

Are All Market Indexes Created Equal?

Over the past few years, the industry has witnessed a significant increase in the cost for market data, especially in the form of market indexes. Although some investors assume that market indexes are “free” because they are easily viewed on the Internet, in fact, market data providers incur costs to develop and maintain the indexes, and thus charge fees for the licensing and redistribution of index data. These costs have risen to the point where it is now quite common for custodians to pass them along to their clients. While in the past the reporting and distribution of index data might have been seen as a “cost of doing business,” this is no longer possible due to the rising costs.

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Even as many of the major index providers have increased fees, the market has seen a simultaneous emergence of low-cost providers. As the index landscape expands with more options, the challenge for investors is to determine whether each offering, high or low cost, provides a comparable level of market assessment. In this paper, the authors seek to address this issue by comparing several available indexes for both the global and U.S. equity markets. Their goal was to ascertain how closely related each index is to the others, based on their published methodologies and statistical comparisons. By providing a framework for the comparison of indexes, this research will help investors answer critical questions when evaluating index options, including: When could

a lower cost benchmark function effectively? And when is a higher cost benchmark important because of specific construction methodologies, maintenance processes, or a particular brand value?

BACKGROUND

The Benchmark Selection Process

Market indexes are used by a variety of participants in the industry, including:

- Asset managers ("buy-side"), who frequently use market indexes to structure passive strategy invest-

ments, compare the success of their active or passive investment approaches, and analyze the contributors to performance through performance attribution techniques;

- Asset owners (e.g., pension funds, endowments, foundations, corporations, family offices, and individuals), who use market indexes to gauge the success of their managers, as well as their own success in making allocation and manager selection decisions;
- Investment consultants or advisers, who use indexes to represent asset classes in asset allocation optimization analysis;
- Financial institutions (“sell-side”), who may use indexes as a component of a specific trade they offer to their trading counterparties; and
- Custodians, who provide market indexes along with other information to their asset manager and asset owner clients in support of investment performance analysis.

As such, both asset owners and asset managers are frequent participants in the benchmark selection process. Asset owners, often with guidance from their investment consultant, select the benchmark they believe best represents the target market or segment of the markets. Asset managers select a benchmark for marketing purposes, and they are incented to structure or compare their strategies relative to the most common benchmarks to facilitate inclusion in manager searches. Additionally, an asset manager will look to use a benchmark that represents the best opportunity set for their strategy; the pool of securities from which they select to build their portfolio. This is particularly true of quantitative strategies where a manager may use the benchmark constituents in the first step of an optimization process to construct their portfolio using a factor-based approach.

Depending upon how active or passive the particular strategy is, an asset manager may be willing to compare portfolios managed to the same strategy using multiple benchmarks selected by different clients. For passive strategies, the selection of the benchmark is fundamental to the construction process, but asset managers are often willing to construct passive strategies against a different benchmark chosen by the asset owner. Active strategies

are more likely to support comparison to a different benchmark that represents the same market. In effect, asset owners may feel that the selection of a particular benchmark is the decision of the consultant or the manager, and the consultant or manager may feel that the benchmark selection is determined by the asset owners.

In addition, these criteria are typically considered in the benchmark selection process:

- Objectivity and availability of construction rules;
- Amount of history available (the index inception date);
- Amount of the market the index covers (the percentage of stocks in the universe that is included, as well as the percentage of the total market capitalization included);
- Degree of concentration in the index, by individual issues as well as sectors or other components;
- Amount of turnover the index typically experiences; and
- Weighting method employed to construct the index (e.g., price, market cap, equal, GDP, or float-weighted).
- The treatment of dividend income and taxes

Cost should arguably be a criterion as well, but unless one is aware that (a) there is a cost, (b) what that cost is, and (c) that there are lower cost providers that offer reasonable alternatives, it won't be taken into consideration.

