

Taking a Closer Look at Active Share

Erianna Khusainova, CFA, Senior Vice President

Juan Mier, Associate

The debate concerning the success of active management can be traced back several decades to the origins of modern finance. Active share has emerged as a new metric to assess active managers that focuses on how individual stock weights in a portfolio differ from the weights in a benchmark, providing an enhancement over traditional measures such as tracking error. The investment industry has embraced active share as an important addition to the toolkit for evaluating actively managed portfolios. A key conclusion from the academic paper that introduced this metric linked high active share portfolios to outperformance. This is intuitively supported by the notion that the only method of outperforming an index is to be different from it. In this paper we begin by introducing the concept of active share. Then we conduct an investigation of active share, performance, and fees for global and international equity funds, extending prior research focused on the United States. We also examine key considerations inherent to active share such as benchmark structure and the investment universe, which we believe are necessary for a more precise and insightful interpretation of active share across different portfolios.

One of the most widespread debates in the investment industry is concerned with the efficacy of active management. Studies addressing this question can be traced back to the late 1960s. Since then, the professional investment industry has advanced and evolved, but the debate of passive versus active strategies remains at the center of many investment decisions.

We want to point out that studies analyzing the performance of active management often group all active managers into a single universe. However, as we will explain, there are distinctions regarding the degree and process of active security selection among managers. In our view, it may be imprecise to separate managers only into active and passive without differentiating managers within the active camp. A 2006 working paper—ultimately published in 2009 by professors Martijn Cremers and Antti Petajisto then of the Yale School of Management—introduced a new statistic for measuring active management: active share. We should note that in 2010 Petajisto published a follow-up paper to the original study. Following both research pieces, active share has been well-received outside academia as a possible indicator of potential future outperformance. The concept of active share is intuitive and practical, which may help explain its wide acceptance. Active share is defined as the fraction of a portfolio or fund that is invested differently than its benchmark. More precisely, active share is calculated by, first, comparing each holding's weight in the portfolio and the benchmark and computing the absolute value of the difference between the weights and then, second, taking half the sum of these absolute active weights to represent the portfolio's active share. Conceptually, one should include cash or other securities that are part of the portfolio or part of the benchmark. With no short positions or leverage, active share will be between zero (the portfolio is identical to the benchmark) and 100% (the portfolio is entirely different from the benchmark). In Exhibit 1, we demonstrate this concept for a hypothetical portfolio with active share equal to 40%. Another way to think of this concept is that the portion of portfolio

assets deployed in the same way as the benchmark is equal to 100% minus the portfolio's active share. For example, an active share of 80% implies that 20% of the portfolio capital was invested in a similar way as the index.

As one can logically infer, the only way to outperform an index is to be different from it. Active managers attempt to do this through two main approaches. Stock selection is the first method, and can be defined as selecting individual stocks from a larger universe based on their potential ability to enhance portfolio return. It usually results in owning fewer stocks than those included in the benchmark and often investing in stocks outside of the benchmark. The second approach involves factor bets, which can be defined as overweighting or underweighting entire sectors, industries, or regions. An active manager using this approach will change the portfolio's weights based on his views on systematic economic risks. For example, a manager may overweight defensive or cyclical industries based purely on the particular economic outlook and personal views for these industries.

Traditionally, a portfolio's degree of active management has been measured by tracking error, which represents the standard deviation of the portfolio's excess returns relative to a benchmark. Another characteristic of tracking error is that it is based on a historical return series whereas active share is a snapshot at a given point in time. Due to its nature of computation, tracking error has the potential to be a better indicator of factor bets, (i.e., portfolios that take large factor bets are associated with high tracking error) and does not necessarily fully account for the degree of deviation of the portfolio's individual holdings relative to the benchmark. As a result, looking solely at this statistic can be misleading since low tracking error is not always indicative of a passive management style. For example, in a benchmark with 10 industries and 20 stocks in each, a portfolio could hold one stock in each industry, or primarily invest in securities not included in the benchmark, while keeping the same industry weights as the benchmark. This hypothetical portfolio would most likely generate a low

Exhibit 1
Active Share in a Hypothetical Portfolio

Security	Portfolio Weight [x] (%)	Index Weight [y] (%)	Active Weight [x] - [y] (%)	Absolute Value of Active Weight (%)
A	10	0	10	10
B	15	5	10	10
C	40	25	15	15
D	25	20	5	5
E	0	40	-40	40
F	10	10	0	0
Sum	100	100	0	80
			Active Share	40

For illustrative purposes only.

