Reporting with Fair Value Adjusted Indexes!

Introducing the New MSCI Indexes with IDCo Fair Value Pricing

July 2014

Introduction

Nearly all U.S.-domiciled international equity mutual funds use fair value methodologies to adjust their daily net asset value (NAV). Benchmarks for these funds, on the other hand, typically have been calculated using local closing prices only, resulting in artificial tracking error when comparing a fund's fair value-adjusted NAV to an index. This tracking error has been difficult to explain to mutual fund clients and impaired comparability between funds and their benchmarks. Arguments calling for constructing indexes incorporating fair value adjustments go back to at least 2002 (Madhavan, 2002, Haddad 2008).

In this Research Bulletin, we examine how the newly launched MSCI Indexes with IDCo Fair Value Pricing help address this issue. We first describe what fair value pricing is, how fair value models work and how mutual funds use them. We then cover considerations for designing an index methodology incorporating fair value adjustments and finally review the tracking error reduction benefits that MSCI Indexes with IDCo Fair Value Pricing offer clients.

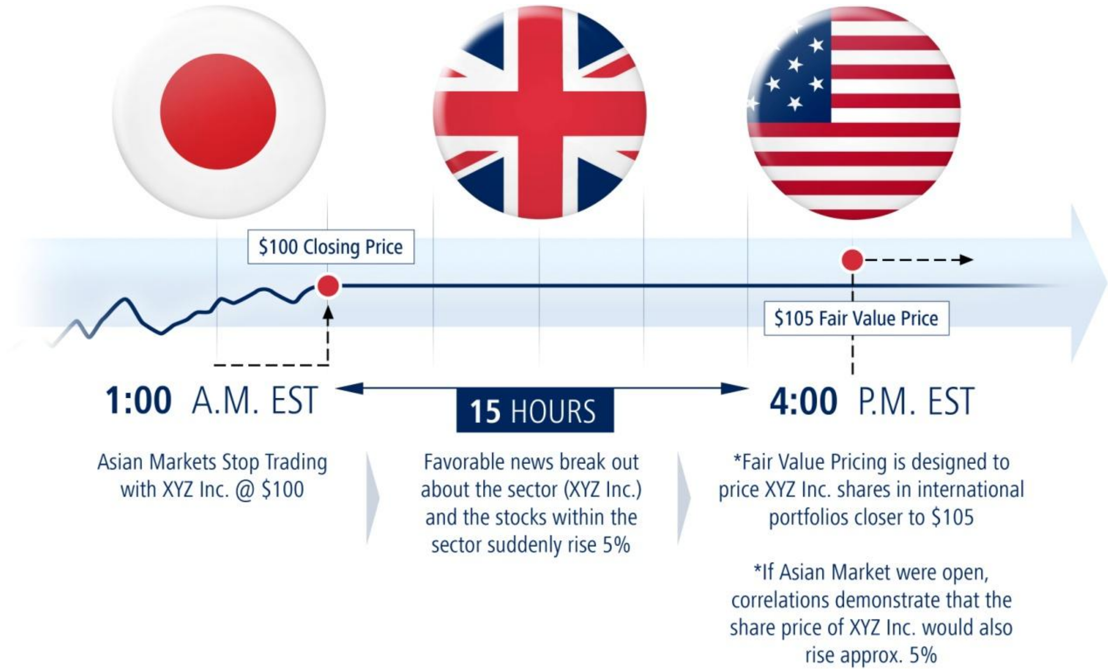
What is Fair Value Pricing?

Following the mutual fund market-timing scandals of 2001 and 2002, the Securities and Exchange Commission required U.S. mutual funds to establish policies to use fair value pricing when the value of securities had changed since their last market close. This situation occurs most commonly for securities traded in foreign markets where new market information surfaces *after* the close of the local market but *before* the fund's NAV is set at the New York Stock Exchange's close. Thus, the closing market price no longer reflects the current value of those securities when the fund prices its shares.[1]

Exhibit 1 illustrates the concept of fair value pricing. Imagine that a U.S. mutual fund holds a Japanese stock XYZ Inc. that traded at a price equivalent to USD $100 at the close of the Tokyo Stock Exchange (1 AM ET). Favorable news emerges about the sector in which XYZ Inc. operates after the TSE close; stocks in that sector in Europe and the Americas rise by 5%. Had the Asian markets been open, the share price of XYZ Inc. likely would have increased. It is also very likely, all else being equal, that XYZ Inc. would open higher in Tokyo the next day than its previous close.

