



Accessing Socially Responsible Investing with ETFs

A quick guide for passive ESG investing

ESG ETFs provide an easy and quick way to achieve SRI objectives without compromising performance.

ESG investing has gained traction over the recent years

ESG (Environmental, Social, and Governance) is an investment approach that takes into account the environmental, social, and governance impact when making investment related decisions. ESG or SRI (Socially Responsible Investing) is not a new investment philosophy albeit ESG investing has gained increasingly popularity from investment managers during the past five years.

ESG strategies perform in line or better than traditional strategies

According to our research, ESG ETFs offer a quick and efficient way to implement SRI strategies without a detriment to fund performance, actually it could even outperform at times. In addition, the ESG strategies presented do not entail significant size, sector, or country biases.

ESG ETFs offer access to both broad and specific ESG investment themes

In this report we present 16 different products listed in the US which focus on ESG investing. Three of these products focus on broad ESG exposure in the US (KLD, DSI) and international developed markets (EAPS) providing an easy way to access broad ESG factor-based strategies. Full details and analytics for these three ETFs are provided in our new "2-page ETF Snapshot" format inside the report.

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Related research

Date

The Socially Responsible Quant
Javed Jussa

24 Apr 2013

Figure 1: ESG ETFs listed in the US

ESG Theme	Ticker	Geographic Focus	TER	Index
ESG Broad	KLD	US	0.50%	MSCI KLD 400 Social
ESG Broad	DSI	US	0.50%	MSCI USA ESG Select
ESG Broad	EAPS	Intl. DM	0.55%	MSCI EAFE ESG
Environment	EVX	US	0.55%	NYSE Arca Environ. Services
Env.- Alternative Energy	PBW	US	0.70%	WilderHill Clean Energy
Env.- Alternative Energy	TAN	Global	0.65%	MAC Global Solar Energy
Env.- Alternative Energy	PBD	Global	0.75%	WilderHill New Energy Gbl Innov.
Env.- Alternative Energy	GEX	Global	0.62%	Ardour Global
Env.- Alternative Energy	PUW	US	0.71%	WilderHill Progressive Energy
Env.- Alternative Energy	ICLN	Global	0.48%	S&P Global Clean Energy
Env.- Alternative Energy	FAN	Global	0.60%	ISE Global Wind Energy
Env.- Alternative Energy	KWT	US	0.65%	Market Vector Solar Energy
Env. - Clean Technology	PZD	Global	0.67%	Cleantech
Env. - Clean Technology	QCLN	US	0.60%	NASDAQ Clean Edge Green En.
Env. - Sustainable Water	PHO	US	0.62%	NASDAQ OMX US Water
Env. - Sustainable Water	PIO	Global	0.75%	NASDAQ OMX Global Water

Source: Deutsche Bank

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The World of Socially Responsible Investing¹

The ABC's of ESG

ESG (Environmental, Social, and Governance) is an investment approach that takes into account the environmental, social and governance impact when making investment related decisions. The ESG philosophy can take on many forms. It can be as simple as screening out companies from an investor's universe that rank poorly on ESG criteria. Or the ESG philosophy can take on a much more rigorous approach where investors incorporate specific ESG data towards companies or industries as an integral component of their investment analysis and decision process. The acronym SRI (Social Responsible Investing) is often coined with ESG. The areas concerned with SRI can typically be summarized under environment, social, and governance pillars. In this research, we use SRI and ESG interchangeably.

ESG or SRI is not a new investment philosophy albeit ESG investing has gained increasingly popularity from investment managers during the past five years. This is undoubtedly due to the multitude of governance issues faced by the financial industry as a result of the financial crisis. In fact, the origins of the ESG philosophy date back to the 17th century. During this time, the roots of ESG were primarily religiously motivated. Interestingly, back in the 17th century, a religious movement known as the Quakers or Friends preached the basic tenants of ESG. The Quakers were known for their refusal to participate in war, opposition to slavery, and the opposition to alcohol. Some Quakers went on to form institutions exemplifying such principles.

Common ESG screening criteria

What does a typical ESG screen look like? Figure 2 shows some of the most commonly cited ESG criteria used for screening companies. As you can see, this list spans a wide array of criteria from sustainability, nuclear power, tobacco to animal testing, human rights, and affordable housing. A criterion likely exists for almost any type of ESG concern. Most of these criteria are relatively self explanatory.

¹ Content for this section has been extracted from the report titled "Signal Processing: The Socially Responsible Quant", Javed Jussa et al, published on 24 April 2013 by Deutsche Bank's US Quantitative Strategy team.



Figure 2: Common ESG screening criteria



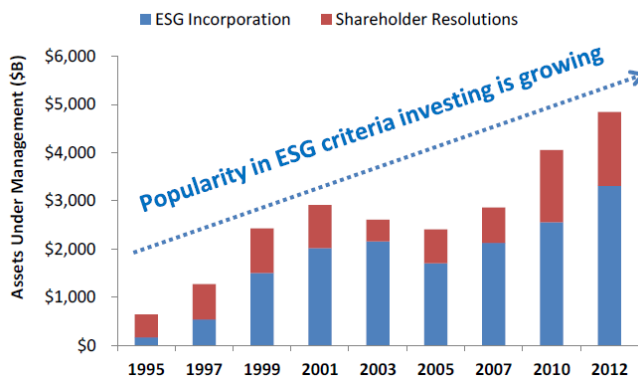
Source: US SIF Foundation: 2012 Report on Sustainable and Responsible Investing Trends in the United States, MSCI ESG Research

Major trends in ESG investments

Figure 3 shows the amount of AUM tied to some form of ESG investment strategy. As shown, AUM affiliated with ESG strategies has experienced accelerated growth since the mid 1990s. In 2012, approximately \$3.3 and \$1.5 trillion of AUM was tied to ESG incorporation and Shareholder resolution respectively, in the US. After eliminating double counting due to assets involved in both strategies, AUM affiliated with ESG strategies still represents approximately \$3.7 trillion. This is approximately 11% of the \$33.3 trillion of AUM tracked by Thomson Reuters Nelson, a provider of detailed information on investment management firms. Undoubtedly, AUM tied to ESG strategies reflects a significant portion of the total available investable AUM.²

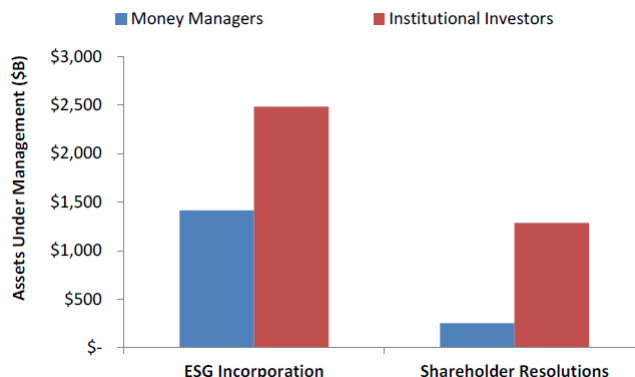
Figure 4 shows the AUM associated with ESG strategies by investor type (i.e. money managers versus institutional investors). As shown in the figure, the bulk of ESG assets are managed by institutional investors.

Figure 3: AUM tied to some form of ESG criteria investing in the United States



Source: US SIF Foundation: 2012 Report on Sustainable and Responsible Investing Trends in the United States

Figure 4: AUM distribution for ESG investing for 2012 in the United States by investor type



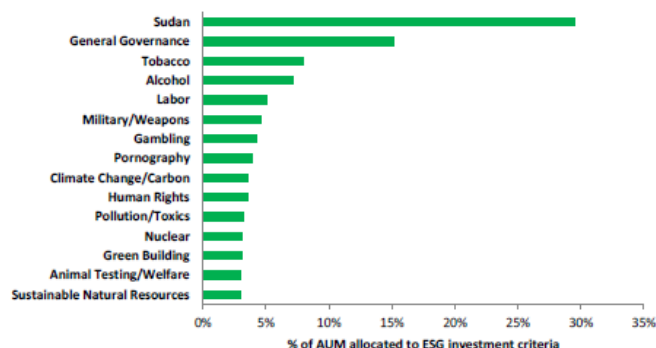
Source: US SIF Foundation: 2012 Report on Sustainable and Responsible Investing Trends in the United States

² More information on ESG trends can be found in: US SIF Foundation: 2012 Report on Sustainable and Responsible Investing Trends in the United States



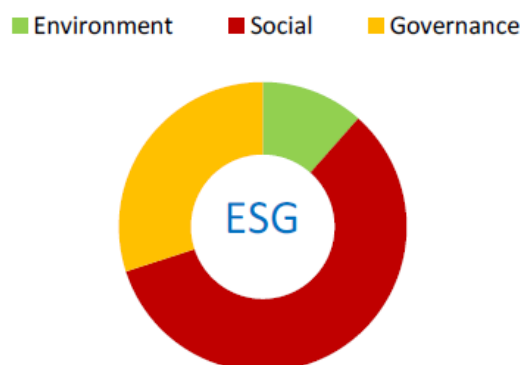
Figure 5 shows the percentage of AUM allocated to ESG investment criteria for money managers. Interestingly, the top ESG criteria include Sudan, corporate governance, tobacco, alcohol, and labor policies. Lastly, Figure 6 shows the allocation of AUM to three ESG pillars: Environmental, Social, and Governance. As shown in the figure, most of the AUM with ESG investments is dedicated towards social screening. Environment screening encapsulates the smallest portion of ESG AUM investment.

Figure 5: Percentage of AUM allocated to ESG investment criteria in the US



Source: US SIF Foundation: 2012 Report on Sustainable and Responsible Investing Trends in the United States

Figure 6: Percentage of AUM allocated to ESG buckets



Source: US SIF Foundation: 2012 Report on Sustainable and Responsible Investing Trends in the United States

The MSCI ESG scores

MSCI ESG scores are designed to assist investment managers with the screening and analysis of companies based on sustainability factors as opposed to conventional financial metrics. MSCI ESG scores attempt to gauge a company's impact on environmental, social, and governance pillars. MSCI provides overall ESG industry adjusted scores for companies that are predominantly apart of the MSCI World Index with data commencing from 1999 onwards. In addition, MSCI provides more granular scores and weights for each sustainability pillar: Environmental, Social, and Governance.

