG Score	5.5	6.6
ESG Leaders (AAA-AA) (%)	22.3	38.4
ESG Laggards (B-CCC) (%)	14.3	3.1
ESG Trend Positive (%)	18.1	12.5
ESG Trend Negative (%)	8.0	6.7

Data as of Dec. 31, 2017

Exhibit 7: Key Index Profile of MSCI ACWI ESG Leaders Index

	MSCI ACWI Index	MSCI ACWI ESG Leaders Index
Concentration Metrics*		
Avg No of Stocks	2457	1141
Effective No of Stocks	450	286
Market Cap Coverage (%)	100.0	48.3
Top 10 Sec Wt (%)	8.7	11.8
Size Family Exposures**		
Large (%)	82.7	82.2
Mid (%)	17.3	17.8

Data as of Dec. 31, 2017

Next, we assess whether these observations were valid at a regional level. In addition, we examine to what extent risk and return improvements were due to the MSCI ESG Leaders Index's securities selection methodology or to exposures to common factors.

EMERGING MARKETS ALLOCATION

The MSCI Emerging Markets ESG Leaders Index demonstrated improved returns, reduced risks and higher valuations over its parent, the MSCI Emerging Markets Index, during the study period (Exhibit 8). Likewise, the diversification level of the MSCI ESG Leaders Index was lower and index turnover higher than those of the parent index.

Exhibit 8: Key Risk and Performance Indicators for MSCI Emerging Markets ESG Leaders

	MSCI EM (Emerging Markets) Index	MSCI EM (Emerging Markets) ESG Leaders Index
Total Return (%)	5.3	9.3
Total Risk (%)	17.2	16.1
Return/Risk	0.31	0.58
Sharpe Ratio	0.29	0.56
Active Return (%)	0.0	4.0
Tracking Error (%)	0.0	2.9
Information Ratio	NaN	1.37
Historical Beta	1.00	0.92
No of Stocks	825	338
Turnover(%)	4.6	6.2
Price To Book	1.6	2.0
Price to Earnings	13.1	14.8
Dividend Yield (%)	2.6	2.6

Data from Aug. 31, 2010 to Dec. 31, 2017. Data from August 2010 to May 2013 is simulated; data from June 2013 to December 2017 is from the live history.

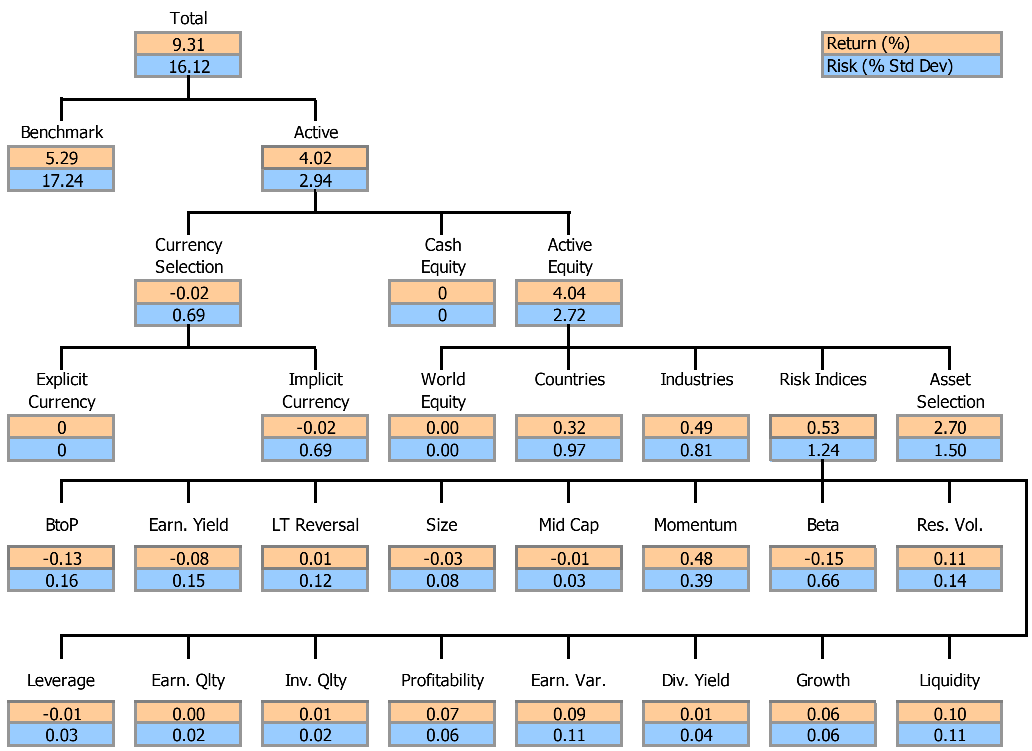
These findings were consistent with the fundamental analysis of MSCI ESG Ratings in Part 1 of this paper. They show that the MSCI Emerging Markets ESG Leaders Index's best-in-class selection approach would have captured the performance effects outlined in Part 1 during our study period.

To probe deeper, we examined to what extent performance and risk improvements were due to selecting stocks with high ESG ratings or to exposure to other factors.