[1] http://www.sec.gov/rules/final/ia-2204.htm

Exhibit 1: Fair Value Hypothetical Example



If the fund holding this asset used the local closing price of USD $100 for XYZ Inc. when determining its NAV, market timers could acquire this stock at a stale price via the fund and reverse their position the next day. This short-term trade would secure a likely profit to the arbitrageur at the expense of long-term investors in the fund. To limit these effects, the fund should adjust the local closing price of XYZ Inc. to reflect the information available at 4PM ET—that is, the stock's current fair value. In this example, the fund could price XYZ Inc. closer to USD $105.

Fair Value Models

Nearly all U.S.-domiciled international equity mutual funds have adopted fair value policies. When Deloitte first surveyed fair value accounting practices in 2001, only a few funds adjusted foreign stock prices for such valuation shifts. By the 2012's survey, nearly all international funds had adopted fair value in some form.

Mutual funds often subscribe to a fair value information service from a third-party provider to calculate their NAV. These providers typically use multi-factor models to determine security level fair value adjustment factors.

Fair value models aim to estimate the fair value adjustments for stocks in markets that are closed based on information from markets that are open. For example, some of the factor categories used in the Interactive Data Fair Value Information Service include:

- Country / Regional Factors (Futures / ETFs)
- Sector-Specific Factors (Sector Indexes)
- Security-Specific Factors (ADRs)
- FX Rate Movements

The main goal of a fair value model is to reduce time zone arbitrage possibilities, ensuring that shareholders are not diluted. To achieve this, the spread between the fair value price at the NYSE's 4 PM ET close and the next day's local opening price should not be easily predictable. Exhibit 2 illustrates how average daily arbitrage opportunities for the MSCI EAFE Index[2], can be slashed, based on a hypothetical strategy. Under this hypothetical strategy, the arbitrageur would buy the MSCI EAFE Index constituents at the stale local closing price if the MSCI USA Index return from 9.30 AM ET to 4 PM ET is positive and reverse the position at the next day's local market open[3]. The underlying assumption is that if the U.S. market is up in intraday trading, it is likely to influence the opening of foreign markets the following day.

Exhibit 2: MSCI EAFE Index, Average Daily Arbitrage Return (%)

Simulation period: November 2007 – March 2014. Calculated as a weighted average return by country in local currency.
Source: MSCI, Interactive Data

Executing this strategy where a mutual fund uses local closing prices would have led to a significant average daily return of 37 basis points for the arbitrageur. If fair value prices are used instead, this return becomes insignificant.

Fair Value Adjustments and Benchmarks

Although most international mutual funds use fair value adjustments for their NAV calculation, their benchmarks typically are calculated using local closing prices only, resulting in a mismatch between the two. This artificial tracking error is often difficult to explain to mutual funds' stakeholders who may not be familiar with fair valuation issues.

As a recent example, U.S. stocks ended 2012 with a 1%-plus rally on December 31, after markets in Asia and Europe already had closed. As a consequence, international mutual funds adjusted their NAV upwards relative to indexes calculated using local closing prices. This action caused these funds to outperform their benchmarks on paper in 2012 and then systematically report year-to-date underperformance throughout 2013. For example, the top ten U.S.-domiciled mutual funds ranked by assets benchmarked to the MSCI EAFE Index[4] had an average return of 21.5% in 2013 compared to

[2] An equity index consisting of developed market countries around the world excluding the United States and Canada

[3] The reverse strategy could be applied if the MSCI USA return was negative

[4] Source: Bloomberg for fund screening, Lipper for NAV data.

22.8% for the benchmark. Although some of this performance difference is normal and due to funds taking active risks vs their benchmarks, the bulk of it came simply from fair value accounting.

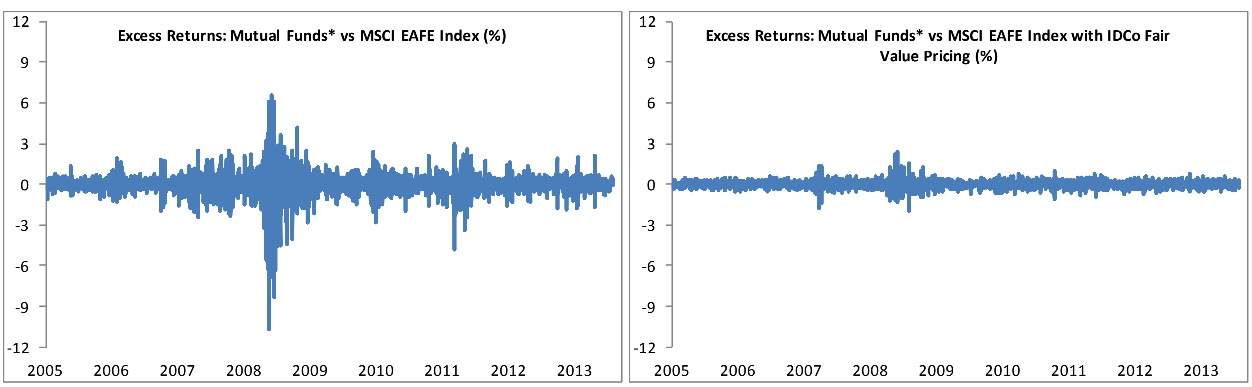
To address this issue, one can apply fair value adjustments to the index itself. The MSCI Indexes with IDCo Fair Value Pricing are designed to make it easier and simpler for active mutual fund managers, pension plan sponsors and consultants to explain artificial tracking error between a fund's fair value-adjusted NAV and an index calculated using closing prices. They are calculated daily using the following process:

1. Calculate the index based on closing prices at 4 PM British Time at the WM/Reuters spot exchange rates and derive the rebalanced security weights
2. Calculate the fair value return for each stock from the local close to the fair valuation point using fair value adjustment factors provided by Interactive Data's Fair Value Information Service at 4 PM Eastern Time at the WM/Reuters spot exchange rates[5]
3. Derive the index level fair value adjustment as a weighted average stock level fair value return

The simulated MSCI EAFE Index with IDCo Fair Value Pricing returned 21.7% in 2013, far closer to the 21.5% average return for mutual funds last year than the 22.8% index return based on local closing prices.

Although most problematic at year-end, distortions in tracking error due to fair valuation happen relatively often. Exhibit 3 shows the average excess daily return of our sample of top 10 EAFE-benchmarked funds over both the MSCI EAFE Index and the simulated index with IDCo Fair Value Pricing. The dispersion of returns is significantly lower when using fair value adjustments. The most significant reduction in tracking is observed over periods with high volatility: The maximum absolute daily return difference of the average mutual fund return, using local closing prices when calculating the index, is 10.7%; in comparison, the return difference is only 2.3% when using fair value adjustments.

Exhibit 3: Excess returns of mutual funds relative to the MSCI EAFE Index and the MSCI EAFE Index with IDCo Fair Value Pricing



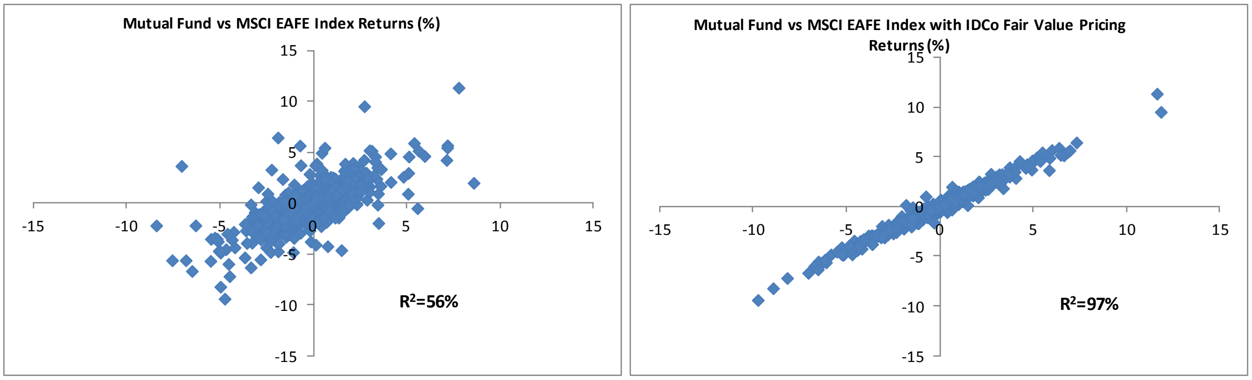
Source: MSCI, Interactive Data, Bloomberg, Lipper

Exhibit 4 shows the scatter plot of the average daily returns of the 10 mutual funds in the sample compared to the MSCI EAFE Index and the MSCI EAFE Index with IDCo Fair Value Pricing: 97% of return

[5] Stocks with no fair value data provided (for example, recent IPOs with insufficient trade history to derive a fair value adjustment factor) are not fair value-adjusted.

variability is explained when using fair value adjustments compared to only 56% for the benchmark based on local closing prices. This result demonstrates that an index incorporating fair value adjustments is an effective tool at reducing this perceived tracking error.

