

Axioma Market Portfolios Rulebook

January 2020

1.0 Introduction

1.1 Axioma World-Wide Equity Market Portfolios

The Axioma World-Wide Equity Market Portfolios (or Axioma Market Portfolios) cover publicly listed equities in over 90 markets around the world and can be broken down by market classification (Developed, Emerging, and Frontier), geographic region (single-country or groups of counties), or market size segment (Large, Mid, and Small Cap).

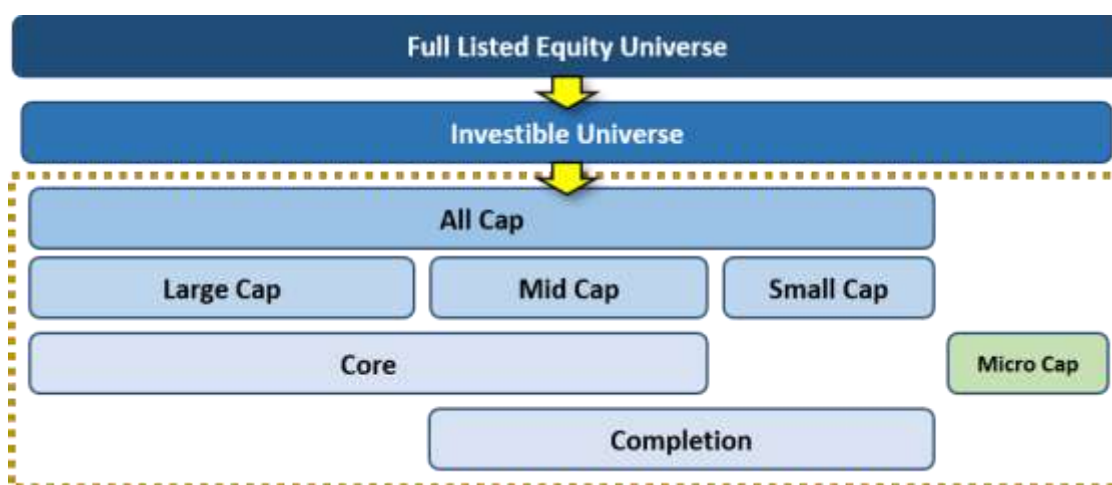
A consistent rules-based construction methodology ensures that constituent and weightings are “stackable” – that is, the global universe encapsulates the union of all markets, regions, and size segments. Similarly, any combination of market, region, and size segment can be extracted from this superset, thus enabling the Axioma Market Portfolios to be fine-tuned and constructed for specific benchmarking and analysis use cases.

Axioma Market Portfolios are free-float market capitalization weighted.

1.2 Product Families

Video provides a powerful way to help you prove your point. When you click Online Video, you can paste in the embed code for the video you want to add.

1.2.1 Global, Stackable Market Portfolios



The Axioma Market Portfolios are designed to represent stocks of sufficiently size and liquidity across global markets, aiming to cover over 99% of the investible equity universe. The All Cap Market Portfolios span all

available size segments except Micro Cap, while the Core Market Portfolios cover large- and mid-sized stocks, and the Completion Market Portfolios cover mid- and small-sized stocks.

1.2.2 Fixed Name Count Domestic Market Portfolios

The Domestic Axioma Market Portfolios represent individual markets based on a defined number of constituents ranked by market cap and other country-specific rules. These Market Portfolios give the user the ability to choose their desired number of constituents at a desired size segmentation.

1.3 Periodic Rebalances

Axioma Market Portfolios are reviewed on a quarterly basis, in January, April, July, and October, which are designated Rebalancing Months. April is a “Major” Rebalance, which involves applying all the screens and filters described in Section 2, including possible reassignment of size segments. The other three rebalances are considered “Minor” Rebalances, where only a subset of the filters are run: recent IPOs are tested for inclusion eligibility, and weighting factors such as free-float percentages are updated.

Revised compositions take effect after the close of the Rebalance Date, defined as the last Friday of each Rebalancing Month. Data for computing the constituent lists for each rebalancing is sampled from market close of the corresponding Observation Date, defined as the last weekday of the preceding calendar month. As such, data between an Observation Date and the Rebalance Date shall not affect rebalancing changes such as additions and deletions.

1.4 Governance

The Axioma Product Committee (APC) manages and oversees the construction and methodology of the Axioma Market Portfolios. The ACP meets on a regular basis (at least once year) to review and update the methodology as appropriate. Any amendments to the methodology are subject to approval by the APC.

1.5 About Axioma

Axioma is the leading provider of innovative risk management, portfolio construction, and risk and regulatory reporting solutions that unify front, middle and back office functions at financial institutions worldwide.

Axioma has been providing the market with high quality, equity factor risk models since 2005, with all models updated daily. Consequently, Axioma has a proven data infrastructure for creating and rebalancing indexes.