Exhibit 9 shows a factor attribution for the MSCI Emerging Markets ESG Leaders Index during our study period. By far, stock selection was the strongest contributor to performance (at 2.7 percentage points per year). The best-in-class selection of companies with high ESG ratings was the main source of active returns in the history of the index.

Other exposures made smaller contributions. Factor exposure (in particular, active risk indexes, industry and country exposures) contributed slightly to outperformance. These exposures to industries, countries and risk factors were unintentional; the index selection methodology aims to mitigate these active exposures by selecting constituents at a regional and sector level. However, some residual exposures remained in the index, particularly in regional indexes where the total number of constituents available to diversify away country or industry risk was smaller than in the global universe.

Exhibit 9: Performance Attribution for MSCI Emerging Markets ESG Leaders Index



Annualized gross returns from Aug. 31, 2010 to Dec. 31, 2017. Data from August 2010 to May 2013 is simulated; data from June 2013 to December 2017 is from the live history.

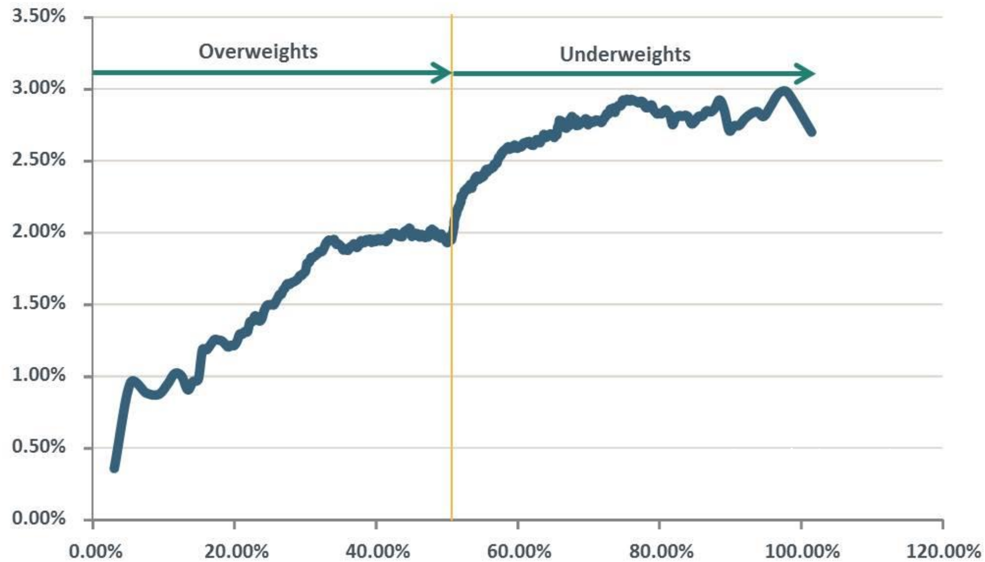
Thus, the MSCI Emerging Markets ESG Leaders Index not only led to a significant improvement in risk and performance during our study period, but our analysis shows that most of its outperformance came from securities selection.

Digging deeper, to what extent did overweights and underweights of index constituents (i.e., securities not selected for the ESG Leaders Index) contribute to outperformance? To measure this, we looked to the cash-flow channel, whose economic rationale is that high ESG-rated companies are more competitive and can generate abnormal returns.[18] Thus, companies with high ratings were overweighted in the index while those with low ratings were underweighted (excluded). Exhibit 10 shows the cumulative stock-specific performance contribution against the cumulative average active weight in the MSCI

[18] See Part 1 for more details.

Emerging Markets ESG Leaders Index. The majority of both overweights and underweights contributed to outperformance relative to the parent index, which is consistent with the cash-flow channel rationale. Note: Overweights contributed more to outperformance than underweights during our study period.

Exhibit 10: Overweights and Underweights Aided Performance of MSCI EM Leaders Index



Data from Aug. 31, 2010 to Dec. 31, 2017. The chart shows the cumulative annualized specific performance contribution of MSCI Emerging Markets Leaders Index vs. cumulative average overweights and underweights (index components are sorted from largest to smallest average active weight)

WORLD EX USA ALLOCATION

Next, we turned to the MSCI World ex USA Index, which showed the highest average ESG scores. Exhibit 11 summarizes the key performance and risk indicators for the live period of the MSCI World ex USA ESG Leaders Index.

Exhibit 11: Key Risk and Performance Indicators for MSCI World ex USA ESG Leaders Index

