

1-17-2017

Investing in the Presence of Massive Flows

Terence C. Burnham
Chapman University, burnham@chapman.edu

Harry Gakidis
Acadian Asset Management

Jeffrey Wurgler
New York University

Follow this and additional works at: http://digitalcommons.chapman.edu/esi_working_papers

 Part of the [Econometrics Commons](#), [Economic Theory Commons](#), and the [Other Economics Commons](#)

Recommended Citation

Burnham T. C., Gakidis, H., & Wurgler, J. (2017). Investing in the presence of massive flows: The case of MSCI country reclassifications. ESI Working Papers 17-08. Retrieved from http://digitalcommons.chapman.edu/esi_working_papers/219

This Article is brought to you for free and open access by the Economic Science Institute at Chapman University Digital Commons. It has been accepted for inclusion in ESI Working Papers by an authorized administrator of Chapman University Digital Commons. For more information, please contact laughtin@chapman.edu.

Investing in the Presence of Massive Flows

Comments

Working Paper 17-10

(PERSPECTIVES)

Investing in the Presence of Massive Flows: The Case of MSCI Country Reclassifications

by

Terence C. Burnham
Chapman University Argyros School of Business and Economics

Harry Gakidis
Acadian Asset Management

Jeffrey Wurgler¹
NYU Stern School of Business and NBER

January 17, 2017

Approximately \$10 trillion is benchmarked to Morgan Stanley Capital International's Developed, Emerging, Frontier, and standalone market indexes. Reclassifications from one index to another require thousands of investors to decide how to react. We study a comprehensive sample of past reclassifications to guide this decision. Reclassified markets' prices substantially overshoot between the announcement and effective dates—prices fall when a market moves from an index with more benchmarked ownership to one with less, such from Emerging to Frontier, and vice-versa—but revert within a year. We identify alpha-maximizing responses to reclassifications for both tightly benchmarked and more flexible investors.

¹ Corresponding author. We thank Brendan Bradley, Stephen Brown, Asha Mehta, and seminar participants at Acadian Asset Management for many helpful comments. We are also very grateful to Morgan Stanley Capital International for providing data on the extent of indexation.

Introduction

Morgan Stanley Capital International's Developed Markets, Emerging Markets, and Frontier Markets Indexes provide benchmarks for stock markets at different stages of development. The Indexes are used to allocate trillions of dollars in equities by thousands of proper indexers, active asset managers, pension funds, hedge funds, banks, and individuals around the world.²

The MSCI's Index Policy Committee reclassifies markets when investability conditions change.³ Qatar and the United Arab Emirates graduated from Frontier to Emerging status in June 2014 after institutional improvements, for example. Trinidad and Tobago was declared unsuitable for even the Frontier index in February 2011, on the other hand, and since June of that year has been tracked only as a standalone market. Most recently, MSCI upgraded Pakistan to the Emerging index, effective May 2017. A fuller list of reclassifications since 2000 is in Table 1.⁴

Given the huge importance of the MSCI indexes and the fact that reclassifications require thousands of investors to decide how to react, it is surprising that there has been almost no study of what happens around reclassification events.⁵ Should a benchmarked investor trade at the announcement date? Wait a few months until the effective date?

² See MSCI (2016a). Other index providers also classify countries into development categories, including Dow Jones, FTSE, Russell, and S&P. The MSCI indexes are by far the most followed.

³ These involve openness to foreign ownership, the ease of capital flows, the efficiency of the operational framework, and the stability of the institutional framework. Openness criteria include investor qualification requirements, foreign ownership limits, foreign room levels, and the rights of foreign vs. domestic investors. Ease-of-Flows criteria include capital flow restrictions and degree of currency market liberalization. Operational Framework criteria include registration & account setup difficulty, market regulations, information flow, clearing and settlement, custody, registry/depository considerations, trade execution, transferability, stock lending and short selling. Also considered are the degree of competition among financial services providers and the stability of the institutional framework. There is an additional requirement on gross national income per capita for Developed status. See MSCI Global Market Accessibility Review (2016b).