Active share is formally defined with the equation: $Active\ Share = \frac{1}{2} \sum_{i=1}^n |w_{fund,i} - w_{index,i}|$

tracking error due to similar industry bets even though the manager's stock positions are very different than the benchmark. On the other hand, a large tracking error can be generated through sizable factor bets without large deviations from benchmark holdings.

Active share has a better ability to capture effects of stock-picking actions and addresses the discussed limitations of tracking error as it looks at the positions relative to individual holdings. Together, these measurements complement each other to make a more robust assessment of an active manager's process. Using active share and tracking error and sorting funds according to quintiles in these dimensions, Petajisto (2010) created five categories that describe a fund's type of active management as illustrated in Exhibit 2. We would like to highlight that the "concentrated" category does not imply a small number

likely to outperform their benchmarks even on an after-fee basis as shown in Exhibit 3.

Furthermore, active share is a highly persistent indicator compared to other more volatile statistics, such as tracking error. As noted by the original authors "...Active Share this year is a very good predictor of Active Share next year and thereafter." (Cremers and Petajisto 2009). Although the authors relied on a rigorous analysis to make this conclusion—ranking the sample of mutual funds into active share deciles and observing that decile rankings do not change much—we believe a practical explanation also supports this. A stock picker's portfolio this year is unlikely to turn into an index fund in the next. This aspect of active share is valuable to an investor as stable statistics are helpful for a more confident assessment.

Exhibit 2
Active Management Categories Based on Active Share and Tracking Error

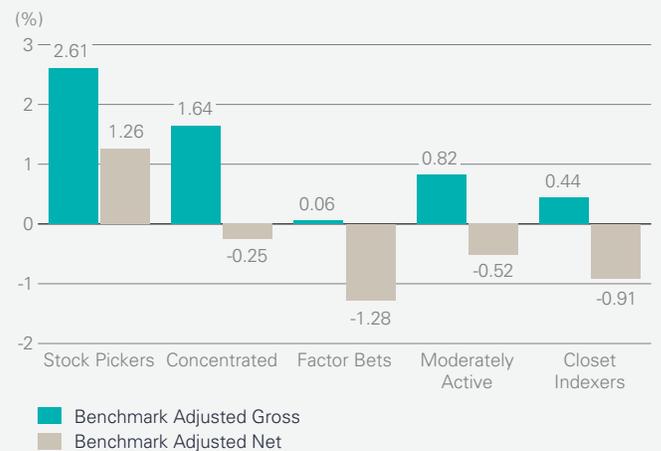
	Quintiles	
	Active Share	Tracking Error
Stock Pickers	5	1 to 4
Concentrated	5	5
Factor Bets	1 to 4	5
Moderately Active	2 to 4	1 to 4
Closet Indexers	1	1 to 4

5 Highest, 1 Lowest
Source: Petajisto (2010)

of holdings as used in other contexts, but rather this definition is for portfolios that combine active stock selection and factor bets (as evidenced by the highest quintile in both dimensions).

In their search for returns, one of the central dilemmas investors face is deciding whether to invest into active or passive strategies. The decision is further complicated by the need to discern truly active managers. Manager selection becomes substantially more complex given the multitude of characteristics that define the investment style of an active manager, as investors attempt to select the manager who will outperform. However evaluating managers based purely on past returns is a deficient approach given that short-term volatility shocks may affect a manager's performance due to factors unrelated to the underlying investment theses that need time to materialize. The nature of last period's returns may be significantly different from the next while, in our opinion, periods of short-term underperformance are inherent to any investment process. Extrapolating from past returns to derive hypothetical expected performance values may require adjustment for a variety of risk and cyclical factors—an exercise prone to error and inconclusive results. Against this backdrop active share can become a useful indicator of a portfolio's propensity to outperform its benchmark. As both studies (Cremers and Petajisto 2009 and Petajisto 2010) demonstrated, portfolios with high active share were more

Exhibit 3
Annualized Performance by Active Management Categories



For the period 1990 to 2009

For illustrative purposes only. Past performance is not a reliable indicator of future performance. The data in the chart above is not meant to represent any product or strategy managed by Lazard.

Data are based on US all-equity mutual funds. Index funds, sector funds, and funds with less than \$10 million in assets have been excluded.