Axioma’s researchers and analysts specialize in equity data collection, verification, and correction.

2.0 Selection of Constituents

Constituents of the Axioma Market Portfolios are selected by running a series of filtering steps on a per-market basis. For each market, the inclusion criteria determine the Investible Universe, which represents the broadest pool of investible stocks for that geography. A market capitalization-based filter then classifies stocks into one of several size segments and aims to, in aggregate, cover as much of the Investible Universe as possible.

Application of the rules below, for each market separately, in the order specified, results in the creation of the Investible Universe. This represents the broadest pool of world-wide stocks that are sufficiently investible and thus eligible for membership in the Market Portfolios.

2.1 Market Eligibility

Axioma classifies each market as Developed, Emerging, or Frontier based on a number of criteria and market data used in the Axioma Market Portfolio selection methodology. The criteria include macroeconomic factors, characteristics of its capital market, market size and liquidity, practitioner best practices, and alignment with definitions used in Axioma's Risk Model products. The data sources used for these criteria are reputable, independent organizations (i.e. OECD, World Bank).

These designations may change over time as markets mature or deteriorate. Axioma actively monitors market developments and may periodically add or remove markets from its coverage. Axioma may also consult with its Risk Model product client base for current market developments. Market classifications are listed in the Appendices.

Initially, all equity securities listed in a given market are eligible for membership inclusion. The investible universe is then created using filtering criteria.

2.2 Minimum Market Cap Criteria

All equity securities listed globally are ranked by total market capitalization in US Dollars as of the Observation Date. Beginning with the largest stock, market caps are added together in a cumulative fashion and divided by the total market capitalization of all stocks. Any stock whose market capitalization is smaller than 99% coverage is rendered ineligible.

2.3 Exchange Eligibility

A full list of permitted stock exchanges per market is provided in Appendix 1. Like the list of eligible markets, these are subject to change over time as new trading venues are established and existing exchanges undergo mergers or closures.

2.4 Initial Public Offerings

An IPO must be actively trading for at least three full calendar months prior to the Observation Date before it is eligible for inclusion. A new share line from an existing issuer is considered an IPO for inclusion purposes and does not "inherit" the IPO date of its parent line.

2.5 Asset Type Eligibility

In general, securities with "fund-like" characteristics – that is, if they serve as vehicles primarily holding equity or other investments – are not eligible for inclusion. This includes Investment Trusts, Mutual Funds, Closed-end Funds, Exchanges Traded Funds, and so forth. Real Estate Investment Trusts (REITs) are an exception and are generally permitted in most markets where REIT legislation exists. Unit Trusts are permitted for a select few markets.

Preferred shares are generally not eligible for inclusion, except in markets where such share classes are very common and actively traded and exhibit certain equity-like characteristics.

Limited Partnerships, Limited Liability Companies, convertible preference shares, and equity derivatives such as warrants, are never eligible for inclusion.

Given that the types of securities traded differs per market and the definitions of such security types may vary across geographies and regulatory regimes, Axioma analyzes security type eligibility on a market-by-market basis. A full list of permitted security types per market is provided in Appendix 1.

2.6 Home Country Eligibility

Axioma classifies every stock to a “Home Country”, usually done through company-specific research by country and region analysts. In the vast majority of cases this assignment matches the stock’s country of quotation. For foreign listings, Depository Receipts (or similar instruments), dual- and cross-listings, and Benefit-Driven Incorporation cases, Axioma looks closely at the company’s business and geographical distribution of revenues and operations to determine its appropriate Home Country. Home Country is equivalent to a stock’s country exposure in the Axioma Equity Risk Models. See Appendix 2 for more details.

For Developed Markets Market Portfolios, stocks with Home Country different than their country of quotation are generally not eligible for inclusion. For Eurozone member countries, stocks trading outside the Home Country but listed elsewhere in the Eurozone are still eligible. For Emerging Markets, stocks listed in other geographies (for example, American Depository Receipts) can be eligible provided that the listing country is a Developed Market within four time zones of the Home Country and the listing meets subsequent filtering criteria such as liquidity. For Frontier Markets, all the above conditions apply; additionally, listings in Emerging Market countries can also be considered for eligibility.

In exceptional cases where a substantial portion of a country’s market capitalization is listed overseas, foreign listings are rendered eligible for inclusion, even if the listing geography falls outside the time zone bounds described above. A good example is the prevalence of many large Chinese technology companies with listings in the United States but no corresponding local listing.

2.7 Liquidity Filters

All stocks pass the following series of liquidity filters before being considered for the Investible Universe

2.7.1 Frequency of Trading

Stocks already in the Investible Universe must have shares traded on at least 80% of all Trading Days in its country of quotation for the three calendar months prior to the Observation Date. For an off-universe stock to enter the Investible Universe, it must trade on at least 90% of Trading Days. A Trading Day is any day, including possibly weekends, that is not an official exchange holiday.

