



Citi Fixed Income Indices

Index Guide

A comprehensive overview of Citi's range of fixed income indices
January 2015



Citi Fixed Income Indices delivers market-tested and comprehensive benchmarks, trusted and widely followed by the global investment community.



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Introduction to Citi Fixed Income Indices Guide

Bond indices serve as benchmarks for fixed income markets, providing portfolio managers a point of reference for the evaluation of their portfolio's performance. In addition, these indices are used to provide investors with exposure to certain markets through derivatives, structured products, and exchange traded funds (ETFs). In order for portfolio managers and investors to be able to select the benchmark that best serves their needs, it is essential for them to understand the rules by which these indices are created and maintained.

The purpose of this publication is to familiarize the reader with Citi's range of fixed income indices, provide the philosophy behind the creation of these indices, explain how they are constructed, and highlight why they can be an accurate measure of the performance of fixed income markets across security types and geographies.

The publication begins with an overview of Citi's fixed income indices, explaining the characteristics, rules, and general construction methodology applicable to the entire range of indices.

The subsequent sections provide a detailed description of the major indices and sub-indices, organized by region. These sections detail each individual index's scope, design criteria and calculation assumptions, related indices, access information, and more.

Special focus is given to Emerging Markets coverage, an area of rapid growth that increasingly attracts the interest of the investment community. Leveraging its global footprint and ability to execute transactions worldwide, Citi Fixed Income Indices offers a comprehensive array of Emerging Market indices.

The publication continues with a section dedicated to alternative weighting methodologies. These are rules-based, passively managed strategies that are designed to deliver an alternative to traditional market-value weighted indices.

All indices are designed to appeal to a wide range of market participants. However, in order to meet the most specific investment needs, Citi's range of fixed income indices can be easily customized. A dedicated section of this guide details the variety of customization options available such as industry, geography, weighting methodology, currency, maturity, issue size, rating, and more.

Citi's fixed income indices are supported by The Yield Book[®], the trusted and authoritative source for fixed income analytics that enables market makers and institutional investors to perform complex and accurate portfolio analytics and risk management. More information on this analytical platform is provided in the penultimate section of this guide.

The publication concludes with an appendix covering calculation methodologies, formulae, terminology, and questions that are frequently asked by clients, to ensure that the reader gets a thorough understanding of Citi Fixed Income Indices offering.

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Overview of Citi Fixed Income Indices

The investment community values Citi's range of fixed income indices because of their long history, coverage, ease of customization, accessibility, and other desirable benchmark qualities.

EXPERIENCE

Citi Fixed Income Indices provides indices some of which exceed 30 years of history. We have worked with leading financial institutions in the creation of ETFs, structured products, and swaps. The indices have become the benchmarks of choice for a wide range of asset managers and pension funds.

COVERAGE

Leveraging its global footprint and ability to execute transactions worldwide, Citi Fixed Income Indices offers a comprehensive range of indices with a broad coverage in terms of currency, region, asset class, and credit quality.

DESIRABLE BENCHMARK QUALITIES

Based on objective rules, Citi's fixed income indices strike a balance between comprehensiveness and replicability, making them appealing to portfolio managers, asset owners, ETF issuers, and sponsors.

EASE OF CUSTOMIZATION

A unified methodology across markets enables investors to use Citi's fixed income indices as building blocks for customized benchmarks to meet investment objectives.

ACCESSIBILITY

Citi's fixed income indices are widely followed and broadly published. Multiple channels of distribution are employed to ensure easy access to data. The website (www.yieldbook.com/citi-indices) offers index information, profiles, analytics and returns, and historical data by subscription or on demand. The website also provides access to all index-related publications, such as announcements about composition or calculation changes on specific indices. Access to index publications, as well as sector-level and basic issue-level data, is available on demand.

Citi's fixed income indices are also available in The Yield Book, a leading portfolio analytics platform for benchmark analysis and risk management, and Citi VelocitySM.

Finally, information on Citi's range of fixed income indices is also made available through financial news organizations and data and analytic vendors. For a comprehensive list of all financial news organizations and vendors publishing information about Citi's fixed income indices, please see page 147.

LICENSING

Citi's range of fixed income indices are designed, calculated, and published by Citigroup Index LLC and may be licensed for use as underlying indices for OTC or exchange-traded derivatives and investment products, including ETFs, swaps, structured products, warrants, and certificates. Leading financial institutions that issue these instruments depend on Citi Fixed Income Indices for the creation of their index-based investment products.

Characteristics of a Good Benchmark

Citi's fixed income indices are designed to be relatively stable and easily replicable benchmarks. This goal is achieved by having regard to the following desirable index characteristics:

RELEVANCE

An index should be relevant to investors. At a minimum, it should track those markets and market segments of most interest to investors.

COMPREHENSIVENESS

An index should include opportunities in its target sectors that are realistically available to market participants under normal market conditions.

REPLICABILITY

The total returns reported for an index should be replicable by market participants, such as investment managers who are measured against it and sponsors who pay fees or award management assignments based on performance relative to it. Furthermore, over time, an index must represent a realistic baseline strategy that a passive investor could follow. Accordingly, information about index composition and historical returns should be readily available.

STABILITY

An index should not change criteria often. Changes should be easily understood and changes to constituents should be highly predictable. It should not be subject to opinions about which bonds to include on any particular day. However, index criteria must change occasionally to ensure that the index accurately reflects the structure of the market. A key virtue of an index is to serve as a passive benchmark; investors should not be forced to execute a significant number of transactions just to keep pace.

BARRIERS TO ENTRY

The markets or market segments included in an index should not contain significant barriers to entry. This guideline is especially applicable to an international index, in which a potentially eligible country may discourage foreign ownership of its bonds, or participation in its domestic currency or equity market.

EXPENSES

In the normal course of investing, expenses related to withholding tax, safekeeping, and transactions are incurred. For a market or market segment to be included, these ancillary expenses should be well understood by market participants and should not be excessive. For example, if expenses are unpredictable or inconsistently levied, an index cannot hope to measure market performance fairly.

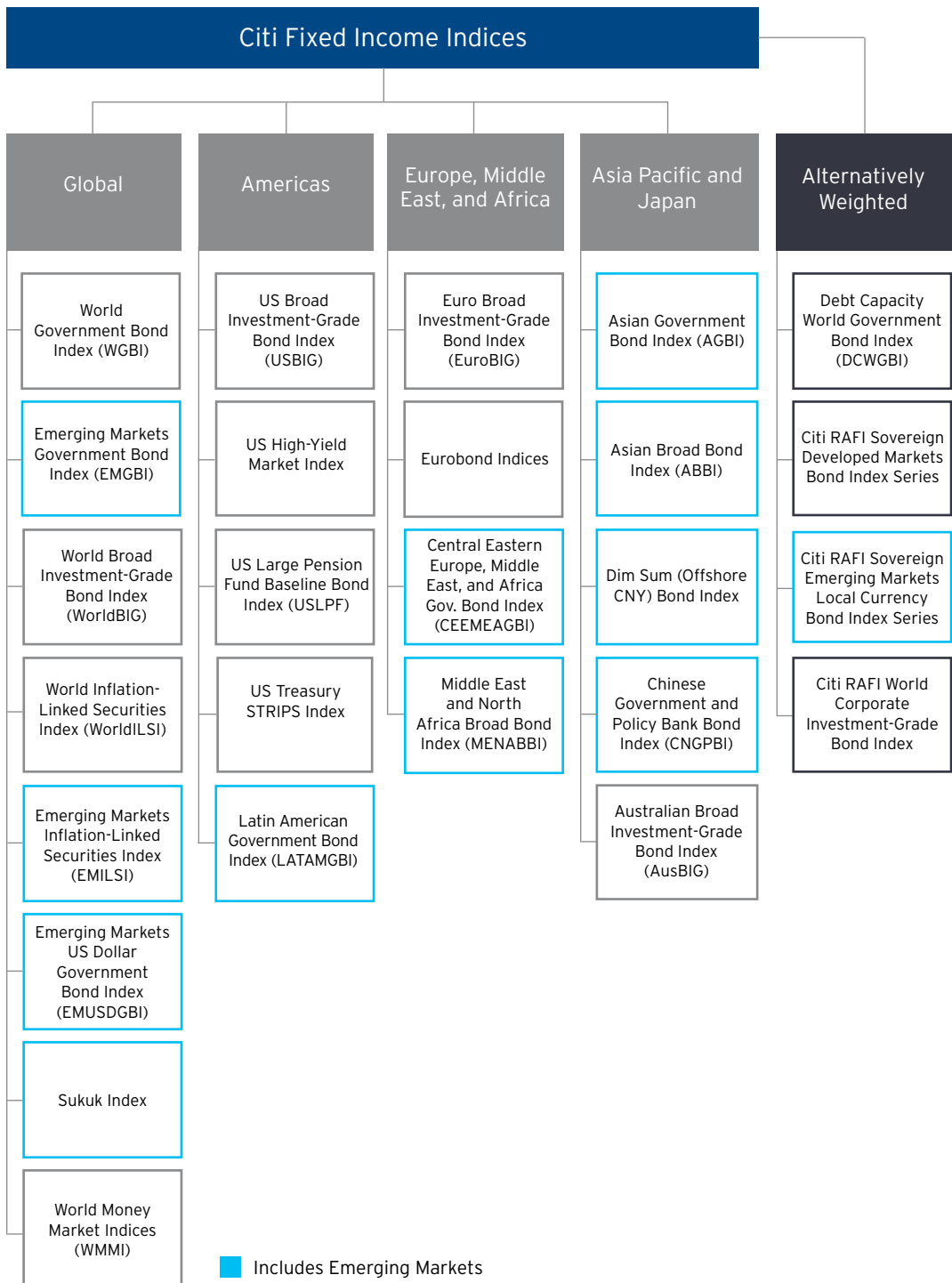
SIMPLE AND OBJECTIVE SELECTION CRITERIA

A clear set of rules should govern the inclusion of bonds or markets in an index, and investors should be able to forecast changes in composition.

This list of desirable characteristics may not be exhaustive, and different investors may place a different emphasis on each. In constructing indices, some desirable characteristics may have to be sacrificed to ensure that others are met. However, it is critical that an index follows objective rules that are well defined, so that all interested parties can understand how to apply the information to their particular situation.

Citi Fixed Income Indices Family Tree

The family tree below illustrates some of the most prominent indices in Citi’s range of fixed income indices. Related indices and sub-indices are also discussed in subsequent chapters.



30+

Years of experience in benchmarking

50+

Index families introduced and established in the market

100,000+

Combinations of sectors and sub-sectors are available as building blocks for composite indices

Comprehensive coverage

Citi Fixed Income Indices offers benchmarks in a broad array of currencies, regions, asset classes, and credit qualities

Figure 1 Historical Summary of Index Introductions

Year Introduced	Index Name	Base Date
1978	US Treasury-Bill and Certificate-of-Deposit Indices	December 31, 1977
1981	World Bond Index ¹	December 31, 1977
	World Money Market Index (WMMI) ²	December 31, 1977
1985	US Broad Investment-Grade Bond Index (USBIG)	December 31, 1979
	US Treasury Benchmark (On-the-Run) Indices	December 31, 1979
1986	World Government Bond Index (WGBI)	December 31, 1984
	US Large Pension Fund Baseline Bond Index (USLPF)	December 31, 1979
	Long-Term High-Yield Index	December 31, 1979
1987	Targeted Index Matrix Series (TIMS) ³	December 31, 1983
1988	Currency-Hedged World Government Bond Index	December 31, 1984
	High-Yield 7+ Year Index (Formerly the High-Yield Composite Index)	December 31, 1984
	Core+3 and Core+5 Indices	December 31, 1979
	US Treasury Yield Curve Average Indices	December 31, 1986
1990	US High-Yield Market Index	December 31, 1988
1991	Extended High-Yield Market Index ⁴	December 31, 1990
	Brady Bond Index ⁵	March 31, 1990
1992	Group-of-Seven (G-7) Government Bond Index	December 31, 1984
	Group-of-Five (G-5) Government Bond Index	December 31, 1984
	Global Government Composite Bond Index ⁶	September 30, 1992
1994	Eurodollar Bond Index	June 30, 1993
	US (New) Large Pension Fund Baseline Bond Index ⁷	December 31, 1979
	Emerging Markets Mutual Fund (EMMF) Debt Index ⁸	December 31, 1993
1995	Euro-Deutschemark ⁹ , Eurosterling, and Euroyen Bond Indices	December 31, 1994
1996	ECU Bond Index ⁹	December 31, 1995
	Government and Eurobond Composite Index (GECI) ¹⁰	December 31, 1995
1997	US Inflation-Linked Securities Index	February 28, 1997
	Jumbo Pfandbrief Index	June 30, 1997
1998	US Treasury STRIPS Index	December 31, 1991
1999	EMU Government Bond Index (EGBI)	December 31, 1998
	Euro Broad Investment-Grade Bond Index (EuroBIG)	December 31, 1998
	Mortgage Float-Adjusted Index	June 30, 1999

¹ Discontinued as of December 31, 1995. ² Redefined as of January 1999, with history dating to January 1998. ³ Discontinued as of March 31, 2005. ⁴ Discontinued as of December 31, 1998.

⁵ Market coverage of Brady bonds was migrated to the EMUSDGBI Index. Brady bond performance and characteristics are available via the Brady bond sector of the EMUSDGBI family of indices.

⁶ Discontinued as of August 31, 2006. ⁷ Refined as of May 1994, with history dating back to 1980. Replaced the old Large Pension Fund Baseline Bond Index in July 1995. ⁸ Discontinued as of June 30, 2003. An alternative to the EMMF Index is the EMUSDGBI Capped Index, which limits exposure to any one country by placing a ceiling on the par value contribution of each country. ⁹ The Euro-Deutschemark and ECU Bond Indices were discontinued as of December 31, 1998. Most members of these indices are now included in the EuroBIG Index. ¹⁰ Discontinued as of December 31, 2001.

Figure 1 Historical Summary of Index Introductions, continued

Year Introduced	Index Name	Base Date
2000	World Broad Investment-Grade Bond Index (WorldBIG)	December 31, 1998
	Australian Broad Investment-Grade Bond Index (AusBIG)	June 30, 2000
	US Agency Zero 10+ Index ¹¹	July 31, 2000
2002	Emerging Markets US Dollar Government Bond Index (EMUSDGBI) ¹²	December 31, 1995
	US High-Yield Market Capped Index	December 31, 2001
2003	Polish Government Bond Index	December 31, 1999
	Singapore Government Bond Index	December 31, 1999
2005	Korean Government Bond Index	December 31, 2004
	Malaysian Government Bond Index	December 31, 2004
	Taiwan Government Bond Index	December 31, 2004
	Japanese Inflation-Linked Securities Index	June 30, 2004
2006	Sukuk Index ¹³	September 30, 2005
2007	World Government Bond Index - Japanese Investment Trust (WGBI-JIT)	December 31, 1996
2008	Asian Government Bond Index (AGBI)	December 31, 2007
	World Inflation-Linked Securities Index (WorldILSI)	April 30, 2007
	Mexican Government Bond Index	December 31, 2003
2010	Asian Broad Bond Index (ABBI)	September 30, 2008
2011	Middle East and North Africa Broad Bond Index (MENABBI)	December 31, 2010
	Chinese Government Bond Index	February 28, 2009
	Sri Lankan Government Bond Index	June 30, 2010
	Asian Government Extended Bond Index (AGBI Extended)	February 28, 2009
	Asia Pacific Government Bond Index (APGBI)	December 31, 2007
	Dim Sum (Offshore CNY) Bond Index	December 31, 2010
	CEEMEA Government Bond Index (CEEMEAGBI)	March 31, 2011
	LATAM Government Bond Index (LATAMGBI)	March 31, 2011
2012	Citi RAFI Sovereign Developed Markets Bond Index Series	September 30, 2001
	Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series	September 30, 2011
	Hong Kong Government Bond Index	December 31, 2011
	Indian Government Bond Index	July 31, 2010
	Asian Government Bond Investable Index (AGBI Investable)	December 31, 2011
	Russian Government Bond Index	December 31, 2011

¹¹ Discontinued as of December 31, 2012. ¹² Entitled Global Emerging Market Sovereign Bond Index (ESBI) until November 2013. ¹³ Rebranded from Dow Jones Citigroup Sukuk Index as of April 2012.

Figure 1 Historical Summary of Index Introductions, continued

Year Introduced	Index Name	Base Date
2013	Emerging Markets Inflation-Linked Securities Index (EMILSI)	March 31, 2008
	WorldILSI Additional Markets Indices	March 31, 2008
	Israeli Inflation-Linked Securities Index	March 31, 2008
	Korean Inflation-Linked Securities Index	March 31, 2008
	Emerging Markets Government Bond Index (EMGBI)	December 31, 2007
	Emerging Markets Government Bond Index - Japanese Investment Trust (EMGBI-JIT)	December 31, 2007
	Emerging Markets Government Bond Index Additional Markets Indices	Varies by market
	Australian Inflation-Linked Securities Index	December 31, 2010
	Citi RAFI World Corporate Investment-Grade Bond Index	March 31, 2012
2014	Chinese Government and Policy Bank Bond Index (CNGPBI)	December 31, 2010
	Debt Capacity World Government Bond Index (DCWGBI)	May 31, 2004

Highlights of Major Index Changes Since January 2014

CHINESE GOVERNMENT AND POLICY BANK BOND INDEX (CNGPBI)

The index was introduced in February 2014 as the latest addition to Citi's Chinese onshore family of fixed income indices. It comprises Yuan-denominated fixed-rate government bonds and policy bank bonds issued in mainland China. The eligible Chinese policy bank bonds are those issued by the China Development Bank, the Agricultural Development Bank of China, and the Export-Import Bank of China. These policy banks are state-owned and their objectives typically include providing social benefit, stimulating the economy, and supporting growing local industries. Another version of the index is also available where eligibility of securities is limited to government and policy bank bonds issued within the last 12 months.

DEBT CAPACITY WORLD GOVERNMENT BOND INDEX (DCWGBI)

The index was introduced in November 2014. It measures the performance of fixed-rate, local currency, investment-grade sovereign bonds with a focus on countries with lower debt issuance relative to their gross domestic product (GDP) and stronger debt servicing capabilities. The index comprises sovereign debt from over 20 countries, denominated in a variety of currencies.

Unlike traditional indices where country weights are solely based on the market capitalization of an issuer's outstanding debt, the index also accounts for the countries' capacity to repay their debt. It is rebalanced monthly with weights based on each country's market value adjusted by scores derived from its actual Debt-to-GDP and calculated Debt Service-to-GDP ratios, both determined annually in May.¹⁴ These factors aim to reweight the index to provide higher weights to countries that have stronger fiscal health and greater capacity to service their debt based on those two factors as proxy indicators. The index offers an alternatively weighted broad benchmark for the global sovereign fixed income market.

PRICING SOURCE FOR MALAYSIAN, POLISH, AND SINGAPORE GOVERNMENT BONDS

Starting October 21, 2014, the pricing source and closing time for Malaysian, Polish and Singapore government bonds is the following:

Malaysia: 5:00 p.m. (Kuala Lumpur), average bid price from brokers Amanah Butler and Affin

Poland: 4:30 p.m. (Warsaw), 2nd fixing bid price from BondSpot

Singapore: 4:30 p.m. (Singapore), bid price from Monetary Authority of Singapore

US HIGH-YIELD MARKET INDEX AND US HIGH-YIELD MARKET CAPPED INDEX

The minimum issue size for the US High-Yield Market Index becomes USD 250 million. The cap on the total debt of any individual issuer increases to USD 15 billion from USD 10 billion for the US High-Yield Market Capped Index.

¹⁴ The actual GDP and Debt-to-GDP ratios for the previous calendar year are published each year, generally in April, by the International Monetary Fund (IMF) in its World Economic Outlook (WEO).

CITI RAFI BOND INDEX SERIES CHANGES

- Emerging Markets Designation

The design criteria for the Citi RAFI Emerging Markets Local Currency Bond Index Series have been modified to reflect Citi Fixed Income Indices' methodology of classifying a country to be "emerging".¹⁵ Based on the new emerging market classification, Czech Republic will move from the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series to the Citi RAFI Sovereign Developed Markets Bond Index Series.

- Accounting for capacity constraints of underlying bonds

The weighting methodology for the Citi RAFI World Corporate Investment-Grade Bond Index will be adjusted to account for capacity constraints of the bonds underlying the index which, if and when triggered, could result in capping the weight of these bonds.

Additional details of changes are noted in the applicable section for each index.

General Methodology for Citi's Fixed Income Indices

All of Citi's fixed income indices follow the general methodology outlined in this section. When necessary, more detailed information is provided in a separate section on each index.

INDEX PROFILE - MONTHLY REBALANCING

With the growing importance of global indices to portfolio managers and investors throughout the world, it is important to communicate the new index preliminary profile on a timetable that will give portfolio managers sufficient time to respond to changes in their benchmarks within their own time zone.

To give investors time to prepare rebalancing transactions, a *profile fixing* date is set ahead of each month-end to freeze the index constituents.

Fixing Dates

The annual schedule of fixing dates is made available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices) and monthly publications. Index fixing dates provide a clear reference point for index users to know in advance of any changes to the composition of the indices for the upcoming month. On each index fixing date, publicly available securities information is used to determine index eligibility and indicative values for the following month's index profile. A preliminary profile setting out the anticipated composition of each index is announced via the website one (1) US business day following the index fixing date. Between announcement of the preliminary profile and calendar month-end, Citi continues to track market activities and will remove issues that are called, tendered, or defaulted.

This process enables those tracking Citi's fixed income indices to anticipate changes to index composition, providing sufficient clarity and time to effect any consequent portfolio rebalancing.

Index rules stipulate that there must be a minimum of four (4) business days following each index fixing date and before calendar month-end in all of the following business regions: US, UK, EMU, Japan, and Australia. Index fixing dates are subject to change if unforeseen circumstances arise affecting these business days, such as catastrophic natural disasters or regional political conflicts.

Issues' Eligibility

For an issue to be eligible for inclusion in an index, all information on the issue must be publicly available on or before the fixing date, and the first settlement and interest accrual date of the issue must be on or before the end of the month. While Treasury auctions may be announced prior to the fixing date, the results must be final by the fixing date in order to be considered for inclusion.

At the same time, bonds that no longer meet the maturity (that is, bonds with an average life of less than one year from the last calendar day of the profile month), criteria for amount outstanding, or rating are removed from the index. Any buyback or reverse auction occurring on or before the fixing date may also cause the bond to be removed from the index.

Between Fixing Dates

Index constituents remain the same for the calendar month, and interim returns are calculated based on the index composition. Reconstitution on a monthly basis, together with the large number of bonds in the indices, provide a reasonable compromise between stability and comprehensiveness.

¹⁵ For more information, please see page 116

MATURITY AND ISSUE SIZE

Citi Fixed Income Indices measures the total rate of return for issues with a remaining maturity of at least one year. In addition, each market has minimum size criteria designed to include only those bonds that are “reasonably available” for institutional investors under normal market circumstances. The specific size criterion will be discussed in the individual index sections.

Money market indices measure the performance of instruments with maturities of 12 months or less.

PRICING

Source

Citi trader pricing is the primary pricing source for Citi’s fixed income indices. Prices from third-party pricing sources, transaction-related information, and proprietary pricing models supplement Citi trader prices to ensure completeness.

Timing

Figure 2 shows the local market times used for the pricing of Citi’s fixed income indices. The closing time for US indices and the Canadian Government Bond Index is that of the futures market. In the event of an early close of the cash or futures markets, the futures’ market close is used to time the pricing. Prices are bid-side with the exception of Japanese and Mexican government bonds, and Australian inflation-linked securities for which, conforming to market convention, mid-prices are used.

Verification

Reliable pricing of each security is necessary to ensure reliable index values and returns, thus third-party pricing sources and statistical techniques are used to identify pricing anomalies.