Ultimately, benchmark selection is often based on what others do. In the 1960s and 1970s, a well-known aphorism asserted that “no one ever got fired for picking IBM.” Despite the existence of viable competitors (the “BUNCH”¹), including some with arguably better equipment, many technology users would “play it safe” and choose the brand that most other institutions favored. Likewise, a few market index vendors have established such a stronghold for their “brand” that their index's use has become quite common. Since marketing and brand development - perhaps more than legitimate superiority - often contributes to brand dominance, the

case could be made to add “popularity of the index” to the above list of selection criteria. However, we feel that popularity alone should have minimal, if any, role in the selection process.

Brand Dominance and the Need for Cost Transparency

The brands entrenched as the market leaders and deployed as the industry *de facto* standards generally tend to command premium fees, and have many restrictions on the use of their data compared with other available index brands in the market.

Some examples of restrictions include:

- 1) license restriction to the platform through which the data is received, and therefore additional costs incurred if the same dataset is received through additional analysis systems,
- 2) a restriction in passing through detailed analysis to third-parties (asset owners and/or consultants) which might identify security constituents beyond a summary level, and
- 3) restrictions applying a time lag for distribution of data.

Although other vendors have offered market index alternatives described as “comparable to the most popular indexes,” with fewer restrictions on the use of data and often lower fees, these new brands have struggled to gain significant traction. It may be that this lack of adoption of new benchmark choices is due to inertia in the investment process, or the perceived risk of justifying a change.

One important dynamic at play around benchmark selection is the general lack of transparency. Often, decision-makers do not have a lot of information about the index market, costs, and restrictions on use and distribution of data. Historically, they did not incur any specific fees for the use of index data. Instead, index vendors charged fees to asset service providers and asset managers, who embedded these costs within other services provided to asset owners without revealing the various costs and licensing restrictions of different index vendors. Consequently, benchmark costs continue to grow unabated, without any mechanism in the market

for benchmark decision-makers to convey relative price sensitivity to benchmark producers. In addition to increasing licensing costs, several index vendors have also begun to require direct contractual relationships with institutional investors over the past few years. These relationships add another layer of cost and vendor management complexity for investors.

“In all the years of my experience, nobody talked about the cost of benchmarks. They have always been free. Some of these benchmarks/indices are deeply baked into the system. They are named in everything from board approved investment policy statements to compensation agreements.”
- Steven Hosier, Assistant Director,

Further complicating the cost issue is the increasing complexity of processing and acquiring benchmark data. The volume of indexes available has grown significantly over time in number and complexity. Index vendors offer variations of index products, differentiating top-level returns from sector level or security level weights and returns, and vendors define index levels, groupings, and permitted use differently. Some index vendors require that any blend of two or more benchmarks from the same vendor, or hedged to a base currency, are custom indexes that require additional permissions and fees; the maintenance of lists of permitted uses and users of different levels of data also increases administrative costs. Higher volume processing, along with more restricted usage, has also significantly impacted the cost of processing and acquiring data.

On the whole, market indexes are intended to represent the investable market, and there are often several index vendors that describe the same market in similar ways. Specific indexes are proprietary to a particular market data vendor, who sets the price for that data. It is not possible to buy one index from another source without a license from the market data vendor that produces that index. The question then becomes whether the indexes created by different vendors are sufficiently similar that investors can choose from a variety of viable choices.

THE APPROACH

In light of the above-described dynamics, the goal of this research project was to determine whether compet-

ing market indexes are, in fact, equivalent - *i.e.*, do they provide comparable results? To explore this issue, we examined both the methodology used in key indexes' construction, as well as the correlation in their performance.

Index Selection

The following vendors elected to participate in the study:

- Standard & Poor's
- Wilshire Associates
- NASDAQ
- Thomson Reuters
- Morningstar
- Freedom Index

Additional vendors elected not to participate in a published study at this time, including MSCI and FTSE.