⁴ The transition matrix in Figure 2 shows the effective dates of (non-partial) reclassification events announced since 2000. We also exclude Serbia's and Lithuania's 2008 reclassifications. Their announcements conditioned the final decision on aspects of market performance between the announcement and the potential effective date, thus rendering ambiguous what investors should be doing in the meantime. Every announcement before or since has been an unambiguous declaration that a change will be made. In addition, the Frontier index was introduced in 2007. We do not include the markets included at the inception of this index since the announcement and effective dates were nearly contemporaneous and, presumably, the short-term flows associated with the classification would be small.

⁵ The most related study is Saidi, Prasad, and Naik (2012), who focus on a small number of Middle Eastern countries' reclassifications between Frontier and Emerging indexes.

Wait for a year while the dust settles? Break the tie based on non-alpha considerations such as tracking error? Does it matter whether the investor tracks the new or old index? Are “upgrades” always good and “downgrades” always bad? Are there opportunities for non-benchmarked investors?

To answer these questions, we study a comprehensive sample of reclassifications since 2000. While it is impossible to observe flows directly, we find an intuitive result that appears to highlight their importance. Using MSCI data on the extent of benchmarking (which includes both passive indexers and active managers who use an index as a benchmark), we find that when a market is moved from a less-benchmarked to a more-benchmarked index, such as from Frontier to Emerging, prices rise between the announcement and effective date by around 15%. By one year after the effective date, however, this upward price pressure has fully reverted. The reverse pattern of overshooting happens when a market is reclassified to a less-benchmarked index.

For investors, the large returns around reclassifications illustrate the importance of properly accommodating the event, so we delineate the alpha-maximizing strategies for benchmarked and more flexible investors. The results also shed broader light on market resiliency and price pressures writ large, because MSCI reclassifications are uniquely important events for the markets involved. The patterns are clearly inconsistent with a simple “upgrades are good, downgrades are bad” hypothesis. If a reclassification is “good,” it should be permanently good. Instead, what appears to drive the results is the difference in demand for the reclassified market by old and new benchmarkers. In the short run, the market has trouble absorbing the net flows without price pressure, but eventually prices return to where they started.

Supply, Demand, and Index Inclusion Effects

It might surprise the layman that stock market prices are often studied at the highest practitioner and academic levels with no explicit reference to supply and demand. For many purposes in finance, that is a reasonable approach, but it is hard to justify in the context of the potentially large rebalancing-driven demand changes around market

reclassifications. What does prior research lead us to expect may happen around these events?

Efficient markets theory—which is embraced by many passive indexers—would, in the extreme, imply that we will observe no price change. Under this view, reclassifications are inconsequential because stock fundamentals are unchanged. They are simply decisions made by a committee of non-investors who are not even attempting to evaluate investment merits and are using largely public information. Any observed change in return properties such as risk or liquidity would be attributed to the structural changes that drove reclassifications in the first place, not the reclassifications themselves.

An alternative view, associated with inefficient markets and active management, is that stock prices sometimes respond to supply and demand forces unrelated to fundamentals. Adherents of this view would also acknowledge the structural and operational changes leading to reclassification events, but they would suggest that the trading of passive index funds—not to mention other categories of benchmarked investors—might contribute to the very distortions that their investors deny.

The accumulated evidence from other index inclusion settings suggests that we should not be surprised if reclassifications to cause price dynamics. The classic research in this area involves S&P 500 inclusions. Harris and Gurel (1986) and Shleifer (1986) both argue that such inclusions contain no information about stock fundamentals, consistent with the stated position of the S&P Index Policy Committee, and both find that inclusions are associated with price jumps of a few percentage points. One important point of disagreement is that Harris and Gurel maintain that this jump eventually reverts.

In October 1989, the S&P changed its announcement policy. It separated the announcement date of a change from the effective date. Lynch and Mendenhall (1997) find that this policy introduced a jump on the announcement, a further rise between the announcement and effective date, and a partial reversion thereafter. Since the effective date is even more plainly informationless than the announcement itself, this is compelling evidence that inclusions induce price pressures.

Additional evidence has piled on since these studies. Petajisto (2011) finds that the S&P 500 inclusion effects have grown since the early studies, and also shows that there are inclusion effects for the Russell 2000. Kaul, Mehrota, and Morck (2000) study a

unique experiment from the Toronto Stock Exchange 300 and find more evidence of demand-induced price changes, thus extending the evidence on index inclusion effects to international markets. In a setting closer to our own, albeit still involving individual stock-level events and only a three-year time sample, Chakrabarti, Huang, Jayaraman, and Lee (2005) find that inclusions into the MSCI country indexes beget a rise between the announcement and effective date, which partially reverts. See Petajisto (2009) and Wurgler (2011) for further overviews of this literature.