The prices are provided as **indications only**. Price challenges are reviewed by the Citi Fixed Income Indices team which may, at its discretion, adjust prices and update pricing models.

Figure 2 Local Market Times Used for Pricing

Americas		Asia Pacific and Japan	
Brazil	2:30 p.m. (Rio Branco)	Australia	4:30 p.m. (Sydney)
Canada	3:00 p.m. (New York)	China	4:30 p.m. (Shanghai)
Chile	1:30 p.m. (Santiago)	China (Offshore)	6:00 p.m. (Hong Kong)
Colombia	1:00 p.m. (Bogota)	Hong Kong	4:30 p.m. (Hong Kong)
Mexico	2:00 p.m. (Mexico City)	India	5:00 p.m. (Mumbai)
Peru	1:30 p.m. (Lima)	Indonesia	4:30 p.m. (Jakarta)
United States	3:00 p.m. (New York)	Japan	3:00 p.m. (Tokyo)
Europe, Middle East, and Africa		Malaysia	5:00 p.m. (Kuala Lumpur)
Czech Republic	5:00 p.m. (Prague)	New Zealand	4:30 p.m. (Wellington)
EMU Countries	4:15 p.m. (London)	Philippines	4:00 p.m. (Makati City)
Hungary	5:00 p.m. (Budapest)	Singapore	4:30 p.m. (Singapore)
Israel	4:30 p.m. (Tel Aviv)	South Korea	3:00 p.m. (Seoul)
Poland	4:30 p.m. (Warsaw)	Sri Lanka	4:00 p.m. (Colombo)
Russia	6:45 p.m. (Moscow)	Taiwan	1:30 p.m. (Taipei)
Scandinavia	4:15 p.m. (London)	Thailand	4:30 p.m. (Bangkok)
South Africa	5:00 p.m. (Johannesburg)		
Switzerland	5:00 p.m. (Zurich)		
Turkey	5:00 p.m. (Istanbul)		
United Kingdom	4:15 p.m. (London)		

SETTLEMENT

For daily calculations, it is assumed that indices settle on a same-day basis except if the last business day of the month is not the last calendar day of the month; then settlement is on the last calendar day of the month. Monthly holding periods, therefore, are exactly one calendar month. For example, the January return period would run from the close on December 31 to the close on January 31, regardless of the last business day. However, the last business day in each local market is used for pricing.

INDEX SECTORS CLASSIFICATION

Maturity

In addition to the broad categories published, sub-sector breakdowns are also provided for many of Citi's fixed income indices. One such sub-division is based on the remaining maturity of the underlying securities. The maturity sector buckets are defined by including all underlying issues with a remaining average life at least equal to the lower bound, but less than the upper bound of the particular category. For example, the one- to three-year sector of the World Government Bond Index (WGBI) includes all securities in the WGBI with a remaining average life of at least one year, but less than three years. The set of bonds is then held constant for the calculation month, even though the average life declines. The only exception to this rule is the mortgage sector, which is included in its entirety in the one- to ten-year sector.

Country of Issuer

The nationality of an issuer is used as another method of sub-dividing an index. In general, the country of issuer is based on the domicile of the parent company. With global consolidation being an everyday part of business, the country of issuer classification can become complex. For this classification, the following approach has been adopted.

An overseas operating subsidiary assumes the nationality of its parent if it is guaranteed by its parent; otherwise, it retains its own nationality. For example, Toyota Motor Credit Corporation, an operating subsidiary of Toyota Motor Company (registered in Japan), assumes its own nationality of the United States as it is not guaranteed by its parent.

A special purpose, offshore, debt-issuing subsidiary typically assumes the nationality of its parent, whether or not guaranteed by the parent. For example, Diageo Finance BV (a financing vehicle registered in the Netherlands) assumes the nationality of its ultimate parent, Diageo PLC (registered in the United Kingdom).

If any ambiguity exists, Citi Fixed Income Indices will evaluate and determine the appropriate classification.

INDEX QUALITY

An index quality is assigned to each index bond as of profile fixing. The quality is first mapped to the Standard & Poor's Financial Services LLC ("S&P") rating. If a bond is not rated by S&P but it is rated by Moody's Investor Service, Inc ("Moody's"), the S&P equivalent of the Moody's rating is assigned to the index quality. If a bond is split-rated (an investment-grade rating by one rating agency and high-yield by the other), the S&P equivalent of the investment-grade rating is assigned to the index quality. These ratings remain unchanged for the entire performance month.

For certain indices, implied rating is applied as supplement. If an individual issue is not rated by S&P or Moody's but its issuer has a S&P or Moody's rating, the issuer's rating is assigned to the issue as its implied rating.

DEFAULTS

When an issuer defaults, or is assigned a D rating by S&P, regardless of whether that issuer has filed for bankruptcy protection, or enters into Chapter 7 or Chapter 11 bankruptcy protection in the US (or equivalent in its local market), its bonds remain in the index until the end of the month. However, the bonds will not be included in the calculation of the current month's average profile statistics of the index. The returns are calculated without coupon payment or accrued interest, where applicable.

EXCHANGE RATES

Citi Fixed Income Indices uses the WM/Reuters closing spot and forward rates.¹⁶ The WM Company takes several snapshots at regular intervals centered on the fixing time of 4:00 p.m. London time and selects the median rate for each currency. All rates are mid-market quotations and appear on Reuters (see WMRSPOT01).

RETURN COMPUTATION

Total returns are computed on the assumption that each security is purchased at the beginning of the period and sold at the end of the period. An issue's total rate of return is the percentage change in its total value over the measurement period. The components of total return for each security are price change, principal payments, coupon payments, accrued interest, and reinvestment income on intra-month cash flows. The total returns are market capitalization weighted using the security's beginning-of-period market value (see Figure 3). In the case of multi-currency or non-base indices, the total return also includes currency movement (see Figure 4).

¹⁶ The World Government Bond Index - Japanese Investment Trust (WGBI-JIT) uses the telegraphic transfer middle (TTM) exchange rates provided by Bank of Tokyo-Mitsubishi UFJ.

Figure 3 Total Rate Of Return Calculation Methodology

Beginning-of-Period Value
 (Beginning Price + Beginning Accrued) x Beginning Par Amount Outstanding

End-of-Period Value
 [(Ending Price + Ending Accrued) x (Beginning Par Amount Outstanding - Principal Payments)] + Coupon Payments + Principal Payments + Reinvestment Income

Total Rate of Return (%)

$$\left[\left(\frac{\text{End-of-Period Value}}{\text{Beginning-of-Period Value}} \right) - 1 \right] \times 100$$

A note on precision: Returns are computed to at least six decimal places but reported to a maximum of five. In addition, owing to rounding errors inherent in computer floating-point arithmetic, the last digit in any reported value may sometimes be off by one from its true value.

Figure 4 Total Rate of Return Calculation Methodology for Base Currency Returns, Unhedged

Total Rate of Return (%)

$$\left\{ \left[1 + \left(\frac{\text{Local Currency Return}}{100} \right) \right] \times \left(\frac{\text{End-of-Month Spot Rate}}{\text{Beginning-of-Month Spot Rate}} \right) - 1 \right\} \times 100$$

This equation holds true only if the spot rates are quoted as base currency per unit of foreign currency.

The monthly currency-hedged return is calculated by using a rolling one-month forward exchange contract as a hedging instrument. The face value of the contract is equal to the estimated end-of-month full market value. To calculate this value, the bond's yield is assumed to be unchanged from the beginning of the month. Any known cash flows are then taken into account, such as coupon or principal payments, and interest expected to accrue for the period is also added in. This calculation leaves the intra-month changes in bond prices from yield movements unhedged. Any principal movement resulting from yield change is then settled at end-of-month spot exchange rates. Figure 5 gives an example of the calculation formula from the point of view of a US investor.

Figure 5 Total Rate of Return Calculation Methodology, Currency Hedged

Beginning-of-Period Value

$$\left[(\text{Beginning Price} + \text{Beginning Accrued}) \times \text{Beginning Par Outstanding} \right] \times \left[\text{Beginning-of-Period Spot Exchange Rate} \left(\frac{\text{US Dollar}}{\text{Local Currency}} \right) \right]$$

End-of-Period Value

$$\left(\begin{array}{l} \text{End-of-Period Local} \\ \text{Currency Value,} \\ \text{Assuming Unchanged Yield} \end{array} + \begin{array}{l} \text{Known Intra-Month} \\ \text{Cash Flows and Interest} \\ \text{Expected to Accrue} \end{array} \right) \times \left[\begin{array}{l} \text{Beginning-of-Period One-} \\ \text{Month Forward Exchange Rate} \\ \left(\frac{\text{US Dollar}}{\text{Local Currency}} \right) \end{array} \right] + \left[\begin{array}{l} \text{Change in Market Value} \\ \text{of Principal Amount Due} \\ \text{to Yield Change} \end{array} \times \begin{array}{l} \text{End-of-Period Spot} \\ \text{Exchange Rate} \\ \left(\frac{\text{US Dollar}}{\text{Local Currency}} \right) \end{array} \right]$$

Total Rate of Return (%)

$$\left[\left(\frac{\text{End-of-Period Value}}{\text{Beginning-of-Period Value}} \right) - 1 \right] \times 100$$

INDEX DATA DELIVERY

For the World Government Bond Index (WGBI), World Government Bond Index - Japanese Investment Trust (WGBI-JIT), Debt Capacity World Government Bond Index (DCWGBI), and the Asian Government Bond Index (AGBI)

- Daily (except last business day) reports, issue-level and sector-level data: 6:30 p.m. E.T., same day
- Final last business day daily and monthly reports, sector-level and issue-level data: 11:45 p.m. E.T., same day

For the Emerging Markets Government Bond Index (EMGBI) and Emerging Markets Government Bond Index - Japanese Investment Trust (EMGBI-JIT)

- Daily (except last business day) reports, issue-level and sector-level data: 7:30 p.m. E.T., same day
- Final last business day daily and monthly reports, sector-level and issue-level data: 11:45 p.m. E.T., same day

For the Australian Broad Investment-Grade Bond Index (AusBIG)

- Daily (except last business day) reports, issue-level and sector-level data: 6:30 p.m. E.T., same day
- Estimate last business day daily reports and sector-level data: 11:45 p.m. E.T., same day
- Final last business day daily and monthly reports, sector-level and issue-level data: 9:00 p.m. E.T., first business day US calendar

For all other indices

- Daily (except last business day) report, sector-level and issue-level data: 11:45 p.m. E.T., same day
- Estimate last business day daily reports and sector-level data: 11:45 p.m. E.T., same day
- Final last business day daily and monthly reports, sector-level and issue-level data: 9:00 p.m. E.T., first business day US calendar

Under extenuating circumstances, index production may be delayed. Production delays are posted on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices). When New York is observing daylight savings time (EST), the daily delivery of WGBI data may be delayed until 7:00 p.m. E.T. If delayed beyond 7:00 p.m. E.T., a notice will be posted to www.yieldbook.com/citi-indices and delivered to subscribers of Production News. Additionally, revisions to the data delivery schedule due to US holidays are also posted in advance on the website.

Subscribers to Index Production News will automatically receive notifications relating to the data delivery schedule via email.¹⁷

DATA CORRECTION

Citi Fixed Income Indices strives to produce error-free indices; however, there are occasions when erroneous data is published. These circumstances may be caused by, but not limited to, calculation or pricing errors, missing data, or incorrect indicative data. On rare occasions, and only in extreme cases, the Citi Fixed Income Indices team may conclude that restatement is required. When determining if restatement is necessary, factors such as the magnitude of the error, the overall impact on the data, the sector affected, and whether the error affects daily and/or monthly results are taken into consideration.

If Citi Fixed Income Indices finds it necessary to restate, an announcement will be posted on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices) and the data will be redistributed. Subscribers to Index Production News will automatically receive all correction notifications via email.

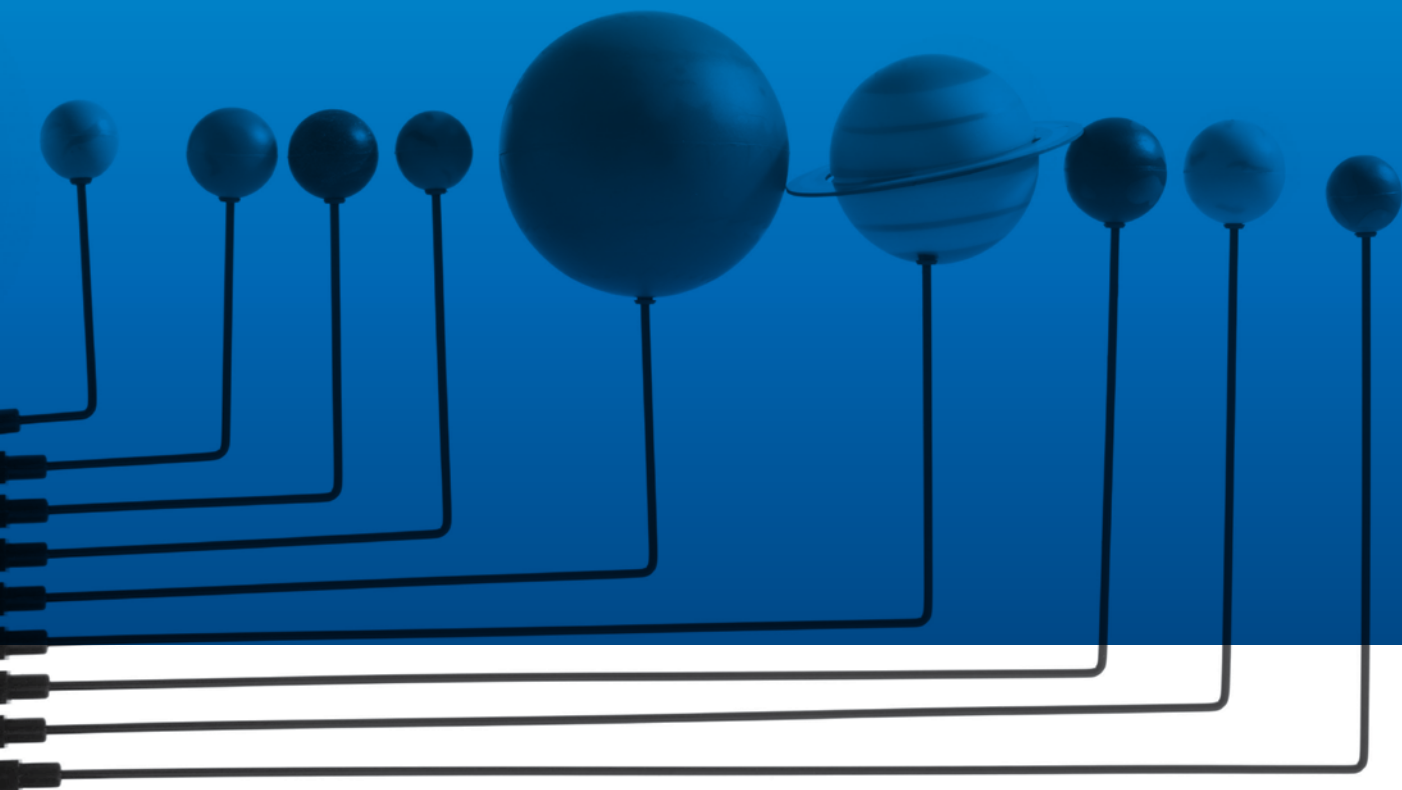
CHANGES IN INDEX METHODOLOGY

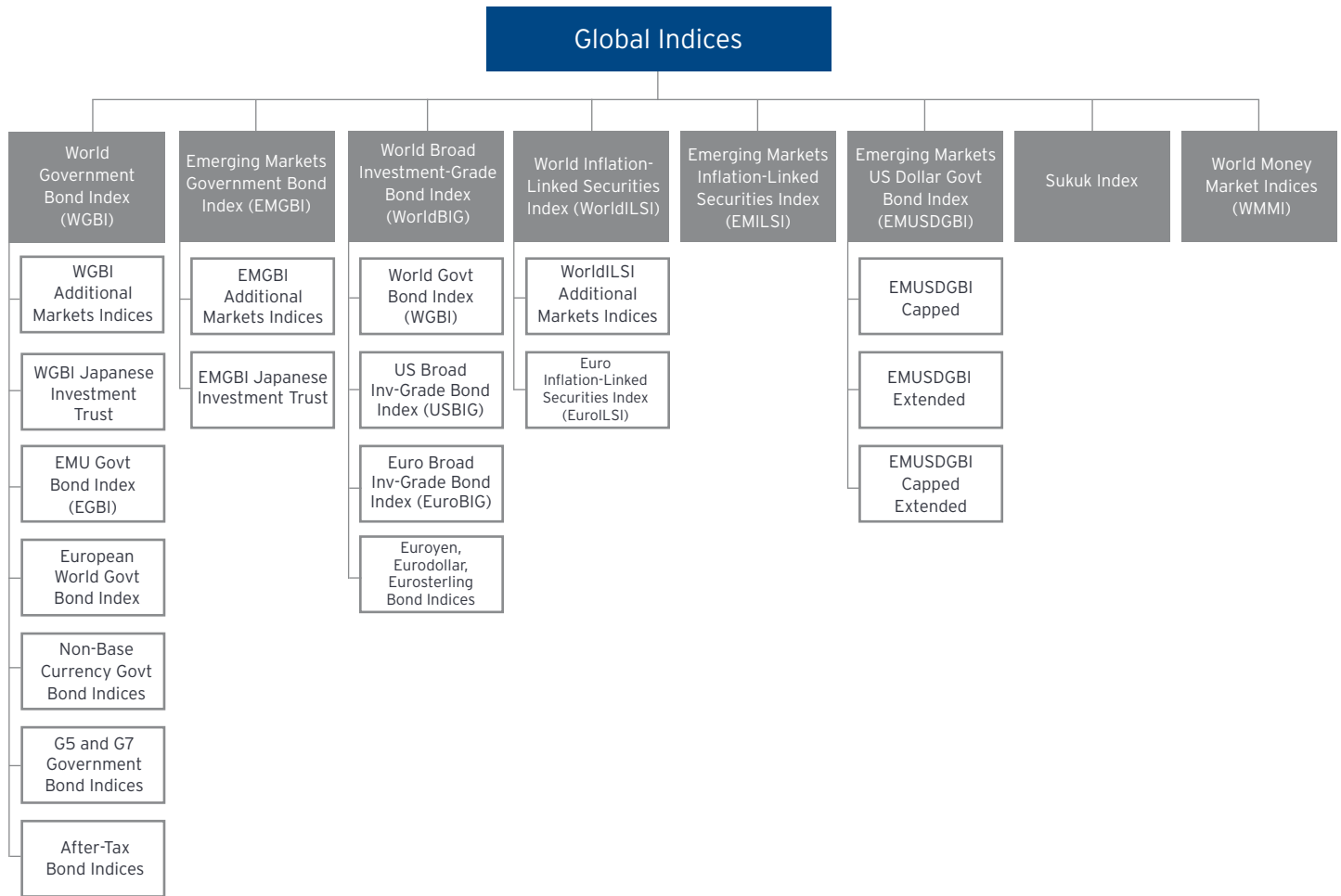
Citi Fixed Income Indices reviews its indices periodically to ensure that their composition adequately represents the intended universe. If index changes are required, an announcement will be posted on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices).

¹⁷For more information about how to subscribe, please see page 152.

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Global Indices





The World Government Bond Index (WGBI) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds. The WGBI is a widely used benchmark that currently comprises sovereign debt from over 20 countries, denominated in a variety of currencies, and has more than 25 years of history available. The WGBI is a broad benchmark providing exposure to the global sovereign fixed income market.

The Emerging Markets Government Bond Index (EMGBI) comprises local currency government bonds from fourteen countries, providing a broad benchmark for portfolio managers looking for a measure of sovereign emerging markets. The EMGBI rules and methodologies are consistent with those of the World Government Bond Index to enable performance comparisons across sovereign debt markets.

The World Broad Investment-Grade Bond Index (WorldBIG) is a multi-asset, multi-currency benchmark which provides a broad-based measure of the global fixed income markets. The inclusion of government, government-sponsored/supranational, collateralized, and corporate debt makes the WorldBIG a comprehensive representation of the global, investment-grade universe.

The World Inflation-Linked Securities Index (WorldILSI) measures the returns of inflation-linked bonds with fixed-rate coupon payments that are linked to an inflation index. The WorldILSI tracks debt from eleven countries denominated in nine currencies and is a valuable benchmark for investors who are concerned with real returns, rather than notional.

The Emerging Markets Inflation-Linked Securities Index (EMILSI) measures the returns of inflation-linked bonds with fixed-rate coupon payments that are linked to an inflation index. The EMILSI tracks debt from six countries, denominated in six currencies.

The Emerging Markets US Dollar Government Bond Index (EMUSDGBI) includes US Dollar-denominated emerging market sovereign debt issued in the global, Yankee, and Eurodollar markets. The index comprises debt of more than 50 countries from Latin America, Europe, Africa, the Middle East, and Asia and offers geographical diversification without exposure to local currency fluctuations.

The Sukuk Index measures the performance of global Islamic fixed income securities, also known as sukuk. The index includes US Dollar-denominated, investment-grade sukuk that are Sharia-compliant and issued in the global markets.

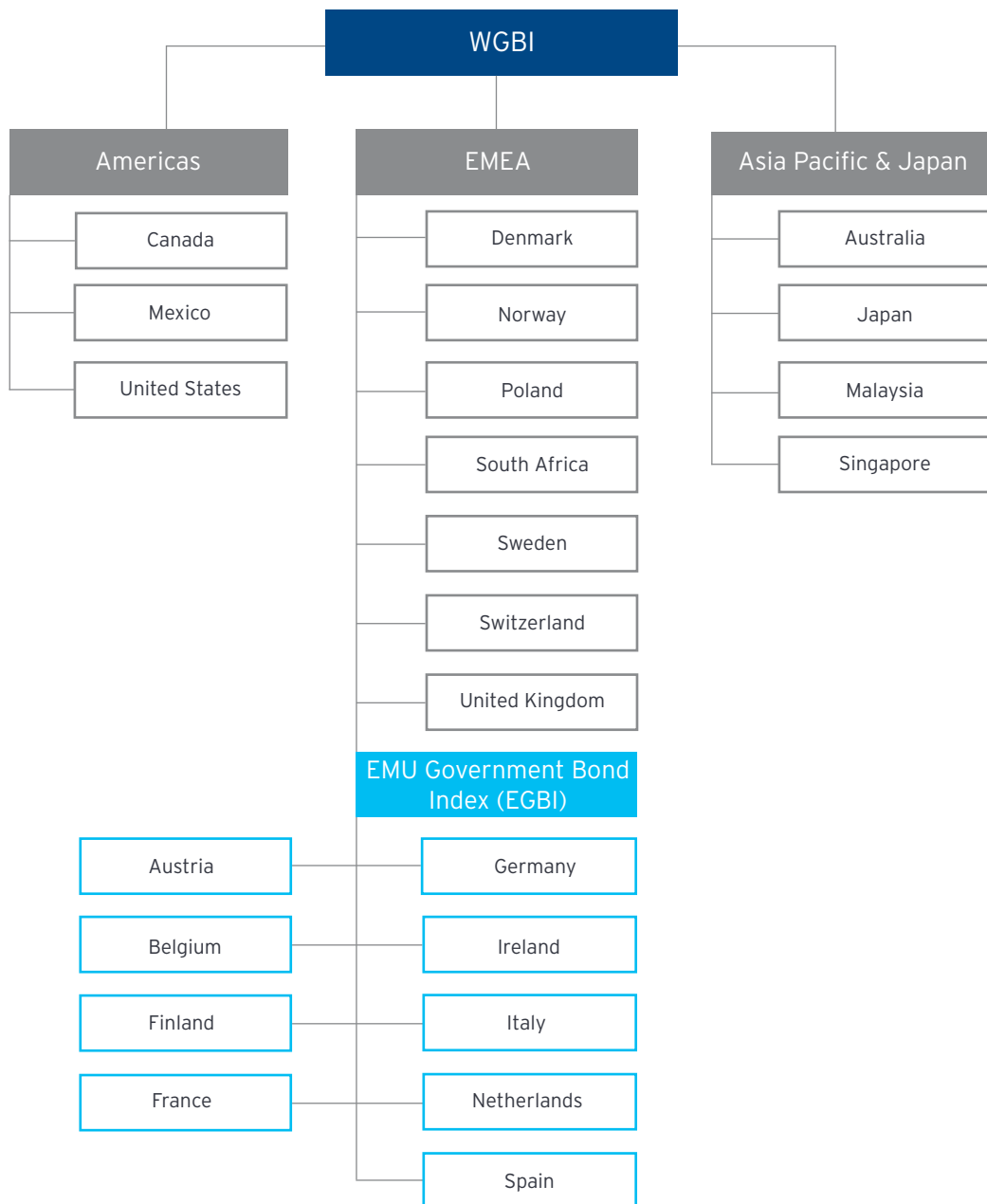
The World Money Market Indices (WMMI) measure the performance of money market instruments in 18 currencies. The indices track one-, two-, three-, six-, and twelve-month Eurodeposits, offering investors a good measure of short-term markets.