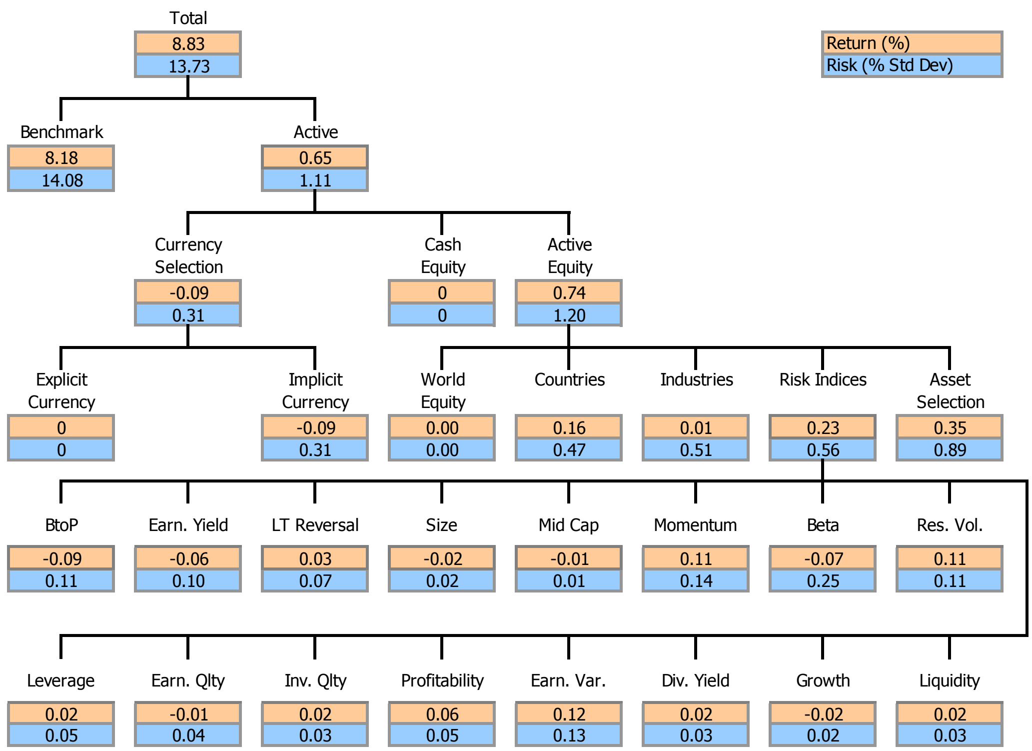
	MSCI World ex USA Index	MSCI World ex USA ESG Leaders Index
Total Return (%)	8.2	8.8
Total Risk (%)	14.1	13.7
Return/Risk	0.58	0.64
Sharpe Ratio	0.56	0.62
Active Return (%)	0.0	0.7
Tracking Error (%)	0.0	1.1
Information Ratio	NaN	0.59
Historical Beta	1.00	0.97
No of Stocks	1020	472
Turnover (%)	1.7	6.9
Price To Book	1.6	1.7
Price to Earnings	16.3	16.3
Dividend Yield (%)	3.2	3.3

Data from Aug. 31, 2010 to Dec. 31, 2017 (live index history).

Returns and risk characteristics improved while valuation and dividend yield measures rose, consistent with the valuation and performance characteristics that we observed at a global level.

Exhibit 12 shows the corresponding performance attribution: Unintentional exposures to industries and countries were quite small, indicating that the index methodology was effective in keeping the country and industry risk exposures close to those of the parent index. Unintentional exposures to risk factors also slightly enhanced performance. The strongest contributor to improved performance came from stock selection (“asset selection” in the exhibit).

Exhibit 12: Performance Attribution for MSCI World ex USA ESG Leaders Index



Annualized data from Aug. 31, 2010 to Dec. 31, 2017 (live index history).

To better understand how stock selection helped performance, Exhibit 13 shows the cumulative specific performance contribution versus the cumulative active weights for both overweights and underweights within the index. Unlike the MSCI Emerging Markets ESG Leaders Index, overweights did not add to outperformance during our study; underweights accounted for all of the index outperformance.

Exhibit 13: Underweights Enhanced Performance of MSCI World ex USA ESG Leaders Index

Data from Aug. 31, 2010 to Dec. 31, 2017 (live index history). Cumulative annualized specific performance contribution of MSCI World ex USA ESG Leaders Index vs. cumulative average overweights and underweights (index components are sorted from largest to smallest active weight)

US REGIONAL PASSIVE ALLOCATION

The MSCI USA Index, whose average ESG scores fell between those of emerging markets and the rest of developed markets, is unique due to its size and breadth of opportunities. We used the MSCI USA ESG Leaders Index as a proxy for a passive portfolio. Exhibit 14 summarizes the key risk, performance and performance attribution indicators for the index.