Exhibit 4: Daily mutual fund returns vs MSCI EAFE Index and the MSCI EAFE Index with IDCo Fair Value Pricing returns



Source: MSCI, Interactive Data, Bloomberg, Lipper

While most mutual funds use third-party providers for fair valuations, this data are only considered as inputs in the process, and the ultimate responsibility for the fair valuation policy remains with the fund's board of directors. This policy may vary from fund to fund. For example, funds may use several providers of fair value data with different fair valuation models at the same time. Another important difference might come from the usage of confidence levels and triggers: A fund may choose to fair value adjust a security only if the corresponding fair value adjustment factor is provided at a sufficient confidence level (e.g., 90%), or use fair valuation for its NAV calculation at the fund level only on days when there are significant events, e.g., when the change in a reference index exceeds a certain threshold. For these reasons, tracking error due to fair valuations may not be completely eliminated if the fund uses a different fair valuation methodology than the index (applying fair valuations every day, for every security). That being said, using different confidence levels typically has an insignificant impact on unexplained tracking error for broad indexes (less than 1 bps for the MSCI EAFE Index with IDCo Fair Value Pricing[6]). Funds using thresholds may observe larger differences between their returns and fair value adjusted indexes using a zero threshold, however, most of the reporting difficulties arise from comparisons between a fair value adjusted fund and an index calculated without any fair value adjustments at all.

Deloitte has been conducting a regular survey of fair value practices since 2001. A significant evolution worth highlighting over the years has been the increase in the number of mutual funds that have a "zero trigger" policy, i.e., they adjust their portfolios every day. In their first survey, none of the funds applied zero triggers. In the 2013 survey, 35% to 45% of respondents adjusted their portfolios to fair value every day similar to the methodology used in the construction of the MSCI Indexes with IDCo Fair Value Pricing. This group also comprised the largest category. Among funds that do not adjust for fair value every day, the trigger itself (definition of the benchmark and timing) and its level can vary considerably (Interactive Data, 2013).

[6] Daily standard return deviation between November 2007 – October 2013, calculated as a weighted average tracking error by country

Conclusion

U.S. mutual funds holding foreign assets have to adjust their prices to the information available at the time of the fund's NAV calculation from the time local markets closed. This practice, however, creates an artificial tracking error when comparing fair value-adjusted fund performance with benchmarks based on closing prices. Indexes incorporating fair value adjustments, such as the MSCI Indexes with IDCo Fair Value Pricing, are an effective tool to help explain this perceived tracking error to mutual fund stakeholders and to simplify fund reporting.

References

Constructing Fair Value Adjusted Indexes, A. Madhavan, 2002

Apples-to-Oranges? Reducing Tracking Error Noise with Fair Value Adjusted Benchmark Indices, R. Haddad, 2008

Fair Value Pricing Survey, Eleventh Edition, Deloitte, 2013

2013 Fair Value Practices Survey Results, Interactive Data, 2013

Client Service Information is Available 24 Hours a Day

clientservice@msci.com

Americas

Americas	1.888.588.4567 (toll free)
Atlanta	+ 1.404.551.3212
Boston	+ 1.617.532.0920
Chicago	+ 1.312.675.0545
Montreal	+ 1.514.847.7506
Monterrey	+ 52.81.1253.4020
New York	+ 1.212.804.3901
San Francisco	+ 1.415.836.8800
Sao Paulo	+ 55.11.3706.1360
Stamford	+1.203.325.5630
Toronto	+ 1.416.628.1007

Europe, Middle East & Africa

Amsterdam	+ 31.20.462.1382
Cape Town	+ 27.21.673.0100
Frankfurt	+ 49.69.133.859.00
Geneva	+ 41.22.817.9777
London	+ 44.20.7618.2222
Madrid	+ 34.91.700.7275
Milan	+ 39.02.5849.0415
Paris	0800.91.59.17 (toll free)
Zurich	+ 41.44.220.9300

Asia Pacific

China North	10800.852.1032 (toll free)
China South	10800.152.1032 (toll free)
Hong Kong	+ 852.2844.9333
Seoul	+827.0768.88984
Singapore	800.852.3749 (toll free)
Sydney	+ 61.2.9033.9333
Tokyo	+ 81.3.5226.8222

Notice and Disclaimer

About MSCI

MSCI Inc. is a leading provider of investment decision support tools to investors globally, including asset managers, banks, hedge funds and pension funds. MSCI products and services include indexes, portfolio risk and performance analytics, and ESG data and research.

The company's flagship product offerings are: the MSCI indexes with approximately USD 8 trillion estimated to be benchmarked to them on a worldwide basis1; Barra multi-asset class factor models, portfolio risk and performance analytics; RiskMetrics multi-asset class market and credit risk analytics; IPD real estate information, indexes and analytics; MSCI ESG (environmental, social and governance) Research screening, analysis and ratings; and FEA valuation models and risk management software for the energy and commodities markets. MSCI is headquartered in New York, with research and commercial offices around the world.

[1] *As of September 30, 2013, as reported on January 31, 2014 by eVestment, Lipper and Bloomberg* *May 2014*