2.7.2 Turnover Ratio

Additionally, stocks must have a Turnover Ratio of at least 15% in the twelve months prior to the Observation Date to join the Investible Universe and retain a Turnover Ratio of at least 10% to remain eligible. For each stock and each Trading Day, its total trading volume (shares traded multiplied by closing price) is divided by its closing free-float adjusted market cap. The Turnover Ratio is then defined as the median of this time series over the past twelve months, annualized by multiplying by 252. This provides a measure of the fraction of a company’s shares that trade on a yearly basis. For recently-listed stocks without twelve complete months of trading history, the median is taken over the time period since its IPO date.

In measuring trading volume, consolidated volumes aggregated across relevant regional exchanges are used for the United States, Germany, India, Japan, and Spain. For all other geographies, only primary volumes are considered.

2.7.3 Absolute Total Trading Volume

For certain small Frontier Markets, an additional requirement is imposed whereby the total annual value traded over the year preceding the Observation Date must exceed \$5 million USD.

2.8 Foreign vs. Local Listings

If the Investible Universe includes companies with security lines in multiple geographies (for example, an American Depository Receipt and a local/underlying share) but all passing the liquidity filtering requirements, then all lines are discarded except the locally-listed issue. That is, the local listing has priority. If all eligible lines are not listed locally, then only the most liquid line is retained, measured by median daily trading volume during the year preceding the Observation Date.

This rule does not apply to issuers with multiple share lines listed in the same market (for example, a pair of common and preferred shares); in those cases, any line(s) that pass the liquidity filtering and other inclusion criteria remain eligible securities.

This rule also does not apply to Frontier Markets, where large companies often choose to list in a more mature developed market because of the small size and relatively low trading activity of the local equity market.

2.9 Minimum Free-Float

Stocks must have a minimum free-float of 15% as of the Observation Date to join the Investible Universe, and existing stocks must retain a free-float of 10% to remain eligible. Exceptions are made for very large stocks with very small free-float; stocks with free-float adjusted market cap above the 90th percentile among all listed securities in its respective market are still considered eligible.

2.10 Exclusion List

Axioma maintains a short list of securities that are permanently ineligible for inclusion in any Market Portfolio. These typically include special cases that cannot be programmatically excluded using one or more of the filtering criteria discussed above and may include (but are not limited to): complex and unusual security types, issuers with many obscure lines and share classes sometimes listed in less-prominent geographies, and companies with substantial business originating from a geography not yet covered by Axioma.

2.11 Market-Specific Rules

In addition to the general eligibility rules outlined above, for certain markets with unique local structures or arrangements, market-specific business logic is also employed to accurately identify a representative sample of investible stocks. These additional rules supplement – and sometimes override – parts of the basic construction methodology described above.

In Thailand, for example, localized rules are required to treat local shares, foreign shares, and Non-Voting Depository Receipts (NVDRs). Specialized handling for companies with share lines trading on both the RTS and MICEX exchanges in Russia (prior to their merger) is another such example. Finally, the myriad of different share classes for Chinese issuers (A/B/H shares, red-chips, P-chips, overseas listings) also calls for additional granularity and specialization. See Appendix 3 for details.

Axioma strives to adhere to the stated construction methodology but may add/remove/revise market-specific rules and numerical parameters under extraordinary circumstances if the resulting compositions better

represent the investible equity universe of the corresponding market and affected size segments or avoid excessive turnover during a rebalancing event.

3.0 Size Segment Allocation of Constituents

Stocks are screened by market capitalization to ensure that the Axioma Market Portfolios roughly cover the top 99% of the Investible Universe by free-float market capitalization. As part of each rebalance review, constituent stocks are assigned to a size segment. Stocks may be added or removed at the margins to achieve size consistency across markets, recognizing that the distribution and scale of market caps varies greatly across markets and regions. For example, some geographies may feature large numbers of listed companies, most of which are medium- and small-sized whereas other markets may contain far fewer, but generally larger, stocks. Additionally, “grandfathering” rules are employed to ensure continuity so that stocks do not repeatedly shift in and out of a given size segment.

3.1 Classification by Size Segment

All remaining stocks for the given market are ranked by total market capitalization in US Dollars as of the Observation Date. Any stock with missing market cap is assigned a value of zero. Beginning with the largest stock, each stock's free-float market cap is then added to a running total and divided by the total free-float market cap of all stocks. This cumulative percentage is the stock's Local Coverage Percentage.

Note that the ranking of stocks is done using *total* market capitalization whereas the running tally of market caps uses *free-float* market capitalization. This ensures that companies with multiple share lines get assigned to the same size segment. For example, if a very large company has two eligible share lines, one of which is very small in market capitalization, both lines are still classified as Large Cap, but the membership weighting of the smaller line within the Large Cap segment is very small.