Figure 7 shows a snapshot of the MSCI ESG score for 3M Company. MSCI provides an overall ESG numeric and letter score. The overall score is based on a scale of 0 (i.e. CCC) to 10 (i.e. AAA) where the highest ranked companies receive a rating of 10 and lowest ranked companies receive a rating of 0. The overall score is industry adjusted and compares how well a company ranks among its industry peers in terms of ESG criteria. The overall ESG score is derived from the underlying ESG pillars (i.e. Environmental, Social, and Governance). Each underlying ESG pillar is given a score and a weight.

ESG scores are typically provided on a yearly basis when all companies in an industry are reviewed. However, on an exceptional basis, a company's rating may be reviewed and updated between annual updates. Such a mid-cycle review can be precipitated based on several reasons including a severe financial impact faced by a company due to an extraordinary ESG event.

MSCI has a rigorous five step methodological framework through which they construct a company's overall ESG scores. Figure 8 shows a summary of the major steps in the MSCI ESG rating process.

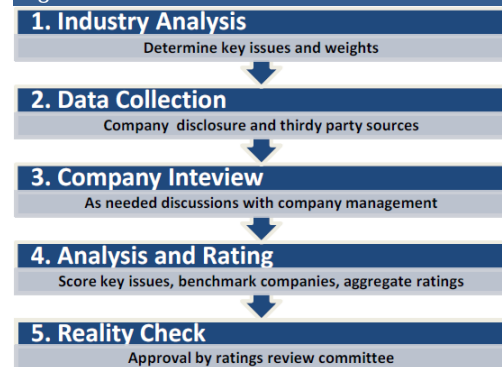


Figure 7: MSCI ESG rating for 3M Company as of September 25th, 2012

Company Information	Latest Company ISIN:	US88579Y1010
	Company Ticker:	MMM
	Company Name:	3M Company
	Company Industry:	Industrial Conglomerates
	Rating Date:	September 25th, 2012
Overall Score	Letter Rating	AAA
	Final Industry Adjusted Score	9.8
E	Environmental Pillar Score	8.2
	Environmental Pillar Weight	59.8%
S	Social Pillar Score	2.4
	Social Pillar Weight	17.6%
G	Governance Pillar Score	8.7
	Governance Pillar Weight	22.6%

Source: MSCI Research

Figure 8: MSCI Research Framework



Source: MSCI Research

Suggested Implementations

In the strategy report, Jussa et al, suggest two different ways to implement a quant-based ESG strategy. The first one examines a tilted portfolio that assumes a core-satellite approach in which the top quintile ESG ranked companies are deployed as an overlay to a typical market cap-weighted benchmark portfolio; while the second one implements a long-only optimized portfolio based on the ESG scores and several other constraints such as transaction costs, monthly turnover, tracking error, and asset, sector and country weight differentials.

The strategy was backtested both using US and Global equities, and in both cases the ESG portfolio-based risk-adjusted results were in line or slightly better than those of the traditional benchmarks. These results demonstrate that SRI-minded investors can achieve their ideological objectives without forgoing their investment objectives (i.e. risk and return), hence making SRI investing an attractive alternative for institutions and individuals with relevant mandates and preferences. In the next section we examine the ESG alternatives available within the US-listed ETF space.



ESG Investing with ETFs

What are the ESG ETFs out there?

Although ESG investing is a small portion of the US ETF pie, there are enough products to satisfy the broad passive investing needs of SRI-minded investors both domestically and internationally. In addition, investors can also implement different environmental related themes by choosing from a variety of alternative energy, clean technology, and sustainable water focused ETFs. Overall, the 16 ESG-related ETFs have about \$2bn in AUM, and in most cases can tap enough liquidity from their underlying market (Figure 9).

Figure 9: ESG related ETFs listed in the US

Ticker	ETP Name	Underlying Index	Issuer	Structure	TER	AUM \$MM	Net CF \$MM	ADV \$MM
ESG								
DSI	iShares MSCI Socially Responsible ETF	MSCI KLD 400 Social	BlackRock	ETF	0.50%	206	12	0.6
KLD	iShares MSCI Select Socially Responsible ETF	MSCI USA ESG Select	BlackRock	ETF	0.50%	203	1	0.5
EAPS	Pax MSCI EAFE ESG Index ETF	MSCI EAFE ESG	Pax World	ETF	0.55%	25	14	0.1
Environment								
EVX	Market Vectors Environmental Services ETF	NYSE Arca Environmental Services	Van Eck Funds	ETF	0.55%	19	-8	0.0
Environment - Alternative Energy								
PBW	PowerShares WilderHill Clean Energy Portfolio	WilderHill Clean Energy	PowerShares	ETF	0.70%	127	-24	1.0
TAN	Guggenheim Solar ETF	MAC Global Solar Energy	Guggenheim Inv.	ETF	0.65%	59	16	1.4
PBD	PowerShares Global Clean Energy Portfolio	WilderHill New Energy Global Innovation	PowerShares	ETF	0.75%	58	-19	0.2
GEX	Market Vectors Global Alternative Energy ETF	Ardour Global	Van Eck Funds	ETF	0.62%	51	-10	0.2
PUW	PowerShares WilderHill Progressive Energy Portfolio	WilderHill Progressive Energy	PowerShares	ETF	0.71%	37	-11	0.1
ICLN	iShares Global Clean Energy ETF	S&P Global Clean Energy	BlackRock	ETF	0.48%	30	0	0.1
FAN	First Trust ISE Global Wind Energy Index Fund	ISE Global Wind Energy	First Trust Ad.	ETF	0.60%	21	-4	0.1
KWT	Market Vectors Solar Energy ETF	Market Vector Solar Energy	Van Eck Funds	ETF	0.65%	11	-7	0.2
Environment - Clean Technology								
PZD	PowerShares Cleantech Portfolio	Cleantech	PowerShares	ETF	0.67%	68	-35	0.2
QCLN	First Trust NASDAQ Clean Edge Green Energy Index Fund	NASDAQ Clean Edge Green Energy	First Trust Ad.	ETF	0.60%	26	7	0.1
Environment - Sustainable Water								
PHO	PowerShares Water Resources Portfolio	NASDAQ OMX US Water	PowerShares	ETF	0.62%	855	-126	3.0
PIO	PowerShares Global Water Portfolio	NASDAQ OMX Global Water	PowerShares	ETF	0.75%	201	-47	0.8

Source: MSCI ESG Research

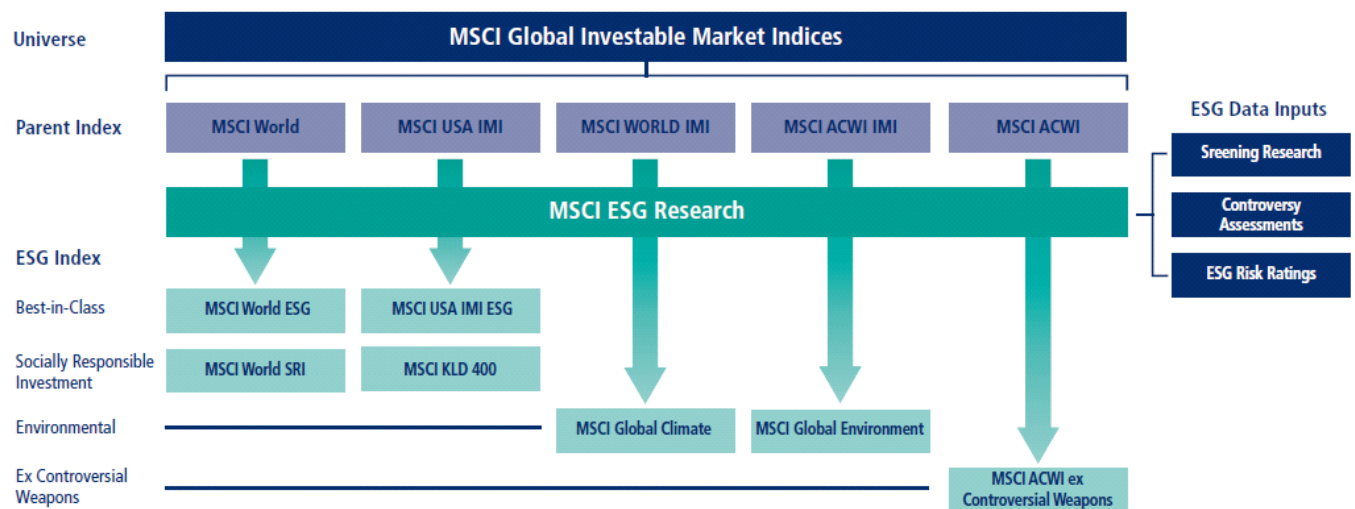
In the following pages we focus on those ETFs offering access to broad ESG exposure. For accessing US ESG companies we will focus in DSI and KLD, while for accessing ESG companies in international markets we will examine EAPS. Furthermore, these three products are based on the MSCI ESG dataset which we briefly discussed in the previous section (and more extensively reviewed in *Jussa et al* [2013]); therefore we believe that these products can offer an attractive passive implementation to the strategy discussed by our quant colleagues.



MSCI ESG Indices

The MSCI ESG indices are derived from the MSCI Global Investable Market Indices by applying an additional layer of screening based on the MSCI ESG Research framework. Figure 10 presents the MSCI Index Framework for MSCI ESG indices and provides an idea of the different ESG themes that can be implemented. In our case, we will analyze three alternatives to implement themes around the “Best-in-class” and “Socially Responsible Investment” areas. Figure 11 presents a summary of the methodologies of the indices underlying the ETFs we feature in the next pages.