World Government Bond Index (WGBI)

Sovereign | Multi-Currency

The World Government Bond Index (WGBI) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds. The WGBI is a widely used benchmark that currently comprises sovereign debt from over 20 countries, denominated in a variety of currencies, and has more than 25 years of history available. The WGBI is a broad benchmark providing exposure to the global sovereign fixed income market.

The index provides exposure to a broad array of countries. Sub-indices are available in any combination of currency, maturity, and rating.



Design Criteria and Calculation Methodology

To join the WGBI, a market must satisfy the market size and credit criteria set out in Figure 6. The lack of barriers-to-entry into a market is an additional requirement. Once a market has met all three requirements, an announcement will be made that this market is eligible for inclusion into the WGBI. If it continues to meet all three requirements for three consecutive months after the announcement, the market will join the WGBI at the end of the three months that follow. Note that, any new market inclusion due the month of January will be postponed by one month and the market will join the respective index in February.

If an announced market meets any of the exit criteria in Figure 6 it will not be included in WGBI.

Markets meeting any of the exit criteria will be removed from the index and will be added to the WGBI Additional Markets Indices.¹⁸

Figure 6 WGBI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year ¹⁹
Market Size	<p>Entry: The outstanding amount of a market's eligible issues must total at least USD 50 billion, EUR 40 billion and JPY 5 trillion for the market to be considered eligible for inclusion.</p> <p>Exit: When the outstanding amount of a market's eligible issues falls below half of all the entry-level market size criteria, namely USD 25 billion, EUR 20 billion and JPY 2.5 trillion, for three consecutive months, the market will be removed from the next month's profile and added to the WGBI Additional Markets Indices.</p>
Minimum Issue Size	<p>Americas Canada: CAD 2.5 billion (excludes Bank of Canada Cash Management bond buybacks) Mexico: MXN 10 billion United States: USD 5 billion public amount outstanding (excludes Federal Reserve holdings)</p> <p>Europe, Middle East, and Africa Denmark: DKK 20 billion EMU Markets: EUR 2.5 billion Norway: NOK 20 billion Poland: PLN 5 billion South Africa: ZAR 10 billion Sweden: SEK 25 billion Switzerland: CHF 4 billion United Kingdom: GBP 2 billion (excludes Bank of England holdings)</p> <p>Asia Pacific and Japan Australia: AUD 750 million Japan: JPY 500 billion; 20+ year bonds: JPY 450 billion (excludes Bank of Japan holdings and Ministry of Finance buybacks) Malaysia: MYR 4 billion Singapore: SGD 1.5 billion</p>
Minimum Credit Quality²⁰	<p>Entry: A- by S&P and A3 by Moody's, for all new markets.</p> <p>Exit: Below BBB- by S&P and Baa3 by Moody's.</p>
Barriers-to-Entry	<p>Entry: A market being considered for inclusion should actively encourage foreign investor participation and show a commitment to its own policies.</p> <p>Exit: Circumstances can change over time and a country may find that revising its policies makes sense for its national welfare. However, it is possible that new policies, including but not limited to ownership restrictions and capital controls, can have the effect of limiting investors' ability to replicate the returns of that country's portion of the index. In that case, it may be necessary to remove that country from the WGBI. If barriers to entry are identified, an announcement will be made that the particular market has become ineligible, stating the reasons. That market will then be removed from the following month's profile and moved to the WGBI Additional Markets Indices.</p>

¹⁸ For more information on WGBI Additional Markets Indices, please see page 30.

¹⁹ Due to the structure of the South African three-legged instruments, the minimum maturity for R186 (10.50%, 12/21/2026), R2044 (8.75%, 01/31/2044), and R2048 (8.75%, 02/28/2048) is one year based on the first maturity date and the three legs from the split of R186, R2044, and R2048 will not be eligible for index inclusion. By convention, the stated maturity date of a three-legged bond is the middle maturity date.

²⁰ Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. The credit qualifications of the index are treated as provisional, in order to give market participants time to react to last-minute downgrades. A market will be removed from the index after the fixing if it becomes rated below investment-grade by both S&P and Moody's. This exception window is kept open until 5:00 p.m. New York time on the second to last business day of the month for removal only. Removal from the index, on or after the fixing date, is not reversible except by qualifying for the index once again, which takes a minimum of six months. There is no specific rule concerning default or what constitutes default. Conceivably, a market could technically default, but an immediate rescue could leave its existing bonds in the investment-grade category. Only a downgrade to below investment-grade would trigger a credit-related expulsion from the index.

Figure 6 WGBI Design Criteria, continued

Composition	<p>Sovereign debt denominated in the domestic currency.</p> <p>Securities included: Fixed-rate non-callable bonds - unless otherwise stated in Figure 7. For EMU Markets, fixed-rate bonds originally issued in their euro-converting currency are included.</p> <p>Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index-linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 7.</p>
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Figure 7 WGBI Composition

WGBI Markets	Security Type
Australia	Excludes tax rebate bonds
Austria	Includes Bundesanleihen Excludes Bundesobligationen bonds
Belgium	N/A
Canada	N/A
Denmark	Excludes mortgage credit bonds
Finland	Excludes sinking fund, putable, extendable, housing fund and yield bonds
France	Includes Obligations Assimilables du Trésor (OATs) and Bons du Trésor à Intérêt Annuel Normalisé (BTANs)
Germany	Includes Bundesrepublik, Schatzanweisungen, Bundesobligationen, Unity bonds, Treuhandanstalt, and Treuhandobligationen Excludes Schuldscheine, Unverzinsliche, Bundespost, Bundesbahn, and European Recovery Program Bonds
Ireland	N/A
Italy	Includes Buoni del Tesoro Poliennale (BTPs)
Japan	Includes callable bonds Excludes JGBs for individuals and discount bonds
Malaysia	Includes callable bonds Excludes Government Investment Issues (GII)
Mexico	Excludes bonds issued prior to January 1, 2003
Netherlands	N/A
Norway	Includes benchmark bonds Excludes loans and lottery loans issued before 1991
Poland	N/A
Singapore	N/A
South Africa	Excludes zero-coupon bonds
Spain	Includes Bonos and Obligaciones del Estado Excludes discount bonds (Letras and Pagares del Tesoro)
Sweden	Includes Riksoptioner
Switzerland	Includes callable bonds Excludes book liabilities
United Kingdom	Includes callable, partly paid, and convertible (into other gilt issues) bonds Excludes rump gilts and perpetuals (undated)
United States	Includes callable bonds

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 8 WGBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, except for Australia where the dollar bank bill swap reference rate (BBSW) is used. Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Citi trader pricing except for Malaysia (provided by Amanah Butler and Affin), Mexico (provided by Proveedor Integral de Precios S.A. de C.V.), Poland (provided by BondSpot), Singapore (provided by the Monetary Authority of Singapore), and Switzerland (provided by Swiss Exchange). All pricing is generally taken as of local market close. For more information on local market close, see Figure 2 "Local Market Times Used for Pricing".
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 1984

Chronological Summary of Events

Figure 9 WGBI and WGBI Additional Markets Indices

Year	Monthly Highlights
2014	<p>May: The Greek Government resumes in April its bond issuance with an auction of a 4.75% 5-year bond. The new issuance meets the eligibility criteria for the Greek Government Bond Index which is reported as one of the WGBI Additional Markets Indices in May's profile.</p> <p>October: The pricing source and closing time for Malaysian, Polish and Singapore government bonds become the following: Malaysia, 5:00 p.m. (Kuala Lumpur), average bid price from brokers Amanah Butler and Affin Poland, 4:30 p.m. (Warsaw), 2nd fixing bid price from BondSpot Singapore, 4:30 p.m. (Singapore), bid price from Monetary Authority of Singapore</p>
2013	<p>January: On December 17, 2012, the Hellenic Republic announced the acceptance of offers to exchange designated securities. As a result of the exchange, the outstanding amount for each of the 20 Greek government bonds in the Greek Government Bond Index falls below the inclusion size criteria of EUR 2.5 billion; therefore, as of the January 2013 profile, the Greek Government Bond Index is not reported as part of the WGBI Additional Markets Indices as there is no qualifying bonds for the index.</p> <p>July: The timing for inclusion of new eligible markets into the WGBI changes to six calendar months after the announcement of eligibility, provided that during the first three months of that time period all requirements for inclusion are met.</p> <p>November: Thai government bonds with maturity greater than 30 years at issuance are excluded from the Thai Government Bond Index</p>
2012	<p>February: Portugal is removed from the WGBI, due to credit downgrade, and is included in the WGBI Additional Markets Indices.</p> <p>April: Hong Kong and India are included in the WGBI Additional Markets Indices.</p> <p>September: The closing level switches from mid-yield to bid-yield evaluation and the closing level time changes from 4:30 p.m. to 5:00 p.m. for the South African Government Bond Index.</p> <p>October: South Africa is included in the WGBI and removed from the WGBI Additional Markets Indices.</p> <p>December: Russia is included in the WGBI Additional Markets Indices.</p>
2011	<p>April: China and Sri Lanka are included in the WGBI Additional Markets Indices.</p> <p>October: Czech Republic, Hungary, Turkey, Israel, South Africa, Brazil, Chile, Colombia, and Peru are included in the WGBI Additional Markets Indices.</p>
2010	<p>January: The outstanding amount of Canadian Government Bonds excludes the purchases made via the Government of Canada Cash Management Bond Buyback Program.</p> <p>March: 10-year Korean Treasury Bonds issued prior to January 2003 are excluded from the Korean Government Bond Index.</p> <p>April: A market will be removed from the WGBI after the fixing date if it becomes rated below investment-grade by both S&P and Moody's. This exception window is kept open until 5:00 p.m. New York time on the second to last business day of the month for removal only.</p> <p>July: Greece is removed from the WGBI due to credit downgrade and included in the WGBI Additional Markets Indices.</p> <p>October: Mexico is included in the WGBI and removed from the WGBI Additional Markets Indices.</p> <p>November: The outstanding amount of a market's eligible issues must total at least USD 50 billion, EUR 40 billion or JPY 5 trillion. The minimum credit quality is raised to A- by S&P and A3 by Moody's. A market will be removed from the index if the outstanding amount of its eligible issues falls below half of all the entry-level market size criteria for three consecutive months. The new market size for exit is USD 25 billion, EUR 20 billion or JPY 2.5 trillion.</p>
2009	<p>March: The outstanding amount of US Treasury and UK Gilts excludes the purchases made by the Federal Reserve and the Bank of England, respectively.</p> <p>December: Individual EMU government debt markets are subject to WGBI's market size criteria. The outstanding amount of the JGBs excludes the repurchases made by the Ministry of Finance.</p>
2008	<p>May: Indonesia, Philippines, Thailand, and Mexico are included in the WGBI Additional Markets Indices.</p>

Figure 9 WGBI and WGBI Additional Markets Indices, continued

Year	Monthly Highlights
2007	<p>April: The minimum issue size criteria increase as follows:</p> <ul style="list-style-type: none"> • EMU markets: EUR 2.5 billion • United Kingdom: GBP 2 billion (exclude perpetuals) • United States: USD 5 billion • Japan: Exclude Bank of Japan holdings <p>July: Malaysia is included in the WGBI.</p> <p>The minimum issue size criteria increase as follows:</p> <ul style="list-style-type: none"> • Australia: AUD 750 million (net of LCIR amounts) • Canada: CAD 2.5 billion • Denmark: DKK 20 billion • New Zealand: NZD 750 million • Poland: PLN 5 billion • Sweden: SEK 25 billion • Switzerland: CHF 4 billion
2006	September: Korea, Malaysia, and Taiwan are included in the WGBI Additional Markets Indices.
2005	January: Singapore is included in the WGBI and removed from the WGBI Additional Markets Indices.
2003	<p>May: Poland is included in the WGBI and removed from the WGBI Additional Markets Indices.</p> <p>Singapore is included in the WGBI Additional Markets Indices.</p> <p>September: Norway is included in the WGBI and removed from the WGBI Additional Markets Indices.</p>
2002	October: Poland is included in the WGBI Additional Markets Indices.
2001	<p>January: Greece enters EMU.</p> <p>April: A laddered inclusion rule for the Japanese Government Bond Index is introduced that lowers minimum amount outstanding of JGBs with a maturity equal to or greater than 20 years to JPY 450 billion from JPY 500 billion.</p> <p>August: The minimum entry size for gilts is changed to GBP 410 million.</p>
2000	<p>January: The minimum entry size for gilts changes to GBP 400 million. Rump gilts are no longer eligible for inclusion.</p> <p>April: Greece is included in the WGBI Additional Markets Indices.</p> <p>Market inclusion rule changes to shorten time to include or exclude a market based on its size.</p> <p>A minimum credit criterion of either BBB- by S&P or Baa3 by Moody's is introduced for a market to be included in the WGBI.</p> <p>July: Greece is included in the WGBI and removed from the WGBI Additional Markets Indices.</p> <p>The minimum issue size entry criteria increase as follows:</p> <ul style="list-style-type: none"> • Canada: CAD 1 billion • Denmark: DKK 10 billion • Japan: JPY 500 billion • Norway: NOK 20 billion • Sweden: SEK 10 billion • Switzerland: CHF 1 billion
1999	<p>January: The WGBI market size entry/exit criteria change to EUR 15/EUR 7.5 billion from DM 30/DM 15 billion.</p> <p>Market inclusion rule changes to currency-based rule. All domestic fixed-rate bonds larger than the issue size threshold issued by EMU sovereigns will qualify for inclusion.</p> <p>German agency debt is excluded and moved to the Euro Broad Investment-Grade Bond Index.²¹</p> <p>June: The outstanding amount of the Australian market excludes Loan Consolidation and Investment Reserve (LCIR) holdings.</p>
1998	July: Portugal is included in the WGBI and removed from the WGBI Additional Markets Indices.
1997	<p>April: Ireland is included in the WGBI and removed from the WGBI Additional Markets Indices.</p> <p>Monthly pricing of US and Canada changes to 3:00 p.m. E.T. time (futures close) from 5:00 p.m.</p>
1996	<p>April: Switzerland is included in the WGBI.</p> <p>July: Finland is included in the WGBI and removed from the WGBI Additional Markets Indices.</p>

²¹ For more information on the Euro Broad Investment-Grade Bond Index, please see page 87.

Figure 9 WGBI and WGBI Additional Markets Indices, continued

Year	Monthly Highlights
1995	<p>January: The minimum issue size entry criteria increase as follows:</p> <ul style="list-style-type: none"> • United States: USD 1 billion • Spain: ESP 100 billion • France: Ffr 10 billion <p>Settlement date changes to same day for daily calculations and last calendar day for monthly calculations. Issuance cut-off for profile changes to the twenty-fifth day of the calendar month. Finland, Norway, and Portugal are included in the WGBI Additional Markets Indices.</p>
1993	<p>April: Austria is included in the WGBI and removed from the WGBI Additional Markets Indices. December: Currency spot exchange rates switch to the WM/Reuters standard.</p>
1992	<p>October: Belgium, Italy, Spain, and Sweden are included in the WGBI. Switzerland is excluded from the WGBI. Multiple composite indices are introduced. WGBI Additional Markets Indices are introduced including Austria, Ireland, and New Zealand. The minimum issue size eligibility criterion changes to a local currency standard.</p>
1991	<p>July: The minimum issue size eligibility increases to USD 100 million.</p>
1989	<p>April: Denmark is included in the WGBI. Currency-Hedged After-Tax Indices are introduced.</p>
1988	<p>March: Currency-Hedged Indices are introduced. May: BTANs are included in the French market. November: Bundesobligationen are included in the German market.</p>
1987	<p>May: After-Tax Indices are introduced.</p>
1986	<p>November: The World Government Bond Index is introduced and includes Australia, Canada, France, Germany, Japan, the Netherlands, Switzerland, United Kingdom, and United States.</p>

WGBI Additional Markets Indices

The WGBI Additional Markets Indices include markets that are being tracked, but do not, at present, qualify for inclusion in the WGBI based on the criteria outlined previously. A market may remain as a WGBI Additional Markets Index because it discourages foreign ownership, for example, even if it meets the size and credit criteria. Once a market has met all the requirements, an announcement will be made that this market is eligible for inclusion in the WGBI. If it continues to meet all the requirements for three consecutive months after the announcement, then the market will no longer be part of the WGBI Additional Markets Indices and will be included in the WGBI at the end of the three months that follow. If an announced market meets any of the exit criteria in Figure 6, it will not be included in WGBI and will remain in the WGBI Additional Markets Indices.

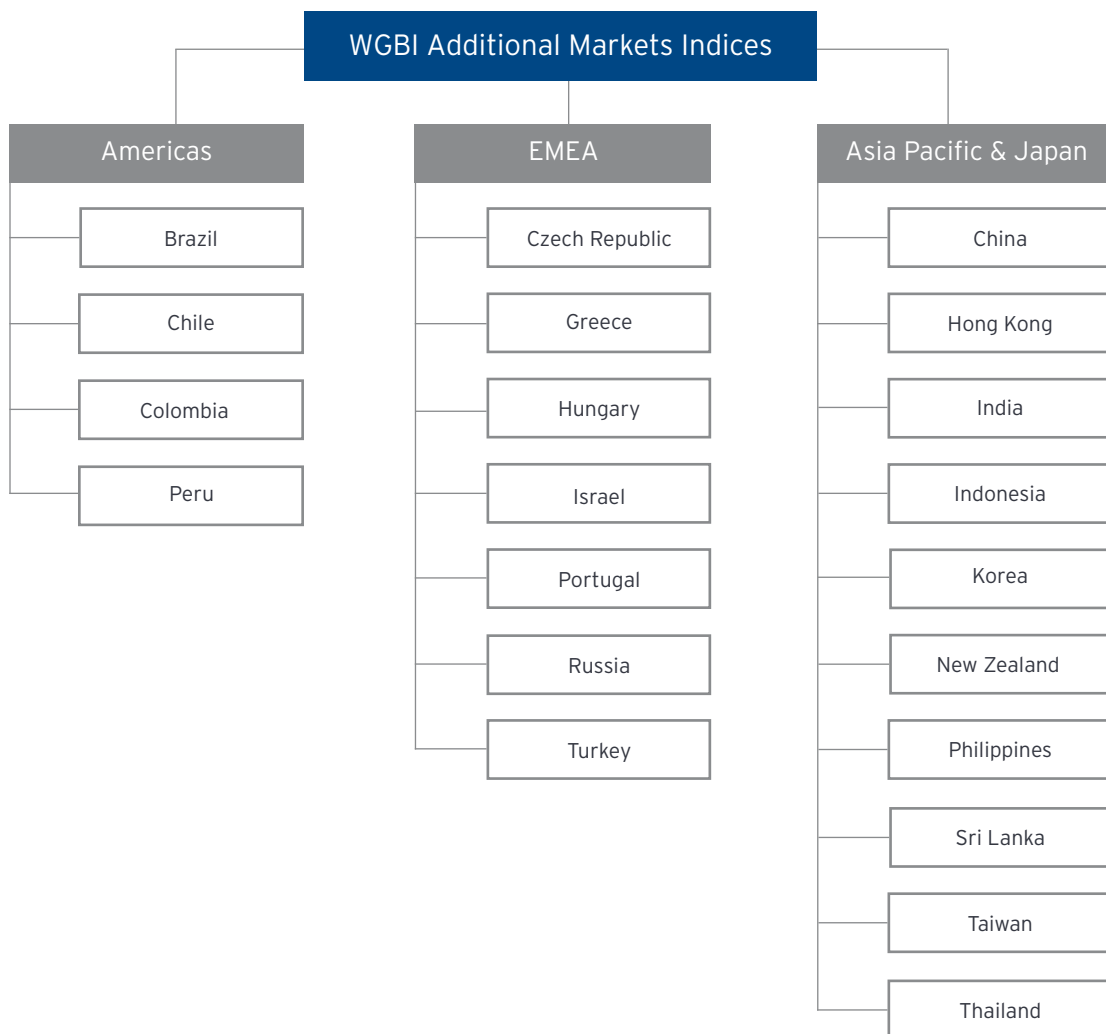


Figure 10 WGBI Additional Markets Indices Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	<p>Americas Brazil: BRL 5 billion Chile: CLP 100 billion Colombia: COP 2 trillion Peru: PEN 2 billion</p> <p>Europe, Middle East, and Africa Czech Republic: CZK 15 billion Greece: EUR 2.5 billion Hungary: HUF 200 billion Israel: ILS 5 billion Portugal: EUR 2.5 billion Russia: RUB 25 billion Turkey: TRL 2 billion</p> <p>Asia Pacific and Japan China: CNY 20 billion Hong Kong: HKD 800 million India: INR 250 billion Indonesia: IDR 7.5 trillion Korea: KRW 1 trillion New Zealand: NZD 750 million Philippines: PHP 45 billion Sri Lanka: LKR 50 billion Taiwan: TWD 40 billion Thailand: THB 25 billion</p>
Minimum Credit Quality	C by S&P and Ca by Moody's
Composition	<p>Sovereign debt denominated in the domestic currency.</p> <p>Securities included: Fixed rate non-callable bonds - unless otherwise stated in Figure 11. For EMU Markets, fixed-rate bonds originally issued in their euro-converting currency are included.</p> <p>Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 11.</p>
Redemption Features	Bullet, sinking fund, puttable, extendable, or callable

Figure 11 Composition of the WGBI Additional Markets Indices

Additional Markets	Security Type
Brazil	Excludes LTNs
Chile	N/A
China	Excludes zero-coupon bonds, special government bonds, bonds greater than 30-year tenor and bonds issued prior to January 1, 2005
Colombia	Excludes Tes Control Monetario (TCM) bonds
Czech Republic	Excludes zero-coupon bonds
Greece	N/A
Hong Kong	Excludes zero-coupon bonds
Hungary	N/A
India	Includes benchmark bonds
Indonesia	Excludes Recapitalization bonds and Sukuk bonds
Israel	N/A
Korea	Excludes Monetary Stabilization Bonds and 10-Years securities issued prior to January 1, 2003
New Zealand	N/A
Peru	N/A
Philippines	Excludes zero-coupon bonds and special purpose bonds
Portugal	Includes Obrigações do Tesouro (OTs)
Russia	Includes fixed-rate bullet federal government bonds (OFZ-PD) only
Sri Lanka	Excludes zero-coupon bonds and bonds with tenor equal to or greater than 10 years
Taiwan	N/A
Thailand	Excludes bonds with maturity tenor greater than 30 years at issuance
Turkey	N/A

The WGBI Additional Markets Indices follow the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the indices.