Each size segment shall only include stocks whose Local Coverage Percentage is below the segment Target Coverage and above the Target Coverage of the preceding size segment. For example, the Mid Cap segment consists of stocks whose Local Coverage Percentage is between 70% and 85%.

The use of a cumulative sum means this process is carried out first on the Large Cap segment, then Mid Cap, Small Cap, and finally Micro Cap.

Size Segment	Target Coverage	Global Size Consistency Bounds	Grandfathering Bounds
Large Cap	70%	[67.5%, 80%]	[68%, 72%]
Mid Cap	85%	[83.25%, 92%]	[82%, 86%]
Small Cap ¹	99%	[98.85%, 99.6%]	[98.5%, 99.5%]

¹ The USA uses a slightly “deeper” coverage target for its small cap segment (99.5%), owing to the large overall size and breadth of its equity markets.

3.2 Global Size Consistency

First, stocks are taken from the Investible Universe as of the *previous* Rebalance Date. Stocks that have delisted between the previous Rebalance Date and the current Observation Date are discarded; that is, only the subset of Developed Investible Universe stocks are retained.

These stocks are ranked by their total market capitalization in US Dollars as of the Observation Date. Beginning with the largest stock, each stock's free-float market cap is then added to a running total and divided by the total free-float market cap of all stocks. This cumulative percentage is the stock's Global Coverage Percentage.

Next, the last stock (and hence the smallest stock) to be included in the size segment is identified and its Local Coverage Percentage is compared with its Global Coverage Percentage. If the stock's Local Coverage Percentage is within the Global Size Consistency Bounds for the given size segment, no further action is taken.

If its Local Coverage Percentage is above the upper end of the Global Size Consistency Bounds, the stock is deemed too small for inclusion in this size segment; it is removed and the next smallest stock will have its Local Coverage Percentage tested in the same way, iteratively, until the smallest stock in this size segment has a Local Coverage Percentage falling within the acceptable Global Size Consistency Bounds. This affects markets with large numbers of listed stocks, most of which are relatively small in value. Stocks that were removed through this process remain eligible for inclusion in subsequent (smaller) size segments.

Conversely, if a stock's Local Coverage Percentage is below the lower end of the Global Size Consistency Bounds, remaining eligible stocks (those that have not yet been assigned a size segment) are added to this size segment one at a time, until the smallest stock in the segment has a Local Coverage Percentage falling within the acceptable Global Size Consistency Bounds. This affects markets with fewer listed securities but most of which are fairly large in value.

3.3 Size Segment Grandfathering

To avoid size segment assignment changing too frequently, the latest size segment is compared with the size segment designation as of the previous Rebalance Date.

For stocks transitioning from a different size segment (for example, from Mid Cap to Large Cap), if its current Local Coverage Percentage is within its size segment's Target Coverage plus or minus the specified Grandfathering Bounds, the previous size segment is retained and no size segment change occurs. Stocks only join or leave a given size segment once they have become grown or shrunk "sufficiently".

This procedure also prevents very small stocks from repeatedly entering and leaving the smallest size segment.

3.4 Minimum Weight Requirement

After stocks' size segments have been assigned, stocks whose final weight in the All Cap segment for its corresponding market falls below 0.1 basis points (0.001%) are removed. Owing to the size and breadth of its stock market, the USA is an exception to this rule, and slightly smaller stocks are still permitted.

4.0 Constituent Weightings

After constituent stocks are selected via the above processes, each stock's Market Cap is computed by multiplying its total market capitalization in US Dollars by its Weight Factor. A stock's Weight Factor is typically defined as the lesser of its free-float percentage and any other applicable investibility restrictions, such as Foreign Ownership Limits (FOL).

Limitations are based strictly on statutory (de jure) restrictions. Any additional actual restrictions that might exist in practice (de facto) and the fact that restrictions may not be closely monitored or enforced in some cases are not reflected in the Weight Factor computation. Investment restrictions are based on data from relevant stock exchanges, regulatory bodies, and the World Bank's *Investing Across Borders* initiative. In the vast majority of cases, the Weight Factor is equivalent to free-float.

For any Market Portfolio corresponding to a combination of geographies and size segments, stock weights are finally computed by taking each stocks' weighted Market Cap divided by the sum of all constituents' weighted Market Caps.