Figure 10: MSCI Index Framework for MSCI ESG Indices



Source: MSCI ESG Research

Figure 11: ESG Index Methodology Summary

Index Name	MSCI USA ESG Select Index	MSCI KLD 400 Social Index	MSCI EAFE ESG Index
ETF	KLD	DSI	EAPS
Index Provider	MSCI	MSCI	MSCI
Focus	Large and Mid Cap US companies with positive exposure to ESG factors.	US companies with positive exposure to ESG factors.	International developed market companies with high ESG ratings relative to their sector and industry group peers.
Universe	MSCI USA index	MSCI USA IMI ESG Index	MSCI Global IMI
Exclusions	Tobacco, Impact Monitor < 2 (current constituent) and < 3 (non-constituent)	Alcohol, Gambling, Tobacco, Military Weapons, Civilian Firearms, Nuclear Power, Adult Entertainment, Genetically Modified Organisms (GMO), IVA rating ≤ B and Impact Monitor ≤ 1 (current constituent), and IVA rating ≤ BB and Impact Monitor ≤ 2 (non-constituent)	IVA rating < B
Weight	Optimized	Free-Float Mkt Cap	Free-Float Mkt Cap
Aprox. # of Constituents	132 (up to 350)	400	150
Reconstitution Freq.	Quarterly	Quarterly	Quarterly
Criteria/Construction	<ul style="list-style-type: none"> - Maximize exposure to company based ESG Intangible Value Assessment (IVA) scores. Subject to: <ul style="list-style-type: none"> - Predicted Tracking Error ≤ 1.8% - Max weight of company ≤ 5% - Min weight of company ≥ 0.1% - Constituents ≤ 350 - ESG Select index sector wghts within +/- 3% of MSCI USA sector weights. - One way turnover ≤ 10% in Semi-Annual IR and ≤ 5% in Quarterly IR. - One way transaction cost = 0.5% - Asset Selection/Common Factor Risk Aversion ratio = 10 	<ul style="list-style-type: none"> - Target relative sector within +/- 25% with respect to the MSCI USA index. - Companies in the Standard size segment (i.e. Large and Mid caps) ≥ 200. - Layered construction process, gives priority to standard segment, followed by target sector weights, ESG scores, highest free float market cap, and then small cap segment. 	<ul style="list-style-type: none"> - Targets 50% of the free float-adjusted market capitalization of each GICS sector. - Constituents of the parent index are first ranked by ESG Scores and then by decreasing free float adjusted market capitalization. Constituents are then selected in the following order till the 50% coverage is reached: <ul style="list-style-type: none"> - Companies in the top 35% - 'A' rated companies in the top 50% - Current index constituents in the top 65% - Remaining Companies in the eligible universe

Source: Deutsche Bank, MSCI

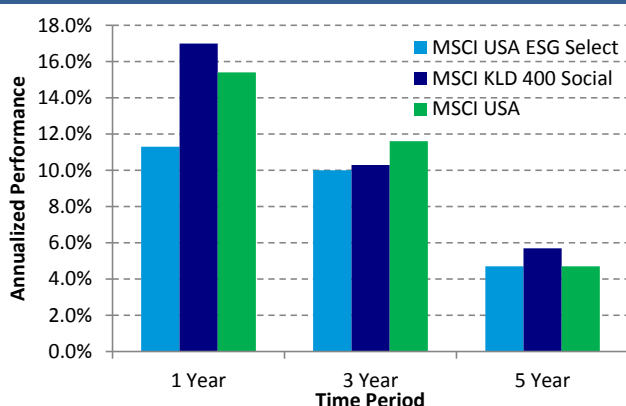


Comparing the MSCI ESG indices with the MSCI standard version

Intuition may suggest that ESG strategies should underperform because of the additional resources it would take to implement good ESG practices; similarly, another common thought is that ESG strategies would have significant sector, size, or country biases. Nevertheless our analyses of ESG indices and ETFs shows that these presumptions do not hold true during the period studied in this report.

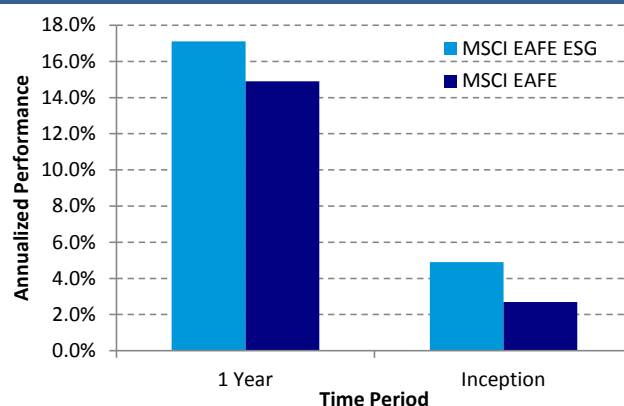
In the case of US ESG investing, both of the ESG indices analyzed perform in line or better than the traditional market cap weighted index during long period of times (Figure 12). Similarly, the international ESG index outperformed the traditional index during both periods studied (Figure 13).

Figure 12: MSCI USA Index vs. MSCI USA ESG indices performance



Source: Deutsche Bank, Bloomberg Finance LP. Performance is based on total returns. Data as of April 19, 2013.

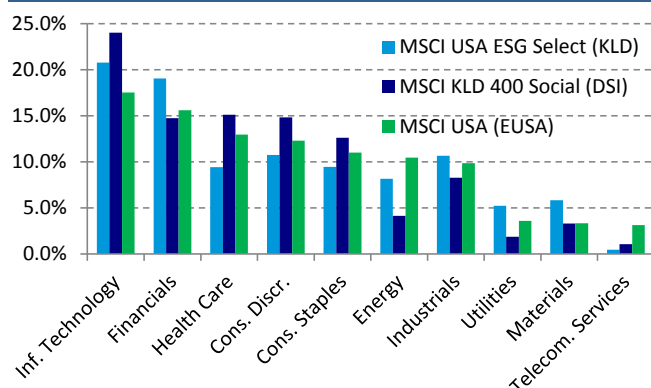
Figure 13: MSCI EAFE Index vs. MSCI EAFE ESG Index performance



Source: Deutsche Bank, Bloomberg Finance LP. Performance is based on total returns. Data as of April 19, 2013. Inception date corresponds to Jan 28, 2011

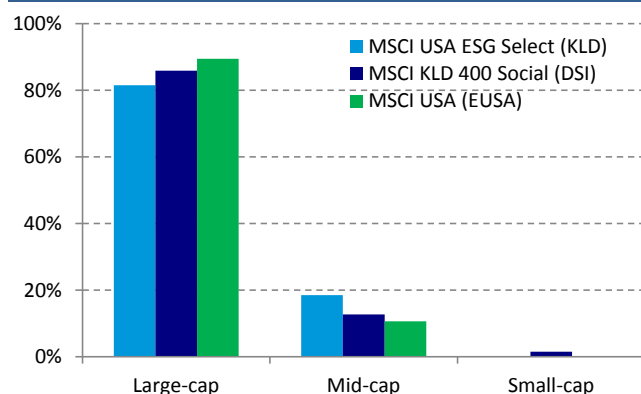
Our comparison of sector and country allocations for US ETFs doesn't show a significant change in the exposure profile of ESG ETFs compared to the traditional ETF. There is, however, a tilt towards more ESG-friendly sectors such as Information Technology, and away from not so ESG-friendly sectors such as Energy (Figure 14). In the case of size ESG ETFs have lower allocation to large caps, albeit not significant (Figure 15).

Figure 14: MSCI USA ETF vs. MSCI USA ESG ETFs GICS sector allocations



Source: Deutsche Bank, Bloomberg Finance LP. Allocation data based on ETF Holdings as of April 22, 2013.

Figure 15: MSCI USA ETF vs. MSCI USA ESG ETFs size allocations

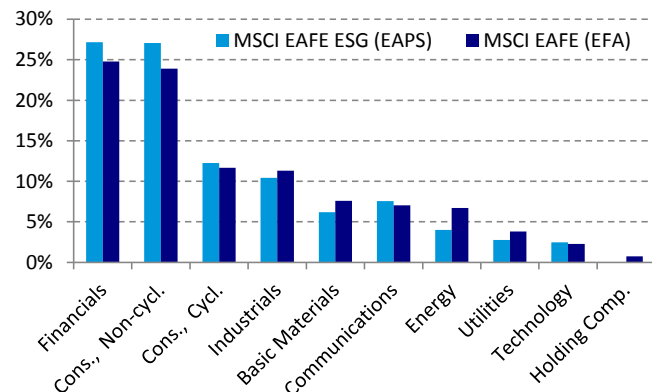


Source: Deutsche Bank, Bloomberg Finance LP. Allocation data based on ETF Holdings as of April 22, 2013.



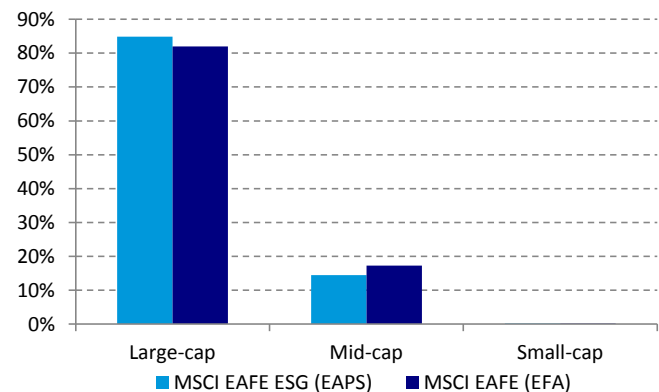
Similarly, we do not find meaningful general allocation differences between the international ESG ETF and the traditional market cap-weighted version. Most of the allocations are in line, with just a few exceptions. For example, within sectors the ESG version has a relevant Energy underweight compared to the traditional index, and within countries the ESG ETF has a relatively larger weight in Japan and Spain along with a lower weight for Germany, Hong Kong and Singapore compared to the standard ETF version (Figures 16 through 18).