In modern, liquid markets, how can information-free inclusion effects persist? Basic supply and demand considerations are apparently overwhelming short-term “arbitrage” forces. Wurgler and Zhuravskaya (2002) point out that the classical efficient markets argument articulated by Scholes (1972), that sophisticated investors would elastically supply new investor demand for the included stock because they can simply short an equivalent stock, isn’t realistic. The majority of an individual stock’s variability is idiosyncratic. There is simply no washing away of this risk through a long-short trade, and no way to form a portfolio of inclusions when they are isolated events.

The classical logic fails even more strongly at the level of MSCI country reclassifications. Who would have shorted a basket of U.A.E. stocks to accommodate the sudden demand from benchmarkers that followed its upgrade to the Emerging index? What exactly would those investors buy in order to hedge the risk that U.A.E. fundamentals improved while they were short? Put together, the theory and evidence suggest that we should not be surprised if MSCI country reclassifications generate interesting price dynamics. How interesting depends on how much demand actually changes. We approach this question next.

Potential Flows Around Reclassifications

In the case of MSCI reclassifications, thousands of index-driven funds must consider how to adjust their holdings in a short period of time, and passive indexers will presumably do so fully. In light of the \$10 trillion now benchmarked to the MSCI indexes, the collective action of these non-fundamental traders may be large.

To get a sense of the magnitudes involved it is helpful to understand the multiple layers of MSCI indexes. A highly simplified explanation is as follows. Each index involved is roughly value-weighted (to be precise, free-float weighted). Country return indexes are averages of major stocks trading in the local market. Regional sub-indexes are averages of a set of country indexes. Finally, the major indexes, including Developed, Emerging, and Frontier indexes, are averages of combinations of the above.

The roughly value-weighted structure of the indexes allows us to estimate the size of the potential flows associated with a reclassification. If benchmarked investors hold shares at index weights, then, at least mathematically, *the net percentage flow is the difference between fraction of the new index held by index-tracking investors and the fraction of the old index held by index-tracking investors.*

Although actual flows driven by reclassification events are difficult to track, it is possible to obtain some rough upper bounds using Table 2. The key data in Table 2 are estimates of net percentage index ownership. We are grateful to MSCI for providing these data.

For example, classification as an Emerging Market entails inclusion not only in the MSCI Emerging Markets Index, where the percentage of benchmarked ownership is high (45% as of June 2014), but also in the All Country World Index, where the percentage of benchmarked ownership is low (6% as of June 2014). The cap-weighted structure of the Indexes implies that approximately 51% of a given Emerging Market is owned by benchmarkers at that date.

A further promotion from Emerging to Developed, on the other hand, may actually cause a net *decline* in index-tracking ownership, at least in recent years. The country's ACWI status does not change, but—in the most recent data—it stands to lose its 45% ownership from its Emerging index affiliation while replacing this with only about 32% from its new inclusions into the World index, the Europe, Australasia and Far East index, or (typically) either the Europe or Asia ex-Japan index. This net decline may be contrary to intuition, given that so many more *dollars* are indexed to Developed than Emerging, and perhaps a general sense that an “upgrade” must surely be better for net demand than a “downgrade.” Which brings up an interesting general point: In the same way there may be a larger clientele for a corporate bond at one rating than one at the

next-higher rating, whether a country is upgraded or downgraded need have no fundamental bearing on aggregate net demand by benchmarked investors. Upgrades usually correlate with an increase in net benchmarker demand according to the figures in Table 2, but not always.

Using these coarse estimates to calculate reclassification-driven flows should be done with great caution. First, fund families that track the old index in one vehicle and the new index in another may be able to transfer some of their holdings through internal accounting, which would not contribute any price pressure. Second, actively-managed funds using an index as a benchmark may, as a group, overweight or underweight some countries relative to their actual index weights. Third, benchmarkers may decide that the reclassification event is too small to be worth responding to any time soon. In general, any tracking error and portfolio alpha consequences of a reclassification will typically be far greater for the followers of the lesser-developed index, given its smaller total cap. Fourth, to the extent that investability criteria differ between the old and the new index, an upgrade means that some stocks must be sold by old indexers and not bought by new indexers; a downgrade means that some stocks must be bought by new indexers that are not being sold by old indexers. We return to this point below.