We applied key rules to govern the selection of our study indexes:

- If a participating vendor offers more than one index to represent the equity market, we selected the index most commonly used by investors to represent their total market equity allocations.
- These indexes are dominated by large cap stocks, but the number of stocks in each index is different. For example, we elected to include the S&P 500 rather than the S&P 1500, because most investors use the S&P 500 to represent their U.S. equity allocation — even when their managers may invest in smaller cap stocks within the mandate.
- We did not include indexes made up entirely of small cap stocks in this analysis.
- Similarly, when vendors offer more than one index to represent the global equity market, we selected the index most commonly used by investors to represent the global equity allocation.
- We included indexes that incorporate developed and emerging markets, but did not include indexes that incorporate frontier markets.

Test Selection

We compared the indexes using monthly observations covering a period of at least seven years (84 months). We looked at the market indexes in a few ways:

- **First, we used Analysis of Variance (ANOVA), and more specifically, Tukey's HSD (honest significant difference) test, to determine whether the average monthly return of these indexes were statistically different from each other.** After reviewing the results, we realized that the question of whether or not the average return of one index is likely to represent another index is not the most appropriate question in evaluating the choice of indexes to represent a specific market. The ANOVA showed significant similarity among the indexes, but because we believe it answers a different question, the ANOVA results are not included in this article.
- **Next, we looked at the correlation matrix to analyze the relationship of the correlation of each index to each other index within the same category.** Based on discussions with industry practitioners, we believe that the correlation matrix is an intuitive analysis that will help communicate the relationship of indexes to each other in a way that fits well in many traditional investment allocation and monitoring processes.
- **Finally, we conducted a Principal Component Analysis (PCA) to evaluate the strength of the relationship of the indexes to each other.** The PCA supplements the correlation matrix to emphasize the strength of the relationships of the indexes to each other. This analysis attempts to explain how much of the variance in a set of data is due to different factors.

We then paired the statistical analysis with qualitative fundamental analysis looking at the holdings within each index at a point in time.

Given the way most investors use indexes to represent their asset allocations, we believe the correlation matrix is the most intuitive and effective analysis to illustrate

Table 1: U.S. Equity Indexes Correlation Matrix

	NASDAQ US Index	S&P 500	Thomson Reuters US Index	Freedom US 500	Wilshire 5000 Total Market	Morningstar Large Cap TR USD
NASDAQ	1.000	0.997	0.996	0.997	1.000	0.999
S&P 500	0.997	1.000	0.994	0.999	0.998	0.998
TR	0.996	0.994	1.000	0.995	0.996	0.996
Freedom US	0.997	0.999	0.995	1.000	0.998	0.998
Wilshire	1.000	0.998	0.996	0.998	1.000	1.000
Morningstar	0.999	0.998	0.996	0.998	1.000	1.000

Table 2: Global Equity Indexes Correlation Index

	S&P Global Broad Market Index (SPCBMIRGLUSD)	TR Global Large Mid ex Frontier	NASDAQ Global Index (NQGI)	Morningstar Global Large-Mid
S&P	1.000	0.998	1.000	1.000
TR	0.998	1.000	0.998	0.999
NASDAQ	1.000	0.998	1.000	0.999
Morningstar	1.000	0.999	0.999	1.000

the comparison of indexes within the same market category. The analysis of variance of sample mean monthly returns and the principal component analysis are interesting in reviewing the assumptions of the comparison, but based on the authors' collective experience in discussing these issues with institutional investors, the primary question we believe investors will have in considering index comparisons is "how well an index is correlated with a potential alternative."

Thus, we analyzed 10 years of monthly returns for global indexes (Jan 2005 to Dec 2014) and 7 years of monthly returns for U.S. domestic indexes (Feb 2008 to Dec 2014) using this approach.