Figure 16: MSCI EAFE ETF vs. MSCI EAFE ESG ETF BICS* sector allocations



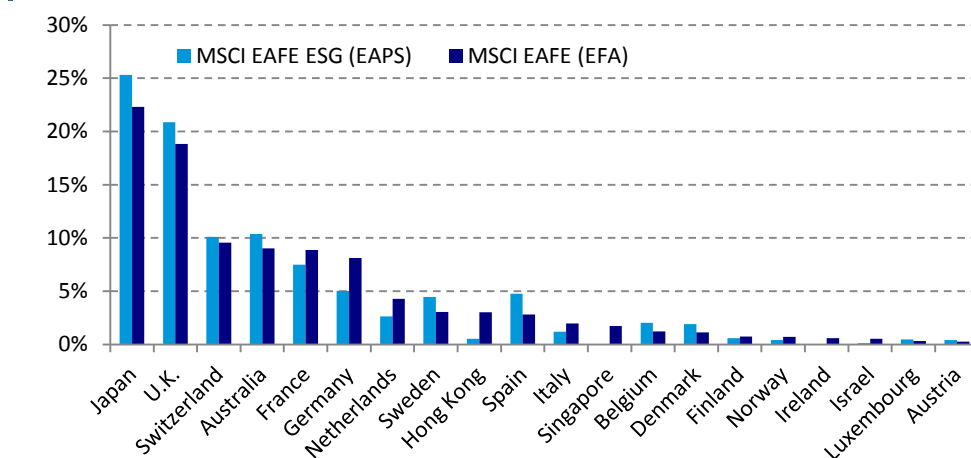
Source: Deutsche Bank, Bloomberg Finance LP. Allocation data based on ETF Holdings as of April 22, 2013. *Sector classification corresponds to the Bloomberg Industry classification system.

Figure 17: MSCI EAFE ETF vs. MSCI EAFE ESG ETF size allocations



Source: Deutsche Bank, Bloomberg Finance LP. Allocation data based on ETF Holdings as of April 22, 2013.

Figure 18: MSCI EAFE ETF vs. MSCI EAFE ESG ETF top 20 country allocations



Source: Deutsche Bank, Bloomberg Finance LP. Allocation data based on ETF Holdings as of April 22, 2013.

According to our research, ESG ETFs offer a quick and efficient way to implement SRI strategies without a detriment to fund performance, actually it could even outperform at times. In the following pages we provide a detailed analysis³ of each of the three ESG ETFs listed in the US which provide access to US and International socially responsible investing.

³ A full description of our ETF analysis framework and the analytics utilized is provided in Appendix A.



iShares MSCI Select Socially Responsible ETF (KLD)

Commentary

KLD focuses on maximizing exposure to US large and mid cap companies not involved in the Tobacco industry with the highest ESG factors based on Intangible Value Assessment scores. The fund has a similar risk/return profile to the MSCI USA Std version despite its underlying ESG strategy; in general, its correlation to other equity segments has been high, while its correlation to other asset classes such as fixed income, commodity, and gold has been either low or negative. The product offers sector-diversified exposure with low holding concentration risk. Tracking efficiency is good and it usually stays within expected levels. From a liquidity perspective, this ETF exhibits relatively low secondary market liquidity, however its primary market liquidity is very abundant. Furthermore, its low level of short interest-related metrics suggests that risk hedging or short tactical positions are not very suitable. Lastly, its high degree of retail and Investment Adviser ownership combined with significant stakes held by PWM and family office investors strongly suggest that this product is mostly being used as a strategic asset allocation tool to fulfill specific ESG mandates.

Sources: Deutsche Bank,
Bloomberg Finance LP,
Factset.

General Info

Issuer	BlackRock (iShares)
TER	0.50%
Inception Date	24-Jan-05
Regulatory Structure	Open-End Investment Company
Active	No
Replication	Optimized
Funded	Yes

Leverage	No
Derivatives	No
Swaps	No
FX Hedged	No
Securities Lending	Yes
Options Available	No

Index Info

BBG Ticker	TFSSIU
Name	MSCI USA ESG Select Gross TR Index
Provider	MSCI
Weight	Optimized
Description	Large and Mid Cap US companies that maximize exposure to ESG factors based on Intangible Value Assessment (IVA) scores. Excludes Tobacco companies.

Fund Metrics & Levels as of 19-Apr-13

Close	65.434	Shares Outstanding (MM)	3.10
NAV	65.68	AUM (\$MM)	203.6

Performance & Fundamentals as of 19-Apr-13

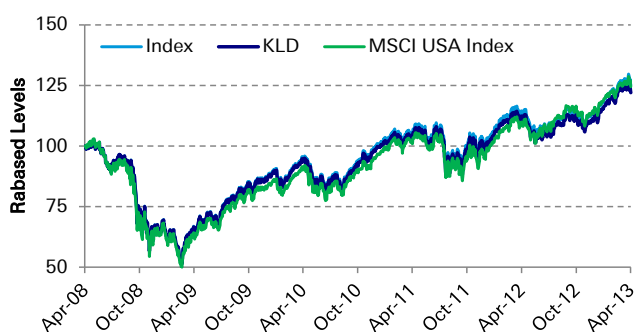
Risk/Return Profile	YTD	1 Month	3 Months	6 Months	1 Year	3 Years	5 Years
Index Rt	10.6%	0.0%	5.9%	11.5%	11.3%	10.0%	4.7%
Cash Flow \$MM	12.7	6.7	6.5	9.7	0.6	30.0	53.4
NAV Total Rt	10.4%	0.0%	5.8%	11.3%	10.7%	9.5%	4.2%
Ann. NAV Volatility	11.8%	14.9%	11.8%	12.0%	13.0%	18.4%	25.2%
Sharpe Ratio (NAV)					0.82	0.52	0.17
Max Drawdown (NAV)	-3.6%	-3.6%	-3.6%	-4.7%	-10.2%	-18.3%	-49.6%
Price Total Rt	10.6%	-0.1%	5.8%	11.0%	10.4%	9.5%	4.2%
Ann. Price Volatility	10.9%	11.4%	10.5%	11.2%	12.5%	17.9%	23.6%
Sharpe Ratio (Price)					0.83	0.53	0.18
Max Drawdown (Price)	-3.4%	-3.4%	-3.4%	-4.7%	-10.7%	-18.5%	-49.6%
MSCI USA Rt	9.8%	0.6%	5.2%	9.9%	15.4%	11.6%	4.7%
Beta (NAV vs. MSCI USA)	0.98	0.97	0.99	0.96	0.99	0.99	0.97
R-Squared	0.98	0.99	0.98	0.98	0.97	0.99	0.99

Valuations	Value
Price/Earnings Ratio	18.1
Price/Book Ratio	3.1
Price/Sales Ratio	1.7

Income	Value
Dividend Frequency	Quarter
12M Dividend Yield	1.59%
Annual Indicated Div. Yield	1.11%
1 Yr Div. Growth Rate	25.7%
3 Yr Div. Growth Rate	12.8%
5 Yr Div. Growth Rate	5.0%

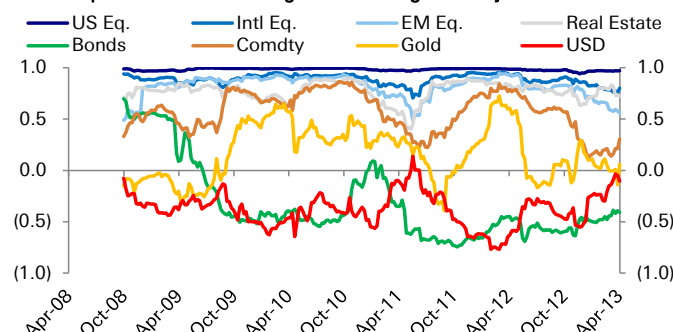
Notes: Returns are total returns. Returns for periods over 1 year are annualized. Sharpe ratios are calculated only for periods greater than 1 year

Historical Performance



Notes: Total Return performance

26-week price total return rolling correlation against major asset classes



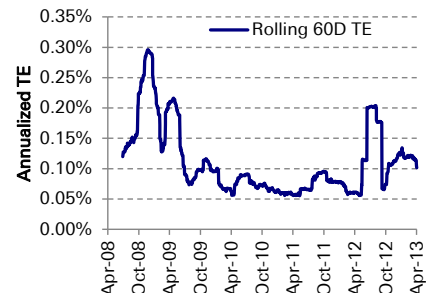
Notes: based on ETF/V total returns. US eq. (SPY), Intl Eq. (EFA), EM Eq. (EEM), Real Estate (VNQ), Bonds (BND), Comdty (DBC), Gold (GLD), USD (UIUP).



Tracking & Efficiency as of 19-Apr-13

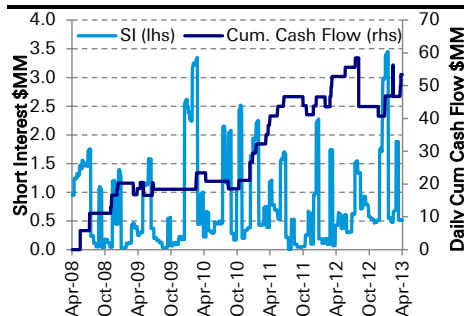
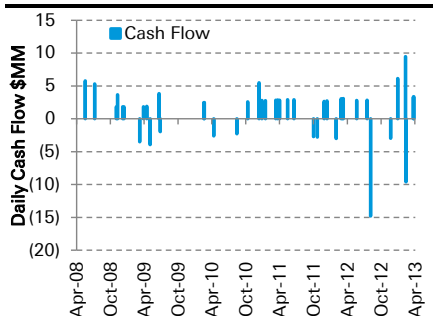
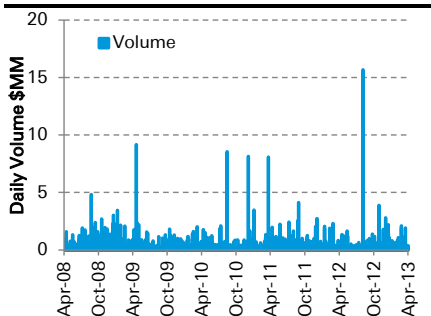
Index Tracking	YTD	1 Month	3 Months	6 Months	1 Year	3 Years	5 Years
Ann. Tracking Error (NAV)	0.11%	0.10%	0.11%	0.12%	0.13%	0.10%	0.12%
Perform. Difference (PD)	-0.18%	-0.05%	-0.14%	-0.27%	-0.59%	-0.56%	-0.51%
PD/TER (0.50%) Ratio					(1.18)	(1.11)	(1.02)
Price/NAV spread	YTD	1 Month	3 Months	6 Months	1 Year	3 Years	5 Years
Range	0.9%	0.8%	0.8%	1.1%	1.4%	2.7%	5.9%
Minimum	-0.3%	-0.2%	-0.3%	-0.5%	-0.7%	-1.6%	-2.1%
1st Quartile	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3rd Quartile	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Maximum	0.6%	0.6%	0.6%	0.6%	0.7%	1.1%	3.8%