Appendix 1: Eligible Markets, Exchanges, and Asset Types

Developed Markets

Market	ISO Code	Exchanges	Asset Types	Start Date
Australia	AU	Australian Securities Exchange	Common Stock Preferred Stock Stapled Security	1997
Austria	AT	Wiener Börse	Common Stock Preferred Stock	1997
Belgium	BE	NYSE Euronext Brussels	Common Stock	1997
Canada	CA	Toronto Stock Exchange	Common Stock Investment Trust Unit Trust	1997
Denmark	DK	NASDAQ OMX Nordic	Common Stock	1997
Finland	FI	NASDAQ OMX Nordic	Common Stock	1997
France	FR	NYSE Euronext Paris	Common Stock	1997
Germany	DE	Deutsche Börse XETRA	Common Stock Preferred Stock	1997
Hong Kong	HK	Stock Exchange of Hong Kong	Common Stock Stapled Security	1997
Iceland*	IS	NASDAQ OMX Nordic	Common Stock	2003
Ireland	IE	Irish Stock Exchange	Common Stock Stapled Security	1997
Israel	IL	Tel Aviv Stock Exchange	Common Stock	1997
Italy	IT	Borsa Italiana	Common Stock Preferred Stock	1997
Japan	JP	Japan Exchange (formerly Tokyo Stock Exchange and Osaka Securities Exchange) JASDAQ	Common Stock	1997
Korea	KR	Korea Exchange (formerly Korea Stock Exchange and KOSDAQ)	Common Stock Preferred Stock	1997
Luxembourg*	LU	Luxembourg Stock Exchange	Common Stock	1997
Netherlands	NL	NYSE Euronext Amsterdam	Common Stock	1997
New Zealand	NZ	New Zealand Exchange	Common Stock Preferred Stock	1997
Norway	NO	Oslo Børs	Common Stock	1997
Portugal	PT	NYSE Euronext Lisbon	Common Stock	1997
Singapore	SG	Singapore Exchange Catalist	Common Stock Unit Trust	1997
Spain	ES	Bolsa de Madrid	Common Stock	1997
Sweden	SE	NASDAQ OMX Nordic AktieTorget (Spotlight)	Common Stock Preferred Stock	1997
Switzerland	CH	SIX Swiss Exchange	Common Stock Preferred Stock	1997
United Kingdom	GB	London Stock Exchange	Common Stock	1997
United States	US	New York Stock Exchange	Common Stock	1997

NYSE Arca
NYSE MKT (formerly
American Stock
Exchange)
NASDAQ
Investors Exchange (IEX)
BATS Exchange

* These markets are considered developed markets for classification purposes but are too small to be included in the Developed Market regional Market Portfolios.

REITS are not explicitly listed but are eligible for inclusion in all markets where REIT legislation and structures exist.

Emerging Markets

Market	ISO Code	Exchanges	Asset Types	Start Date
Brazil	BR	BM&F Bovsepa	Common Stock Preferred Stock Stapled Security	1997
Chile	CL	Santiago Stock Exchange	Common Stock Preferred Stock	1997
China	CN	Stock Exchange of Hong Kong Shanghai Stock Exchange Shenzhen Stock Exchange	Common Stock	1997
China ('A' Shares)*	CN	Shanghai Stock Exchange Shenzhen Stock Exchange Shanghai-Hong Kong Stock Connect Shenzhen-Hong Kong Stock Connect	Common Stock	1997
Colombia	CO	Bolsa de Valores de Colombia	Common Stock Preferred Stock	1997
Czech Republic	CZ	Prague Stock Exchange	Common Stock	1997
Egypt	EG	Egyptian Exchange	Common Stock	1997
Greece	GR	Athens Exchanges	Common Stock Preferred Stock	1997
Hungary	HU	Budapest Stock Exchange	Common Stock	1997
India	IN	Bombay Stock Exchange National Stock Exchange	Common Stock	1997
Indonesia	ID	Jakarta Stock Exchange	Common Stock	1997
Malaysia	MY	Bursa Malaysia ACE Market (formerly MESDAQ)	Common Stock Foreign Stock Stapled Security	1997
Mexico	MX	Bolsa Mexicana de Valores	Common Stock Unit	1997
Pakistan	PK	Karachi Stock Exchange	Common Stock	1997
Peru	PE	Bolsa de Valores de Lima	Common Stock Preferred Stock	1997
Philippines	PH	Philippine Stock Exchange	Common Stock	1997
Poland	PL	Warsaw Stock Exchange	Common Stock	1997

Qatar	QA	Doha Securities Market	Common Stock	2003
Russian Federation	RU	Moscow Exchange (formerly Russian Trading System RTS and MICEX Stock Exchange)	Common Stock Preferred Stock	1997
Saudi Arabia**	SA	Tadawul	Common Stock	2009
South Africa	ZA	Johannesburg Stock Exchange	Common Stock Preferred Stock Unit Trust	1997
Taiwan	TW	Taiwan Stock Exchange Gretai Securities Market	Common Stock	1997
Thailand	TH	Stock Exchange of Thailand	Common Stock Foreign Stock NVDR	1997
Turkey	TR	Istanbul Stock Exchange	Common Stock	1997
United Arab Emirates	AE	Abu Dhabi Securities Exchange Dubai Financial Market NASDAQ Dubai	Common Stock	2003

* China 'A' Shares are considered an Emerging Market for classification purposes but are only included in the Emerging Market regional Market Portfolios from April 2019 onwards due to restrictions on foreign investor access during earlier years. History as a standalone market is available since 1997. See Appendix 3 for partial inclusion details.