Exhibit 14: Key Risk and Performance Indicators for MSCI USA ESG Leaders Index

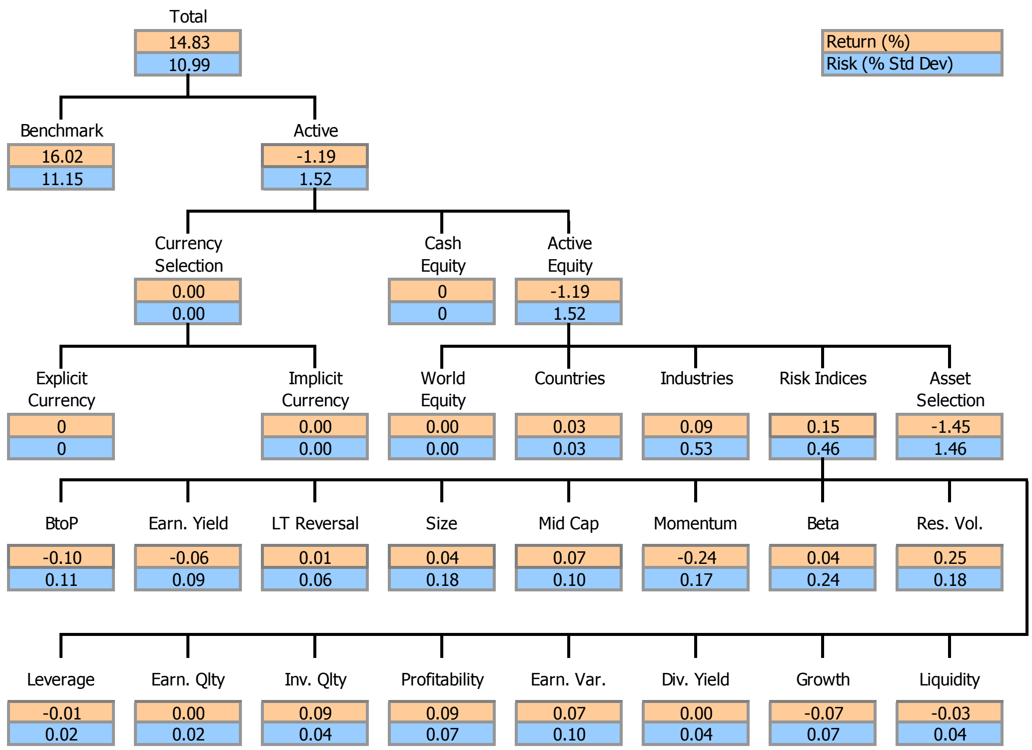
	USA	MSCI USA ESG Leaders Index
Total Return (%)	16.0	14.8
Total Risk (%)	11.1	11.0
Return/Risk	1.44	1.35
Sharpe Ratio	1.41	1.32
Active Return (%)	0.0	-1.2
Tracking Error (%)	0.0	1.5
Information Ratio	NaN	-0.78
Historical Beta	1.00	0.98
No of Stocks	612	332
Turnover (%)	1.8	8.1
Price To Book	2.6	2.8
Price to Earnings	18.0	18.9
Dividend Yield (%)	2.0	2.0

Annualized data from Aug. 31, 2010 to Dec. 31, 2017 (live index history).

Similar to the other regional indexes, key risk measures for the MSCI ESG Leaders Index were lower than those for the parent index during the live study period.

In contrast to the other regions, however, the MSCI USA ESG Leaders Index underperformed the parent index during its live history. Exhibit 15 illustrates the cause of the underperformance: Stock selection accounted for a -1.45 percentage points per year drag on returns. In contrast to the other two regional examples, selecting high ESG ratings led to underperformance.

Exhibit 15: Performance Attribution for MSCI USA ESG Leaders Index



Annualized data from Aug. 31, 2010 to Dec. 31, 2017 (live index history)

Exhibit 16 shows the cumulative specific performance contribution versus the cumulative active weights for both overweights and underweights within the MSCI USA ESG Leaders Index. The cumulative performance contributions from both overweights and underweights were negative, in particular for large-cap constituents (see the left and right hand margins).

Exhibit 16: Overweights, Underweights Impaired Returns of MSCI USA ESG Leaders Index

Data from Aug. 31, 2010 to Dec.31, 2017 (live index history). The chart shows the cumulative annualized specific performance contribution of MSCI USA ESG Leaders Index vs. cumulative average overweights and underweights (index components are sorted from largest to smallest active weight)

What led to this underperformance? Largely, U.S. technology companies, as Exhibit 17 shows. Five out of the seven largest contributors to stock-specific performance were tech companies; the aggregate specific annualized return of -0.94% of these five tech stocks explains nearly two-thirds of the negative stock-specific performance of the index. These stocks included Apple Inc., Facebook Inc. and Amazon.com Inc., which performed strongly but were not included in the MSCI USA ESG Leaders Index due to their below-average ESG ratings. At the same time, the index included tech stocks such as IBM Corp. and Hewlett-Packard Co. that underperformed their sector peers during the index's live history.

While ESG ratings did not identify U.S. tech companies with the best growth opportunities during our study period, they reduced the index's risks compared to the U.S. parent index, as we saw in both the emerging markets and the developed markets (ex U.S.) indexes.

Exhibit 17: Seven Largest Contributors to Negative Stock-Specific Performance

Asset Name	Periods in Portfolio	Average Active Weight	Annualized Stock-specific Performance Contribution
APPLE INC	0	-3.28%	-0.35%
AMAZON COM INC	0	-0.95%	-0.25%
IBM CORP	87	1.32%	-0.15%
FACEBOOK INC	0	-0.69%	-0.11%
HOME DEPOT INC	0	-0.71%	-0.10%
WALT DISNEY CO	30	-0.16%	-0.09%
HEWLETT-PACKARD Co	87	0.37%	-0.08%

Data from Aug. 31, 2010 to Dec. 31, 2017

THE FACEBOOK-CAMBRIDGE ANALYTICA CONTROVERSY

The Facebook-Cambridge Analytica controversy illustrates how a weak ESG rating can provide an early warning signal of possible downside risk. In our view, Facebook's weak oversight over third-party use of its users' personal data together with corporate governance practices that place disproportionate control in the hands of the company founder and CEO Mark Zuckerberg impaired its risk management capabilities. These vulnerabilities, which were highlighted by MSCI ESG Research, weakened Facebook's ESG rating, contributed to its absence from the MSCI USA ESG Leaders Index.