Notes: Total returns used to calculate performance difference in periods greater than 1 year are annualized

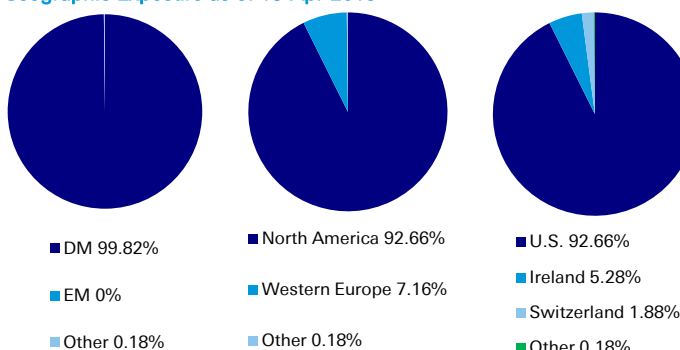


Trading & Liquidity as of 19-Apr-13

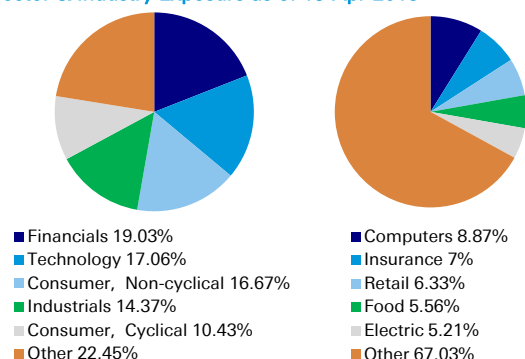
Secondary Market	Value	Primary Market	Value	Shorts	Value
20D ADV (Shr. K)	8.25	Implied Liquidity (ETF Shr. MM)	6.65	Short Interest (K) as of 28-Mar-2013	7.77
20D ADV \$MM	0.54	Implied Liquidity (\$MM)	435.0	SI as % of Shr. Out.	25.1%
Bid/Ask Spread \$	0.17	Creation Unit Size	50,000	Days to Cover	1.1
Bid/Ask Spread bps	20.4	C/R Process	In-kind	Borrow Rate (Annual)	4.4%
		C/R fee \$	500		
		Creation cutoff time	16:00 est		



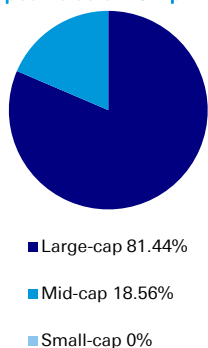
Geographic Exposure as of 19-Apr-2013



Sector & Industry Exposure as of 19-Apr-2013



Size Exposure as of 19-Apr-2013



Holding Analysis as of 19-Apr-13

Total # of Holdings	132
# of Holdings > 5%	-
% Hds > 5%	0.0%
Top 1 Hdng %	3.5%
Top 5 Hdng %	15.6%
Top 10 Hdng %	27.1%
Top 10 Holdings	Weight %
Eaton Corp PLC	3.54%
NextEra Energy Inc	3.37%
International Business Machine	3.07%
American Express Co	2.94%
Marsh & McLennan Cos Inc	2.68%
NIKE Inc	2.41%
Travelers Cos Inc/The	2.36%
Spectra Energy Corp	2.29%
Apple Inc	2.24%
Procter & Gamble Co/The	2.23%

Ownership Analysis as of 31-Dec-12

Fund Owners	% Ownership
Retail	65.5%
Institutional	34.5%
Owned by Top 5 Institutions	17.4%
Institutional Holder Types	% Ownership
Investment Adviser	19.1%
Private Banking/Wealth Mgmt	6.8%
Broker	5.5%
Family Office	2.9%
Mutual Fund Manager	0.2%
Other	0.0%
Top 5 Institutional Holders	% Ownership
PNC Bank NA (Trust Department)	6.0%
Bank of America NA (Private Banking)	3.7%
SunTrust Private Wealth Management	2.9%
GenSpring Family Offices	2.9%
UBS Global Asset Management	1.9%



iShares MSCI Socially Responsible ETF (DSI)

Commentary

DSI focuses on US companies with positive exposure to ESG factors excluding companies in the following industries: Alcohol, Gambling, Tobacco, Military, Weapons, Civilian Arms, Nuclear Power, Adult Entertainment, and GMO. The risk/return profile of the fund behaves similarly to the MSCI USA Std version; in general, its correlation to other equity segments has been high, while its correlation to other asset classes such as fixed income, commodity, and gold has been either low or negative. The product offers broad exposure with low holding concentration risk. Tracking efficiency is good and it usually stays within expected levels. From a liquidity perspective, this ETF exhibits relatively low secondary market liquidity, however its primary market liquidity is very abundant. Furthermore, its low level of short interest-related metrics suggests that risk hedging or short tactical positions are not very suitable. Lastly, its high degree of retail and Investment Adviser ownership combined with significant stakes held by PWM and family office investors strongly suggest that this product is mostly being used as a strategic asset allocation tool to fulfill specific ESG mandates.

Sources: Deutsche Bank,
Bloomberg Finance LP,
Factset.

General Info

Issuer	BlackRock (iShares)
TER	0.50%
Inception Date	14-Nov-06
Regulatory Structure	Open-End Investment Company
Active	No
Replication	Full
Funded	Yes

Leverage	No
Derivatives	No
Swaps	No
FX Hedged	No
Securities Lending	Yes
Options Available	No

Index Info

BBG Ticker	TKLD400U
Name	MSCI KLD 400 Social Gross Rt Index
Provider	MSCI
Weight	Market Cap
Description	US companies with positive exposure to ESG factors. Excludes companies involved in Alcohol, Gambling, Tobacco, Military Weapons, Civilian Firearms, Nuclear Power, Adult Entertainment, Genetically Modified Organisms (GMO).

Fund Metrics & Levels as of 19-Apr-13

Close	58.01	Shares Outstanding (MM)	3.55
NAV	58.28	AUM (\$MM)	206.9

Performance & Fundamentals as of 19-Apr-13

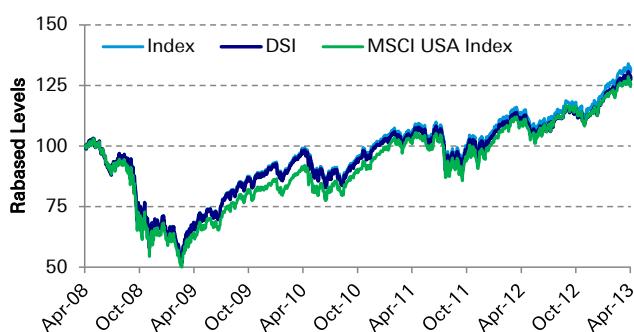
Risk/Return Profile	YTD	1 Month	3 Months	6 Months	1 Year	3 Years	5 Years
Index Rt	12.7%	1.6%	7.8%	13.8%	17.0%	10.3%	5.7%
Cash Flow \$MM	19.3	2.9	14.0	14.1	11.6	50.3	100.0
NAV Total Rt	12.5%	1.5%	7.6%	13.5%	16.4%	9.8%	5.2%
Ann. NAV Volatility	11.4%	14.2%	11.4%	11.6%	12.6%	17.8%	25.4%
Sharpe Ratio (NAV)					1.30	0.55	0.20
Max Drawdown (NAV)	-2.6%	-2.6%	-2.6%	-4.6%	-9.1%	-17.9%	-49.7%
Price Total Rt	12.5%	1.6%	7.8%	13.4%	16.8%	9.8%	5.2%
Ann. Price Volatility	10.7%	12.5%	10.6%	10.8%	12.1%	17.6%	24.6%
Sharpe Ratio (Price)					1.39	0.56	0.21
Max Drawdown (Price)	-2.5%	-2.5%	-2.5%	-4.6%	-9.3%	-17.9%	-49.9%
MSCI USA Rt	9.8%	0.6%	5.2%	9.9%	15.4%	11.6%	4.7%
Beta (NAV vs. MSCI USA)	0.95	0.93	0.95	0.93	0.96	0.96	0.98
R-Squared	0.97	0.99	0.97	0.97	0.98	0.99	0.99

Valuations	Value
Price/Earnings Ratio	18.7
Price/Book Ratio	2.8
Price/Sales Ratio	1.7

Income	Value
Dividend Frequency	Quarter
12M Dividend Yield	1.57%
Annual Indicated Div. Yield	1.27%
1 Yr Div. Growth Rate	25.7%
3 Yr Div. Growth Rate	19.5%
5 Yr Div. Growth Rate	8.7%

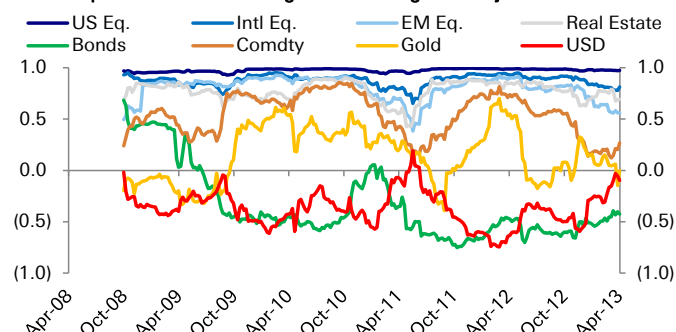
Notes: Returns are total returns. Returns for periods over 1 year are annualized. Sharpe ratios are calculated only for periods greater than 1 year

Historical Performance



Notes: Total Return performance

26-week price total return rolling correlation against major asset classes



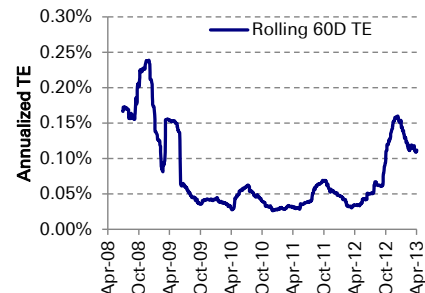
Notes: based on ETF/V total returns: US eq. (SPY), Intl Eq. (EFA), EM Eq. (EEM), Real Estate (VNQ), Bonds (BND), Comdty (DBC), Gold (GLD), USD (UUP).