** Saudi Arabia is considered an Emerging Market for classification purposes but is only included in the Emerging Market regional Market Portfolios from April 2019 onwards due to foreign ownership restrictions during earlier years. History as a standalone market is available since 2009. See Appendix 3 for phase-in inclusion details.

REITs are not explicitly listed but are eligible for inclusion in all markets where REIT legislation and structures exist.

Frontier Markets

Market	ISO Code	Exchanges	Asset Types	Start Date
Argentina	AR	Buenos Aires Stock Exchange	Common Stock	1997
Bahrain	BH	Bahrain Stock Exchange	Common Stock	2003
Bangladesh	BD	Dhaka Stock Exchange	Common Stock	2009
Bosnia and Herzegovina	BA	Banja Luka Stock Exchange Sarajevo Exchange	Common Stock	2015
Botswana	BW	Botswana Stock Exchange	Common Stock	2003
Bulgaria	BG	Bulgaria Stock Exchange	Common Stock	2003
Croatia	HR	Zagreb Stock Exchange	Common Stock Preferred Stock	2003
Cyprus	CY	Cyprus Stock Exchange	Common Stock	2003
Ecuador	EC	Bolsa de Valores de Guayaquil Bolsa de Valores de Quito	Common Stock	2009

Estonia	EE	NASDAQ OMX Baltic	Common Stock	2003
Ghana	GH	Ghana Stock Exchange	Common Stock Preferred Stock	2009
Ivory Coast	CI	Bourse Regionale de Valeurs Mobilieres, WAEMU	Common Stock	2015
Jamaica	JM	Jamaica Stock Exchange	Common Stock Preferred Stock	2009
Jordan	JO	Amman Stock Exchange	Common Stock	2003
Kazakhstan	KZ	Kazakhstan Stock Exchange	Common Stock Preferred Stock	2009
Kenya	KE	Nairobi Stock Exchange	Common Stock Preferred Stock	2009
Kuwait	KW	Kuwait Stock Exchange	Common Stock	2003
Latvia	LV	NASDAQ OMX Baltic	Common Stock	2003
Lebanon	LB	Beirut Stock Exchange	Common Stock Preferred Stock	2009
Lithuania	LT	NASDAQ OMX Baltic	Common Stock	2003
Macedonia, Republic of	MK	Macedonian Stock Exchange	Common Stock	2015
Malawi	BW	Malawi Stock Exchange	Common Stock	2015
Malta	MT	Malta Stock Exchange	Common Stock	2009
Mauritius	MU	Stock Exchange of Mauritius	Common Stock Preferred Stock	2003
Morocco	MA	Casablanca Stock Exchange	Common Stock	1997
Montenegro	ME	Montenegro Stock Exchange	Common Stock	2015
Namibia	NA	Namibian Stock Exchange	Common Stock	2009
Nigeria	NG	Nigeria Stock Exchange	Common Stock	2009
Oman	OM	Muscat Securities Market	Common Stock	2003
Palestine	PS	Palestine Securities Exchange	Common Stock	2015
Romania	RO	Bucharest Stock Exchange	Common Stock	2003
Serbia	RS	Belgrade Stock Exchange	Common Stock	2009
Slovakia	SK	Bratislava Stock Exchange	Common Stock	2003
Slovenia	SI	Ljubljana Stock Exchange	Common Stock Preferred Stock	2003
Sri Lanka	LK	Colombo Stock Exchange	Common Stock	1997
Tanzania	TZ	Dar es Salaam Stock Exchange	Common Stock	2015
Trinidad and Tobago	TT	Trinidad and Tobago Stock Exchange	Common Stock	2009
Tunisia	TN	Bourse de Tunis	Common Stock	2009
Uganda	UG	Uganda Securities Exchange	Common Stock	2015
Ukraine	UA	PFTS Stock Exchange Ukrainian Exchange	Common Stock Preferred Stock	2009
Venezuela	VE	Bolsa de Valores de Caracas	Common Stock	2003

Vietnam	VN	Hanoi Stock Exchange Ho Chi Minh Stock Exchange	Common Stock	2009
Zambia	ZM	Lusaka Stock Exchange	Common Stock	2009
Zimbabwe	ZW	Zimbabwe Stock Exchange	Common Stock	2015

Appendix 1a: More on Eligible Asset Types

A. Real Estate Investment Trusts (REITs)

As of 2017, REIT legislation or similar structures exist in the following geographies and, unless stated otherwise, are eligible for inclusion even though not explicitly listed in Appendix 1 above.