Figure 12 WGBI Additional Markets Indices Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate except for China where the one month onshore deposit rate is used. Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Citi trader pricing except for Chile (provided by Banco de Chile) and Israel (provided by Tel Aviv Stock Exchange). All pricing is generally taken as of the local market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.

Related Indices

WORLD GOVERNMENT BOND INDEX - JAPANESE INVESTMENT TRUST (WGBI-JIT)

The World Government Bond Index - Japanese Investment Trust is designed to serve as a benchmark for performance evaluation by Japanese investment trusts. The calculation methodology is based on the evaluation standards of the Investment Trusts Association of Japan.

The WGBI-JIT satisfies the benchmark needs of domestic Japanese investment trusts. There are four distinguishing features of WGBI-JIT. Japanese government bonds are priced as of today's market close; non-Japanese government bonds are priced as of yesterday's market close; WGBI-JIT uses the telegraphic transfer middle, TTM, exchange rates provided by Bank of Tokyo-Mitsubishi UFJ as of mid-morning, 10:00 a.m. Tokyo time, in compliance with Investment Trusts Association of Japan; and finally, WGBI-JIT return and market value calculations for non-yen securities, described in detail in the appendix,²² are unique to WGBI-JIT.

In the event that TTM rates are unavailable, rates from WM/Reuters are used. This satisfies the consistency stipulation on alternate rates of the Business Management Committee of Investment Trusts.

On rare occasions, the Japanese Ministry of Finance intervenes in foreign exchange markets. If such event occurs on the last business day after 10:00 a.m. Tokyo and Bank of Tokyo-Mitsubishi UFJ officially revises the 10:00 a.m. rates, Citi Fixed Income Indices will restate the last business day WGBI-JIT returns and monthly returns if they differ significantly from the originally published returns.

Figure 13 Comparison of Calculation Assumptions for the WGBI-JIT and WGBI

	WGBI-JIT	WGBI
Exchange Rate	Bank of Tokyo-Mitsubishi UFJ telegraphic transfer spot middle rate (TTM) as quoted at 10:00 a.m. Tokyo time. ²³	WM/Reuters – Median rate based on snapshots taken at regular intervals centered on fixing time of 4:00 p.m. London time.
Pricing	Japan: Same day market close. Other markets: previous trading day's local market close.	All markets: Same day local market close.
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Base Date	December 31, 1996	December 31, 1984

EMU GOVERNMENT BOND INDEX (EGBI)

The EGBI consists of the EMU-participating countries that meet the WGBI criteria. Current EMU-participating countries include: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain. Of these markets, only those that satisfy the WGBI criteria for market inclusion are included in the EGBI, namely: Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, and Spain.

EUROPEAN WORLD GOVERNMENT BOND INDEX

The European WGBI consists of those 15 markets of the WGBI that are geographically located in Europe, namely Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland, and the United Kingdom.

NON-BASE CURRENCY GOVERNMENT BOND INDICES

The Indices of non-base currency sectors exclude respective base currency bond markets from the calculation and, in turn, are stated in terms of the base currency. For example, the non-US Dollar WGBI includes all WGBI markets except the United States and is stated in USD terms. Returns can be stated in any base currency.

²² For a detailed description of the market value and return calculations for non-yen sectors of the WGBI-JIT, please see page 160 of the appendix.

²³ WM/Reuters quotes are used for currencies during periods in which Bank of Tokyo-Mitsubishi UFJ quotes are not available. Historically, WM/Reuters rates were used for Greek drachma (April-December 2000), Polish zloty (prior to December 2003), Malaysian Ringgit and Taiwanese Dollar (prior to January 2007).

Related Indices, continued

GROUP-OF-FIVE (G5) GOVERNMENT BOND INDEX

The G5 Government Bond Index includes France, Germany, Japan, the United Kingdom, and the United States. This index is designed to provide broad international exposure using a small number of markets. It covers approximately 75% of the market value of the WGBI (as of December 2014).

GROUP-OF-SEVEN (G7) GOVERNMENT BOND INDEX

The G7 Government Bond Index includes Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. This index covers approximately 84% of the market value of the WGBI (as of December 2014).

AFTER-TAX BOND INDICES

After-tax returns are computed from the point of view of a US pension account and attempt to approximate the effect on the total return of withholding tax on coupon income.

Figure 14 Withholding Tax Assumptions for the After-Tax Bond Indices²⁴

Market	Tax Rate	Calculation Assumption
Switzerland	35.00	5% non-refundable, 30% refundable three months following the January 1 or July 1 after the coupon payment date

DEBT CAPACITY WORLD GOVERNMENT BOND INDEX (DCWGBI)

The Debt Capacity World Government Bond Index measures the performance of fixed-rate, local currency, investment-grade sovereign bonds with a focus on countries with lower debt issuance relative to their gross domestic product (GDP) and stronger debt servicing capabilities. The index comprises sovereign debt from over 20 countries, denominated in a variety of currencies.

Unlike traditional indices where country weights are solely based on the market capitalization of an issuer's outstanding debt, the index also accounts for the countries' capacity to repay their debt. It is rebalanced monthly with weights based on each country's market value adjusted by scores derived from its actual Debt-to-GDP and calculated Debt Service-to-GDP ratios, both determined annually in May.²⁵ These factors aim to reweight the index to provide higher weights to countries that have stronger fiscal health and greater capacity to service their debt based on those two factors as proxy indicators. The index offers an alternatively weighted broad benchmark for the global sovereign fixed income market.

For more information on the index, please see page 123.

²⁴ Effective July 1, 1997, all Italian bonds accrue and pay interest on a gross basis. Effective April 6, 1998, all UK gilt securities accrue and pay interest on a gross basis. Although for the index it is assumed that Australian government bonds pay interest on a gross basis, under certain circumstances, some US pension funds may be subject to withholding tax on these investments. Effective April 1, 2010, all JGBs accrue and pay interest on a gross basis.

²⁵ The actual GDP and Debt-to-GDP ratios for the previous calendar year are published each year, generally in April, by the International Monetary Fund (IMF) in its World Economic Outlook (WEO).

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 15 Tickers for the WGBI and Selected Related Indices

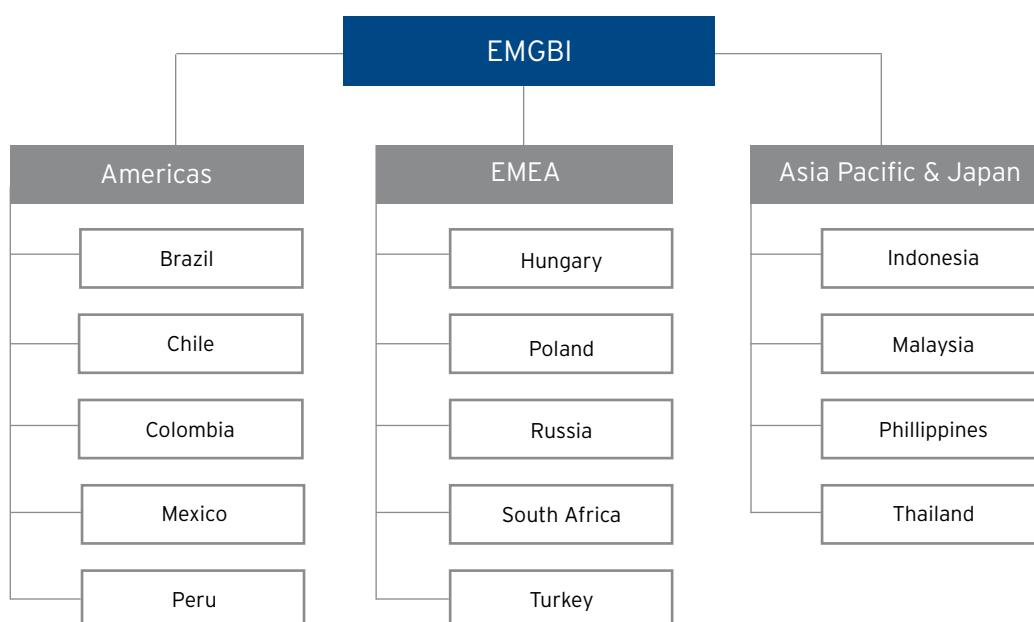
Ticker	Index
SBWGU	World Government Bond Index, in USD terms
SBWGEU	World Government Bond Index, in EUR terms
SBWGJYU	World Government Bond Index, in JPY terms
SBWGUUKU	World Government Bond Index, in GBP terms
SBWGJL	World Government Bond Index - Japanese Investment Trust, in local currency terms
SBWGJJYU	World Government Bond Index - Japanese Investment Trust, in JPY terms
SBEGEU	EMU Government Bond Index, in EUR terms
SBEUEU	European World Government Bond Index, in EUR terms
SBNUU	Non-USD World Government Bond Index, in USD terms
SBNMEU	Non-EUR World Government Bond Index, in EUR terms
SBWGNJYU	Non-JPY World Government Bond Index, in JPY terms
SBWGNUKU	Non-GBP World Government Bond Index, in GBP terms
SBG5U	Group-of-Five Government Bond Index, in USD terms
SBG5EU	Group-of-Five Government Bond Index, in EUR terms
SBG5YU	Group-of-Five Government Bond Index, in JPY terms
SBG7U	Group-of-Seven Government Bond Index, in USD terms
SBG7EU	Group-of-Seven Government Bond Index, in EUR terms
SBG7YU	Group-of-Seven Government Bond Index, in JPY terms
SBWGAXUU	After-Tax World Government Bond Index, in USD terms
SBDWU	Debt Capacity World Government Bond Index, in USD terms
SBDWE	Debt Capacity World Government Bond Index, in EUR terms
SBDWY	Debt Capacity World Government Bond Index, in JPY terms
SBDWG	Debt Capacity World Government Bond Index, in GBP terms

Emerging Markets Government Bond Index (EMGBI)

Sovereign | Multi-Currency

The Emerging Markets Government Bond Index (EMGBI) comprises local currency government bonds from fourteen countries, providing a broad benchmark for portfolio managers looking for a measure of sovereign emerging markets.²⁶ The EMGBI rules and methodologies are consistent with those of the World Government Bond Index (WGBI) to enable performance comparisons across sovereign debt markets.

The index provides exposure to a broad array of countries, and sub-indices are available in any combination of currency, maturity, and rating.



Design Criteria and Calculation Methodology

To join the EMGBI, a market must satisfy the market size and credit criteria set out in Figure 16. Accessibility of bonds and markets, and replicability of returns are additional requirements. Once a market has met all the requirements, an announcement will be made that this market is eligible for inclusion into the EMGBI. If it continues to meet all three requirements for three consecutive months after the announcement, the market will join the EMGBI at the end of the three months that follow. Note that, any new market inclusion due the month of January will be postponed by one month and the market will join the respective index in February.

If an announced market meets any of the exit criteria in Figure 16 it will not be included in EMGBI.

Markets meeting the exit criteria or markets erecting significant accessibility or replicability barriers will be removed from the index. Markets removed are added to the EMGBI Additional Markets Indices.²⁷

²⁶ For more information on Citi Fixed Income Indices' methodology of classifying a country to be "emerging", please see page 116.

²⁷ For more information on EMGBI Additional Markets Indices, please see page 41.

Figure 16 EMGBI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year ²⁸
Market Size	<p>Entry: The outstanding amount of a market's eligible issues must total at least USD 10 billion for the market to be considered eligible for inclusion.</p> <p>Exit: When the outstanding amount of a market's eligible issues falls below half of the entry-level market size criteria, namely USD 5 billion, for three consecutive months, the market will be removed from the next month's profile and added to the EMGBI Additional Markets Indices.</p>
Minimum Issue Size	<p>Americas Brazil: BRL 5 billion Chile: CLP 100 billion Colombia: COP 2 trillion Mexico: MXN 10 billion Peru: PEN 2 billion</p> <p>Europe, Middle East, and Africa Hungary: HUF 200 billion Poland: PLN 5 billion Russia: RUB 25 billion South Africa: ZAR 10 billion Turkey: TRY 2 billion</p> <p>Asia Pacific and Japan Indonesia: IDR 7.5 trillion Malaysia: MYR 4 billion Philippines: PHP 45 billion Thailand: THB 25 billion</p>
Minimum Credit Quality	C by S&P and Ca by Moody's
Composition	<p>Sovereign debt denominated in the domestic currency.</p> <p>Securities included: Fixed-rate non-callable bonds - unless otherwise stated in Figure 17.</p> <p>Securities excluded: Variable-rate, floating-rate, fixed-to-floating rate, index-linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements.</p> <p>For more information on market specific security types, refer to Figure 17.</p>
Accessibility	Limited to bonds and markets that foreign investors can fully access and whose returns they can easily replicate.

²⁸ Due to the structure of the South African three-legged instruments, the minimum maturity for R186 (10.50%, 12/21/2026), R2044 (8.75%, 01/31/2044), and R2048 (8.75%, 02/28/2048) is one year based on the first maturity date and the three legs from the split of R186, R2044, and R2048 will not be eligible for index inclusion. By convention, the stated maturity date of a three-legged bond is the middle maturity date.

Figure 17 EMGBI Composition

EMGBI Markets	Security Type
Brazil	Excludes LTNs
Chile	N/A
Colombia	Excludes Tes Control Monetario (TCM) bonds
Hungary	N/A
Indonesia	Excludes Recapitalization bonds and Sukuk bonds
Malaysia	Includes callable bonds Excludes Government Investment Issues (GII)
Mexico	Excludes bonds issued prior to January 1, 2003
Peru	N/A
Philippines	Excludes zero-coupon bonds and special purpose bonds
Poland	N/A
Russia	Includes fixed-rate bullet federal government bonds (OFZ-PD) only
South Africa	Excludes zero-coupon bonds
Thailand	Excludes bonds with maturity tenor greater than 30 years at issuance
Turkey	N/A

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 18 EMGBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Citi trader pricing except for Chile (provided by Banco de Chile), Malaysia (provided by Amanah Butler and Affin), Mexico (provided by Proveedor Integral de Precios S.A. de C.V.), and Poland (provided by BondSpot). All pricing is generally taken as of local market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 2007

Figure 19 EMGBI and Related Indices Event Summary

Year	Monthly Highlights
2014	October: The pricing source and closing time for Malaysian and Polish government bonds become the following: Malaysia, 5:00 p.m. (Kuala Lumpur), average bid price from brokers Amanah Butler and Affin Poland, 4:30 p.m. (Warsaw), 2nd fixing bid price from BondSpot
2013	July: The Emerging Markets Government Bond Index (EMGBI) is introduced and includes: Brazil, Chile, Colombia, Mexico, Peru, Hungary, Poland, Russia, South Africa, Turkey, Indonesia, Malaysia, Philippines, and Thailand. The Emerging Markets Government Bond Index - Japanese Investment Trust (EMGBI-JIT) is introduced. The index includes the same markets as the EMGBI, but the calculation methodology is adapted to the evaluation standards of the Investment Trusts Association of Japan. The EMGBI Additional Markets Indices are introduced. These are indices of markets that do not, at present, qualify for inclusion in the EMGBI based on the latter's design criteria. Those markets are: China, India, and Sri Lanka. November: Thai government bonds with maturity greater than 30 years at issuance are excluded from the Thai Government Bond Index.
	The EMGBI is introduced in 2013 with over 5 years of history. Since the index's base date (December 31, 2007) the following events marked its history:
2013	April: Peru joins the Index.
2012	January: Russia joins the index August: Chile joins the index
2011	January: Brazil joins the index April: Colombia, Hungary, Turkey, and South Africa join the index
2008	January: Indonesia, Malaysia, Mexico, Philippines, Poland, and Thailand join the index

Related Indices

EMERGING MARKETS GOVERNMENT BOND INDEX - JAPANESE INVESTMENT TRUST (EMGBI-JIT)

The Emerging Markets Government Bond Index - Japanese Investment Trust is designed to serve as a benchmark for performance evaluation by Japanese investment trusts. The calculation methodology is based on the evaluation standards of the Investment Trusts Association of Japan.

In compliance with Investment Trusts Association of Japan, EMGBI-JIT uses the telegraphic transfer middle, TTM, exchange rates provided by Bank of Tokyo-Mitsubishi UFJ as of mid-morning, 10:00 a.m. Tokyo time. The bonds in the EMGBI-JIT are priced as of yesterday's market close and EMGBI-JIT's return and market value calculations are the same as the non-yen securities of the World Government Bond Index - Japanese Investment Trust Index, described in detail in the appendix.²⁹

In the event that TTM rates are unavailable, rates from Citi FX are used. This satisfies the consistency stipulation on alternate rates of the Business Management Committee of Investment Trusts.

On rare occasions, the Japanese Ministry of Finance intervenes in foreign exchange markets. If such event occurs on the last business day after 10:00 a.m. Tokyo time and Bank of Tokyo-Mitsubishi UFJ officially revises the 10:00 a.m. rates, Citi Fixed Income Indices will restate the last business day EMGBI-JIT returns and monthly returns if they differ significantly from the originally published returns.

²⁹ For a detailed description of the market value and return calculations for non-yen sectors of the WGBI-JIT, please see page 160 of the appendix.

Figure 20 Comparison of Calculation Assumptions for the EMGBI-JIT and EMGBI

	EMGBI-JIT	EMGBI
Exchange Rate	Bank of Tokyo-Mitsubishi UFJ telegraphic transfer spot middle rate (TTM) as quoted at 10:00 a.m. Tokyo time. ³⁰ In the event that TTM rates are unavailable, rates from Citi FX are used.	WM/Reuters – Median rate based on snapshots taken at regular intervals centered on fixing time of 4:00 p.m. London time.
Pricing	Markets ex. Japan: previous trading day's local market close.	All markets: Same day local market close.
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Base Date	December 31, 2007	December 31, 2007

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 21 Tickers for the EMGBI and Selected Related Indices

Ticker	Index
SBEMGBU	Emerging Markets Government Bond Index, in USD terms
SBEMGBE	Emerging Markets Government Bond Index, in EUR terms
SBEMGBY	Emerging Markets Government Bond Index, in JPY terms
SBEMGBG	Emerging Markets Government Bond Index, in GBP terms
SBEMGJL	Emerging Markets Government Bond Index - Japanese Investment Trust, in local currency terms
SBEMGJYU	Emerging Markets Government Bond Index - Japanese Investment Trust, in JPY terms

³⁰ WM/Reuters quotes are used for currencies during periods in which Bank of Tokyo-Mitsubishi UFJ quotes are not available. Historically, WM/Reuters rates were used for Polish zloty (prior to December 2003) and Malaysian Ringgit (prior to January 2007).

EMGBI Additional Markets Indices

The EMGBI Additional Markets Indices include markets that are being tracked, but do not, at present, qualify for inclusion in the EMGBI based on the criteria outlined previously. A market may remain as an EMGBI Additional Markets Index because it discourages foreign ownership, for example, even if it meets the size and credit criteria. Once a market has met all the requirements, an announcement will be made that this market is eligible for inclusion in the EMGBI. If it continues to meet all the requirements for three consecutive months after the announcement, then the market will no longer be part of the EMGBI Additional Markets Indices and will be included in the EMGBI at the end of the three months that follow. If, and only if, an announced market meets the exit criteria set out in Figure 16 will it fail to be included in the EMGBI.

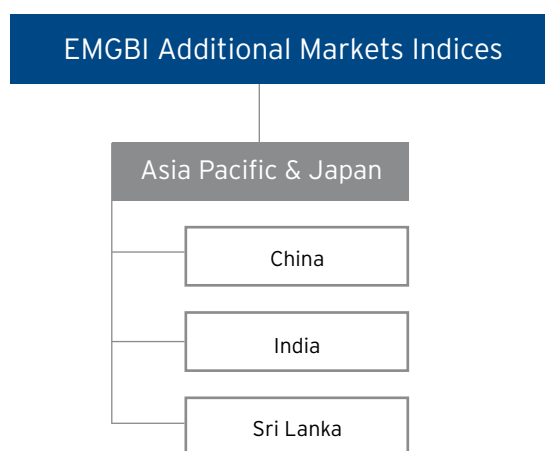


Figure 22 EMGBI Additional Markets Indices Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	China: CNY 20 billion India: INR 250 billion Sri Lanka: LKR 50 billion
Minimum Credit Quality	C by S&P and Ca by Moody's
Composition	Sovereign debt denominated in the domestic currency. Securities included: Fixed-rate non-callable bonds - unless otherwise stated in Figure 23. Securities excluded: Variable-rate, floating-rate, fixed-to-floating rate, index-linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 23.
Accessibility	Bonds and markets are not fully accessible to foreign investors and thus do not qualify for inclusion to the EMGBI.

Figure 23 EMGBI Additional Markets Indices Composition

Additional Markets	Security Type
China	Excludes zero-coupon bonds, special government bonds, bonds greater than 30-year tenor and bonds issued prior to January 1, 2005
India	Includes benchmark bonds
Sri Lanka	Excludes zero-coupon bonds, and bonds with tenor equal to or greater than 10 years

The EMGBI Additional Markets Indices follow the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the indices.

Figure 24 EMGBI Additional Markets Indices Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate except for China where one-month onshore deposit rate is used. Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Citi trader pricing, generally taken as of local market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 25 Tickers for the EMGBI Additional Markets Indices

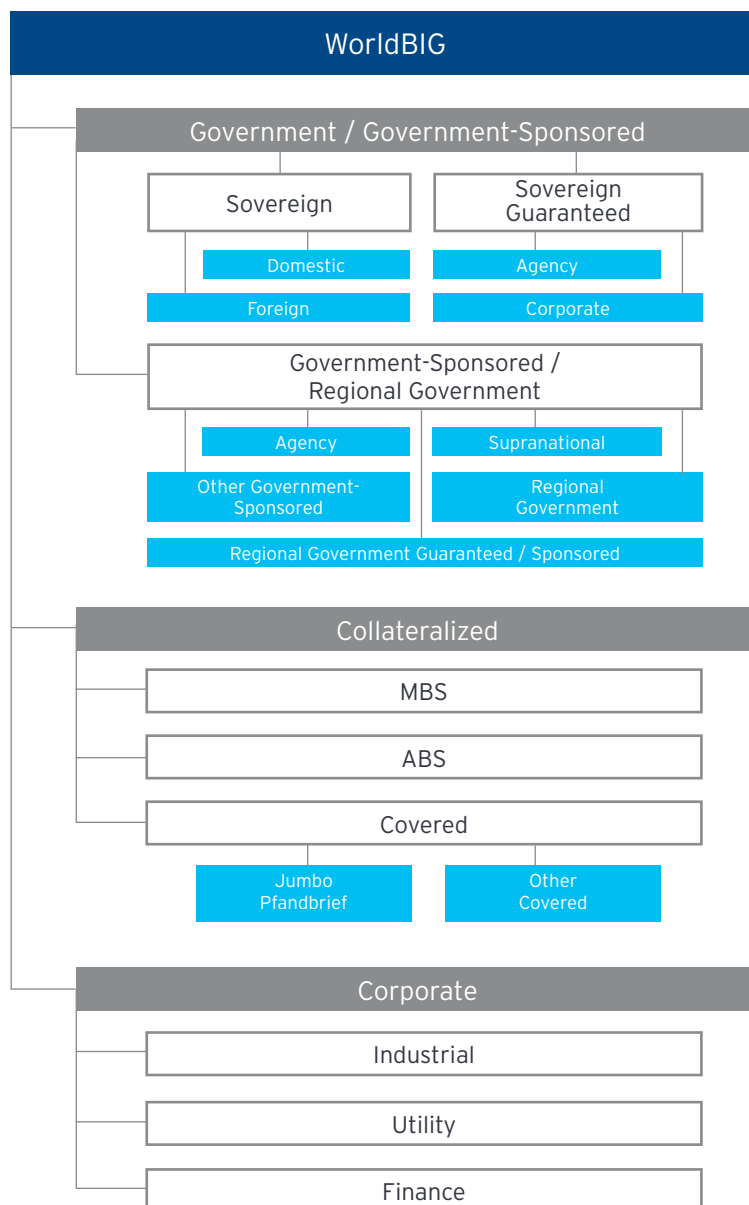
Ticker	Index
SBCNL	Chinese Government Bond Index, in CNY terms
SBINL	Indian Government Bond Index, in INR terms
SBLKL	Sri Lankan Government Bond Index, in LKR terms

World Broad Investment-Grade Bond Index (WorldBIG®)

Multi-Asset | Multi-Currency

The World Broad Investment-Grade Bond Index (WorldBIG) is a multi-asset, multi-currency benchmark which provides a broad-based measure of the global fixed income markets. The inclusion of government, government-sponsored/supranational, collateralized, and corporate debt makes the WorldBIG a comprehensive representation of the global, investment-grade universe.