Methodology Analysis

Index providers put a significant effort into the construction of their indexes with a variety of goals in mind, in-

cluding: proper representation of an asset class, the ability to passively manage against the index, and operational efficiencies. The way an index provider constructs its indexes results in specific membership, which ultimately drives performance. Although differences in construction and methodology can result in membership differences, the analysis shows that the outcome in

Table 3: Percentage of the Total Variance Explained by Each Principal Component U.S. and Global Equity Indexes

US	Global
99.787	99.909
0.120	0.072
0.069	0.012
0.016	0.006
0.007	
0.002	

terms of performance and correlations is minimal at the total level.

Regardless, it is important to understand some key methodology differences that can have a more significant impact on sub-indexes/regions of these index families. As part of our analysis, we drilled down on those construction and methodology differences (and similarities) that, in theory, would cause the most impact to performance. A summary of this analysis is included in the Findings section below, and a matrix of this methodology is included in the Appendix. Also included in the matrix is a link to each vendor's website where available, which provides a very detailed construction and methodology document for each provider.

FINDINGS

Index Correlation

The principal component analysis indicates that the first component accounted for 99.9% of the variance of the global index variations and 99.8% of the U.S. index variations. **This result is a strong indication that the indexes are statistically very closely related to each other.**

The resulting correlation matrices for U.S. domestic and global equity indexes are included in Tables 1 and 2. All of the correlations of the index pairs were greater than 99 percent for both the U.S. and the Global indexes; the lowest correlation is 99.4 among U.S. index pairs and 99.8 among global index pairs. The complete principal component analysis results for both data sets are included as Table 3.

Methodology and Performance

The weighting methodology of securities in an index has a huge impact on performance. Indexes in the marketplace come in a variety of weighting schemes: capitalization weighted, equal weighted, GDP weighted, factor weighted, etc. As previously mentioned, in the cases of the indexes being analyzed, all use a capitalization weighted approach, giving the most considerable weight to the largest stocks in the marketplace. Given this similarity in approach, the actual members of each particular index become the most important differentiator, based

on details around construction and methodology including:

- **Country identity of securities.** As the world becomes more global in nature, one of the biggest challenges for index construction is defining what single country a security belongs to. If all index providers viewed companies the same in terms of country (and they were all capitalization weighted), there would be little difference in membership, and thus, in performance. However, this is not the case. Some index providers use a single factor to determine country while others use a complex matrix. Index providers need to answer questions such as: What country assignment is most relevant for a U.S. incorporated company trading on the NYSE which is headquartered in China with 100% of their assets and revenues being China based? Or where to assign a multi-national company with headquarters and trading in multiple countries? Each index provider can take a different approach. Although it may seem this only exists for the country-specific indexes such as U.S. domestic indices, if an index provider uses a top-down approach (country first) in index construction, then the differences can be prevalent in a global index as well.

In terms of a U.S. domestic index, the index providers in our study take a broad range of approaches to defining a company as a U.S. company. These range from a simple approach of companies having their primary exchange in the U.S. (Morningstar) to more complicated matrices including multiple factors such as primary exchange, % of assets/ revenues in the U.S., and SEC classification (S&P). Even with a matrix of similar factors, the way these factors are implemented can cause differences. Yet again, due to capitalization weighting and the largest securities in the world being U.S. (by all measures), even these differences do not impact correlations significantly.

- **Number of securities.** While the number of securities in total is not important (as the smaller companies at the bottom have a smaller weight), it is important that all of the largest securities are represented. For example, the S&P 500 is not comprised of the largest 500 stocks in the U.S.; it holds ap-

Table 4: U.S. Equity Indexes Security Count -

	Morningstar U.S. Market Index	NASDAQ U.S.	Thomson Reuters U.S.	S&P 500	Wilshire 5000	Freedom Index
Number	1,654	2,858	2,533	505	3,701	500

Table 5: U.S. Equity Indexes Market Capitalization -

	Morningstar U.S. Market Index	NASDAQ U.S.	Thomson Reuters U.S.	S&P 500	Wilshire 5000	Freedom Index
% in Mega Caps	38.8%	39.4%	36.8%	46.7%	39.8%	44.1%
Smallest	\$200M	\$41M	\$25M	\$1.4B	<\$1M	\$124M
Market Cap Average (ln\$B)	\$107.83	\$106.83	\$100.26	\$128.47	\$111.10	\$118.20