Placing disproportionate control in the hands of the founders is by no means unique in the tech industry. The volumes of personal user data collected and processed by many tech companies ensures the industry remains at risk of potentially costly data breaches. Tightened privacy rules, such as the European Union's General Data Protection Regulation, will impact the ability of tech companies to leverage their users' personal data, exposing these companies to regulatory scrutiny and possibly impacting revenues. Tech giants also face antitrust regulation as authorities mull the vast influence that these companies have through use of individuals' personal data.

In the month after the scandal broke (March 16, 2018 to April 16, 2018), the MSCI ESG USA Leaders index outperformed the MSCI USA Index by 51 bps, of which 12 bps was an industry-specific return from the internet software and services industry (to which Facebook belongs) and an additional 6 bps stock-specific return from not being invested in Facebook.

REGIONAL DIFFERENCES

In the MSCI Emerging Markets and MSCI World ex USA Indexes, positive stock-specific return contributions came mainly from stocks whose ESG profile was far above or far below the average. This result was in line with our findings in Part 1 of this paper: Very high ESG ratings were often associated with above-average profitability while very low ESG ratings were often associated with stock-specific risks that investors may want to avoid. In contrast, the negative stock-specific return contribution to the U.S. index was largely generated by a handful of strong-performing large U.S. technology companies with weak ESG profiles.

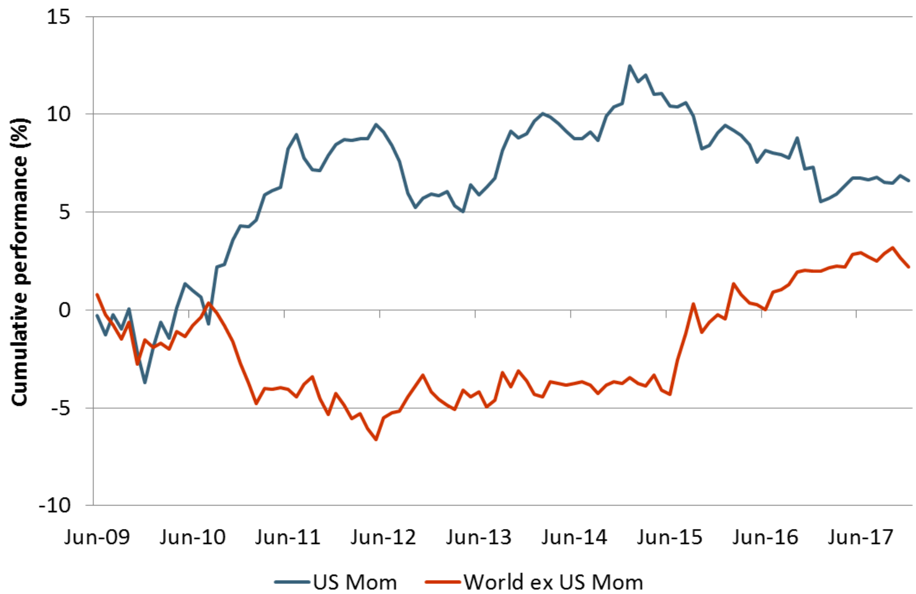
However, past performance should not be interpreted as indication of future performance, especially for a short observation period of roughly seven years. In general, Part 1 of this paper showed that lower ESG-rated companies were associated with a higher risk of incurring significant incidents and drawdowns globally. While excluding companies with low ESG ratings has not always led to outperformance, investors who wish to reduce their exposure to companies more likely to be vulnerable to *severe* incidents may prefer a passive ESG allocation that relies on ESG ratings.

ESG momentum may also be a useful financial indicator. The regional breakdown in Exhibit 18 shows that ESG momentum was associated with higher additional stock performance in the U.S. than in non-U.S. developed markets (World ex USA) during our study period.[19] In short, while ESG ratings did not enhance performance in the U.S., *improvements in ESG ratings* provided a useful signal.

Hence, combining ESG momentum with MSCI ESG Ratings may be a helpful option in constructing passive allocations. We will explore active allocation strategies that combine ESG ratings with ESG momentum in the fourth part of this paper.

[19] We have not included emerging markets in this analysis due to the relatively shorter available history of ESG ratings in this region.

Exhibit 18: ESG Momentum Produced Stronger Performance in US than World ex USA



This exhibit shows the performance of a hypothetical portfolio that invests long in the upper half of ESG momentum companies and goes short the lower half of ESG momentum companies in the respective region. Both long and short portfolios are equal weighted on a monthly basis.

CONCLUSION

Surveys of institutional investors on how they integrate ESG into their portfolios provide two key insights. First, most are focused on integrating ESG for financial reasons, i.e., they seek better risk-adjusted returns over the long term without upsetting the investment strategy and factor allocation of their existing portfolios. Second, except for some leading asset owners who have integrated ESG across most or even all of their assets, the majority of investors currently do not integrate ESG across all their portfolios, nor do they apply a consistent approach in different types of allocations.