Australia	Hong Kong	Netherlands	Taiwan
Belgium	Indonesia	New Zealand	Thailand
Bulgaria	Ireland	Nigeria	Turkey
Canada	Israel	Pakistan	United Arab Emirates
China	Italy	Romania	United Kingdom
France	Japan	Saudi Arabia	United States
Finland	Korea	Singapore	Thailand
Germany	Malaysia	South Africa	
Greece	Mexico	Spain	

B. Preferred Stocks

Although differing from common stocks in dividend treatment and voting rights, preferred stocks in some markets continue to exhibit equity-like characteristics, both in their trading behavior and dividend entitlements. In the United States, for example, preferred stocks exhibit fixed-income like behavior and often require the company to repay invested capital in the form of fixed coupons or otherwise lump-sum payments over the lifespan of the security. For this reason, in the United States, preferred stocks are not eligible for membership inclusion. However, in markets where preferred stocks are more equity-like, they are permitted to join the Investible Universe provided they meet all other filtering criteria.

C. Income Trusts, Investment Trusts, Investment Companies, Units

In the small number of geographies where these instruments are commonplace, so long as the structure behaves like the stock of a single company with a specific line of business, it is eligible for membership inclusion and subject to the same filtering rules as other equity securities. Ineligible cases are those where the entity is designed to invest in a broad portfolio of securities, funds, or nonequity and possibly alternative asset classes.

Appendix 2: Assigning Home Country to Securities

A security's country membership (its "Home Country") reflects its country of risk and is consistent with its country factor exposure in the Axioma Equity Risk Model products. While straightforward in most cases, this can sometimes be a subjective process and the final country assignment is the result of security-specific research conducted by teams of country and region data analysts. Among the factors considered when determining country membership:

- > Country of incorporation, assuming not an instance of "Benefits-Driven Incorporation"
- > Geographic breakdown of company's revenues
- > Location of its main operations or headquarters
- > Country which most users typically associate with the given security

In short, Home Country should be thought of as the country that has the most impact on the financial/shareholder well-being of the company.

Note that Home Country designations may change through time as the company's activities and revenue sources evolve, though a change in Home Country is a significant event and should be a rare occurrence.

Appendix 3: Examples of Country-Specific Rules

A. China

The Chinese equity market is unique in its structure, involving several market segments of share classes each trading in a different geographic venue. While a lengthy discussion of A/B/H/N shares, P chips, and Red Chips is beyond the scope of this methodology document, the Chinese portion of the Investible Universe can be best characterized as two distinct market segments: an “offshore” portion consisting of Chinese issuers traded in Hong Kong as well as Shenzhen- and Shanghai-listed B-shares; and an “onshore” portion containing domestically traded ‘A’ shares, provided all these pass the various eligibility criteria. In recent years US listings (so-called N shares) are also included in the “offshore” segment as they have begun to constitute a critical mass of Chinese share capital listed overseas, particularly for sectors such as information technology.

Domestic ‘A’ shares are eligible for inclusion as part of the China Investible Universe only from April 2019 onwards, as they had been historically inaccessible to foreign investors except large institutions operating under the Qualified Foreign Institutional Investors (QFII) programme. The ‘A’ share market has taken a number of steps towards liberalization, aided by continued expansion of the QFII programme via relaxation and speeding up in granting of QFII quota, introduction of the R-QFII scheme embraced by asset managers, and launching of the Shanghai- and Shenzhen-Hong Kong Stock Connect platforms. In light of these developments, Axioma introduced a partial inclusion plan beginning April 2019 that gradually considers Chinese ‘A’ shares as investible from a global investor perspective. The phase-in plan is as follows based on the Axioma Market Portfolio rebalancing schedule:

China ‘A’ Share investibility weight factors

< April 2019	April 2019	July 2019	October 2019
0%	10%	15%	20%

The percentages represent an investibility weight factor where the free float market capitalization is downweighted by that factor. For example, 20% means the Axioma Market Portfolio weight for a China ‘A’ share will be calculated as 20% of its free float market capitalization.

The phase-in plan applies only to ‘A’ shares that are accessible via the Shanghai-Hong Kong Stock Connect (Northbound Trading). Eligibility is controlled by Hong Kong Exchanges and Clearing (HKEx) via a publicly disclosed set of filters based on market capitalization and membership in domestic Chinese indexes. More specifically, only ‘A’ shares that are Market Portfolio constituents and have Stock Connect listings that are both buy and sell eligible as of the most recent Rebalance Date can join regional and global Market Portfolios. Listings are removed from the Market Portfolios with immediate effect when they become downgraded to sell-only or removed from the Stock Connect altogether. Conversely, if a given ‘A’ share becomes buy and sell eligible in between Rebalance Dates, its Stock Connect line will enter the Market Portfolios upon the next Rebalance Date, provided that its underlying onshore listings remains an eligible constituent.

Per Appendix 1, Chinese ‘A’ share Market Portfolios are nonetheless present in the global Investible Universe starting in 1997, but treated as a separate, standalone component, for users interested solely in the domestic Chinese equity market.