The index provides exposure to a broad array of asset classes and sub-indices are available in any combination of currency, maturity, and rating.



Design Criteria and Calculation Methodology

In constructing the WorldBIG, the World Government Bond Index (WGBI) has been used as the core. The WGBI serves as sovereign exposure and also defines the sovereign geographic coverage of the two indices. Markets are subject to the same entry criteria already established for the WGBI.

In addition, the WorldBIG includes credit market coverage for the four largest currency sectors, namely the US Dollar (USD), Euro (EUR), Japanese Yen (JPY), and UK Sterling (GBP). Other credit sectors may be added as Citi Fixed Income Indices expands market coverage.

Domestic credit issuance in some markets may be intended for domestic investors. As a result, either the market or the issue is not a fit for a global benchmark. Therefore, larger minimum issue sizes have been imposed and this criterion results in an index that is focused on the large issuers that are of most interest to the institutional investor base.

Figure 26 WorldBIG Design Criteria³¹

Stated Coupon	Fixed-rate, no zero-coupon bonds except for domestic sovereign bonds (WGBI)
Minimum Maturity	At least one year ³²
Market Size	<p>The following market size criteria apply to the WGBI-portion of the index. For the remainder of the index components there are no market size constraints.</p> <p>Entry: The outstanding amount of a market's eligible issues must total at least USD 50 billion, EUR 40 billion and JPY 5 trillion for the market to be considered eligible for inclusion.</p> <p>Exit: When the outstanding amount of a market's eligible issues falls below half of all the entry-level market size criteria, namely USD 25 billion, EUR 20 billion, and JPY 2.5 trillion, for three consecutive months, the market will be removed from the next month's profile and moved to the WGBI Additional Markets Indices.</p>
Minimum Issue Size	<p>Issue Size by Currency:</p> <p>US Dollar Domestic sovereign: USD 5 billion public amount outstanding (excludes Federal Reserve purchases) US agency/supranational: USD 1 billion Credit/asset-backed: USD 500 million Mortgage coupon: USD 5 billion (Origination year minimum: USD 1 billion) Eurodollar: US agency and supranationals: USD 1 billion; other: USD 500 million</p> <p>Japanese Yen Domestic sovereign: JPY 500 billion for bonds with maturity less than 20 years; JPY 450 billion for bonds with maturities equal to or greater than 20 years (excludes Bank of Japan and Ministry of Finance Holdings) Euroyen: JPY 50 billion</p> <p>Euro EMU sovereign: EUR 2.5 billion or the equivalent for non-redenominated bonds Other: EUR 500 million or the equivalent for non-redenominated bonds</p> <p>UK Sterling Domestic sovereign: GBP 2 billion (excludes perpetual and Bank of England purchases) Eurosterling: GBP 300 million</p> <p>Australian Dollar: Domestic sovereign: AUD 750 million Canadian Dollar: Domestic sovereign: CAD 2.5 billion Danish Krone: Domestic sovereign: DKK 20 billion Malaysian Ringgit: Domestic sovereign: MYR 4 billion Mexican Peso: Domestic sovereign: MXN 10 billion Norwegian Krone: Domestic sovereign: NOK 20 billion Polish Zloty: Domestic sovereign: PLN 5 billion Singapore Dollar: Domestic sovereign: SGD 1.5 billion South African Rand: Domestic sovereign: ZAR 10 billion Swedish Krona: Domestic sovereign: SEK 25 billion Swiss Franc: Domestic sovereign: CHF 4 billion</p>
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's

³¹ All the Design Criteria that apply to the WGBI are also applicable to the WGBI portion of the WorldBIG. For more information on those criteria please see Figure 6 "WGBI Design Criteria".

³² Due to the structure of the South African three-legged instruments, the minimum maturity for R186 (10.50%, 12/21/2026), R2044 (8.75%, 01/31/2044), and R2048 (8.75%, 02/28/2048) is one year based on the first maturity date and the three legs from the split of R186, R2044, and R2048 will not be eligible for index inclusion. By convention, the stated maturity date of a three-legged bond is the middle maturity date.

Figure 26 WorldBIG Design Criteria, continued

Composition	WGBI (entire index) USBIG (minimum issue size for credit/asset-backed: USD 500 million; no zero-coupon bonds) EuroBIG (entire index) Euroyen (entire index) Eurodollar (minimum issue size: corporate/financial/asset-backed: USD 500 million; no zero-coupon bonds) Eurosterling (minimum issue size: GBP 300 million)
Redemption Features	Bullet, sinking fund, putable, extendable, or callable

In aggregating the sectors from the various indices to form the WorldBIG, it is important to ensure consistency in terms of the definitions of the various asset class sectors across countries and currencies.

The consistency in sector definitions enables global investors to do risk-reward analysis in assessing portfolio strategies. The WorldBIG is divided into three main asset classes, as outlined in Figure 27: (1) government/government-sponsored; (2) collateralized; and (3) corporate. In addition, all Pfandbrief and Pfandbrief-like securities, which are predominant in the euro region, are classified as covered bonds. This classification scheme differs from that used in most existing stand-alone indices.

Figure 27 WorldBIG Sector Classification

Sovereign / Sovereign-Guaranteed	Government-Sponsored / Regional Government	Collateralized
Domestic Sovereign (WGBI)	Agency	Asset-Backed Securities
Foreign Sovereign	Regional Government	Covered
Sovereign-Guaranteed	Regional Government-Guaranteed	• Jumbo Pfandbrief
	Regional Government-Sponsored	• Other Covered
	Supranational	Mortgage-Backed Securities
	Other Sovereign-Sponsored	
Corporate – Utility	Corporate – Industrial	Corporate – Finance
Electric	Consumer	Banks
Gas	Energy	Independent Finance
Telecommunication	Manufacturing	Insurance
Other Utility	Service	Other Finance
	Transportation	
	Other Industrial	

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 28 WorldBIG Calculation Methodology

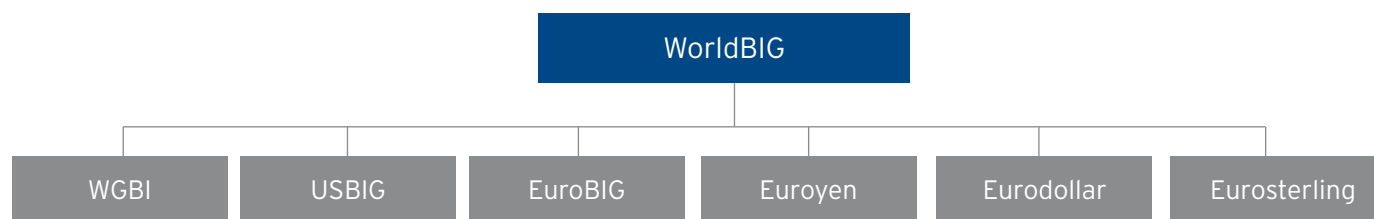
Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, except for Australia where the dollar bank bill swap reference rate (BBSW) is used. Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	<p>For the WGBI portion of the index: Citi trader pricing except for Malaysia (provided by Amanah Butler and Affin), Mexico (provided by Proveedor Integral de Precios S.A. de C.V.), Poland (provided by BondSpot), Singapore (provided by the Monetary Authority of Singapore), and Switzerland (provided by Swiss Exchange). All pricing is generally taken as of local market close.</p> <p>For the non-WGBI portion of the index: Primary: Citi trader pricing, generally taken as of local market close. Supplementary: third-party pricing sources.</p> <p>Pricing Adjustments Mortgages: Carry-adjusted to reflect the difference between index settlement dates and standard Securities and Financial Markets Association (SIFMA) settlement dates.</p>
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Volatility	US Non-mortgages: 10% single volatility; US Mortgages: Market-implied volatility (LMM skew model)
Base Date	December 31, 1998

Chronological Summary of Events

The construction of WorldBIG is driven by the same events that mark the individual indices from which the WorldBIG is composed of. For more details, please refer to those indices' respective sections.

Related Indices

The WorldBIG is composed of the following indices: It has the WGBI as its core and, in addition, credit market coverage for the four largest currency sectors, namely the US Dollar (USD), Euro (EUR), Japanese Yen (JPY), and UK Sterling (GBP).



WORLD GOVERNMENT BOND INDEX (WGBI)

The World Government Bond Index (WGBI) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds. The WGBI is a widely used benchmark that currently comprises sovereign debt from over 20 countries, denominated in a variety of currencies, and has more than 25 years of history available. The WGBI provides a broad benchmark for the global sovereign fixed income market.

US BROAD INVESTMENT-GRADE BOND INDEX (USBIG)

The US Broad Investment-Grade Bond Index (USBIG) tracks the performance of US Dollar-denominated bonds issued in the US investment-grade bond market. Introduced in 1985, the index includes US Treasury, government-sponsored, collateralized, and corporate debt and provides a reliable representation of the US investment-grade bond market.

While the minimum issue size for the USBIG stand-alone index is USD 250 million for corporate and asset-backed securities and USD 500 million for non-US sovereign and provincial, the WorldBIG composition differs: the minimum issue size for corporate, asset-backed and non-US sovereign and provincial securities is USD 500 million and no zero-coupon bonds are included.

EURO BROAD INVESTMENT-GRADE BOND INDEX (EUROBIG)

The Euro Broad Investment-Grade Bond Index (EuroBIG) provides a benchmark for euro-based fixed income portfolios, covering most sectors of the European investment-grade fixed income markets that are accessible to institutional investors.

EUROYEN BOND INDEX

The Euroyen Bond Index includes fixed-rate euroyen, global, Dragon bonds, and certain asset-backed and euro medium-term notes.

EURODOLLAR BOND INDEX

The Eurodollar Bond Index includes fixed-rate (including zero-coupon) eurodollar, global, Dragon bonds, certain asset-backed, and euro medium-term notes. Rule 144A corporate securities are included only if they have registration rights. Citi Fixed Income Indices also publishes returns on the subset of bonds issued by non-US entities.

While the minimum size criteria for the stand-alone Eurodollar index are USD 250 million for corporate, financial, and asset-backed securities, that amount is USD 500 million for the WorldBIG.

EUROSTERLING BOND INDEX

The Eurosterling Bond Index includes fixed-rate eurosterling, global, Dragon bonds, and certain asset-backed and euro medium-term notes.

While the minimum issue size for the stand-alone Eurosterling index is GBP 200 million, the equivalent amount for WorldBIG is GBP 300 million.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 29 Tickers for the WorldBIG and Selected Related Indices

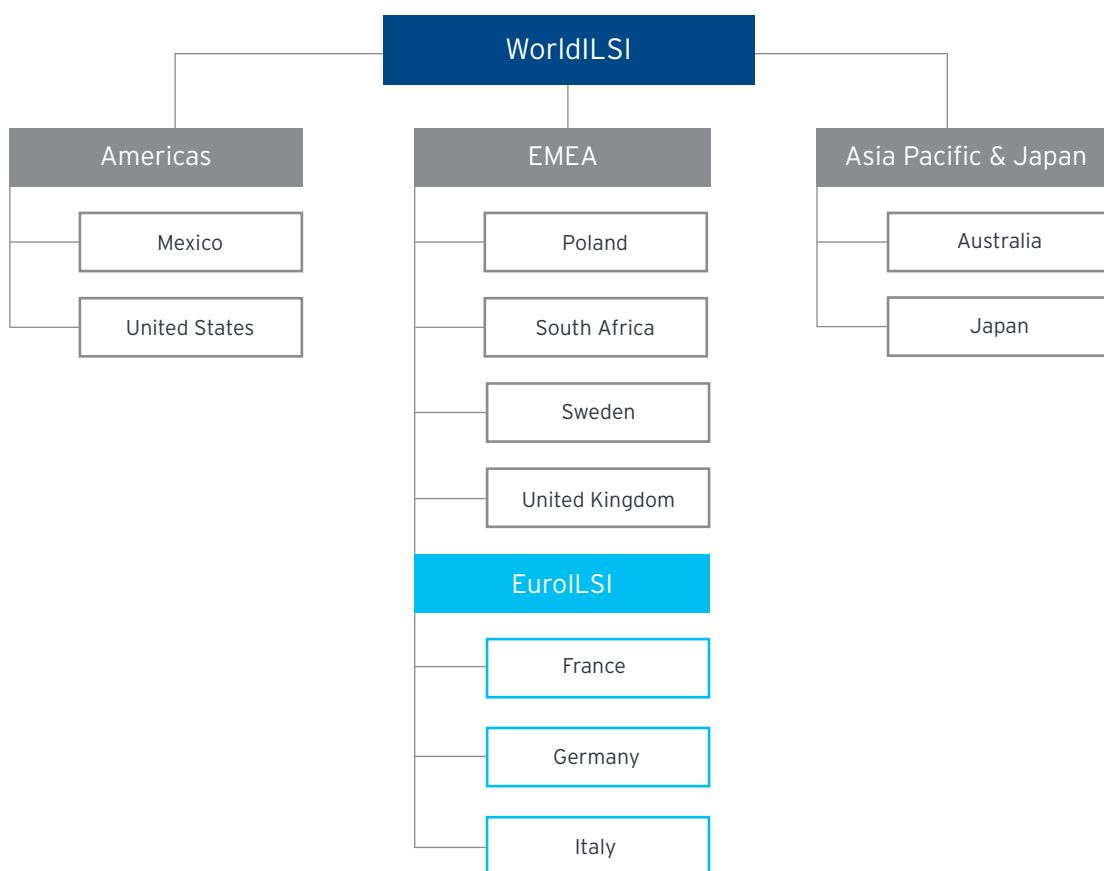
Ticker	Index
SBWAU	World Broad Investment-Grade Bond Index, in USD terms
SBWEU	World Broad Investment-Grade Bond Index, in EUR terms
SBWPU	World Broad Investment-Grade Bond Index, in JPY terms
SBWKU	World Broad Investment-Grade Bond Index, in GBP terms
SBWAAGU	WorldBIG Agency Index, in USD terms
SBWACPU	WorldBIG Corporate Index, in USD terms
SBWACOU	WorldBIG Collateralized Index, in USD terms
SBWGU	World Government Bond Index, in USD terms
SBBIG	US Broad Investment-Grade Bond Index, in USD terms
SBEB	Euro Broad Investment-Grade Bond Index, in EUR terms
SBEIY	Euroyen Bond Index, in JPY terms
SBEID	Eurodollar Bond Index, in USD terms
SBEIS	Eurosterling Bond Index, in GBP terms

World Inflation-Linked Securities Index (WorldILSI)

Sovereign | Multi-Currency

The World Inflation-Linked Securities Index (WorldILSI) measures the returns of inflation-linked bonds with fixed-rate coupon payments that are linked to an inflation index. The WorldILSI tracks debt from eleven countries denominated in nine currencies and is a valuable benchmark for investors who are concerned with real returns, rather than notional.

The index provides exposure to a broad array of countries and sub-indices are available in any combination of country, currency, and maturity.



Design Criteria and Calculation Methodology

Citi Fixed Income Indices monitors a universe of markets with inflation-linked securities. Of these markets, only those that are included in the World Government Bond Index (WGBI) are also included in the WorldILSI, subject to periodic review.

Figure 30 WorldILSI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	<p>Americas Mexico: MXV 5 billion United States: USD 5 billion</p> <p>Europe, Middle East, and Africa Poland: PLN 5 billion EMU Markets: EUR 2.5 billion South Africa: ZAR 500 million Sweden: SEK 10 billion United Kingdom: GBP 2 billion</p> <p>Asia Pacific and Japan Australia: AUD 750 million Japan: JPY 250 billion (excludes Bank of Japan and Ministry of Finance holdings)</p>
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's
Composition	Inflation-linked bonds

Figure 31 WorldILSI Index Composition

Country	Inflation-Linked Securities	Inflation Index
Australia	Treasury Indexed Bonds	Consumer Price Index (CPI), published by the Australian Bureau of Statistics (ABS)
France	OATi, OAT€i, BTAN€i	OATi: Consumer Price Index (CPI) ex-tobacco, published by National Institute of Statistics and Economic Studies (INSEE). OAT€i and BTAN€i: EU Harmonized Index of Consumer Prices (HICP) ex-tobacco, published by Eurostat
Germany	BUND€i, BOBL€i	EU HICP ex-tobacco, published by Eurostat
Italy	BTP€i	EU HICP ex-tobacco, published by Eurostat
Japan	Inflation-Indexed Bonds (JGBi)	CPI, published by the Statistics Bureau and the Director-General for Policy Planning of Japan
Mexico	UDIBONOS (Federal Government Bonds denominated in UDI)	UDIS: Unidades de Inversion - value based on Consumer Price Index, currently published by Instituto Nacional de Estadística y Geografía (INEGI) and published by Banco de Mexico prior to July 14, 2011
Poland	IZ- Series T-Bonds	Consumer Price Index (CPI): published by Central Statistical Office (CSO)
South Africa	Inflation-Linked Bonds	Headline CPI: All items Consumer Price Index for all urban areas, published by Statistics South Africa (Stats SA)
Sweden	Inflation-Linked Bonds	CPI, published by Statistics Sweden (Statistiska centralbyran- SCB)
United Kingdom	Index-Linked GILTs (ILG)	Retail Price Index (RPI), published by Office for National Statistics (ONS)
United States	Treasury Inflation-Protected Securities (TIPS)	CPI, published by US Department of Labor, Bureau of Labor Statistics (BLS)

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. In addition, the price of each issue in the index is adjusted by using an index ratio. This ratio is the current index level³³ divided by the inflation index level at the time of issue of the security. The inflation index is published monthly and the intra-month index ratio is calculated using linear interpolation.

Figure 32 WorldILSI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Citi trader pricing except for Mexico (provided by Proveedor Integral de Precios S.A. de C.V.), Poland (provided by BondSpot), and South Africa (provided by Johannesburg Stock Exchange). Prices are generally taken as of local market close. Prices from third-party pricing sources and transaction-related information supplement Citi trader prices for completeness.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	April 30, 2007

Figure 33 WorldILSI Event Summary

Year	Monthly Highlight
2014	February: The outstanding amount of Polish inflation-linked bonds drops below the minimum size criteria for inclusion and therefore, the bonds are removed from the March 2014 index profile. The coverage for the Polish inflation-linked securities will resume when the bonds satisfy the inclusion criteria.
2013	April: The World Inflation-Linked Securities Index Additional Markets are introduced. The following markets are included: Brazil, Chile, Israel, Korea, Mexico, Poland, South Africa, and Turkey. August: Australia joins the WorldILSI Additional Markets indices. December: Australia, Mexico, Poland, and South Africa join the WorldILSI and are removed from the WorldILSI Additional Markets Indices.
2010	April: The outstanding amount of the Japanese Inflation-Linked Securities Index excludes the Ministry of Finance buybacks and Bank of Japan holdings. July: Greece is excluded from the WorldILSI due to credit downgrade.
2008	May: The World Inflation-Linked Securities Index is introduced and includes: France, Germany, Greece, Japan, Italy, Sweden, United Kingdom, and United States. The index is introduced with 1 year of history. These markets have been part of the index since its base date (April 30, 2007).

³³ The current index level is set equal to a previous value; the "look-back" period is specified at the time of issuance for each individual bond.

Related Indices

EURO INFLATION-LINKED SECURITIES INDEX

The Euro Inflation-Linked Securities Index (EuroILSI) measures the returns of French, German, and Italian inflation-linked bonds with fixed-rate coupon payments that are linked to the EU Harmonized Index of Consumer Prices (HICP) ex-tobacco and the Consumer Price Index (CPI) ex-tobacco.

EMERGING MARKETS INFLATION-LINKED SECURITIES INDEX

The Emerging Markets Inflation-Linked Securities Index (EMILSI) measures the returns of inflation-linked bonds with fixed-rate coupon payments that are linked to an inflation index. The EMILSI comprises debt from six emerging market countries, namely Brazil, Chile, Mexico, Poland, South Africa, and Turkey, denominated in their respective currencies. The index is a valuable benchmark for investors who are concerned with real, rather than notional, returns.

Access Information and Related Publications

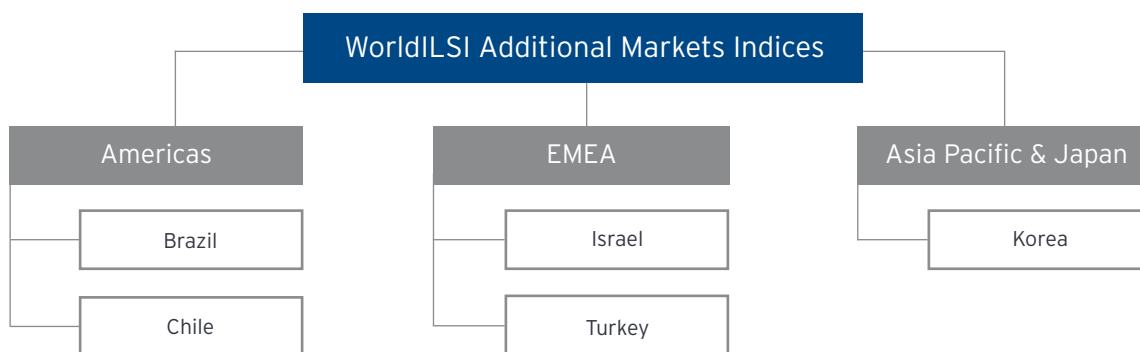
Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 34 Tickers for the WorldILSI and Selected Related Indices

Ticker	Index
SBILUU	World Inflation-Linked Securities Index, in USD terms
SBILEU	World Inflation-Linked Securities Index, in EUR terms
SBILJU	World Inflation-Linked Securities Index, in JPY terms
SBILGU	World Inflation-Linked Securities Index, in GBP terms
SBLAL	Australian Inflation-Linked Securities Index, in AUD terms
SBELEU	Euro Inflation-Linked Securities Index, in EUR terms
SBFRILSI	French Inflation-Linked Securities Index, in EUR terms
SBDEILSI	German Inflation-Linked Securities Index, in EUR terms
SBITILSI	Italian Inflation-Linked Securities Index, in EUR terms
SBJILSI	Japanese Inflation-Linked Securities Index, in JPY terms
SBLML	Mexican Inflation-Linked Securities Index, in MXN terms
SBPSL	Polish Inflation-Linked Securities Index, in PLN terms
SBLZL	South African Inflation-Linked Securities Index, in ZAR terms
SBSEILSI	Swedish Inflation-Linked Securities Index, in SEK terms
SBGBILSI	UK Inflation-Linked Securities Index, in GBP terms
SBUSILSI	US Inflation-Linked Securities Index, in USD terms

WorldILSI Additional Markets Indices

The following five inflation-linked government bond markets constitute the WorldILSI Additional Markets Indices.