In light of these and other limitations, it is most appropriate to regard the net flows to reclassifications implied by Table 2 as *directionally* correct but otherwise an “idealized” estimate, most likely a slightly overstated one for many less-developed markets, of the net flows that follow reclassifications. In this paper we sort events only by the ordering of net demand by benchmarkers, namely, Emerging, Developed, Frontier, standalone. Detailed estimates of demand elasticities of prices, for example, are unwarranted.

One last note before getting to returns. Reclassifications affect not just the country in question. The freed-up capital turns into a degree of buying pressure on those remaining constituents in the old index, and a degree of selling pressure on others in the new index. We will not explore these effects here, but in the case of a move between Frontier and Emerging, for example, they could be significant. An upgraded market will tend to have high weight in its old index, leaving plenty of capital to be reallocated across

its former cohort, and vice-versa. These spillover effects are an interesting area for future research.

Returns Around Reclassifications

The ultimate question is whether, and how, reclassifications affect returns. Typically, when a market's accessibility has been improving or deteriorating, MSCI places it on a watch list, gathers feedback from institutional investors over the next several months, and then announces a decision to reclassify the market or to remove it from the watch list. If the market is reclassified, MSCI specifies a date, again several months down the road, at which the reclassification becomes effective.

For most investors, the relevant dates are the announcement and effective dates of reclassifications. We look for patterns between these two dates as well as for the year after the effective date to detect any reversion. We do not examine price dynamics around the "watch list" date because it has no clear investment implication for the majority of benchmarkers.

We measure alphas on the reclassified country's index in two ways. For investors using the old benchmark, alpha is measured as the country index return over that benchmark. For investors in the new benchmark, the relevant comparison is with the new benchmark. For reclassifications from (to) standalone status, we calculate the old (new) benchmark as zero and track total returns.⁶

Figure 1 presents the main results. In the top panel, we track the average returns on country indexes for the nine reclassifications that, according to the estimates in Table 2, most likely resulted in *less* ownership by benchmarkers. In these cases, there was likely to have been net selling pressure as investors adjusted. The results are indeed consistent with short-term selling pressure which subsequently abated. The average total

⁶ A limitation of our returns data is the use of MSCI country indexes rather than the precise subset of stocks affected by a switch. In an upgrade, some companies that were allowed into the old index may not make the cut. For them, the selling pressure from the old indexers is not offset by buying demand from the new indexers. Likewise, in a downgrade, stocks in the old index will be affected but additional stocks will now meet the new, lower bar. This issue is attenuated by the value-weighted nature of the country indexes, since the largest stocks in the country will always be included in either the upgrade portfolio or the downgrade portfolio. In any case, the use of country indexes typically biases our results "against" detecting an effect.

return between the announcement and effective dates was -12.5%, but this loss was more than recovered in the 23.3% total return in the year after the effective date. Using returns relative to the original index or the new index—two notions of alpha—leads to the same impression of a large fall followed by a relatively complete reversion.

In the bottom panel, we track the average returns for the eight reclassifications that most likely resulted in *more* ownership by benchmarkers, and therefore net buying pressure around the event. Here, and also strongly consistent with an overshooting price-pressure pattern, we see the opposite pattern in returns. There is a 23.2% total return between the announcement date and effective date, but this is to a large extent given back by the -12.4% return after the effective date.⁷

These differences in average returns between less- and more-benchmarked reclassifications are so large that they are statistically significant despite the modest sample size. For example, the -12.5% announcement-to-effective date total return in the less-benchmarked case is significantly lower than the corresponding 23.2% return in the more-benchmarked case ($t = -2.1$). The 23.3% post-effective total return in the less-benchmarked case is significantly greater than the corresponding -12.4% post-effective date return in the more-benchmarked case ($t = 2.6$).