Tracking & Efficiency as of 19-Apr-13

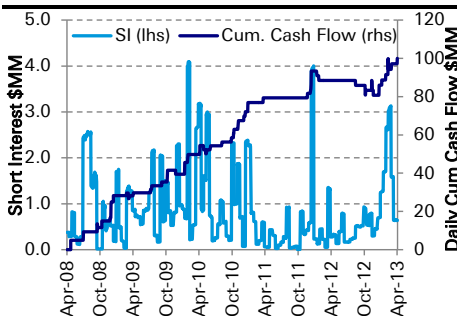
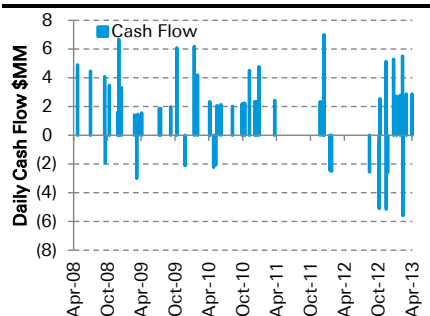
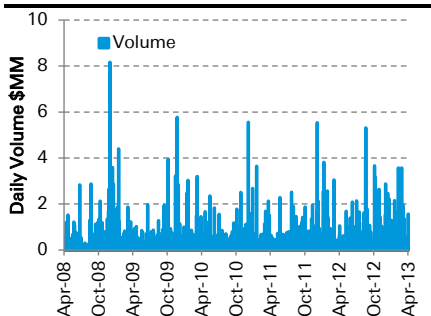
Index Tracking	YTD	1 Month	3 Months	6 Months	1 Year	3 Years	5 Years
Ann. Tracking Error (NAV)	0.12%	0.10%	0.11%	0.13%	0.11%	0.07%	0.10%
Perform. Difference (PD)	-0.17%	-0.04%	-0.14%	-0.30%	-0.59%	-0.55%	-0.52%
PD/TER (0.50%) Ratio					(1.19)	(1.09)	(1.04)
Price/NAV spread	YTD	1 Month	3 Months	6 Months	1 Year	3 Years	5 Years
Range	1.0%	0.8%	1.0%	1.1%	1.3%	2.8%	13.5%
Minimum	-0.4%	-0.4%	-0.4%	-0.4%	-0.7%	-1.3%	-7.2%
1st Quartile	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3rd Quartile	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%	-0.1%
Maximum	0.6%	0.4%	0.6%	0.6%	0.6%	1.4%	6.2%

Notes: Total returns used to calculate performance difference in periods greater than 1 year are annualized

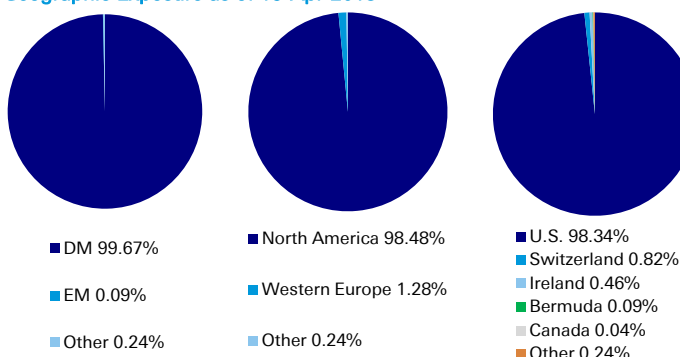


Trading & Liquidity as of 19-Apr-13

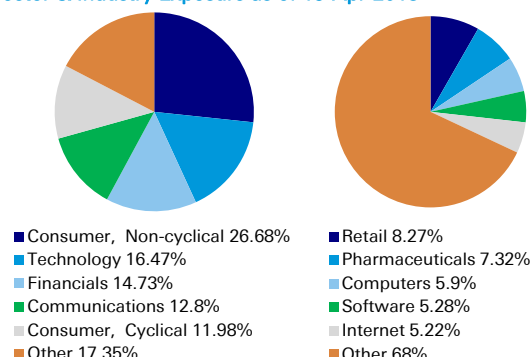
Secondary Market	Value	Primary Market	Value	Shorts	Value
20D ADV (Shr. K)	8.03	Implied Liquidity (ETF Shr. MM)	45.43	Short Interest (K) as of 28-Mar-2013	11.02
20D ADV \$MM	0.47	Implied Liquidity (\$MM)	2,635.4	SI as % of Shr. Out.	31.0%
Bid/Ask Spread \$	0.86	Creation Unit Size	50,000	Days to Cover	1.0
Bid/Ask Spread bps	56.9	C/R Process	In-kind	Borrow Rate (Annual)	11.9%
		C/R fee \$	500		
		Creation cutoff time	16:00 est		



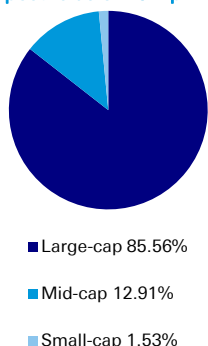
Geographic Exposure as of 19-Apr-2013



Sector & Industry Exposure as of 19-Apr-2013



Size Exposure as of 19-Apr-2013



Holding Analysis as of 19-Apr-13

Total # of Holdings	400
# of Holdings > 5%	-
% Hds > 5%	0.0%
Top 1 Hdng %	3.8%
Top 5 Hdng %	17.9%
Top 10 Hdng %	27.8%
Top 10 Holdings	Weight %
Johnson & Johnson	3.82%
Microsoft Corp	3.68%
Procter & Gamble Co/The	3.63%
Google Inc	3.46%
International Business Machine	3.33%
Merck & Co Inc	2.36%
PepsiCo Inc	2.09%
Intel Corp	1.82%
Home Depot Inc/The	1.81%
QUALCOMM Inc	1.78%

Ownership Analysis as of 31-Dec-12

Fund Owners	% Ownership
Retail	60.7%
Institutional	39.3%
Owned by Top 5 Institutions	17.0%
Institutional Holder Types	% Ownership
Investment Adviser	26.0%
Private Banking/Wealth Mgmt	5.4%
Broker	4.8%
Family Office	3.0%
Mutual Fund Manager	0.1%
Top 5 Institutional Holders	% Ownership
Bahl & Gaynor Investment Counsel, Inc.	4.1%
Bank of America NA (Private Banking)	4.1%
Northern Trust Investments	3.3%
GenSpring Family Offices	3.0%
JPMorgan Chase Bank NA	2.5%



Pax MSCI EAFE ESG Index ETF (EAPS)

Commentary

EAPS focuses on International DM companies with high ESG rating relative to their sector and industry group peers. The risk/return profile of the fund behaves similar to or better than the MSCI EAFE Std version; in general, its correlation to other equity segments has been high, while its correlation to other asset classes such as fixed income, commodity, and gold has been either low or negative. The product offers diversified size, sector, and country exposure with low holding concentration risk. Tracking efficiency is good and it usually stays within expected levels. From a liquidity perspective, this ETF exhibits relatively low secondary market liquidity, however its primary market liquidity is abundant. Furthermore, its level of short interest-related metrics suggests that risk hedging or short tactical positions are not very easy to implement. Lastly, its high degree of retail and Investment Adviser ownership suggest that this product is mostly being used as a strategic asset allocation tool.

Sources: Deutsche Bank,
Bloomberg Finance LP,
Factset.

General Info

Issuer	Pax World ETF
TER	0.55%
Inception Date	26-Jan-11
Regulatory Structure	Open-End Investment Company
Active	No
Replication	Optimized
Funded	Yes

Leverage	No
Derivatives	No
Swaps	No
FX Hedged	No
Securities Lending	No
Options Available	No

Index Info

BBG Ticker	TFAPESU
Name	MSCI EAFE ESG Gross TR Index
Provider	MSCI
Weight	Market Cap
Description	International developed market companies with high ESG ratings relative to their sector and industry group peers.

Fund Metrics & Levels as of 19-Apr-13

Close	25.87	Shares Outstanding (MM)	0.95
NAV	25.96405	AUM (\$MM)	24.7

Performance & Fundamentals as of 19-Apr-13

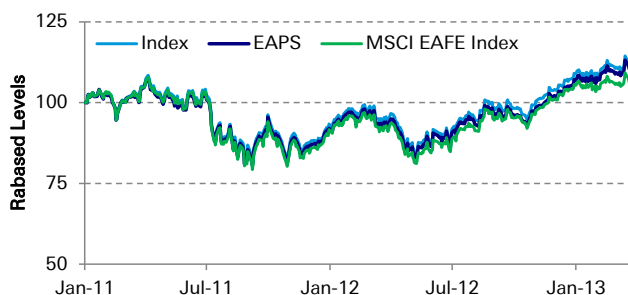
Risk/Return Profile	YTD	1 Month	3 Months	6 Months	1 Year	Inception
Index Rt	7.3%	-0.1%	3.9%	11.3%	17.1%	4.9%
Cash Flow \$MM	10.2	2.6	10.2	12.5	13.7	19.3
NAV Total Rt	8.2%	0.3%	4.8%	12.3%	17.8%	4.4%
Ann. NAV Volatility	11.7%	10.6%	12.0%	11.5%	15.0%	21.2%
Sharpe Ratio (NAV)					1.18	0.21
Max Drawdown (NAV)	-2.8%	-2.8%	-2.8%	-5.4%	-12.8%	-24.8%
Price Total Rt	5.5%	-0.8%	2.9%	11.5%	17.9%	4.3%
Ann. Price Volatility	14.1%	17.8%	14.9%	16.4%	19.6%	31.5%
Sharpe Ratio (Price)					0.91	0.14
Max Drawdown (Price)	-3.9%	-3.6%	-3.9%	-7.0%	-14.7%	-26.5%
MSCI EAFE Rt	5.2%	-0.2%	1.9%	9.2%	14.9%	2.7%
Beta (NAV vs. MSCI EAFE)	0.98	0.95	0.98	0.99	0.98	0.96
R-Squared	0.97	0.96	0.98	0.97	0.98	0.97