One way that asset owners can implement ESG integration is through passive allocations to portfolios that seek to replicate ESG indexes. As with any passive strategy, index-based approaches offer consistency, transparency, replicability and are generally cost-effective. In our seven-year study period, we showed how global and regional versions of the MSCI ESG Leaders Indexes (as proxies for these regional allocations) resulted in significant regional variations in their respective ESG profiles and performance. However, in all instances, we showed a clear reduction in all key risk measures.

At a global level, ESG integration led to a reduction in risk and has shown a slight positive performance impact.

At the regional level, differences in returns and ESG exposure varied:

- While emerging markets' average ESG scores were relatively low and only a few companies had very high ESG scores, most of the observed outperformance came from selecting ESG leaders.
- The situation in the World ex USA region was reversed: Average ESG scores were fairly high with relatively few companies' scores ranging far below the average. However, most of the outperformance came from avoiding these ESG laggards.
- In the U.S., the exclusion of a handful of large-cap companies largely in the tech sector that experienced strong performance and the inclusion of other large-cap laggards impaired performance.

These regional differences show that excluding companies with low ESG ratings was not a guarantee for outperformance — in the U.S. tech sector, it actually would have led to underperformance in the roughly seven-year period ended Dec. 31, 2017, in contrast to regions outside the U.S. Facebook's recent crisis, however, points to the merits of considering ESG risks. Passive ESG methodologies — whether used on a global or regional basis — could have added downside protection.

APPENDIX

SURVEYS OF ASSET MANAGERS

In January 2017, the Chartered Alternative Investment Analyst (CAIA) Association and global private equity company Adveq[20] surveyed 647 CAIA members on current practices in ESG investing, including a range of large to small asset managers, endowments, family offices, foundations, insurance companies, private and public pension funds and sovereign wealth funds.

In addition, State Street Global Advisors[21] (SSgA) surveyed 582 global asset managers in 2017 and the CFA Institute performed an asset management survey of 1,325 asset management members in 2015 with respect to the current status of ESG integration.

Most recent industry surveys on ESG investing have followed a similar structure, asking asset managers and asset owners about their key motivation for integrating ESG, the benefits they seek, the actual investment approaches used, the key barriers they face when integrating ESG and, finally, what they think is needed to promote ESG integration beyond the status quo. We have mapped most of the questions and answers and key comments from these surveys onto a grid, which is shown in Exhibit A1.

[20] Now Schroder Adveq

[21] See Eccles, R. and M. Kastrapeli and S. Potter (2017). "How to Integrate ESG into Investment Decision-Making: Results of a Global Survey of Institutional Investors." Journal of Applied Corporate Finance, Vol. 29. Issue 4, pp. 125-133.

Exhibit A1: Mapped Survey Questions and Answers by Institutional Investors

Question	CFA institute	CAIA/Adveq	SSgA
Drivers for adoption of ESG	-Client or investor demand (44%) -Fiduciary obligation (37%)	-Adoption of ESG as industry standard (71%) -Pressure from institutional investors (67%) -Meeting client requirements (58%)	-Lengthen investment horizon (62%) -Improve investment practices (48%) -Demand from beneficiaries (38%) -Belief of asset owner (35%) -Regulatory requirements (18%) -Peer pressure (10%)
Benefits of ESG adoption	-ESG is proxy for management quality (38%) -Better management of investment risks (63%)	- Investment/values alignment (71%) -Positive investment return impact (64%) -Improved brand reputation (50%)	Outperformance in the long-term (74%)
Methods of ESG integration	-ESG integration into analysis and decision-making (57%) -Best-in-class positive alignment (38%) -Exclusions (36%) -Staff training on ESG issues (28%)	-ESG part of decision-making process (52%) -Professional function for ESG (47%) -ESG portfolio monitoring (46%) -Responsible investment policy (44%) -Negative screening (32%)	-Exclusions (47%) -Best-in-class (37%) -Thematic investing (27%) -ESG integration (21%) -Active ownership (21%) -Impact investing (21%)
Barriers to ESG integration		-Lack of clear industry standards (84%) -Lack of data consistency and comparability (69%) -Managing varied requirements (44%) -Lack of suitable investments (44%) -Lack of dedicated resources (42%)	-Lack of ESG industry standards (60%) -Lack of corporate ESG disclosure (53%) -Underperformance of ESG investing (47%) -Lack of ESG data (38%) -Cost of ESG integration (34%) -Fiduciary duties as barrier to ESG integration (10%)
What is needed	-Better education (77%) -Independent valuation of ESG data (69%) -Standardized ESG corporate reporting (61%)	-Better-defined ESG standards (89%) -Better education (74%)	-Companies should identify material ESG issues (92%) -Differentiate between material/immaterial ESG -Provide training to portfolio managers and analysts (34%) -Lengthen time frame of performance evaluation (30%) -Support from senior management (30%)

MSCI MARKET SURVEY OF ASSET OWNERS

The above surveys focused on the current status of ESG integration within the asset management industry, without elaborating on the role of the asset owner.