B. Hong Kong

Global benchmark vendors often disagree on whether to categorize certain stocks to Hong Kong or China. Axioma employs in-depth, stock-level research to determine the appropriate Home Country following the process outlined in Appendix 2. Additionally, levels of state ownership are also taken into account. Red Chips and P Chips – Hong Kong listed stocks of Chinese companies incorporated outside China (the former with some degree of state control) are assigned China as their Home Country.

Moreover, companies listed in Hong Kong but incorporated in or operating in Macau (gaming conglomerates mostly) are treated as Hong Kong stocks for classification purposes.

C. India

Securities on the “Ban List” and “Caution List” published by the Reserve Bank of India (RBI) are ineligible for inclusion.

D. Malaysia

Similar to Thailand (outlined below), at certain periods in history, Malaysia had separate foreign and local share lines for a number of large issuers. Where both lines exist, each are tested for liquidity separately. If both lines pass criteria for entering the Investible Universe, only the foreign line are kept.

E. Russia

Prior to the formation of Moscow Exchange, when the Russian Trading System (RTS) and Moscow Interbank Currency Exchange (MICEX) were still separate trading venues, if a security was listed on both exchanges, only the MICEX line was permitted to enter the Investible Universe, even if the RTS line also passed liquidity and other filtering requirements. No concept of consolidated volume (aggregated across the two exchanges) is applied in measuring liquidity. If only a RTS line was present, it would be tested for eligibility by itself.

Note that the priority given to MICEX lines historically applies on a security-level basis only, not across all share lines of a company. A number of Russian companies issue both common and preferred stock, and both are eligible for membership concurrently if they each meet all the filtering criteria.

F. Saudi Arabia

Starting from the April 2019 rebalance, Saudi Arabia was elevated to an Emerging Market. As a result, the phase-in plan is as follows based on the Axioma Market Portfolio rebalancing schedule:

Saudi Arabia investibility weight factors

< April 2019	April 2019	July 2019	October 2019
0%	33%	67%	100%

The percentages represent an investibility weight factor where the free float market capitalization is downweighted by that factor. For example, 33% means the Axioma Market Portfolio weight for a Saudi Arabia security will be calculated as 33% of its free float market capitalization.

G. Thailand

In principle, every Thai listed company has three listed share classes: local shares, foreign shares, and Non-Voting Depository Receipts (NVDRs), though the latter two may often be very sparsely traded. Foreign investors are permitted to invest in local shares up to a prescribed Foreign Ownership Limit

(FOL), which is imposed by regulation at the sector or company level. Once the FOL is reached, foreign investors may purchase shares trading on the foreign board (often at a premium) or invest in NVDRs up to the company-specific NVDR Issuance Limit, which are identical to local shares in all respects (including liquidity) but carry no voting rights. Local shares and NVDRs have identical pricing.

In constructing the Investible Universe, only local and foreign shares are eligible, and each is tested for liquidity separately. If both local and foreign shares pass the various filtering criteria, priority is given to the foreign line, and the local line is discarded (even though it may in fact be slightly more actively traded than the foreign). In reality, only a small handful of foreign shares have sufficient trading activity to pass the screening rules.

Next, if median trading volumes over the calendar year preceding a given Observation Date for the NVDR exceed 10% of those of the local share, assuming the local share had already qualified for Investible Universe membership, the NVDR is deemed sufficiently “actively traded”.

- > By default, the Weight Factor for each local or foreign share is set to the lesser of the company’s free float percentage and the FOL.
- > If no actively traded NVDR exists for the given company, the Weight Factor remains unchanged.
- > For a foreign share where an actively traded NVDR exists, the foreign share retains the above Weight Factor, and the NVDR is added to the Investible Universe, with a Weight Factor that is the greater of zero and the difference between the company’s free float and FOL.
- > Similarly, for a local share where an actively traded NVDR exists, its Weight Factor is changed to the greater of its free float and FOL.

In other words, if the company’s free float is greater than its FOL, the difference can be filled in by the NVDR. In the last case, the NVDR does not need to be explicitly added to the universe since it has identical pricing to the local share.

Changes to Methodology

The following sections have been changed in **April 2020**:

- > Appendix 1
Updated eligible exchanges for Japan, Singapore, United States, and Malaysia.

The following sections have been changed in **January 2020**:

- > Appendix 3
Updated details regarding China A Shares and Shanghai-Hong Kong Stock Connect handling

The following sections have been changed in **April 2019**:

- > Section 5.0
Removed Index Calculation as it is non-applicable
- > Appendix 1:
Updated footnotes on China A Shares – partial inclusion
Updated footnotes on Saudi Arabia – reclassification into Emerging Markets
- > Appendix 3:
Section A: Updated language regarding China A Shares
Section F: Additional language on Saudi Arabia