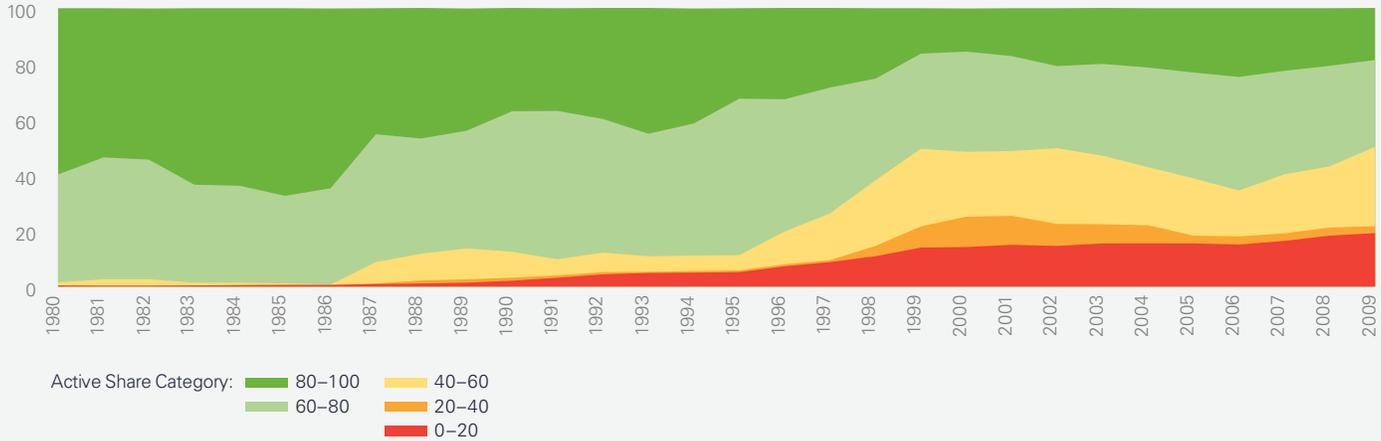
Source: Petajisto (2010)

"Passive" Managers Presenting Themselves as "Active"

Many active managers appear to underperform a passive benchmark on an after-fee basis. However, one of the reasons explaining this result is the inclusion of "closet indexers" in the studied universe of active managers. Loosely defined, closet indexers are funds that closely track a benchmark while at the same time claiming to be active. These funds may prove to be substantially expensive investments as they charge active management fees while generating performance that resembles a passive strategy. Active share functions as a useful measure to identify closet indexers. Although strict thresholds are difficult to define (and should be adjusted up or down depending on many factors such as the structure of a benchmark index or the portfolio construction process),

**Exhibit 4
Rise in Closet Indexing**

Fraction of assets in US all-equity mutual funds by active share category (%)



Source: Petajisto (2010)

Cremers and Petajisto set the active share cutoff at 60%, for a US mutual fund universe, meaning that funds with active share below this threshold are potential closet indexers. An important observation is that based on active share, the percentage of closet indexers, in the mutual fund sample studied, has grown dramatically from about 1% in 1980 to nearly 30% in 2009, as shown in Exhibit 4. There are numerous plausible factors that may explain this trend, but these fall beyond the scope of our analysis.

Although active managers may be able to generate positive returns and outpace passive strategies, ultimately investors are concerned with returns after management fees. As such, it is instructive to examine the average fees (expense ratio) by each category as shown in Exhibit 5. A reasonable assumption would be to expect that fees rise with the increase in active share—implying that investors pay more fees as the degree of active stock selection increases—but this is not the case. From the table, we observe that there is no strict linearity in the expense ratios as we move up into the higher active share categories (as the concentrated category has a slightly higher expense ratio than stock pickers): closet indexers are indeed the least expensive among the five

categories but are relatively costly investments when compared to passive index funds. The average expense ratio in 2011 for index equity funds was approximately 14 basis points, per data from the Investment Company Institute.

Active Share in Global and International Mutual Funds

We now would like to shift focus to an examination of mutual funds and active share beyond US all-equity funds. Using data from Morningstar, we selected actively managed funds in the global and international equity universes (the resulting sample included 200 funds) and calculated 5-year averages for expense ratios and active share at year-end 2011. We then obtained the 5-year annualized net and gross returns, reported on Morningstar, relative to each fund’s benchmark and ranked the funds according to active share quintiles. In the next step, we computed the average gross and net excess returns, as well as the average expense ratio for each quintile. This simplified methodology allowed us to test the properties of active share and performance in another investment universe.