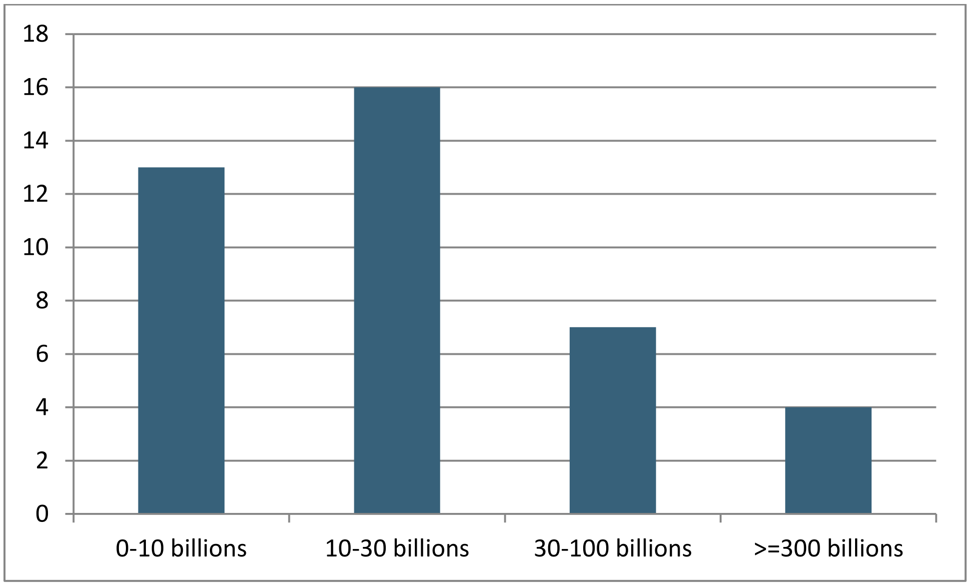
Looking at current practices at the asset owner level is important for two reasons: First, asset owners typically have at least part of their assets managed by external managers, who must fulfill the asset owner's requirements. Second, a growing number of pension funds (a major proportion of asset owners) are becoming subject to rules related to incorporating ESG criteria into investment and reporting processes, such as The National Pension Insurance Funds Act in Sweden and article 173 of the Energy Transition Law in France.

Our survey focused on the extent of ESG integration into asset owners' portfolios, including whether they have fully integrated ESG into active, passive and factor-based allocations.

OVERVIEW OF SURVEYED ASSET OWNERS

Our sample consisted of 40 asset owners, with assets under management (as of year-end 2016) ranging from USD 4 billion to USD 1,236 billion; the average was USD 137 billion. Thirty-one of these asset owners were UNPRI signatories at the end of 2016. Exhibit A2 shows the distribution of AUM in the survey sample.

Exhibit A2: Number of Survey Participants Per Size Group in USD



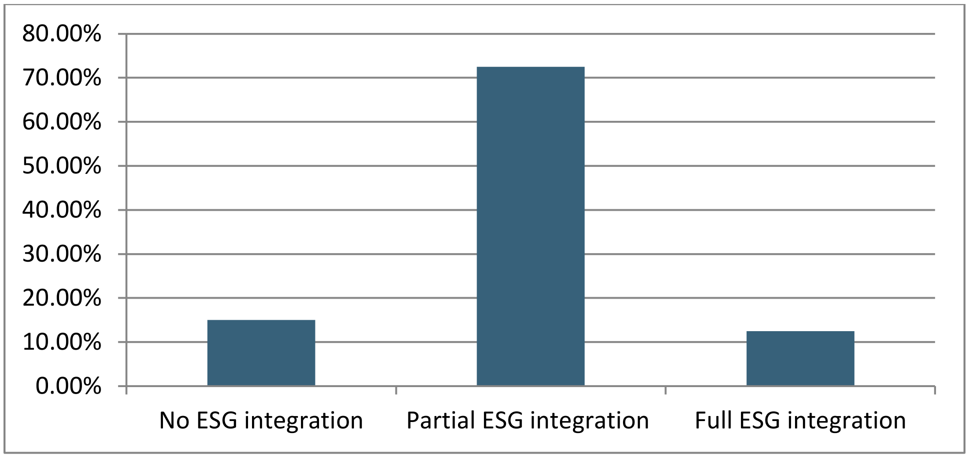
Data as of December 2016

Equities comprised 37% of assets on average as of year-end 2016. On average, 27.9% of total assets were managed by external managers.

RESULTS OF MARKET SURVEY

Exhibit A3 highlights that nearly three-quarters (72%) of asset owners integrated ESG criteria in some areas of their asset allocation (passive, active or factor-based investments) as of December 2016; we found that 13% fully integrated ESG throughout all types of allocations. Only 15% of asset owners did not use ESG criteria in their asset management processes.