Design Criteria and Calculation Methodology

Figure 35 WorldILSI Additional Markets Indices Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Outstanding	Brazil: BRL 1 billion Chile: CLF 5 million Israel: ILS 5 billion Korea: KRW 1 trillion Turkey: TRL 2 billion
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted issues)
Composition	Inflation-linked bonds

Figure 36 Types of Inflation-Linked Securities and Inflation Indices

Country	Inflation-Linked Securities	Inflation Index
Brazil	NTN-B (National Treasury Notes, Series B)	IPCA: Extended Consumer Price Index, published by Instituto Brasileiro de Geografia e Estatística (IBGE)
Chile	BCU, BTU	IPC: Índice de Precios al Consumidor, published by Central Bank of Chile
Israel	GALIL, CPI-Linked Government Bonds	CPI: published by the Central Bureau of Statistics (CBS)
Korea	KTBi - Inflation-linked KTB	KRCPI: published by the Statistics Korea
Turkey	CPI Indexed Bonds	CPI: General Consumer Price Index, published by Turkish Statistical Institute (TURKSTAT)

The WorldILSI Additional Markets Indices follow the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the indices.

Figure 37 WorldILSI Additional Markets Indices Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Citi trader pricing except for Chile (provided by Banco de Chile) and Israel (provided by Tel Aviv Stock Exchange). Prices are generally taken as of the local market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	March 31, 2008

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 38 Tickers for the WorldILSI Additional Markets Indices

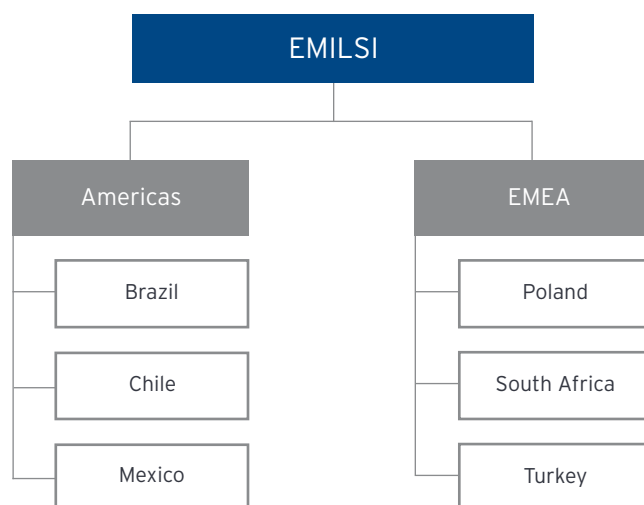
Ticker	Index
SBLBL	Brazilian Inflation-Linked Securities Index, in BRL terms
SBLCL	Chilean Inflation-Linked Securities Index, in CLP terms
SBLIL	Israeli Inflation-Linked Securities Index, in ILS terms
SBKLL	Korean Inflation-Linked Securities Index, in KRW terms
SBLTL	Turkish Inflation-Linked Securities Index, in TRL terms

Emerging Markets Inflation-Linked Securities Index (EMILSI)

Sovereign | Multi-Currency

The Emerging Markets Inflation-Linked Securities Index (EMILSI) measures the returns of inflation-linked bonds with fixed-rate coupon payments that are linked to an inflation index. The EMILSI tracks debt from six countries denominated in six currencies and is a valuable benchmark for investors who are concerned with real, rather than notional, returns.

The index provides exposure to a broad array of countries and sub-indices are available in any combination of country, currency, and maturity.



Design Criteria and Calculation Methodology

Figure 39 EMILSI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Outstanding	Brazil: BRL 1 billion Chile: CLF 5 million Mexico: MXV 5 billion Poland: PLN 5 billion South Africa: ZAR 500 million Turkey: TRL 2 billion
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted issues)
Composition	Inflation-linked bonds

Figure 40 Types of Inflation-Linked Securities and Inflation Indices

Country	Inflation-Linked Securities	Inflation Index
Brazil	NTN-B (National Treasury Notes, Series B)	IPCA: Extended Consumer Price Index, published by Instituto Brasileiro de Geografia e Estatística (IBGE)
Chile	BCU, BTU	IPC: Índice de Precios al Consumidor, published by Central Bank of Chile
Mexico	UDIBONOS (Federal Government Bonds denominated in UDI)	UDIS: Unidades de Inversión - value based on Consumer Price Index, currently published by Instituto Nacional de Estadística y Geografía (INEGI) and published by Banco de Mexico prior to July 14, 2011
Poland	IZ- Series T-Bonds	Consumer Price Index (CPI): published by Central Statistical Office (CSO)
South Africa	Inflation-Linked Bonds	Headline CPI: All items Consumer Price Index for all urban areas, published by Statistics South Africa (Stats SA)
Turkey	CPI Indexed Bonds	CPI: General Consumer Price Index, published by Turkish Statistical Institute (TURKSTAT)

The index is designed using Citi Fixed Income Indices' definition for "emerging markets", detailed on page 116 of this publication. The index follows the general methodology for Citi's fixed income indices as outlined in Section 2. In addition, the price of each issue in the index is adjusted by using an index ratio. This ratio is the current index level³⁴ divided by the inflation index level at the time of issue of the security. The inflation index is published monthly and the intra-month index ratio is calculated using linear interpolation.

Figure 41 EMILSI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Citi trader pricing except for Chile (provided by Banco de Chile), Mexico (provided by Proveedor Integral de Precios S.A. de C.V.), Poland (provided by BondSpot), and South Africa (provided by Johannesburg Stock Exchange). Prices are generally taken as of the local market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	March 31, 2008

Figure 42 EMILSI Event Summary

Year	Monthly Highlight
2014	February: The outstanding amount of Polish inflation-linked bonds drops below the minimum size criteria for inclusion and therefore, the bonds are removed from the March 2014 index profile. The coverage for the Polish inflation-linked securities will resume when the bonds satisfy the inclusion criteria.
2013	April: The Emerging Markets Inflation-Linked Securities Index is introduced and includes Brazil, Chile, Mexico, Poland, South Africa, and Turkey. The index is introduced with 5 years of history. These markets have been part of the index since its base date (March 31, 2007).

³⁴ The current index level is set equal to a previous value; the "look-back" period is specified at the time of issuance for each individual bond.

Related Indices

WORLD INFLATION-LINKED SECURITIES INDEX

The World Inflation-Linked Securities Index (WorldILSI) measures the returns of inflation-linked bonds with fixed-rate coupon payments that are linked to an inflation index. The WorldILSI tracks debt from eleven countries, namely Australia, France, Germany, Italy, Japan, Mexico, Poland, South Africa, Sweden, the United Kingdom, and the United States denominated in their respective currencies. This index is a valuable benchmark for investors who are concerned with real, rather than notional, returns.

EURO INFLATION-LINKED SECURITIES INDEX

The Euro Inflation-Linked Securities Index (EuroILSI) measures the returns of French, German, and Italian inflation-linked bonds with fixed-rate coupon payments that are linked to the EU Harmonized Index of Consumer Prices (HICP) ex-tobacco and the Consumer Price Index (CPI) ex-tobacco.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 43 Tickers for the EMILSI and Selected Related Indices

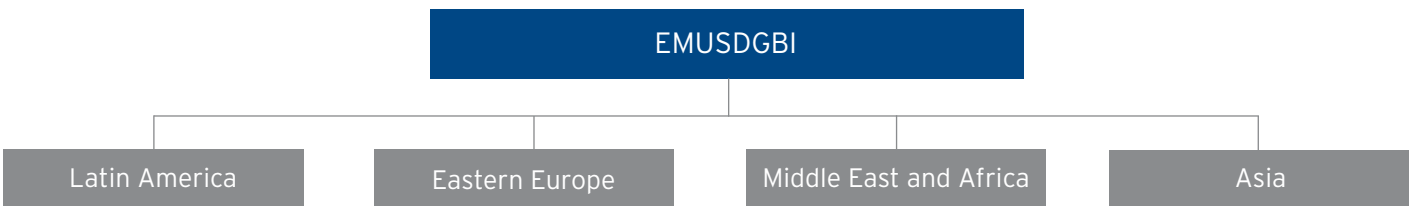
Ticker	Index
SBLEEU	Emerging Markets Inflation-Linked Securities Index, in USD terms
SBLEEU	Emerging Markets Inflation-Linked Securities Index, in EUR terms
SBLEJU	Emerging Markets Inflation-Linked Securities Index, in JPY terms
SBLEGU	Emerging Markets Inflation-Linked Securities Index, in GBP terms
SBLBL	Brazilian Inflation-Linked Securities Index, in BRL terms
SBLCL	Chilean Inflation-Linked Securities Index, in CLP terms
SBLML	Mexican Inflation-Linked Securities Index, in MXN terms
SBPSL	Polish Inflation-Linked Securities Index, in PLN terms
SBLZL	South African Inflation-Linked Securities Index, in ZAR terms
SBLTL	Turkish Inflation-Linked Securities Index, in TRL terms

Emerging Markets US Dollar Government Bond Index (EMUSDGBI)

Sovereign | US Dollar

The Emerging Markets US Dollar Government Bond Index (EMUSDGBI) includes US Dollar-denominated emerging market sovereign debt issued in the global, Yankee, and Eurodollar markets. The index comprises debt of more than 50 countries from Latin America, Eastern Europe, Middle East, Africa, and Asia and offers geographical diversification without exposure to local currency fluctuations.³⁵

The index provides exposure to a broad array of countries and sub-indices are available in any combination of country, maturity, and rating.



Design Criteria and Calculation Methodology

Figure 44 EMUSDGBI Design Criteria

Stated Coupon	Fixed-rate (excludes zero-coupon bonds)
Minimum Maturity	At least one year
Minimum Issue Size	USD 500 million
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted bonds)
Composition	US Dollar-denominated sovereign debt issued in the global, Yankee, and Eurodollar markets.
Redemption Features	Bullet, sinking fund, puttable, or callable

Defaults

A country's bonds are placed in the Extended Indices³⁶ if the sovereign government meets the following default criteria:

1. Failure to pay: The sovereign has failed to make a full principal or interest payment by the due date (including any applicable grace period).
2. Repudiation/moratorium: The sovereign repudiates or challenges the validity of its bonds or declares a moratorium or standstill applicable to the bond payments.
3. Acceleration: The sovereign bonds become due and payable in full or eligible for acceleration by meeting the conditions of acceleration specified in their terms.
4. Restructuring: The sovereign, because of deterioration in financial conditions or creditworthiness, changes the financial terms or causes subordination of its bonds not provided for in its terms and imposes such changes on bondholders.

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

³⁵ As of November 2013, the index has been renamed from "Global Emerging Market Sovereign Bond Index (ESBI)" to "Emerging Markets US Dollar Government Bond Index (EMUSDGBI)" to better align with Citi Fixed Income Indices' naming conventions. In addition, the index's design criteria have been modified to reflect Citi Fixed Income Indices' new methodology of classifying a country to be "emerging". More information on the definition of emerging countries can be found on page 116 of the publication.

³⁶ For more information on Extended Indices, please see page 59.

Figure 45 EMUSDGBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	Continuous at the daily average of the one-month Eurodeposit rate for the calculation period
Pricing	Citi trader pricing. All pricing generally taken as of local market close. Prices from third-party pricing sources and transaction-related information supplement Citi trader prices for completeness.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Volatility	10% single volatility
Yield Curve	Citi US Treasury Model (off-the-run)
Base Date	December 31, 1995

Sector-Level Spread Computation

Sector level spreads are computed by weighting the spreads with dollar duration as follows:

$$sprd_{sector} = \frac{\sum_{j=1}^n sprd_j \times mkv_j \times spddur_j}{\sum_{j=1}^n mkv_j \times spddur_j}$$

In this equation, n is the number of issues in the sector and for each issue; $sprd$ is the stripped spread; mkv is the market value; and $spddur$ is the spread duration. The product of the market value and the spread duration is referred to as the spread-dollar duration.

This methodology will calculate the average spread of a sector according to both the market value and the duration of the underlying issues within the sector. Weighting by spread-dollar duration helps to more accurately reflect changes to the value of the portfolio associated with spread curve movement by assigning a larger weight to securities with larger spread duration. For example, given two bonds of the same market value, the spread of the long-duration bond will have a larger weight in the sector-level spread than the spread of the short-duration bond.

Chronological Summary of Events

Figure 46 EMUSDGBI Event Summary

Year	Monthly Highlights
2014	August: Due to technical default and S&P's downgrade to CCC-, Argentinean sovereign bonds exited the EMUSDGBI and joined the EMUSDGBI Extended.
2013	November: The index is renamed from "Global Emerging Market Sovereign Bond Index (ESBI)" to "Emerging Markets US Dollar Government Bond Index (EMUSDGBI)". Related indices are also renamed: the "Global Emerging Market Sovereign Capped Bond Index (ESBI Capped)", the "Global Emerging Markets Sovereign Extended Bond Index (ESBI Extended)", and the "Global Emerging Market Sovereign Capped Extended Bond Index (ESBI Capped Extended)" are renamed to "Emerging Markets US Dollar Government Capped Bond Index (EMUSDGBI Capped)", "Emerging Markets US Dollar Government Extended Bond Index (EMUSDGBI Extended)", and "Emerging Markets US Dollar Government Capped Extended Bond Index (EMUSDGBI Capped Extended)", respectively.
2003	July: The Brady Bond Index is migrated to the Global Emerging Market Sovereign Index.
2002	January: The Global Emerging Market Sovereign Bond Index is introduced.

Related Indices

EMERGING MARKETS US DOLLAR GOVERNMENT CAPPED BOND INDEX (EMUSDGBI CAPPED)

The Emerging Markets US Dollar Government Capped Bond Index (EMUSDGBI Capped) represents a modified version of the EMUSDGBI. It imposes a maximum par amount of USD 15 billion per country, thereby limiting the effect of debt-burdened countries on index characteristics and performance.

EMERGING MARKETS US DOLLAR GOVERNMENT EXTENDED BOND INDEX (EMUSDGBI EXTENDED) AND EMERGING MARKETS US DOLLAR GOVERNMENT CAPPED EXTENDED BOND INDEX (EMUSDGBI CAPPED EXTENDED)

The Emerging Markets US Dollar Government Extended Bond Index (EMUSDGBI Extended) and the Emerging Markets US Dollar Government Capped Extended Bond Index (EMUSDGBI Capped Extended) capture the bonds that are excluded from the EMUSDGBI and EMUSDGBI Capped because of default by the issuer. For a country to be moved to the Extended Indices, at least one foreign currency debt that is a direct obligation of the sovereign government in the EMUSDGBI and EMUSDGBI Capped meets the default criteria stated on page 57. In the event that a country defaults, all of its issues in the EMUSDGBI and EMUSDGBI Capped, including its Brady bonds, are moved to the Extended Indices. The returns for the bonds are also adjusted to reflect the loss of coupon payments or accrued interest, where applicable. The adjustment occurs at the month-end following the default of the issuer. The return calculation for the default issues reflects only principal gains or losses.

Additional Definitions

Spread Duration

The spread duration is a measure of relative changes in the full price because of changes in the stripped spread.

Stripped Yield

The stripped yield is calculated on cash flows reduced by any guaranteed payments of principal and interest and with the price reduced by the present value of the guaranteed payments.

Stripped Spread

The stripped spread (in basis points) over the pricing yield curve for the unguaranteed portion of a security's cash flows, is equal to the amount that when added to each of the yield curve's spot rates, makes the present value of the unguaranteed portion of the cash flows equal to the price reduced by the present value of the guaranteed payments.

Blended Yield

The blended yield is obtained from discounting both the sovereign and collateral component of future cash flows.

Blended Spread

The blended spread is the security's blended yield minus the point on the pricing yield curve at the point of the security's weighted average life, in basis points.

Cash Flow Yield

The cash flow yield is indicated by the security's full price, settlement date, and assumed cash flows.

Cash Flow Spread

The cash flow spread is the security's cash flow yield minus the yield of a suitable benchmark security, in basis points.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 47 Tickers for EMUSDGBI and Selected Related Indices

Ticker	Index
SBGIMS	Emerging Markets US Dollar Government Bond Index (EMUSDGBI), in USD terms
SBCGMS	EMUSDGBI Capped, in USD terms
SBEVMS	EMUSDGBI Extended, in USD terms
SBEWMS	EMUSDGBI Capped Extended, in USD terms

Sukuk Index

Multi-Asset | US Dollar

The Sukuk Index measures the performance of global Islamic fixed income securities, also known as sukuk. The index includes US Dollar-denominated, investment-grade sukuk that are Sharia-compliant and issued in the global markets.

Design Criteria and Calculation Methodology

Figure 48 Sukuk Index Design Criteria

Stated Coupon	Fixed-rate, floating-rate
Minimum Maturity	At least one year
Minimum Issue Size	USD 200 million
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's. If a bond is not rated by S&P and Moody's, then an explicit or implicit rating of BBB-/Baa3 by a leading rating agency is used.
Composition	Global Islamic fixed income investment-grade, US Dollar-denominated securities (Sukuk)

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 49 Sukuk Index Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At one-month US Dollar Eurodeposit rate for the calculation period
Pricing	Citi trader pricing, generally taken as of local market close. ³⁷ Prices from third-party pricing sources, transaction-related information and Citi's proprietary pricing models supplement Citi trader prices for completeness.
Yield Curve	Citi Treasury Model (off-the-run) Curve
Volatility	10% single volatility
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	September 30, 2005

³⁷ Bid-side prices from Citi are collected at the close of the local market for use in calculating monthly returns. However, because of the illiquid nature of the bonds, the valuations placed on the bonds by traders are based more on their estimate of where the bonds might trade rather than an observation of where they actually trade.

Chronological Summary of Events

Figure 50 Sukuk Index Event Summary

Year	Monthly Highlights
2012	April: The Dow Jones Citigroup Sukuk Index is rebranded to Citi Sukuk Index.
2009	October: The minimum issue size eligibility decreases to USD 200 million.
2006	April: The Dow Jones Citigroup Sukuk Index is introduced.

Sharia Compliance

Sukuk are essentially asset-backed bonds, neither equity nor debt from the perspective of conventional capital markets. As such, the content and structure of sukuk must be examined carefully to assure that they are Sharia-compliant. While it is possible for an index to stipulate criteria relating to the nature of the underlying assets of sukuk to determine whether or not sukuk are Sharia-compliant, the structure of sukuk presents a far more complicated picture. First, given the complexities involved when structuring such instruments for assets held in one jurisdiction by special purpose vehicles (SPVs), or trusts domiciled in other jurisdictions, or held by investors in still other jurisdictions, certification of compliance by an internationally recognized Sharia supervisory board (SSB) must be established. Second, the basic structure of sukuk must fall under one of the categories specified by the Auditing and Accounting Organization of Islamic Financial Institutions (AAOIFI). After these two criteria are established, the final Sharia screening criteria will deal exclusively with the nature of the underlying assets. To summarize, the Sharia screening criteria are:

1. Certification by a recognized Sharia supervisory board.
2. Compliance with AAOIFI standards for tradable sukuk.
3. Compliance of the underlying assets with Sharia principles.

The First Screen

The first criterion for considering sukuk is to ensure that the issuance is certified by a reputable SSB. In many cases, a sukuk will be certified not only by the issuer's SSB, or the arranger, but also by the investor's SSB as well. To address the potential problem of differing SSB interpretations, the screen will be passed only if the sukuk has been certified by a Sharia supervisory board with international membership or if more than one SSB from different geographic regions have certified the sukuk.

The Second Screen

The second criterion is the most complex of all. Because of the standards for sukuk issued by the AAOIFI in 2004, a diverse range of instruments has been identified, and their acceptance by Islamic banks and financial institutions has been universal.

The Third Screen

The underlying assets to be securitized in sukuk must comply with Sharia principles, similar to the way stocks are screened for compliance of the primary business, so as not to permit companies that are engaged in any of the so-called prohibited industries.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

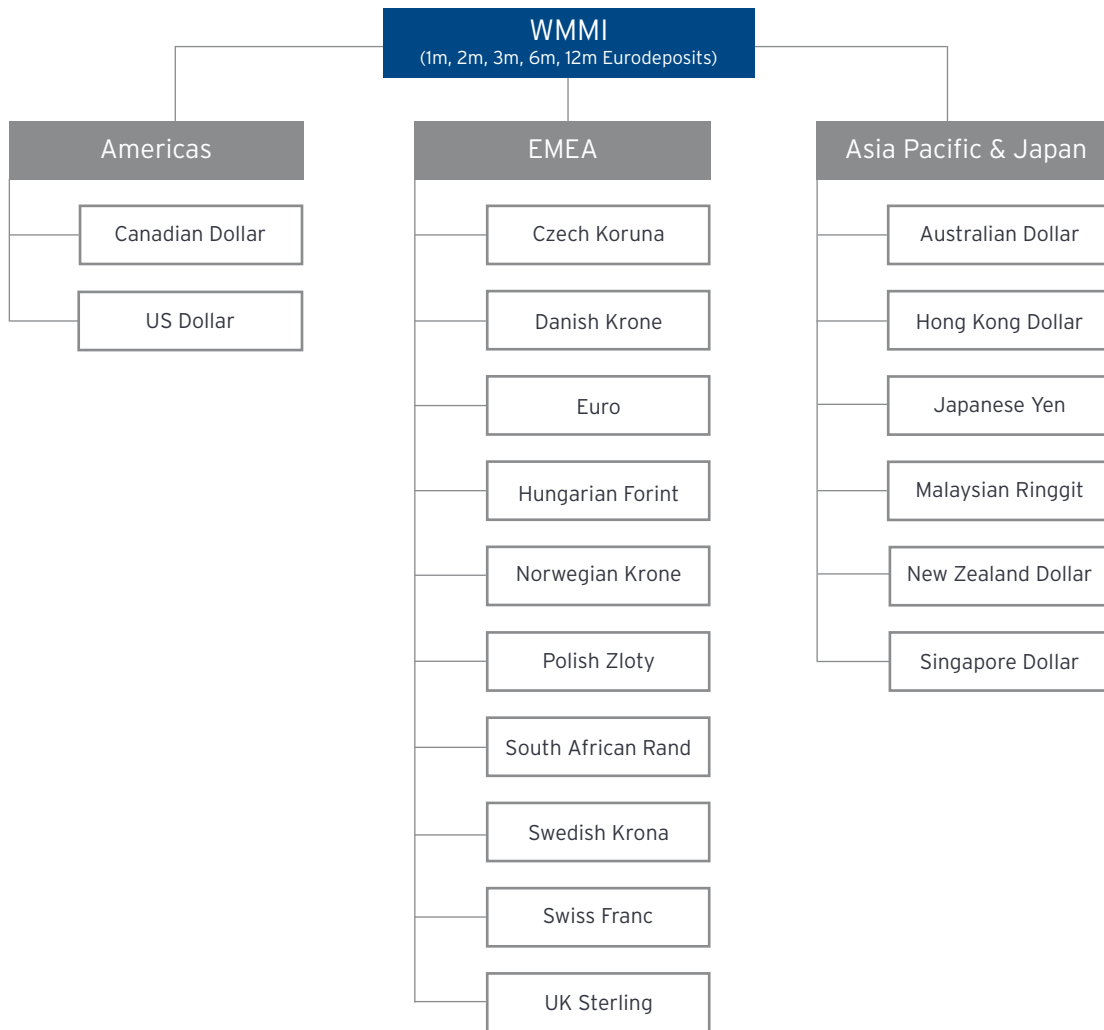
Figure 51 Ticker for the Sukuk Index

Ticker	Index
SBKU	Sukuk Index, in USD terms

World Money Market Indices (WMMI)

Sovereign | Multi-Currency

The World Money Market Indices measure the performance of money market instruments in 18 currencies. The indices track one-, two-, three-, six-, and twelve-month Eurodeposits, offering investors a good measure of short-term markets.