How do upgrades and downgrades compare? Buying pressure tends to be higher for upgrades, so perhaps it is the direction of the reclassification that really matters. An upgrade would seem to increase visibility and liquidity, after all, and such effects might be reflected in positive returns even after the event. In unreported results, we split the sample between upgrades and downgrades. The results are similar to the split across predicted net flows. (In fact, they are slightly weaker, but the sorts are hard to separate statistically because the direction of reclassification and the direction of new flows by benchmarkers are highly correlated.) The fact that the two splits lead to similar results tells us something important and consistent with only the price pressure story. If upgrades were good for valuations, they should be *permanently* good. If downgrades were bad for valuations, they should be permanently bad. Instead, the data show that alphas between the announcement and effective dates tend to revert in the same pattern that we see in the

⁷ The similarity in returns reported in this paragraph and the previous paragraph is coincidental.

Figure 1 sorts. A simplistic “upgrades are good, downgrades are bad” view of price dynamics around MSCI reclassifications is therefore not supported in the data.

What happens right around the announcement and effective dates? If the action is too fast then the strategic opportunities are limited. To investigate this, we excluded short windows around the event dates, but found that the results are only slightly weakened. For example, the average total return between two days after the announcement date and two days before the effective date is -9.2% for classifications that decrease benchmarked ownership and 21.3% for classifications that increase it. These closely resemble the numbers in Figure 1. The post-effective reversion effects are also similar upon excluding short windows around event dates. In other words, the advice suggested by Figure 1 is potentially actionable.

Finally, we examined risk and liquidity patterns around reclassifications. An interesting possibility is that the reclassified country index’s beta with respect to the new index increases over time and the beta with respect to the old index decreases.⁸ We did not find any significant changes, however. We also looked at the first-order autocorrelation of country indexes as a proxy for liquidity, but we found no changes in autocorrelations for upgrades or downgrades.

Investment Implications

Our core finding is that countries transitioning into a less-indexed classification face net selling pressure, and negative alpha, between the announcement and effective dates. After the move becomes effective and the selling pressure abates, there is a reversion with positive alpha. The opposite is true when countries move toward a more-indexed classification. In each case the long-run return is roughly flat.

For passive indexers devoted solely to matching a benchmark, none of these patterns matter. Those investors must rebalance at, or very near, the effective dates. But there are very important implications for benchmarkers that have discretion. Table 3 summarizes the alpha-maximizing strategies implied by the evidence.

⁸ See Vijh (1994) and Barberis, Shleifer, and Wurgler (2005) on such a pattern from S&P 500 inclusions.

In some cases, the best trade is unambiguous. When a market is downgraded from Emerging to Frontier, for example, those benchmarked to the Frontier index should buy on the effective date. This not only eliminates the tracking error of buying early, it avoids the low returns associated with the net selling pressure between the announcement and effective dates. Conversely, for upgrades from Frontier to Emerging, those benchmarked to Frontier should wait to sell on the effective date. This allows Frontier benchmarkers to ride the net buying pressure before the effective date and, again, eliminates tracking error.

In other cases, the optimal strategy is less obvious, and alpha effects must be balanced against tracking error. Consider a reclassification from Frontier to Emerging from the perspective of Emerging benchmarkers. Buying at the effective date has the benefit of no tracking error. But it also means buying at the peak: the buying-pressure-driven return between announcement and effective has been missed, while any post-effective reversion has still to be endured. There are two strategies to avoid negative alpha. One is to buy at announcement and hold through both the run-up and the reversion. The other strategy is to buy well after the effective date, when the cycle will have played out. Both strategies involve accepting some tracking error.

The advice for absolute return investors is plain enough to not be worth tabulating. They should underweight the reclassified market in situations when its expected returns are low and vice-versa. Figure 1 clearly identifies these situations.

Conclusion

MSCI market reclassifications do not happen every day, but when they do happen they can be important events for thousands of international investors. The analysis of past reclassifications point to strategies to help MSCI-benchmarked investors avoid, or even exploit, price pressures, and more generally it sheds new light on the effects of market-level demand shocks. The short time series we have suggests that the extent of benchmark-driven ownership, and hence the potential consequences of reclassifications, is only increasing.