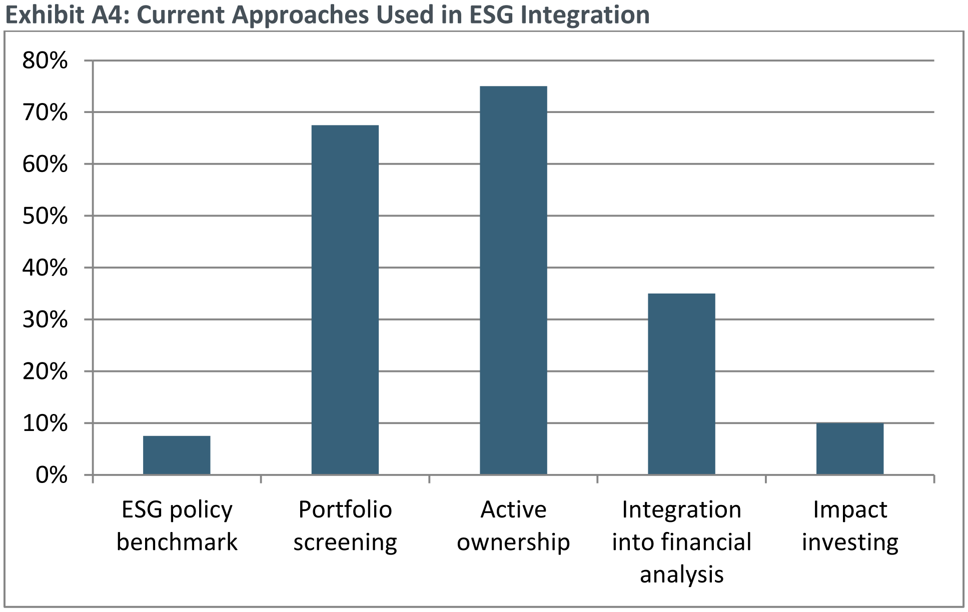
Exhibit A3: Most Asset Owners Partially Integrate ESG Criteria



Data as of December 2016

In addition, we have analyzed asset owners with respect to the approaches they use for ESG integration. The results are shown in Exhibit A4.

Exhibit A4: Current Approaches Used in ESG Integration



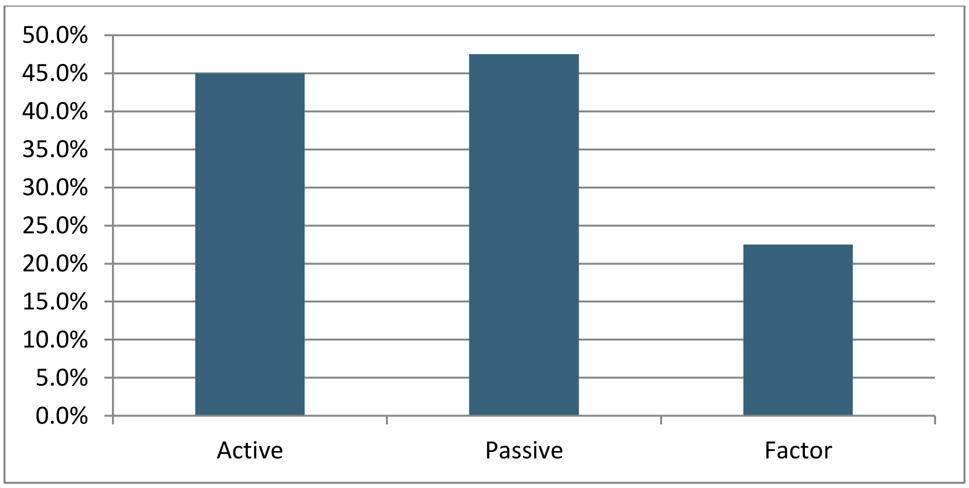
Data as of December 2016

The most commonly used approach for ESG integration is active ownership (75%), i.e., voting and engagement. Compared to the results of the GSIA study (Exhibit 3), we see that ESG integration into active ownership processes was much more prevalent than in asset management as a whole. The reason: Active ownership is a targeted approach that allows asset owners to address specific issues or ESG-related risks, especially ones that have a very long time horizon, such as companies' fossil fuel reduction plans and reduction targets.

The second most popular approach was portfolio screening (68%), which can range from exclusionary screening to best-in-class screening. Integration into financial analysis (models for company valuations typically used in active management) ranked third with 35%. Impact investing and the use of ESG policy benchmarks were used by only 10% and 8%, respectively.

Finally, we asked asset owners in what types of allocations they integrate ESG – active, passive or factor-based. Exhibit A5 shows 48% of respondents integrated ESG into passive allocations, with 45% integrating ESG into actively managed allocations. Implementation of ESG into factor strategies was only pursued by 22% of respondents.

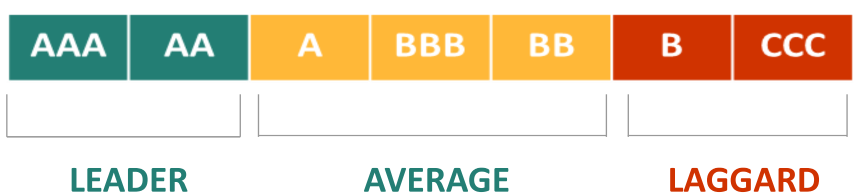
Exhibit A5: ESG Integration Per Type of Allocation



Data as of December 2016

RATINGS OVERVIEW

Exhibit A6: MSCI ESG Rating Classes with Groups of Leading, Average and Lagging Companies



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