Design Criteria and Calculation Methodology

Figure 52 WMMI Design Criteria

Maturity	One, two, three, six and twelve months. All Eurodeposits are held to maturity. Index names are descriptive. For example, the three-month US Dollar Money Market Index comprises only three-month US Dollar Eurodeposits, and the six-month Japanese Yen Index comprises only six-month Japanese Yen Eurodeposits.
Composition	Eurodeposits in the following currencies: Australian Dollar, Canadian Dollar, Czech Koruna, Danish Krone, Euro, Hong Kong Dollar, Hungarian Forint, Japanese Yen, Malaysian Ringgit, New Zealand Dollar, Norwegian Krone, Polish Zloty, Singapore Dollar, South African Rand, Swedish Krona, Swiss Franc, UK Sterling, and US Dollar

Figure 53 WMMI Calculation Methodology

Pricing	Monthly yields (bid) obtained from Reuters, 4:00 p.m. London time
Calculation Frequency	Daily

Citi Fixed Income Indices computes daily and monthly returns for each instrument in its local currency and in USD terms, using the following assumptions:

- For each index, at the beginning of each month, a fraction of the index matures and is rolled over into a new Eurodeposit of the same maturity. In any given month, a three-month index comprises three three-month Eurodeposits one maturing this month, one maturing next month and one maturing in month three. Each month, one three-month Eurodeposit matures and one three-month Eurodeposit is added. Similar logic applies to one-month, two-month, six-month, and twelve-month indices.
- The returns for any given maturity index are computed from the actual Eurodeposits that constitute the index in that particular month. For example, the October return for the three-month indices includes the return of a laddered investment with securities maturing in July, August, and September. At the end of October, the July 31 Eurodeposit matures and a new Eurodeposit is added as of October 31, to continue the ladder for future returns. More details of return computation can be found in the following sections.
- For one-month Eurodeposits, a new Eurodeposit replaces the matured Eurodeposit at the beginning of every month, and the return is the return of the maturing one-month Eurodeposit.

Local Currency Rate Computation

The return computation methodology is consistent across maturities. The steps for computing returns on three-month Eurodeposits for a given month, m are detailed below.

Step 1

Obtain the nominal three-month Eurodeposit rates (quoted on an annual basis), y_{m-i} , as of the end of the months $m-1$, $m-2$, and $m-3$.

Step 2

Convert y_{m-i} into an effective term yield (equivalent to the three-month return), e_{m-i} , for the three-month term starting on the last calendar day of month $m-i$ and ending on the last calendar date of month $m-i+3$, using the actual number of days in the term and the day-count convention of the quoted rate (360 days per year for most, but not all, Eurodeposit rates):

$$e_{m-i} = y_{m-i} \times \left(\frac{\text{Actual days in term}}{360} \right), i = 1, 2, 3$$

Step 3

Calculate the effective monthly return, r_{m-i} , which, when compounded through the length of the three-month term, equals in the effective term yield computed in Step 2:

$$r_{m-i} = \left(1 + e_{m-i} \right)^{\text{Days in } m / \text{Days in 3-month term} - 1}, i = 1, 2, 3$$

Step 4

Calculate an average of the three monthly yields derived in Step 3. This is the return on three-month deposits for the month m . The same method is used to compute month-to-date returns on three-month Eurodeposits; the number of days used in Step 3 is appropriately modified.

Local Currency Rate Computation, continued

For calculating returns for any other maturity, similar methodology is used. For example, to calculate returns for the six-month Eurodeposits for a given month m , the average of the six effective monthly returns is calculated using the six six-month Eurodeposit rates as of the end of months $m-1$, $m-2$, $m-3$, $m-4$, $m-5$, and $m-6$.

For one-month Eurodeposits, since a new Eurodeposit replaces a matured Eurodeposit at the beginning of every month, the averaging in Step 4 is omitted for calculating returns.

Base Currency Return Computation

The following example illustrates the computation steps for local and US Dollar-based returns on a three-month Sterling Eurodeposit.

Figure 54 WMMI - Assumed Conventions and Data

Conventions	Data	
Month for Which Returns are Being Computed	July 2007	
Quote Convention	Yield (% / Annum)	
Day-Count Basis	ACT/365	
Yields	April 30	5.61% (y)
	May 31	5.71% (y)
	June 30	5.86% (y)
US Dollar/UK Sterling Spot Exchange Rates	June 29	2.00635
	July 31	2.03205

I. Compute Local Currency Return

Step 1

Calculate the effective term yield:

$$e_{\text{April}} = 5.61\% \times \left(\frac{31+30+31}{365} \right) = 1.4140\%$$

$$e_{\text{May}} = 5.71\% \times \left(\frac{30+31+30}{365} \right) = 1.4392\%$$

$$e_{\text{June}} = 5.86\% \times \left(\frac{31+30+31}{365} \right) = 1.4770\%$$

where e_{month} should be interpreted as the effective yield for the three-month return. In this case, the Eurodeposit that yielded 5.61% per annum on April 30 returns 1.4140% for the three-month term (92 days).

Step 2

Calculate the effective monthly returns:

$$r_{\text{April}} = (1 + 1.4140\%)^{\left(\frac{31}{92} \right)} - 1 = 0.4743\%$$

$$r_{\text{May}} = (1 + 1.4392\%)^{\left(\frac{31}{92} \right)} - 1 = 0.4827\%$$

$$r_{\text{June}} = (1 + 1.4770\%)^{\left(\frac{31}{92} \right)} - 1 = 0.4953\%$$

where r_{month} is the Eurodeposit return for the 31-day month of July. For example, the April 30 Eurodeposit returned 0.4743% for the month of July. This return, in turn, compounds over 92 days to yield e_{month} , or 1.4140%.

Step 3

Compute the average of the monthly returns from above. This is the sector return for the month in local (sterling) terms.

$$r_{\text{avg}} = \frac{(r_{\text{April}} + r_{\text{May}} + r_{\text{June}})}{3} = 0.4841\%$$

II. Compute Currency Return

$$C_{\text{UK}} = \frac{(2.03205 - 2.00635)}{(2.00635)} = 1.2809\%$$

III. Compute Total Return (in US Dollar Terms)

$$R_{\text{USD}} = [(1 + 0.4841\%) \times (1 + 1.2809\%)] - 1 = 1.7712\%$$

Figure 55 WMMI – Reuters Instrument Codes (RICs) Used to Obtain Monthly Yields (Bid) for Eurodeposits³⁸

Currency	1-Month	2-Month	3-Month	6-Month	12-Month
Australian Dollar	AUD1MD	AUD2MD	AUD3MD	AUD6MD	AUD1YD
Canadian Dollar	CAD1MD	CAD2MD	CAD3MD	CAD6MD	CAD1YD
Czech Koruna	CZK1MD	CZK2MD	CZK3MD	CZK6MD	CZK1YD
Danish Krone	DKK1MD	DKK2MD	DKK3MD	DKK6MD	DKK1YD
Euro	EUR1MD	EUR2MD	EUR3MD	EUR6MD	EUR1YD
Hong Kong Dollar	HKD1MD	HKD2MD	HKD3MD	HKD6MD	HKD1YD
Hungarian Forint	HUF1MD	HUF2MD	HUF3MD	HUF6MD	HUF1YD
Japanese Yen	JPY1MD	JPY2MD	JPY3MD	JPY6MD	JPY1YD
Norwegian Krone	NOK1MD	NOK2MD	NOK3MD	NOK6MD	NOK1YD
Polish Zloty	PLN1MD	PLN2MD	PLN3MD	PLN6MD	PLN1YD
Swedish Krona	SEK1MD	SEK2MD	SEK3MD	SEK6MD	SEK1YD
Swiss Franc	CHF1MD	CHF2MD	CHF3MD	CHF6MD	CHF1YD
New Zealand Dollar	NZD1MD	NZD2MD	NZD3MD	NZD6MD	NZD1YD
Malaysian Ringgit	MYR1MD	MYR2MD	MYR3MD	MYR6MD	MYR1YD
Singapore Dollar	SGD1MD	SGD2MD	SGD3MD	SGD6MD	SGD1YD
South African Rand	ZAR1MD	ZAR2MD	ZAR3MD	ZAR6MD	ZAR1YD
UK Sterling	GBP1MD	GBP2MD	GBP3MD	GBP6MD	GBP1YD
US Dollar	USD1MD	USD2MD	USD3MD	USD6MD	USD1YD

Chronological Summary of Events

Figure 56 WMMI Event Summary

Year	Monthly Highlights
2007	July: Currency coverage of WMMI is expanded to include Malaysian Ringgit.
2001	January: Composite World Money Market Index is discontinued. Greek Drachma indices are discontinued as Greece joins the EMU.
2000	April: Greek Drachma one- and three- month indices are introduced. Greek Drachma is also included within the equally weighted composite World Money Market Index. November: Currency coverage of WMMI is expanded to include six new currencies (Czech Koruna, Hong Kong Dollar, Hungarian Forint, Polish Zloty, Singapore Dollar, and South African Rand). Maturity coverage of money market instruments is expanded to include one-, two-, three-, six-, and twelve- month Eurodeposits in each of the 18 currencies. (Expansion in coverage does not affect the composite World Money Market Index).
1999	January: Currency coverage of WMMI expands to include Australian Dollar, New Zealand Dollar, Danish Krone, Euro, Norwegian Krone, and Swedish Krona. Deutschemark, Dutch Guilder, and French Franc indices are discontinued (all EMU currencies are folded into the Euro). Composition changes to cover one- and three-month Eurodeposits for each currency.
1978	January: Original Money Market Index is introduced: An equally weighted composite of three-month deposits in eight currencies (US Dollar, Canadian Dollar, Deutschemark, Dutch Guilder, French Franc, Japanese Yen, Swiss Franc, and UK Sterling).

³⁸ Note: In the event of incorrect or missing rates, previous values will be rolled or an alternative source will be used, if available.
Source: Reuters.

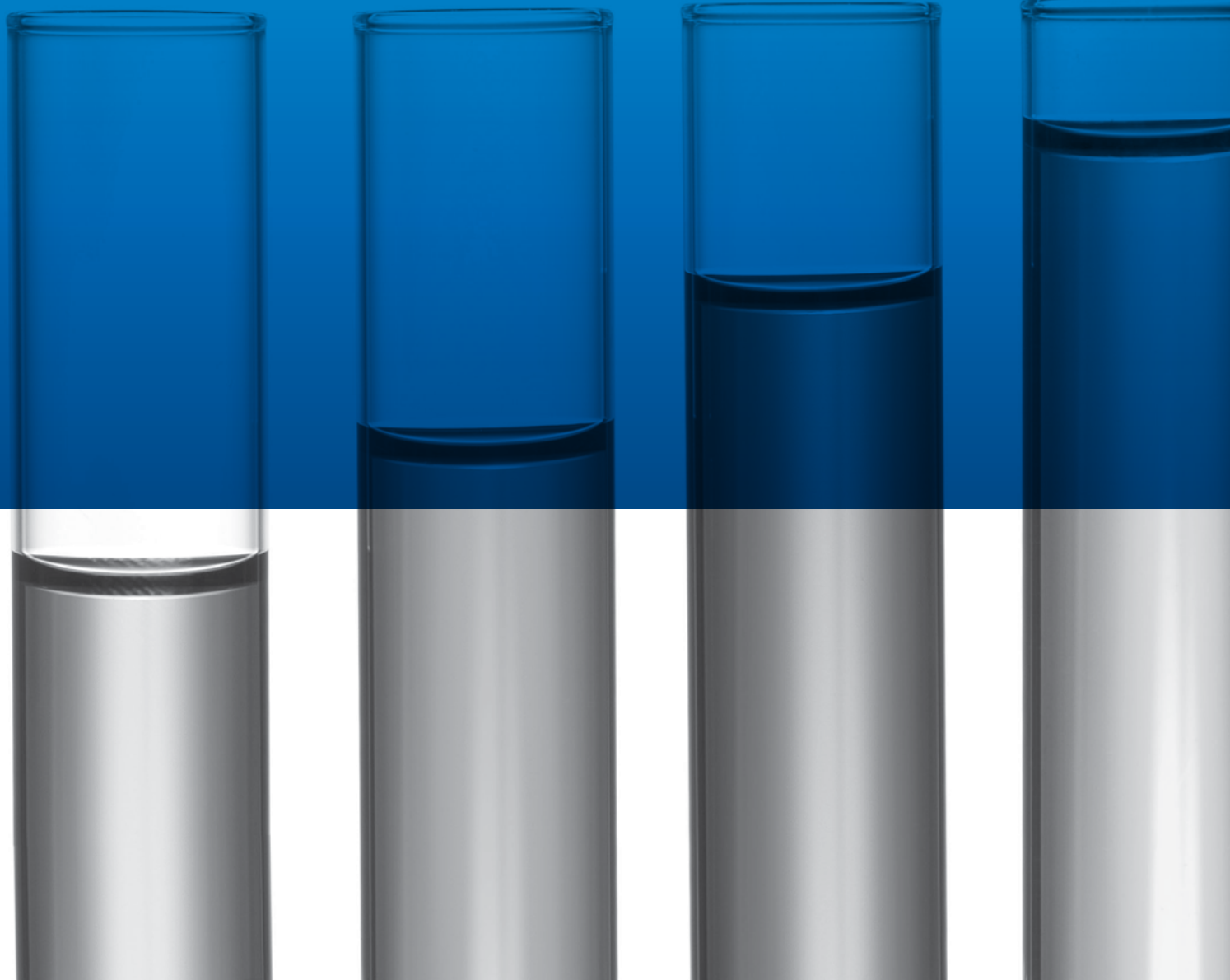
Access Information and Related Publications

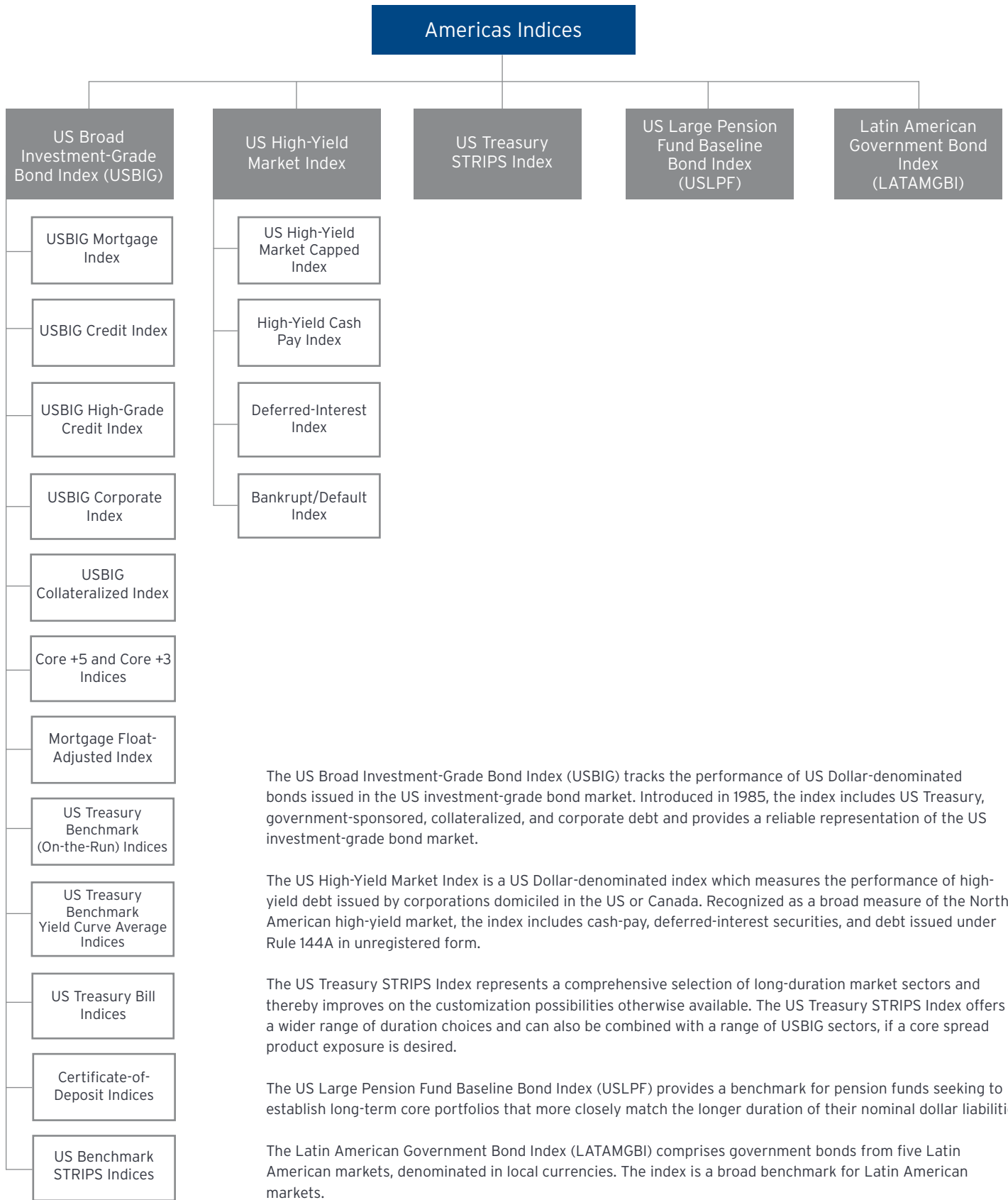
Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 57 Tickers for Selected World Money Market Indices

Ticker	Index
SBTMADL	12-Month Australian Dollar Eurodeposit, in AUD terms
SBTMCDL	12-Month Canadian Dollar Eurodeposit, in CAD terms
SBTMCKL	12-Month Czech Koruna Eurodeposit, in CZK terms
SBTMDKL	12-Month Danish Krone Eurodeposit, in DKK terms
SBTMEUL	12-Month Euro Eurodeposit, in EUR terms
SBTMHDL	12-Month Hong Kong Dollar Eurodeposit, in HKD terms
SBTMHFL	12-Month Hungarian Forint Eurodeposit, in HUF terms
SBTMJYL	12-Month Japanese Yen Eurodeposit, in JPY terms
SBTMMYRL	12-Month Malaysian Ringgit Eurodeposit, in MYR terms
SBTMNDL	12-Month New Zealand Dollar Eurodeposit, in NZD terms
SBTMNKL	12-Month Norwegian Krone Eurodeposit, in NOK terms
SBTMPZL	12-Month Polish Zloty Eurodeposit, in PLN terms
SBTMSDL	12-Month Singapore Dollar Eurodeposit, in SGD terms
SBTMSRL	12-Month South African Rand Eurodeposit, in ZAR terms
SBTMSKL	12-Month Swedish Krona Eurodeposit, in SEK terms
SBTMSFL	12-Month Swiss Franc Eurodeposit, in CHF terms
SBTMBPL	12-Month UK Sterling Eurodeposit, in GBP terms
SBTMUDL	12-Month US Dollar Eurodeposit, in USD terms

Americas Indices





The US Broad Investment-Grade Bond Index (USBIG) tracks the performance of US Dollar-denominated bonds issued in the US investment-grade bond market. Introduced in 1985, the index includes US Treasury, government-sponsored, collateralized, and corporate debt and provides a reliable representation of the US investment-grade bond market.

The US High-Yield Market Index is a US Dollar-denominated index which measures the performance of high-yield debt issued by corporations domiciled in the US or Canada. Recognized as a broad measure of the North American high-yield market, the index includes cash-pay, deferred-interest securities, and debt issued under Rule 144A in unregistered form.

The US Treasury STRIPS Index represents a comprehensive selection of long-duration market sectors and thereby improves on the customization possibilities otherwise available. The US Treasury STRIPS Index offers a wider range of duration choices and can also be combined with a range of USBIG sectors, if a core spread product exposure is desired.

The US Large Pension Fund Baseline Bond Index (USLPF) provides a benchmark for pension funds seeking to establish long-term core portfolios that more closely match the longer duration of their nominal dollar liabilities.

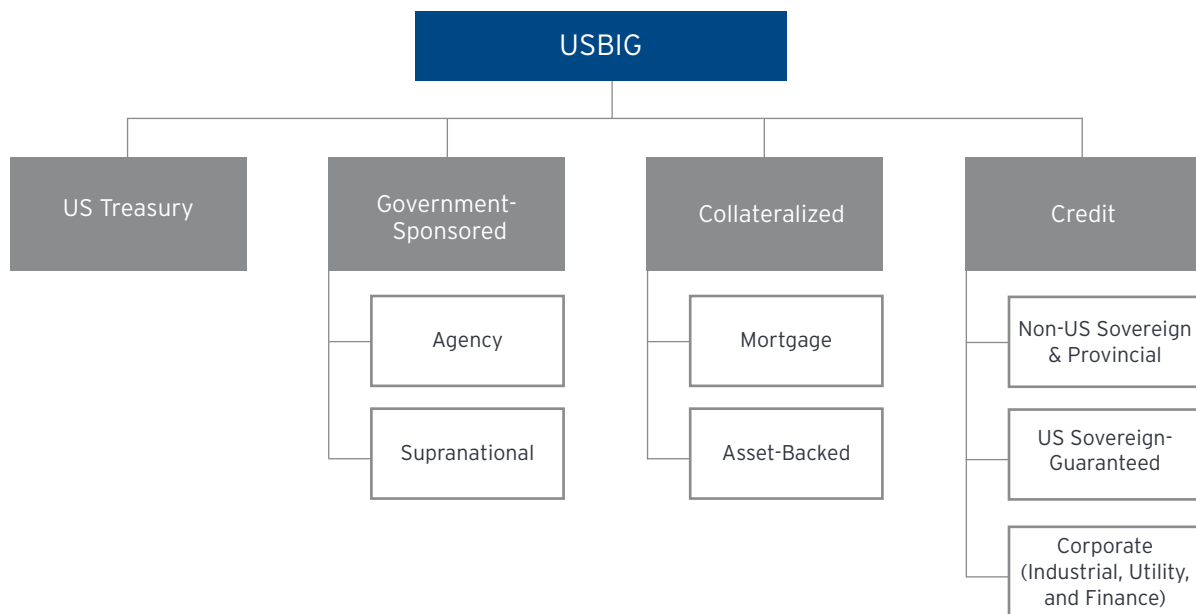
The Latin American Government Bond Index (LATAMGBI) comprises government bonds from five Latin American markets, denominated in local currencies. The index is a broad benchmark for Latin American markets.

US Broad Investment-Grade Bond Index (USBIG®)

Multi-Asset | US Dollar

The US Broad Investment-Grade Bond Index (USBIG) tracks the performance of US Dollar-denominated bonds issued in the US investment-grade bond market. Introduced in 1985, the index includes US Treasury, government-sponsored, collateralized, and corporate debt and provides a reliable representation of the US investment-grade bond market.

The index provides exposure to a broad array of asset classes and sub-indices are available in any combination of asset class, maturity, and rating.



Design Criteria and Calculation Methodology

The index includes institutionally traded US Treasury, government-sponsored (US agency and supranational), mortgage, asset-backed, and corporate investment-grade securities.