References

- Barberis, N., A. Shleifer, and J. Wurgler. 2005. "Comovement." *Journal of Financial Economics*, vol. 75, no. 2 (February): 283-317.
- Chakrabarti, R., W. Huang, N. Jayaraman, and J. Lee. 2005. "Price and Volume Effects of Changes in MSCI Indexes—Nature and Causes." *Journal of Banking & Finance*, vol. 29, no. 5 (May): 1237-1264.
- Harris, L., and E. Gurel. 1986. "Price and Volume Effects Associated with Changes in the Standard-and-Poor 500 List: New Evidence for the Existence of Price Pressures." *Journal of Finance* vol. 41, no. 4 (September): 815-830.
- Kaul, A., V. Mehrotra, and R. Morck. 2000. "Demand Curves for Stocks *Do* Slope Down: New Evidence from an Index Weights Adjustment." *Journal of Finance*, vol. 55, no. 2 (April): 893-912.
- Lynch, A., and R. R. Mendenhall. 1997. "New Evidence on Stock Price Effects Associated With Changes in the S&P 500 Index." *Journal of Business*, vol. 70, no. 3 (July): 351-383.
- Morgan Stanley Capital International. 2016a. "Global Indexes: Delivering the Modern Index Strategy." At: <https://www.msci.com/documents/1296102/1340870/GlobalIndexes-2016.pdf/6447daa8-0cbd-4976-b942-af68ffc8c12f>.
- Morgan Stanley Capital International. 2016b. "Global Market Accessibility Review." At: https://www.msci.com/documents/1296102/1330218/MSCI_Global_Market_Accessibility_Review_June+2016+FINAL_v2/a342339b-4c83-4189-a1d2-0c346fa4915f.
- Petajisto, A. 2009. "Why Do Demand Curves for Stocks Slope Down?" *Journal of Financial and Quantitative Analysis*, vol. 44, no. 5 (October): 1013-1044.
- Petajisto, A. 2011. "The Index Premium and its Hidden Cost for Index Funds." *Journal of Empirical Finance*, vol. 18, no. 2 (March): 271-288.
- Saidi, N., A. Prasad, and V. Naik. 2012. "From Frontier to Emerging: Does Market Reclassification Matter?" Dubai International Financial Centre Economic Note, no. 19.
- Scholes, M. 1972. "The Market for Securities: Substitution versus Price Pressure and the Effects of Information on Share Prices." *Journal of Business*, vol. 45, no. 2 (April): 179-211.
- Shleifer, A. 1986. "Do Demand Curves for Stocks Slope Down?" *Journal of Finance*, vol. 41, no. 3 (July): 579-590.

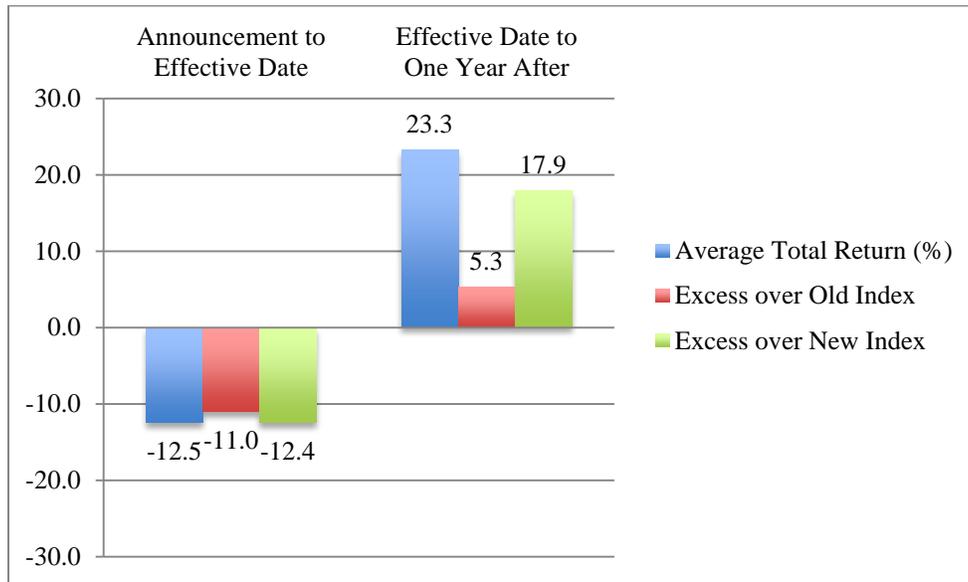
Vijh, A. 1994. "S&P 500 Trading Strategies and Stock Betas." *Review of Financial Studies*, vol. 7, no. 1 (Spring): 215-251.

Wurgler, J. 2011. "On the Economic Consequences of Index-Linked Investing." In: *Challenges to Business in the Twenty-First Century: The Way Forward*. W.T. Allen, R. Khurana, J. Lorsch, and G. Rosenfeld, eds. American Academy of Arts & Sciences. 20-34.