Table 6: U.S. Equity Indexes: Largest Sector Weights -

	Morningstar U.S. Market Index	NASDAQ U.S.	Thomson Reuters U.S.	S&P 500	Wilshire 5000	Freedom Index
Top Sector (Financial Services)	20.06%	20.24%	19.73%	18.59%	20.89%	17.40%
Second Largest (Technology)	16.78%	16.53%	16.07%	17.51%	16.72%	16.24%

proximately the largest 160+ stocks, then membership moves down the capitalization spectrum, but not necessarily in the order of descending market capitalization. Many other providers take an all-inclusive approach that includes all companies within a specific capitalization range. This once again shows the power of capitalization weighting. Even with the overall membership differences, the performance/correlations are similar due to the similarity in the upper capitalization tier.

- **User-specific details.** Many other details around construction and methodology that differentiate providers become important depending on the end goal of the user and the sub-index chosen. For ex-

ample, rebalance frequency and turnover is important for passive management; style methodology is valued for growth and value mandates; and the designation of an emerging country is important for emerging mandates. As the indexes become more concentrated and specialized, the details of the methodology become more important to the end user.

Holdings-Based Findings: U.S. Index Families

Through our review of differences in methodology among index families, we uncovered the characteristics analyzed in Tables 4 and 5. In the U.S. market, the typical attributes that drive performance are capitalization,

Table 7: Global Equity Indexes Security Count

	Morningstar Global Large- Mid	NASDAQ Global	Thomson Reuters Global	S&P BMI
# of Securities	4,053	8,974	2,039	11,677
US	49.40%	50.51%	52.91%	50.91%
% in EM	9.52%	9.28%	8.24%	10.89%

sector exposure, and security selection. The U.S. benchmarks in this analysis deviate greatly in the concentration of securities and the distribution of market capitalization. Broad market indexes hold over 3,500 securities that range downward to \$100M in market cap, while large cap indexes hold around 500 stocks, which range downward to \$1.4B.

Despite these differences, however, the weights of the largest stocks vary little due to the consistency of capitalization weighting methodology. For example, the securities greater than \$72.71B (mega cap) represent a weight within each index ranging from 37-48 percent. Market capitalization weighting also results in a reasonably close average from \$100B to \$128B. Therefore, although the number of securities and the distribution of market capitalization range differ, weighting minimizes those differences.

Since the indexes' weighting and security selection methodologies are similar, it is logical that the sector weights would follow suit. In all cases, the largest sector weight is financial services followed by technology, as seen in Table 6. Financial services weights range from 17-21%, while technology ranges from 16-18 percent. These two sectors combined account for over 35% of

each index, and the remaining sectors also are in line.

A look at the characteristics of global index families also shows little difference across those reviewed, as illustrated in Table 7. Even with a wide variance in security concentration, ranging from as little as 2,000 securities to more than 11,000, there is little difference observed in the country weights. As expected, the country with greatest representation in all cases is the U.S., with an allocation of between 49-53 percent. As seen in our comparison of U.S. indexes, the U.S. portions of global indexes behave and look similar. Therefore, with the similar U.S. components representing over 50%, it is logical the global indexes will perform similarly to their U.S. counterparts. The most volatile of countries, emerging markets, is relatively consistent across indexes as well, ranging from 8-11% of market value.

“Data costs rarely get the sort of visibility in a business that they should. The mindset that benchmark data costs are a cost of doing business is the biggest barrier to getting an industry change of attitude on this issue.”