Indeed, the highest active share quintile in our sample corresponds to the highest average outperformance result, as highlighted in Exhibit 6. The pattern of results is consistent with active share literature. Perhaps this statement may not surprise some observers as the intuition behind active share should be valid across differing investment universes. It is also interesting to note that the results from our investigation do not show that the funds in the highest active share quintile are, on average, the most expensive.

Based on our analysis for global and international mutual funds, those with active share below 70% fall into the lowest quintile (least active funds). This contrasts with the previously described threshold of 60%

**Exhibit 5
Active Share Categories and Expense Ratios 1990–2009**

Active Share	Category	Average Expense Ratio (%)
↑ High	Stock Pickers	1.41
	Concentrated	1.60
	Factor Bets	1.34
	Moderately Active	1.25
	Low	Closet Indexers

Source: Petajisto (2010)

Exhibit 6 Active Share, Fees, and Performance for Global and International Funds

Active Share Quintile	Average Active share (%)	Gross Return (%)	Net Return (%)	Expense Ratio (%)
High	92.8	2.33	1.17	1.18
	86.2	1.69	0.44	1.28
	81.1	1.52	0.37	1.19
	75.1	1.26	0.17	1.13
Low	59.3	0.10	-0.95	1.11

For the period 2007 to 2011

Data are based on funds using the following prospectus benchmarks: MSCI ACWI ex-US, MSCI EAFE, MSCI ACWI, and MSCI World. Index funds, fund of funds, and enhanced index funds were excluded. For illustrative purposes only. Past performance is not a reliable indicator of future performance. The data in the chart above is not meant to represent any product or strategy managed by Lazard.

Source: Morningstar

(in a US equity mutual fund universe) to spot closet indexers. We emphasize that these thresholds are guidelines rather than strict pass/fail tests. As we study other investment universes the interpretation of active share is more nuanced. We believe it is compelling to extend this kind of empirical test across other asset classes or investment universes that would perhaps help refine global criteria for interpreting active share. Of particular interest would be to extend further tests across emerging markets and other investment universes with constituent-light and -heavy benchmarks (more on benchmark characteristics later).

In the next section we turn to examine some of the key considerations for a more refined interpretation of active share.

Considerations for Evaluating Active Share

From our discussion thus far, it seems that searching for successful managers has been enhanced by considering active share. For funds with low active share (e.g., below the 60% guideline in the case of US equity mutual funds) active share is a good indicator of a potential closet indexer and, therefore, a potentially expensive investment. While the immediate implication will be to seek only managers with very high active share, we believe investors should not rush to conclusions based solely on this proposed threshold in every investment universe and circumstance. As mentioned earlier, active share is impacted by a number of factors that will affect its attainable levels. Benchmark selection and its structure, breadth of investable universe, and portfolio construction process are all of significant importance for the accurate interpretation of active share.

Benchmark Selection and Structure

Active share across funds with a similar investment style may not be directly comparable if they are computed against different indices. This is due to the fact that indices have a widely varying number of constituents, distinct weighting methodologies, and different concentration levels. Depending on the index used, the same portfolio can attain a significantly different active share. Using an inappropriate benchmark that is not reflective of a portfolio's investment universe, market-capitalization spectrum, style, or asset class will result in artificially inflated active share due to fewer overlapping holdings and dominance of false "active bets." As such, an investor should be aware of benchmark inputs when comparing active share in a cross section of portfolios of the same style.

It would be helpful to note that in the case of a legitimate benchmark selection, the structure of some indices predisposes them to elevated active share levels. Generally, this will include broad, constituent-heavy, less-concentrated indices serving as a proxy for global, small-cap and fixed income universes.

For example, compare the MSCI All Country World Index (ACWI) consisting of 2431 constituents with the MSCI Emerging Markets Latin America Index composed of only 145 constituents. A manager benchmarked to the former index has a greater opportunity set to find compelling stocks to overweight and greater number of stocks to forgo than one using the latter index. So the manager in the ACWI universe will be in a more advantageous position to score a high active share. Consequently, the ranges defining closet indexers should be re-evaluated upward for funds using constituent-heavy benchmarks to offset this structural bias.