Valuations	Value
Price/Earnings Ratio	17.6
Price/Book Ratio	1.5
Price/Sales Ratio	0.9

Income	Value
Dividend Frequency	Semi-Annual
12M Dividend Yield	2.37%
Annual Indicated Div. Yield	1.67%
1 Yr Div. Growth Rate	11.6%

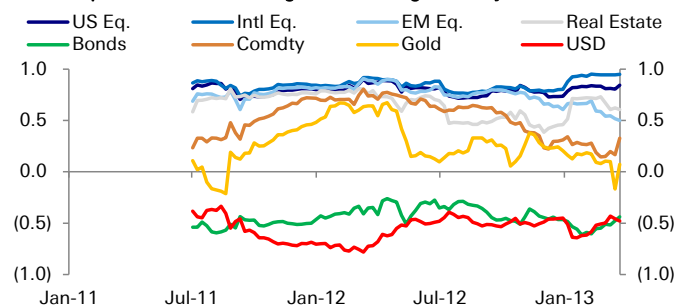
Notes: Returns are total returns. Returns for periods over 1 year are annualized. Sharpe ratios are calculated only for periods greater than 1 year

Historical Performance



Notes: Total Return performance

26-week price total return rolling correlation against major asset classes



Notes: based on ETF/V total returns: US eq. (SPY), Intl Eq. (EFA), EM Eq. (EEM), Real Estate (VNQ), Bonds (BND), Comdty (DBC), Gold (GLD), USD (UUP).



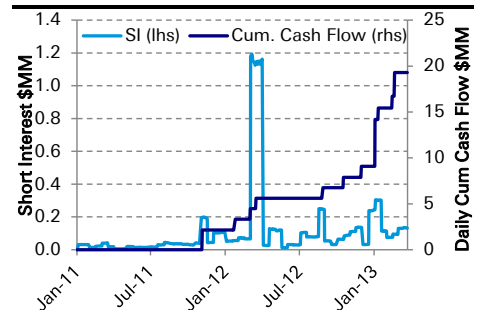
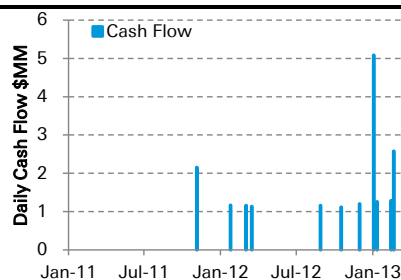
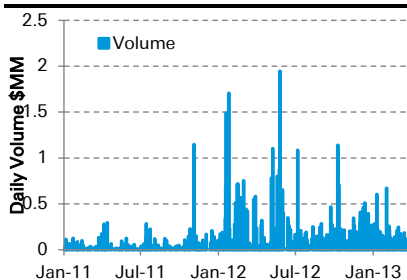
Tracking & Efficiency as of 19-Apr-13

Index Tracking	YTD	1 Month	3 Months	6 Months	1 Year	Inception
Ann. Tracking Error (NAV)	1.20%	1.32%	1.21%	1.21%	1.12%	3.65%
Perform. Difference (PD)	0.90%	0.40%	0.92%	0.99%	0.72%	-0.50%
PD/TER (0.55%) Ratio					1.31	(0.91)
Price/NAV spread	YTD	1 Month	3 Months	6 Months	1 Year	Inception
Range	4.1%	3.0%	3.9%	5.7%	6.6%	15.4%
Minimum	-1.7%	-0.8%	-1.7%	-1.7%	-2.5%	-5.1%
1st Quartile	0.6%	0.6%	0.6%	0.6%	0.5%	0.0%
Median	1.0%	0.9%	0.9%	1.0%	0.9%	0.7%
3rd Quartile	0.6%	0.6%	0.6%	0.6%	0.5%	0.0%
Maximum	2.4%	2.2%	2.2%	4.1%	4.1%	10.3%

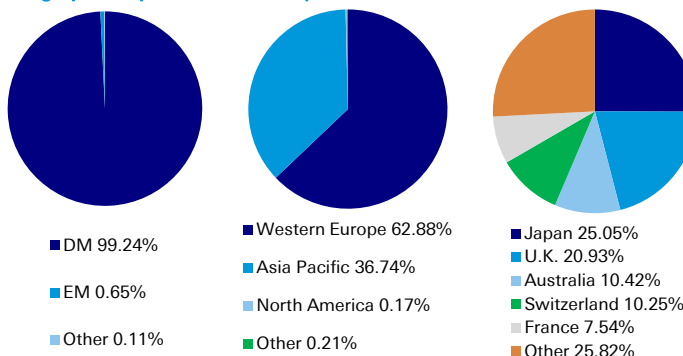


Trading & Liquidity as of 19-Apr-13

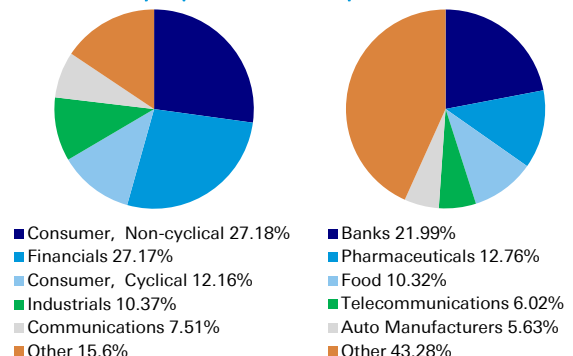
Secondary Market	Value	Primary Market	Value	Shorts	Value
20D ADV (Shr. K)	3.74	Implied Liquidity (ETF Shr. MM)	5.92	Short Interest (K) as of 28-Mar-2013	5.09
20D ADV \$MM	0.10	Implied Liquidity (\$MM)	153.1	SI as % of Shr. Out.	53.5%
Bid/Ask Spread \$	0.41	Creation Unit Size	50,000	Days to Cover	1.3
Bid/Ask Spread bps	155.7	C/R Process	In-kind/Cash	Borrow Rate (Annual)	4.3%
		C/R fee \$	1,800		
		Creation cutoff time	16:00 EST		



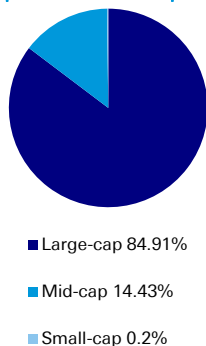
Geographic Exposure as of 19-Apr-2013



Sector & Industry Exposure as of 19-Apr-2013



Size Exposure as of 19-Apr-2013



Holding Analysis as of 19-Apr-13

Total # of Holdings	152
# of Holdings > 5%	-
% Hds > 5%	0.0%
Top 1 Hdng %	3.6%
Top 5 Hdng %	15.7%
Top 10 Hdng %	25.2%
Top 10 Holdings	Weight %
HSBC Holdings PLC	3.62%
Vodafone Group PLC	3.26%
Roche Holding AG	3.20%
Novartis AG	2.83%
GlaxoSmithKline PLC	2.74%
Commonwealth Bank of Australia	2.38%
Westpac Banking Corp	2.19%
BASF SE	1.70%
National Australia Bank Ltd	1.64%
Mitsubishi UFJ Financial Group	1.60%

Ownership Analysis as of 31-Dec-12

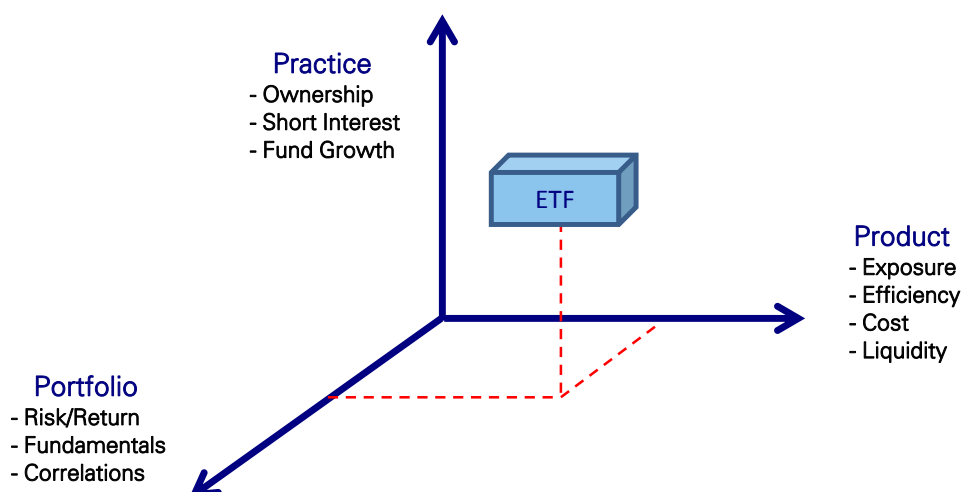
Fund Owners	% Ownership
Retail	73.4%
Institutional	26.6%
Owned by Top 5 Institutions	24.8%
Institutional Holder Types	% Ownership
Investment Adviser	21.8%
Broker	2.6%
Mutual Fund Manager	2.2%
Top 5 Institutional Holders	% Ownership
Pax World Management LLC	12.0%
Jane Street Capital LLC	5.5%
Wachovia Securities LLC	2.6%
Long Wharf Investors	2.4%
Columbia Management Investment Advisers	2.2%



Appendix A: the three “Ps” of ETF Selection

Our ETF Selection methodology involves three different dimensions of the ETF investment process. The first dimension we analyze is the Portfolio Dimension, the second one is the Product Dimension, and the last one is the Practice Dimension. We call our approach the three “Ps” of ETF Selection after each of these dimensions.

Figure A1: The three “Ps”, a three-dimensional ETF Selection process



Source: Deutsche Bank

Portfolio Dimension

The Portfolio Dimension seeks to provide useful information to determine whether an ETF adds value to the objectives of the investor’s portfolio. Basically, this step aims to provide answers to questions such as “Does this ETF help me to improve my portfolio’s risk-adjusted return?”, “Does this ETF provide further potential for diversification?” and “Is this ETF attractive in terms of yield or valuation?”