- Joe Kavanaugh, CFA,
Kleinwort Benson Investments

Table 8: Global Equity Indexes Market Capitalization

	Morningstar Global Large- Mid	NASDAQ Global	Thomson Reuters Global	S&P BMI
Mega Cap >72.71 B	34.2%	32.6%	35.5%	30.9%
Weighted average MC	\$81.83	\$76.42	\$86.56	\$73.94

While the largest country and emerging markets exposures are similar, we observed small, non-material differences in country allocation among global indexes. Morningstar, as an example, tends to cover more of the globe with exposure to Africa / Middle East countries such as Egypt, Morocco, Qatar, and UAE (totaling .24%) while Thomson Reuters is more concentrated and lacks exposure to these countries. These small differences may result from the security selection process, not necessarily because the vendor restricts the country from inclusion; some indexes chose securities from a country perspective, while other providers use a bottom-up approach.

Another driver of differences within a global index is capitalization range. As seen in the U.S. indexes review, the allocation to large versus small stocks is important to performance, especially considering that the methodologies are all capitalization weighted. The range of allocation to mega cap (greater than \$72.71B) is smaller in global indexes than in the U.S. indexes, ranging between 31-36 percent (Table 8).

TRANSPARENCY

Custodian Guidelines

In order to provide greater transparency to all industry participants regarding the increased costs for market data, The Spaulding Group developed Custodian Guidelines for Transparency in Benchmark Costs, which include the following:

- Provide transparency to end-clients on the relative cost of benchmarks;
- The total cost of using benchmark data may also be taken into account, including index provider licensing fees, and the resources involved to collect and process the related files and data;
- Conduct a free customized benchmark cost analysis upon request from clients that would demonstrate the relative cost of benchmark data options.

The custodians involved in authoring this paper have adopted these guidelines as a way to further educate their clients, and as a mechanism to reduce costs.

Evidence of Index Switching to Save Money

In order to be motivated to make changes in indexes, asset owner and managers must be aware of (a) the increased costs and (b) the availability of lower cost alternatives.

In 2012, Vanguard announced that it was switching the target benchmarks for 22 of their index funds (from MSCI to FTSE (for six) and CRSP (for 16)). This transition was “expected to result in considerable savings for the fund’s shareholders over time.” (Vanguard (2012)).

CONCLUSIONS AND DISCUSSION

Through our research, we have confirmed that there is minimal difference between several index providers that serve the U.S. and global equity markets in terms of performance; while methodology varies among indexes, those variances are largely tempered by capitalization weighting.

Our analysis reinforces earlier research, including the Norges Bank Investment Management study of global equity indices comparing the offerings of MSCI and FTSE (NBIM, 2014). The authors of that study also concluded that while “a walkthrough of the methodology for the two global benchmarks shows that there are multiple differences in the rules that decide which stocks go into the index, we also see that, for a global investor, these differences do not make much of a difference to risk/reward, especially over the last few years.”

Although we don’t address costs specifically within this report, our research was conducted against the backdrop of major increases in market index data costs over the past few years. As costs have risen, it has become necessary for many custodians and, in some cases, asset managers to pass these costs directly along to their clients. But the costs for this data are often not clear to investors. Through our study of a number of prominent indexes, we see a significant opportunity for vendors to increase transparency in the overall costs and comparability of choices available to investors.

With this increased transparency, we believe that investors may identify significant differences in index

fees, and may thus reduce expenses by switching to a lower cost provider that offers a similar benchmark. The insight this paper offers regarding the similarities in index performance may provide confidence to investors seeking cost savings with a new, lower cost provider.

Opportunity for Future Research

This research focused on two equity markets: the United States and global. But, as we know, there are many other equity markets that can be defined geographically, by style or market capitalization, and by the degree the market is developed. In addition, there are indexes that represent different asset classes (*e.g.*, fixed income, cash, real estate), as well as combinations thereof.

Consequently, we are not able to extend our findings to other markets; we cannot state whether we would obtain similar results if, for example, we looked at the vendors who provide market indexes to cover emerging market debt, small cap U.S. stocks, municipal bonds, etc.