Additionally, indices with fewer constituents tend to concentrate a larger portion of the total market capitalization in fewer holdings relative to broad indices. In Exhibit 7, we show the number of constit-

Exhibit 7 Number of Constituents and Concentration Impact Active Share

Benchmark	Weight in Largest 20 Holdings (%)	Number of Constituents
FTSE NAREIT All Equity REITs Index	60.78	131
MSCI EM Latin America Index	53.18	145
S&P 500 Index	31.03	500
MSCI Emerging Markets Index	24.81	821
MSCI EAFE Index	21.68	909
MSCI ACWI	14.12	2431
Russell 2500	5.24	2478

As of December 2012

Source: FactSet

uents and the percentage of the total index weight concentrated in the largest 20 holdings for select indices. We observe that the top twenty holdings of the FTSE NAREIT All Equity REITs Index represent over 60% of the market capitalization of this index. Contrast that with just a 5% concentration represented by the top twenty securities in the Russell 2500 Index.

Consequently, the combination of high concentration in fewer stocks along with a smaller number of constituents poses a greater challenge to increase active share for the fund manager employing such a benchmark versus using one with the opposite characteristics.

Breadth of the Investable Universe

A small investable universe is another factor that can lead to artificially low active share. Fewer investment choices naturally limit a manager's ability to have significantly different stock positions across available securities, both within and outside of the benchmark. In some instances, the out-of-benchmark universe can be growing but while it is evolving into a broader universe some attractive individual stocks may not meet all the investable requirements to be considered for inclusion into the portfolio. Therefore, attaining a high active share in a small universe may simply not be feasible, and the ranges defining closet indexers should be re-evaluated downward.

Portfolio Construction Process

Active share is also susceptible to the dynamics of the individual portfolio construction process. If the manager finds attractive investment opportunities in the large-capitalization space, overweighting the larger capitalization spectrum will most likely produce lower active share relative to the portfolio which gravitates toward overweighting the small- and mid-capitalization spectrum using the same benchmark. The reason is similar to the one related to expressing a bullish view on a position that has a large weight in the index—it requires deployment of a good amount of portfolio capital with limited ability to generate high active weight.

In Exhibit 8 we provide a more detailed example of two hypothetical portfolios that hold the same number of stocks and are benchmark-aware to the Russell 1000 Value Index (given that this index holds stocks across different market capitalizations). The table shows a breakdown of the number of securities and total weights by different market capitalization segments for the portfolios and the benchmark. Within the index, the small- and mid-capitalization spectrum (less than \$10 billion market capitalization) includes more securities (534) than the total number of stocks with market cap over \$40 billion (26), more than a tenfold difference. In our example, Portfolio B is better positioned for higher active share relative to Portfolio A, based on B's allocation to the smallest market-capitalization spectrum, which includes a larger number of stocks with smaller average weight, thus increasing the opportunity set of securities to overweight and, consequently, active share. In contrast, a portfolio targeting the larger market capitalization segments will need more resources and may have a smaller universe of stocks from which to select for active overweighting. Hence, when comparing different managers, we believe it is extremely important to understand how their investment views affected the portfolio composition for a more comprehensive assessment of their respective active share.

We stress that the proposed thresholds in the study by Cremers and Petajisto defining high and low active share are based on a universe of US equity mutual funds and were not formally defined for additional investment universes. Based on the above discussion, they should serve as guidelines even though conceptually it remains valid that high active share (measured relative to a peer group) reflects less overlap with the benchmark and potentially represents portfolios that are well-positioned to outperform the benchmark, as also confirmed by the pattern of results using our simplified methodology for global and international funds.

Exhibit 8
Contrasting Weights and Concentration by Market Capitalization for Two Hypothetical Portfolios

Market Capitalization (\$ billion)	Portfolio A		Portfolio B		Russell 1000 Value Index	
	Weight (%)	Number of Securities	Weight (%)	Number of Securities	Weight (%)	Number of Securities
> 40	45.00	24	18.00	13	42.40	26
20 to 40	33.00	36	31.00	25	18.60	52
10 to 20	14.00	8	23.00	19	16.00	84
0 to 10	8.00	12	28.00	23	23.00	534
Total	100.00	80	100.00	80	100.00	696

As of December 2012

For illustrative purposes only. Allocations are subject to change. The data in the chart above is not meant to represent any product or strategy managed by Lazard.