Wurgler, J., and E. Zhuravskaya. 2002. "Does Arbitrage Flatten Demand Curves for Stocks?" *Journal of Business*, vol. 75, no. 4 (October): 583-608.

Figure 1. MSCI Country Index Returns Around Index Reclassifications. Returns on the affected market's MSCI Country Index, including total returns and excess returns over the old or new benchmark index (Frontier, Emerging, or Developed). For reclassifications from (to) standalone status, we replace excess returns with total returns.

Panel A. Reclassifications to a Less-Benchmarked Index (n=9)



Panel B. Reclassifications to a More-Benchmarked Index (n=8)

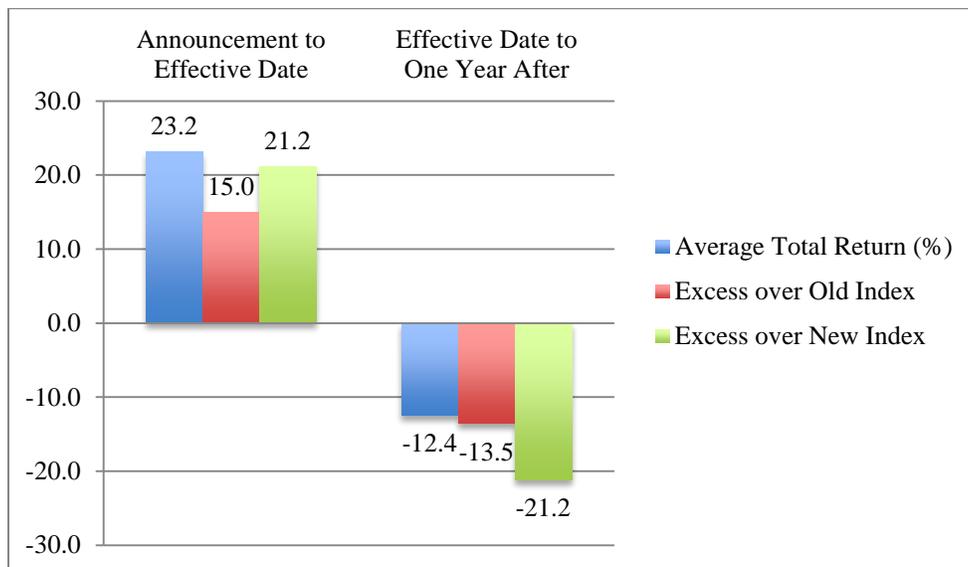


Table 1. MSCI Market Reclassifications, 2000-2015. DM denotes the MSCI Developed World Index, EM denotes the MSCI Emerging Markets Index, and FM denotes the MSCI Frontier Markets Index. The FM Index was introduced in 2007.

Announcement	Effective	Market	Old Index	New Index	MSCI Press Announcement
Panel A. Upgrades					
June 2013	June 2014	Qatar	FM	EM	Increased foreign ownership levels; operational improvements
June 2013	June 2014	United Arab Emirates	FM	EM	Operational improvements; borrowing/lending regulations
February 2010	May 2010	Bangladesh	Standalone	FM	Achieved minimum required number of eligible securities
June 2009	June 2010	Israel	EM	DM	Met all requirements for DM upgrade
May 2009	June 2009	Trinidad & Tobago	Standalone	FM	Met liquidity requirements
March 2009	June 2009	Pakistan	Standalone	FM	Increased liquidity
July 2000	June 2001	Egypt	Standalone	EM	Improved liquidity and diversity of investment opportunities
July 2000	June 2001	Greece	EM	DM	Improvements on multiple economic and market criteria
July 2000	June 2001	Morocco	Standalone	EM	Improved liquidity and diversity of investment opportunities
Panel B. Downgrades					
June 2013	December 2013	Greece	DM	EM	Reduced market accessibility
June 2013	December 2013	Morocco	EM	FM	Deterioration of liquidity
February 2011	June 2011	Trinidad & Tobago	FM	Standalone	Deterioration of liquidity
February 2009	June 2009	Argentina	EM	FM	Ongoing restrictions on inflows and outflows
December 2008	January 2009	Pakistan	EM	Standalone	Deterioration of investability
June 2008	December 2008	Jordan	EM	FM	Constituents below size and liquidity requirements
April 2006	June 2006	Venezuela	EM	Standalone	Low liquidity; restricted investability
February 2001	June 2001	Sri Lanka	EM	Standalone	Constituents below size and liquidity requirements