Therefore, our study and its findings provide a starting point for future research that extends our analysis into other geographical regions and asset classes.

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ENDNOTES

¹ BUNCH: Burroughs, UNIVAC, NCR, Control Data Corporation, and Honeywell.

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Appendix - Index Construction Methodology -

	Global Indexes				US Indexes	
	NASDAQ	S&P	Thomson Reuters	Morningstar	Wilshire	Freedom
Weighting scheme	Market cap weighted	Market cap weighted	Market cap weighted	Market cap weighted	Market cap weighted	Market cap weighted
Which securities are eligible	All listed equity securities. Not included: closed-end funds, ETFs, LPs, preferred stock	All listed equities	All listed equities	All listed equity securities that trade on major exchanges. Excluded: Mutual Funds, ETFs, Derivatives, LPs & Convertibles	Primary equity issue and have it's primary listing in the U.S.	All listed equities
Market Coverage	98%	n/a	98%	97%	100%	100%
Liquidity Screen	3 month average daily dollar trading volumes (ADDTV)	Average dollar traded volume	Average traded value (based on volume & value weighted avg price)& trading frequency	Average monthly trading volume	pink sheets or stocks that stop trading for 10 consecutive days	None
Are committees used?	No. Nasdaq consults with market practitioners but no formal committees are utilized	S&P DJI Global Index Committee; decisions are announced via press release	Index Action Committee reviews country & region indexes quarterly	Yes	Wilshire Index Oversight committee clarifies index intent with the index rules	No, all standard indexes are produced on a rule based system with no committee involved
Minimum Size requirements	\$150m	\$100m	\$150m	None	None	None
Timing requirements for new IPOs	securities must have been traded on an Index Eligible exchange for at least 3 months	Can be added quarterly on 4th Monday of March, June, Sept & Dec	Can be added at Semi-annual rebalance	Can be added at next rebalance if IPO occurs on or before last trading day of 1st month of quarter	will be included as of close of trading on 2nd Friday of the month	Can be added at quarterly rebalancing
Reconstitution	Twice a year on the 3rd Friday of each March & September	Annually; effective at the open of 4th Monday of September	Twice a year	Twice a year in June & December	Twice a year; in March & September	Quarterly
Country classification criteria - Developed/Emerging Korea?	Gross National Income per capita, market capitalization, volume (annual turnover), headcount (# of securities from each country must meet min reqts)	Primary: Full domestic market cap over \$2.5B, Domestic turnover of \$1B, Exchange dev ratio of over 5% Secondary: market cap over \$15B, settlement period of t+3 or better, Sov Debt rating of BB+, no foreigner owner restrictions	Market & regulatory structure, clearing & settlement, trading environment, size of market among other factors	Gross National Income per capita (GNI), No discriminatory controls against non-domiciled investors, country's stock market must exhibit: transparency, market regulation, Ops efficiency & no broad-based invest. Restrictions.	per World Bank classification	n/a
Country classification/country assignment	Developed	Developed	Developed	Emerging	n/a	n/a
Currencies published	Country of incorporation, country of domicile, & country of primary exchange listing AUD, CAD, EUR, GBP, JPY, USD, Local	Country of incorporation, then primary exchange, headquarters USD, EUR, GBP, JPY, CAD, AUD, local	Headquarters (country of incorporation) and Primary exchange (primary exchange is defined as the exchange where the security trades most/has maximum volume). USD & Local	Country of incorporation and primary listing USD, JPY, EUR, GBP, AUD, CHF, CAD, DKX, NOK, SEK	Headquarters location and primary exchange listing USD	Primary exchange USD, GBP & local
Link		https://www.djindexes.com/mdsdx/downloads/client_services/methodology-sp-corporate-actions-policies-practices.pdf	http://thomsonreuters.com/content/dam/openweb/documents/pdf/tr-financial/methodology/global-equity-index-methodology-april-2013.pdf			http://th+A2:G15efreedomindex.com/methodology/

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