Source: FactSet

Conclusion

Financial markets are becoming increasingly complex while portfolio managers seek to outperform passive benchmarks by blending together many fields of human expertise. Therefore it appears natural that investors search for tools that would proactively identify investment managers that have the potential to become future “winners.”

Rooted in the assertion that the only way to outperform a benchmark is to be different from it, active share captures this idea in a concise measure by comparing portfolio holdings, and their size, to benchmark holdings. Simple, intuitive, and persistent over time, active share introduces another dimension in the evaluation of active management previously not captured by the traditional, historical returns-based measure—tracking error. While the latter has a great propensity to serve as a proxy for factor bets, we believe managers with a stock-picking investment philosophy would benefit from improved analysis supplemented with the former measure that is a good proxy for stock selection.

Our internal analysis of the active share concept in other fund universes, revealed that the pattern of results in global and international funds is consistent, at least on the surface, with active share findings in the US mutual fund universe (i.e., the funds with the highest active share demonstrated the highest potential outperformance results).

That said, there are some key considerations that need to be taken into account when evaluating active share across different portfolios. The benchmark itself is one of the crucial factors that impacts the resulting portfolio active share. Selecting an appropriate index along with a more in-depth analysis of the benchmark’s structure is desirable for a more precise interpretation of active share. Other factors like the size of the investment universe and the portfolio construction process must also be taken into account for a refined analysis.

Based on Cremers and Petajisto’s key research conclusion that high active share is more likely to identify a manager’s potential to generate high active return and outperform a passive benchmark, even on an after-fee basis, the new measure has been widely adopted by the investment industry as another practical tool helping with the effort of identifying truly active managers.

References

- Creemers, K.J. Martijn and Antti Petajisto. "How Active Is Your Fund Manager? A New Measure That Predicts Performance." *Review of Financial Studies*, September 2009.
- Fama, Eugene and Kenneth French. "Luck versus Skill in Mutual Fund Performance." *Dimensional Fund Advisors Fama/French Forum*, November 2009: <http://www.dimensional.com/fama-french/2009/11/luck-versus-skill-in-mutual-fund-performance-1.html>
- Jensen, Michael C. "The Performance of Mutual Funds in the Period 1945–1964." *Journal of Finance*, 1968.
- Kosowski, Robert, Allan Timmermann, Russ Wermers, and Hal White. "Can Mutual Fund 'Stars' Really Pick Stocks? New Evidence from a Bootstrap Analysis." *Journal of Finance*, December 2006.
- Investment Company Institute. "2012 Investment Company Fact Book." 52nd Edition, 2012.
- Mauboussin, Michael. "Seeking Portfolio Manager Skill." *Legg Mason Capital Management*, February 2012.
- Petajisto, Antti. "Active Share and Mutual Fund Performance" December 2010. Available at SSRN: <http://ssrn.com/abstract=1685942> or <http://dx.doi.org/10.2139/ssrn.1685942>

Important Information

Published on 14 September 2017.

This document reflects the views of Lazard Asset Management LLC or its affiliates ("Lazard") based upon information believed to be reliable as of 6 March 2013. There is no guarantee that any forecast or opinion will be realized. This document is provided by Lazard Asset Management LLC or its affiliates ("Lazard") for informational purposes only. Nothing herein constitutes investment advice or a recommendation relating to any security, commodity, derivative, investment management service or investment product. Investments in securities, derivatives, and commodities involve risk, will fluctuate in price, and may result in losses. Certain assets held in Lazard's investment portfolios, in particular alternative investment portfolios, can involve high degrees of risk and volatility when compared to other assets. Similarly, certain assets held in Lazard's investment portfolios may trade in less liquid or efficient markets, which can affect investment performance. Past performance does not guarantee future results. The views expressed herein are subject to change, and may differ from the views of other Lazard investment professionals.

This document is intended only for persons residing in jurisdictions where its distribution or availability is consistent with local laws and Lazard's local regulatory authorizations. Please visit www.lazardassetmanagement.com/globaldisclosure for the specific Lazard entities that have issued this document and the scope of their authorized activities.

MSCI makes no express or implied warranties or representations and shall have no liability whatsoever with respect to any MSCI data contained herein. The MSCI data may not be further redistributed or used as a basis for other indices or any securities or financial products. This report is not approved, reviewed, or produced by MSCI.

© 2013 Morningstar, Inc. All rights reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete, or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information.