In order to explore this perspective we look at the following categories: Risk/Return profile, Fundamentals, and Correlations (Figure A2).

- **Risk/Return profile:** we explore the performance, the volatility, the beta, and the risk-adjusted return metrics of the product.
- **Fundamentals:** we look at relative valuation measures and dividend income at a fund level.
- **Correlations:** we look at correlations across peer group and major asset classes.



Figure A2: Portfolio Dimension – Analysis Metrics

Category	Item	Notes
Risk/Return Profile	NAV Total Return	Price + Dividend Reinvested
Risk/Return Profile	Price Total Return	Price + Dividend Reinvested
Risk/Return Profile	NAV Volatility	Daily returns annualized
Risk/Return Profile	Price Volatility	Daily returns annualized
Risk/Return Profile	Sharpe (NAV)	Annualized Reward/Risk ratio
Risk/Return Profile	Sharpe (Price)	Annualized Reward/Risk ratio
Risk/Return Profile	Maximum Drawdown (NAV)	
Risk/Return Profile	Maximum Drawdown (Price)	
Risk/Return Profile	Beta	ETF returns against benchmark returns
Risk/Return Profile	R-Squared	Coefficient of determination (quality of the beta)
Fundamentals	P/E trailing 12 M	Sum of Companies Current Market Value / Sum of Companies Latest 12M Earnings
Fundamentals	P/B	Sum of Companies Current Market Value / Sum of Companies Latest reported Book Value
Fundamentals	P/S	Sum of Companies Current Market Value / Sum of Companies Latest Sales
Fundamentals	Annual Ind. Dividend Yield	Current Price/ Latest distribution annualized
Fundamentals	12M Dividend Yield	Current Price/ distributions in the last 12M
Fundamentals	Dividend Growth Rate	Current Year's DPS/ Last Year's DPS -1
Correlations	Correlation	26 week rolling correlation of daily total returns.

Source: Deutsche Bank

Product Dimension

The Product Dimension seeks to provide specific information about the ETF features so the investor can identify appropriate choices. This step attempts to provide enough information to the investor so she can answer questions such as “Does this ETF provide the intended exposure?”, “Does this ETF achieve its stated objective efficiently?”, “How much does this ETF cost and is this cost reasonable for such a product?”, “How liquid is this ETF?” and “What is the actual liquidity of the product?”.

Within this perspective we explore the following aspects of an ETF: Exposure, Efficiency, Cost, and Liquidity (Figure A3).

- **Exposure:** we break down the data by different aggregation levels such as country, region, markets, size, sector, and sub sector; in addition, we look at the top holdings of the product and its respective concentration. Our exposure analysis is based on the ETF reported holdings instead of the index constituents to make the comparisons within the peer group more relevant.
- **Efficiency:** we look at efficiency from two angles: Tracking Efficiency and Price/NAV Spreads. Tracking Efficiency help us to measure the efficiency of the connection between the product and the underlying index; and Price/NAV Spreads help us to measure the efficiency of the connection between the ETF's primary and secondary market (i.e. NAV and price). For Tracking Efficiency we analyze tracking error based on standard deviation and performance difference. Furthermore we also measure performance difference as compared to TER to provide a gauge of the success of the fund in achieving its stated objective; a fund usually fulfills its objective if it underperforms its underlying index by an amount exact to the ETF's TER (i.e. a ratio of -1). For the Price/NAV Spreads we examine their distribution with focus on the range, and other key percentile levels.
- **Cost:** our main metric for cost is the Total Expense Ratio (TER). The TER is the all-in-one fee that an investor needs to bare for holding shares of the ETF. TERs usually include fees such as management fee, acquired fund fees and expenses, fee waiver, and other expenses. The fee is stated on an annual basis, but deducted proportionally from the fund assets on a daily basis.



- Liquidity:** we explore both liquidity dimensions available to ETF investors in order to provide a more comprehensive view of the liquidity picture. The first dimension is given by the ETF's primary market which translates into the liquidity of the underlying securities that constitute the product, accessible through the ETF Creation/Redemption process through Authorized Participants at NAV. The second dimension is given by the ETF's secondary market which is basically the liquidity of the ETF shares on the exchange, accessible through Broker/Dealers at market price. We measure primary liquidity by looking at the implied liquidity⁴ in terms of ETF shares and dollar value; while we gauge the secondary liquidity by evaluating the on-exchange ETF daily traded volume in dollar value, and the bid/ask spreads in terms of dollar value and bps.

Figure A3: Product Dimension - Analysis Metrics		
Category	Item	Notes
Exposure	Country	Latest reported by fund
Exposure	Region	Latest reported by fund
Exposure	DM/EM	Latest reported by fund
Exposure	Size	Latest reported by fund
Exposure	Sector	Latest reported by fund
Exposure	Sub Sector	Latest reported by fund
Exposure	Holding Analysis	Latest reported with SEC, # of Holdings, concentration
Exposure	Top 10 Holdings	Latest reported with SEC
Efficiency	Tracking Error (TE)	Annualized std. dev. of the difference between index and NAV daily total returns
Efficiency	Performance Difference (PD)	Difference between NAV and index total returns
Efficiency	PD / TER	PD divided by TER. -1 means the ETF met its stated objective.
Efficiency	Price/NAV Spread range	The range between the minimum discount and the maximum premium
Efficiency	Price/NAV Spread key percentiles	Minimum, 1st quartile, median, 3rd quartile, maximum
Cost	Total Expense Ratio (TER)	Annual all-in-one fee
Liquidity	Implied Liquidity (ETF Shares)	Current holdings, 30 Day ADV
Liquidity	Implied Liquidity (\$MM)	Implied Liquidity (ETF Shares) times ETF current price
Liquidity	20D ADV (Shr. K)	20 days. Average of daily volume shares
Liquidity	20D ADV \$MM	20 days. Average of daily volume times price
Liquidity	Bid/Ask Spread \$	5 day. Average of the daily average \$ spreads
Liquidity	Bid/Ask Spread bps	5 day. Average of the daily average bps spreads

Source: Deutsche Bank

Practice Dimension

The practice dimension tries to add another layer of metrics and analysis to help investors determine the suitability of the product with regards to the portfolio function that needs to be performed. This perspective focuses on the actual usage investors are giving to the product, or put in other words, on how investors use the ETF in practice. This dimension deals with questions of the type of "What is the best product to fulfill *portfolio function X*?" where portfolio function X could be strategic asset allocation, tactical asset allocation, cash management, or risk management. In addition, we explore other metrics to help investors answer other questions such as "which one is the most seasoned product?" or "which product has the biggest momentum?".

⁴ The Implied Liquidity measure is based on a calculation presented by David J. Abner in his book titled "The ETF Handbook: How to Value and Trade Exchange Traded Funds", 2010. The values are calculated by Bloomberg Finance LP and consist on calculating the liquidity constraints of the least liquid component in the Creation Unit basket considering a 25% of recent ADV.



Within the practice dimension we explore Ownership, Short Interest and Fund Growth metrics (Figure A4). Our previous research⁵ suggests that product usage can be inferred by evaluating some metrics related to Ownership and Short Interest. While fund growth is usually measured by asset-related figures.

- **Ownership:** we look at the breakdown between institutional and retail ownership based on SEC 13F filings and the SEC definition of institutional investor. In general, all ETFs can be good for asset allocation; however those ETFs used for portfolio functions beyond asset allocation have a higher institutional ownership.
- **Short Interest:** similarly a closer look at Days to Cover, Short Interest (SI) / Shares Outstanding (SO), and Avg. SI/SO can also help us to understand how the product is being used by investors. For example, a higher reading in any of these metrics increases the likelihood that the ETF is being used as a risk management tool; moreover those funds used as hedging tools can have very high readings (e.g. Days to Cover > 1, SI/SO > 100%).
- **Fund Growth:** we evaluate the growth of the product by looking at the current assets under management (AUM) and the 1 year cumulative net cash flows. Both of these metrics help us to assess how seasoned the fund is and what the recent momentum of the fund in terms of asset gathering is. A seasoned fund is a sign that the fund is an established product and is very unlikely to disappear (this is something important if you are thinking about investing in the mid or long term); in terms of assets we consider funds with more than \$100 million in AUM as being seasoned. On the momentum side, a fund with significant flows momentum is usually a sign of a product with good attributes (e.g. cheap, very liquid, better tracking efficiency, new asset class, etc)

Figure A4: Practice Dimension - Analysis Metrics		
Category	Item	Notes
Ownership	Institutional	Lastest reported with the SEC in 13F filings
Ownership	Retail	Lastest reported with the SEC in 13F filings
Ownership	Top Institutional Holder Types	Lastest reported with the SEC in 13F filings
Ownership	Top Institutional Holders	Lastest reported with the SEC in 13F filings
Short Interest	Short Interest	Latest number of shares shorted
Short Interest	Days To Cover	Latest SI / 30 Days ADV
Short Interest	Short Interest (SI) as % of Shares Outstanding (SO)	Latest SI / current SO
Short Interest	Borrow Rate	Annual borrow rate
Fund Growth	Cumulative Net CF \$MM	Cumulative net cashflow within period
Fund Growth	AUM \$MM	Current assets under management

Source: Deutsche Bank

⁵ See "US ETF Holder Demographics: Understanding ETF Usage" published on March 21st, 2012



Appendix 1

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Buy: Based on a current 12-month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus projected dividend yield), we recommend that investors buy the stock.

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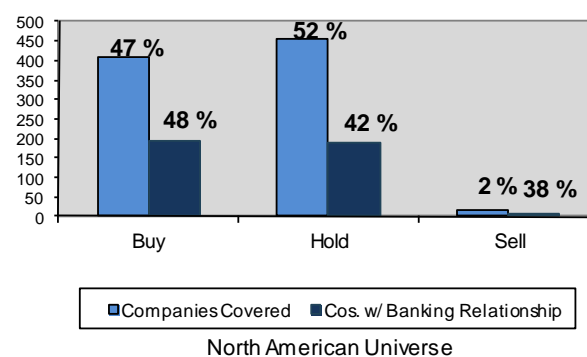
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