Table 2. Benchmarked Ownership by MSCI Market Classification. The percentage of ownership by benchmarkers is estimated as the ratio of benchmarked assets of that index, from private correspondence with MSCI, to the total capitalization of that index, estimated from MSCI Index Factsheets data. Assets benchmarked to the Frontier Markets Index are estimated from the Emerging Portfolio Fund Research (EPFR) database. The Total % Benchmarked to the Developed Market Index includes the average of Europe and Asia (ex-Japan).

	June 2014	Sept. 2013	Sept. 2012
Panel A. Frontier Market (FM) index			
<i>FM (Proper)</i>			
Benchmarked (\$bn)	23	n.a.	n.a.
Total Cap (\$bn)	106	84	69
% Benchmarked	22%	n.a.	n.a.
<i>Total % Benchmarked</i>	22%	n.a.	n.a.
Panel B. Emerging Market (EM) index and components			
<i>EM (Proper)</i>			
Benchmarked (\$bn)	1,746	1,364	1,451
Total Cap (\$bn)	3,860	3,929	3,853
% Benchmarked	45%	35%	38%
<i>ACWI (All Country World)</i>			
Benchmarked (\$bn)	2,287	1,714	1,152
Total Cap (\$bn)	35,791	33,308	27,309
% Benchmarked	6%	5%	4%
<i>Total % Benchmarked</i>	51%	40%	42%
Panel C. Developed Market (DM) index and components			
<i>MSCI World Index</i>			
Benchmarked (\$bn)	2,156	2,388	1,906
Total Cap (\$bn)	31,946	29,421	23,544
% Benchmarked	7%	8%	8%

<i>ACWI (All Country World)</i>			
Benchmarked (\$bn)	2,287	1,714	1,152
Total Cap (\$bn)	35,791	33,308	27,309
% Benchmarked	6%	5%	4%
<i>EAFE (Europe, Australasia, and Far East)</i>			
Benchmarked (\$bn)	2,010	1,682	1,438
Total Cap (\$bn)	12,695	12,372	10,133
% Benchmarked	16%	14%	14%
<i>Europe</i>			
Benchmarked (\$bn)	544	337	261
Total Cap (\$bn)	8,434	8,234	6,606
% Benchmarked	6%	4%	4%
<i>Asia (ex-Japan)</i>			
Benchmarked (\$bn)	329	372	300
Total Cap (\$bn)	3,047	2,954	2,755
% Benchmarked	11%	13%	11%
<i>Total % Benchmarked</i>	<i>38%</i>	<i>35%</i>	<i>34%</i>

Table 3. Alpha-Maximizing Strategies Around MSCI Market Reclassifications. Historical alpha-maximizing strategies based on sample of 17 reclassifications between 2000 and 2015. Note that some multi-level reclassifications, e.g. Frontier to Developed, have not occurred in this sample. Appropriate strategy is inferred from observed events.

Case	If Benchmarked to Old Index	If Benchmarked to New Index
<p>Reclassification to a Less-Benchmarked Index: DM to FM/Standalone, EM to DM/FM/Standalone, FM to Standalone</p>	<p>Sell on announcement or several months after effective date. Both strategies involve tracking error. Selling at announcement avoids wave of pre-effective net selling pressure but misses reversion after the effective date. In upgrades from Emerging to Developed, tradeoff needs to be weighed carefully due to (likely) present high weight in Emerging index.</p>	<p>Buy on effective date. Pre-effective net selling pressure and tracking error minimization both point to buying at effective date.</p>
<p>Reclassification to a More-Benchmarked Index: DM to EM, FM to DM/EM, Standalone to FM/EM/DM</p>	<p>Sell on effective date. Pre-effective net buying pressure and tracking error minimization both point to selling at effective date.</p>	<p>Buy on announcement or several months after effective date. Both strategies involve tracking error. Buying at announcement benefits from pre-effective net buying pressure but suffers from reversion after effective date. In downgrades from Developed to Emerging (or below), tradeoff with tracking error needs to be weighed carefully due to likely high weight in new (smaller-cap) index.</p>