Figure 58 USBIG Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	<p>US Treasuries: USD 5 billion public amount outstanding US agencies and supranationals: USD 1 billion Corporate and asset-backed: USD 250 million Non-US sovereign and provincial: USD 500 million</p> <p>Mortgage: Entry: USD 1 billion minimum amount outstanding per origination year generic when the coupon has a minimum amount outstanding of USD 5 billion. Exit: An origination year generic will exit when its amount outstanding falls below USD 1 billion. If the amount outstanding for the coupon falls below USD 2.5 billion, all corresponding origination year generics will be removed from the index.</p>
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's
Minimum Denomination	Par value: USD 1,000
Composition	US Treasuries (excluding Federal Reserve purchases, inflation-indexed securities and STRIPS); US agencies (excluding callable zeros and bonds callable less than one year from issue date); supranationals; mortgage pass-throughs; asset-backed; credit (excluding bonds callable less than one year from issue date); Yankees, globals, and corporate securities issued under Rule 144A with registration rights
Redemption Features	Bullet, sinking fund, puttable, extendable, or callable

Figure 59 USBIG Corporate Sector Classification

Industrial-Manufacturing	Aerospace/Defense, Auto Manufacturers, Building Products, Chemicals, Conglomerate/Diversified Manufacturing, Electronics, Information/Data Technology, Machinery, Metals/Mining, Paper/Forest Products, Textiles/Apparel/Shoes, Vehicle Parts, and Manufacturing - Other
Industrial-Energy	Gas - Pipelines, Oil and Gas, and Oilfield Machinery and Services
Industrial-Service	Cable/Media, Gaming/Lodging/Leisure, Healthcare Supply, Pharmaceuticals, Publishing, Restaurants, Retail - Food/Drugs, Retail Stores - Other, and Service - Other
Industrial-Transportation	Airlines, Railroads, and Transportation - Other
Industrial-Consumer	Beverage/Bottling, Consumer Products, Food Processors, and Tobacco
Industrial-Other	Industrial - Other
Utility	Electric, Power, Telecommunications, Gas - Local Distribution, and Utility - Other
Finance	Banking, Independent Finance, Life Insurance, Mortgage Banking, Property and Casualty, REITs, Securities, and Finance - Other

Figure 60 USBIG Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Interest	Fully taxable (federal)
Yield Curve	Citi Treasury Model (off-the-run) Curve
Volatility	Non-mortgages: 10% single volatility Mortgages: Market-implied volatility (LMM Skew model)
Reinvestment of Cash Flow	Continuous at the daily average of the one-month Eurodeposit rate for the calculation period
Pricing	Primary: Citi trader pricing, generally taken as of local market close Supplementary: third-party sources, transaction-related information, proprietary pricing models
Price Adjustments	Mortgages: Carry-adjusted to reflect the difference between the index settlement dates and standard SIFMA settlement dates
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 1979

Chronological Summary of Events

Figure 61 USBIG Event Summary

Year	Monthly Highlights
2012	July: Non-corporate securities issued under Rule 144A without registration rights are eligible for inclusion. Any sukuk in the Sukuk Index that meet the minimum quality, maturity, and outstanding amount entry criteria are also eligible for inclusion.
2011	June: A new mortgage prepayment model is incorporated which computes option-adjusted values using a LMM Skew model with market-implied volatilities.
2010	April: For Mortgage securities, the calculation for carry adjustment prices will use short-term prepayment estimate provided by Citi's Mortgage Research in place of the most recent one-month speeds. If the short-term estimate is not available for a particular vintage, the most recently published one-month speed will be used. ³⁹
2007	April: The minimum entry size increases as follows: <ul style="list-style-type: none"> • US Treasuries from USD 1 billion to USD 5 billion • Non-US sovereign and provincial from USD 250 million to USD 500 million
2004	July: The minimum entry size increases as follows: <ul style="list-style-type: none"> • Agency and supranational from USD 200 million to USD 1 billion • Credit and asset-backed bonds from USD 200 million to USD 250 million • Mortgage: Entry: USD 1 billion minimum amount outstanding per origination year generic when the coupon has a minimum amount outstanding of USD 5 billion Exit: An origination year generic will exit when its amount outstanding falls below USD 1 billion. If the amount outstanding for the coupon falls below USD 2.5 billion, all corresponding origination year generics will be removed from the index.
2003	May: A new mortgage prepayment model is incorporated which computes option-adjusted values using a two-factor model with market-implied volatilities.

³⁹ See MBS: Change in Calculation Methodology for Carry Adjustment Prices, April 8, 2010 on (www.yieldbook.com/citi-indices).

Figure 61 USBIG Event Summary, continued

Year	Monthly Highlights
2001	<p>April: The minimum entry size increases as follows:</p> <ul style="list-style-type: none"> • Agency, supranational, corporate, and asset-backed bonds from USD 100 million to USD 200 million • Mortgage origination year generics from USD 250 million to USD 500 million <p>Bonds with call dates less than one year from issue date are no longer included. Rule 144A securities with registration rights are added to the Credit sector. Sector classifications change to Treasury, government-sponsored, collateralized, and credit. July: The issuance cut-off for profile changes to four (4) global business days before month-end. November: The stranded asset sector is reclassified from utility sector to collateralized asset-backed sector.</p>
1999	<p>January: The exit amount for corporate and government-sponsored bonds increases from USD 75 million to USD 100 million. Returns no longer reflect transaction costs for new issues. July: The minimum entry size for a mortgage coupon increases to USD 5 billion and the origination year minimum increases to USD 250 million. GNMA-IIs are added to the USBIG Mortgage Index. Callable zeros are removed from the USBIG Agency Index.</p>
1998	<p>July: A new mortgage prepayment model is incorporated which computes option-adjusted values using a two-factor model with market-implied volatilities.</p>
1997	<p>April: All securities pricing switches to 3:00 p.m. E.T. (US Treasury futures close) from 5:00 p.m. November: Origination year generics replace seasoning categories for the USBIG Mortgage Index. The minimum size per origination year generic is set at USD 100 million.</p>
1996	<p>July: Pricing for mortgages switches to origination year-based. The USBIG Mortgage Index is reclassified to include a "super-seasoned" category. The minimum size per seasoning category is reduced from USD 500 million to USD 250 million. December: Minimum denomination and fully taxable (federal) interest are added as inclusion criteria to include certain preferred security structures (for example, Trust Pass-Through Securities, or TRUPS).</p>
1995	<p>January: The minimum entry/exit issue size increases as follows:</p> <ul style="list-style-type: none"> • US Treasuries: USD 1 billion/USD 1 billion public amount outstanding • Corporates and government-sponsored: USD 100 million/USD 75 million • Mortgages: USD 1 billion/USD 1 billion <p>The settlement date becomes same day for daily calculations and last calendar day for monthly calculations. The issuance cut-off for profile changes to the twenty-fifth day of the calendar month. Price adjustment for mortgages is implemented. Multi-family project loans are eliminated from the USBIG Mortgage Index. September: Citi's Treasury Model (off-the-run) curve is used to compute option-adjusted values. A new mortgage prepayment model is incorporated which computes option-adjusted values using a two-factor model with fixed historical volatilities. Volatility assumptions on non-mortgages are reduced from 13% to 10%.</p>
1994	<p>January: Corporate industry sectors expand to include additional security types.</p>
1993	<p>July: FHLMC and FNMA balloons are included in USBIG.</p>
1992	<p>July: Mortgage seasoning expands to include moderately seasoned 15-year pass-throughs. The minimum entry/exit issue size for mortgage securities increases to USD 200 million.</p>
1991	<p>July: FHLMC Gold pass-throughs are included in USBIG.</p>
1990	<p>January: The government-sponsored sector is introduced in USBIG, including agencies and supranationals. February: Credit cards are included in the index. July: Moderately seasoned 30-year pass-through generic mortgages are included.</p>
1989	<p>January: Returns reflect transaction costs on new issues. August: The volatility assumption changes from 16% to 13%.</p>
1988	<p>January: Investment-grade ratings are assigned by S&P or Moody's. The minimum outstanding for corporate securities increases from USD 25 million to USD 50 million. Yankees other than Canadian and World Bank issues are included in USBIG.</p>

Figure 61 USBIG Event Summary, continued

Year	Monthly Highlights
1987	September: The 30-year mortgage seasoning expands to include new and seasoned.
1986	January: 15-year mortgages are included in USBIG.
1985	October: The US Broad Investment-Grade Bond Index is introduced.

Related Indices

USBIG MORTGAGE INDEX

The USBIG Mortgage Index comprises 30- and 15-year GNMA, FNMA, and FHLMC securities, and FNMA and FHLMC balloon mortgages and is reconstituted each month to reflect new issuance and principal pay-downs. All mortgage pools are aggregated by coupon within agency and product type. In addition, each coupon sector may be further divided into distinct origination year generics provided that each of these origination year generics meets a minimum amount outstanding criterion.

Each month, Citi receives “factor” information for all outstanding agency-guaranteed mortgage pools. This information is supplied by GNMA, FNMA, and FHLMC for all of their respective pools and represents the most current information available in the market place. Each mortgage pool has a factor that represents the fraction of the original pool still outstanding. The outstanding amounts are aggregated, and the difference between the original and current outstanding is used to calculate the pay-down for a coupon sector. To calculate monthly pay-downs, the latest factor for the pool is subtracted from the appropriate factor from the prior tape.

USBIG Mortgage Index Pricing

Each day, mortgage TBAs (to-be-announced) receive a trader price quoted for standard SIFMA settlement dates, which occur on a variety of dates throughout the month depending on the type of security. Because the index uses cash settlement, it is necessary to adjust the prices for carry. With a positively sloped yield curve, the actual market price for end-of-month settlement would be higher than the SIFMA settlement price to account for the difference between the current yield on the mortgage security and the money market rate over the time between settlement dates (the cost of carry). The price adjustment also accounts for the effect of principal pay-downs on the mortgage security's current yield. Citi uses the short-term prepayment estimate provided by Citi Mortgage Research and the one-month LIBOR rate when calculating the carry-adjusted price.

Since July 1996, the pricing of mortgage securities has reflected the origination year of the loans. The WALA (weighted average loan age) provided by GNMA, FHLMC, and FNMA is used to calculate the origination year. For any particular coupon, Citi traders provide the TBA price plus additional pricing points for specific origination years. Prices for origination years with relatively lower amounts outstanding are interpolated. This pricing methodology ensures that the index return more fairly represents the results of a realistic baseline strategy that a passive investor could have followed.

USBIG Mortgage Index Return Methodology

The principal payment component of the total rate-of-return computation for the USBIG Mortgage Index includes both scheduled principal amortization and unscheduled principal prepayment. The USBIG Mortgage Index accounts for all mortgage payments (principal plus interest) at the end of each month to reflect the monthly cash flow characteristics inherent in the instruments.

For example, during the January measurement period, most mortgage securities generate cash flow (principal and interest). The index assumes that cash flow is reinvested at the monthly average of the daily one-month Eurodeposit rate. For the January returns, information on the January pay-down, applicable to a December 31- January 31 holding period is available by the third week of January. The return computation for mortgage securities is given in Figure 62.

Figure 62 Return Calculation for Mortgage Securities

Total Rate of Return (%)

$$\left[\frac{(C+X) \times \left(1 + \frac{\left(\frac{R_m}{200} \right) \times N}{180} \right) + (EP + EA) \times \left(1 - \frac{X}{100} \right)}{(BP + BA)} - 1 \right] \times 100$$

BP: Beginning price
 EP: Ending price
 BA: Beginning accrued interest
 EA: Ending accrued interest
 X: Principal payment as percent of beginning balance
 C: Coupon rate/12
 R_m: Reinvestment rate on intra-month payment (average of daily one-month Eurodeposit rate)
 N: Number of days between date of receipt of coupon and principal payment and calendar month-end

USBIG CREDIT INDEX

This index includes US and non-US corporate securities, US government-guaranteed securities, and non-US sovereign and provincial securities.

USBIG HIGH-GRADE CREDIT INDEX

This index includes those issues from the USBIG Credit Index that have at least ten years to maturity (long-term) and a minimum credit rating of AA-/Aa3.

USBIG CORPORATE INDEX

This index includes US and non-US corporate securities (excludes US government-guaranteed and non-US sovereign and provincial securities).

USBIG COLLATERALIZED INDEX

This index includes mortgage pass-throughs and asset-backed securities.

CORE +5 INDEX

This index is the USBIG Index excluding Treasury and government-sponsored securities with less than five years to maturity.

CORE +3 INDEX

This index is the USBIG Index excluding Treasury and government-sponsored securities with less than three years to maturity.

MORTGAGE FLOAT-ADJUSTED INDEX

This index measures the mortgage component of the USBIG Index excluding all pass-throughs currently backing CMOs.

US TREASURY BENCHMARK (ON-THE-RUN) INDICES

These indices measure total returns for the current two-, three-, five-, seven-, ten-, and thirty-year on-the-run Treasuries that settle by the end of the calendar month. As a result of the reduced auction schedule for one-year Treasury bills, as of May 2000, the Citi Fixed Income Indices team selects an existing coupon bond with approximately one year to maturity to use as the one-year benchmark. In most cases, this is an old two-year security.

US TREASURY BENCHMARK YIELD CURVE AVERAGE INDICES

These indices measure total returns for the current two-, three-, five-, seven-, and ten-year on-the-run Treasuries that settle by the end of the calendar month and the two shorter and two longer issues in the Treasury Index nearest each respective benchmark maturity. The thirty-year US Treasury Benchmark Yield Curve Average Index measures total returns for the thirty-year on-the-run Treasury that has been in existence for the entire month and the four shorter issues in the Treasury Index. Callable bonds are excluded from these indices.

US TREASURY BILL INDICES

These indices measure return equivalents of yield averages. The instruments are not marked to market. For example, the US Six-Month Treasury Bill Index is an average of the last six six-month Treasury bill month-end rates. Similarly, the US One-Month and Three-Month Treasury Bill Indices consist of the last one one-month and three three-month Treasury bill month-end rates, respectively.

Example of Return Computation of a Three-Month Treasury Bill**Step 1**

Obtain discount yields for the three previous month-end dates.

Step 2

Convert the discount rates to bond-equivalent yields.

Step 3

Compute the simple average of the bond-equivalent yields.

Step 4

De-compound to a monthly frequency using the actual number of days in the month and a 365-day year.

Figure 63 US Treasury Bill Assumed Conventions and Data

Conventions	Data	
Month for Which Returns are Being Computed	July 2007	
Quote Convention	Discount yield converted to a bond equivalent yield	
Day-Count Basis	ACT/365	
Bond Equivalent Yield	April 30	4.8596%
	May 31	4.7194%
	June 29	4.8024%
Simple Average of Bond Equivalent Yields	Average	4.7938%

De-compound to a monthly frequency using the actual number of days in the return month and a 365-day year.

$$R = \left(\left(1 + \frac{4.7938}{200} \right)^{2 \times \left(\frac{31}{365} \right)} - 1 \right) \times 100 = 0.4032$$

CERTIFICATE-OF-DEPOSIT INDICES

These indices measure the monthly return equivalents of yield averages that are not marked to market. The CD rate is a rotating sample collected by the New York Federal Reserve Bank of five banks and dealers surveyed daily about secondary-market dealer offer rates for jumbo certificates of deposit. Returns for these indices are calculated on a monthly basis only.

Example of Return Computation of Six-Month Certificate-of-Deposit Index**Step 1**

Obtain CD-equivalent yields for six previous month-end dates. For example, the January return requires the rates at the end of December, November, October, September, August, and July.

Step 2

Convert the CD rates to bond-equivalent yields.

Step 3

Compute the simple average of the bond-equivalent yields.

Step 4

De-compound to a monthly frequency using the actual number of days in the month and a 365-day year.

US BENCHMARK STRIPS INDICES

These indices measure the total returns of the current one-, two-, three-, five-, seven-, ten-, fifteen-, twenty-, twenty-five- and thirty-year STRIPS. These benchmarks change every three months based on their February, May, August, and November cycles. For example, benchmarks maturing in the February cycle will be used for January, February, and March returns. Due to liquidity constraints, long-term benchmark STRIPS may not change every three months.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 64 Tickers for the USBIG and Selected Related Indices

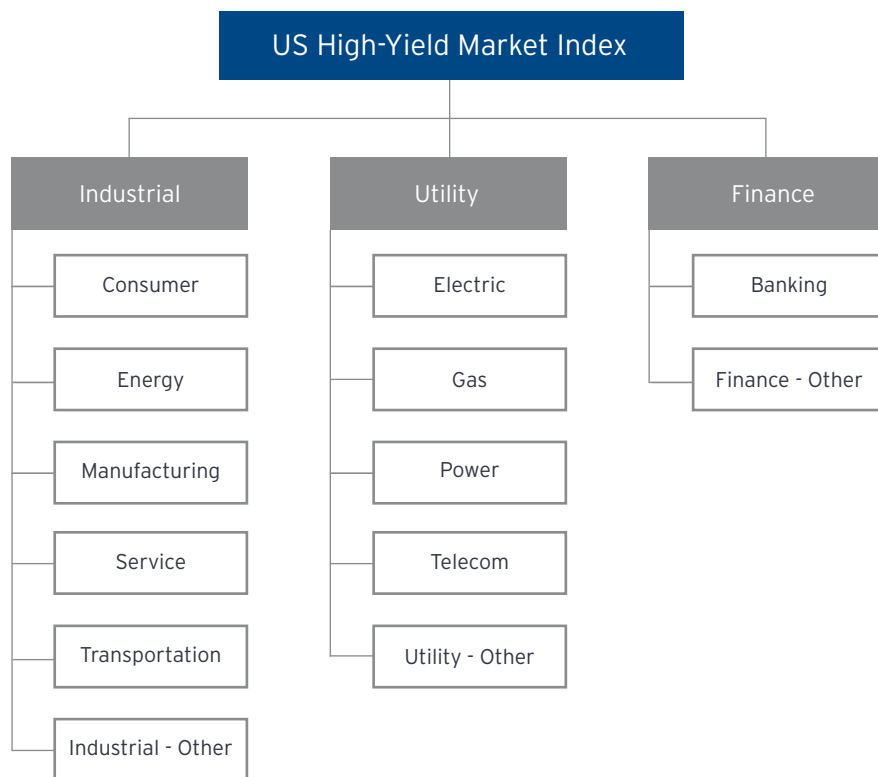
Ticker	Index
SBBIG	US Broad Investment-Grade Bond Index, in USD terms
SBMT	USBIG Mortgage Index, in USD terms
SBCT	USBIG Credit Index, in USD terms
SBC2A10P	USBIG High-Grade Credit Index, in USD terms
SBCRP	USBIG Corporate Index, in USD terms
SBCOLL	USBIG Collateralized Index, in USD terms
SBCORE5	Core+5 Index, in USD terms
SBCORE3	Core+3 Index, in USD terms
SBTSY1	1-Year US Treasury Benchmark (On-the-Run) Index, in USD terms
SBYC5	5-Year US Treasury Benchmark Yield Curve Average Index, in USD terms
SBMMTB1	1-Month US Treasury Bill Index, in USD terms
SBMMCD1	1-Month Certificate-of-Deposit Index, in USD terms
SBST	US Benchmark STRIPS Indices, in USD terms

US High-Yield Market Index

Credit | US Dollar

The US High-Yield Market Index is a US Dollar-denominated index which measures the performance of high-yield debt issued by corporations domiciled in the US or Canada. Recognized as a broad measure of the North American high-yield market, the index includes cash-pay, deferred-interest securities, and debt issued under Rule 144A in unregistered form.

Sub-indices are available in any combination of corporate sector, maturity, and rating.



Design Criteria and Calculation Methodology

This index is the broadest high-yield market measure amongst all Citi's fixed income indices and includes cash-pay and deferred-interest securities. All the bonds are publically placed, have a fixed coupon, and are non-convertible. Bonds issued under Rule 144A are included in their unregistered form.

Figure 65 US High-Yield Market Index Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	USD 250 million
Credit Quality ⁴⁰	Maximum Quality: BB+ by S&P and Ba1 by Moody's Minimum Quality: C by S&P and Ca by Moody's (excludes defaulted bonds)
Composition	Cash-pay, Zero-to-Full (ZTF), Pay-in-Kind (PIK), step-coupon bonds, and Rule 144A bonds issued by corporations domiciled in the United States or Canada only

Figure 66 US High-Yield Market Index Industry Sector Classification

Industrial-Manufacturing	Aerospace, Auto-Manufacturers/Vehicle Parts, Building Products, Home Builders, Capital Goods, Chemicals, Containers, Metals/Mining, Paper/Forest Products, Technology, and Textiles/Apparel/Shoes
Industrial-Energy	Secondary Oil and Gas Producers, Oil Equipment, and Energy - Other
Industrial-Service	Cable, Broadcast/Outdoor, Satellite, Publishing, Gaming, Leisure, Lodging, Healthcare Facilities/Supplies, Pharmaceuticals, Restaurants, Retail Stores - Food and Drugs, Retail Stores - Other, Environmental Services, Tower, and Service - Other
Industrial-Transportation	Airlines and Transportation - Rail and Other
Industrial-Consumer	Consumer Products/Tobacco and Food Processors/Beverage/Bottling
Industrial-Other	Industrial - Other
Utility	Telecommunications (Broadband, Competitive Local Exchange Company, Diversified Telecommunications, ISP/ Data, Paging, Wireless), Electric, Power, Gas, and Utility - Other
Finance	Banking, and Finance - Other

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 67 US High-Yield Market Index Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	Continuous at the daily average of the one-month Eurodeposit rate for the calculation period
Pricing	Primarily external pricing source
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 1988

⁴⁰ For defaulted bonds, please see page 17.

Chronological Summary of Events

Figure 68 US High-Yield Market Index and Related Indices Event Summary

Year	Monthly Highlights
2014	December: The minimum issue size for the US High-Yield Market Index becomes USD 250 million. The cap on the total debt of any individual issuer increases to USD 15 billion from USD 10 billion for the US High-Yield Market Capped Index.
2011	October: The cap on the total debt of any individual issuer increases to USD 10 billion from USD 5 billion for the US High-Yield Market Capped Index.
2002	July: The US High-Yield Market Capped Index is introduced.
2001	April: The minimum issue size changes as follows: Entry Criteria: USD 100 million minimum size outstanding per issue when the issuer has a minimum of USD 400 million total outstanding debt that qualifies for inclusion in the US High-Yield Market Index; or USD 200 million minimum outstanding per issue when the issuer does not meet the USD 400 million requirement. Exit Criteria: A bond will exit the US High-Yield Market Index when its amount outstanding falls below USD 100 million par amount. An issuer that has already satisfied the USD 400 million will remain in the index - even if the total par amount outstanding of its bonds drops below the USD 400 million.
1999	January: Rule 144A bonds are included at issuance. Securities are limited to those issued by US- or Canadian-domiciled issuers only. The minimum credit quality is raised to C by S&P or Moody's from none.
1998	January: The maximum rating changes to speculative-grade by both S&P and Moody's. The minimum issue size exit criterion increases to USD 100 million from USD 75 million. Industry sectors change as follows: • Conglomerate/Diversified Manufacturing and Machinery are combined to form Capital Goods. • Electronics/Information/Data Technology name changes to Technology.
1997	January: The minimum issue size entry criterion increases to USD 100 million from USD 50 million. The minimum issue size exit criterion increases to USD 75 million from USD 50 million.
1991	January: Deferred-interest securities are added to applicable indices.
1990	The US High-Yield Market Index is introduced.

AVERAGE SPREAD TO WORST AND AVERAGE TREASURY BENCHMARK

The average yield-to-worst is the lower of the yield-to-worst call and yield-to-maturity. The spread-to-worst is the difference between the yield-to-worst and the yield-to-maturity at the average life point on the interpolated Treasury model curve. The yield-to-worst is capped at 35% and the spread-to-worst is capped at 3,500bp.

Related Indices

US HIGH-YIELD MARKET CAPPED INDEX

The US High-Yield Market Capped Index uses the US High-Yield Market Index as its foundation. The index uses the same design criteria and calculation methodology as the US High-Yield Market Index (see Figures 65-67), but caps the total debt of any single issuer at USD 15 billion of par amount outstanding and also delays the entry of fallen angels for a minimum of one month after their downgrade to high-yield status.

When the total eligible par amount from one issuer exceeds USD 15 billion, the par amount of each bond from this issuer is scaled pro-rata to reduce the total to USD 15 billion. Capping the par amount outstanding of large issuers helps limit the exposure that these issuers have on the US High-Yield Market Capped Index, while retaining the characteristics of the issuer's distribution across different maturities.

The US High-Yield Market Capped Index addresses the disproportionate influence that a recently downgraded issuer can have on the index's characteristics upon entry. This is accomplished by delaying the entry of a fallen angel issuer's debt for a minimum of one month from its downgrade to high-yield status. Specifically, if both S&P and Moody's downgrade an issuer's debt to BB+ and Ba1 respectively, or below, it will be eligible for the US High-Yield Market Capped Index after a waiting period of one full calendar month. For example, if an issuer's debt is downgraded to high-yield status any day during the calendar month of May, it will be eligible for inclusion in the July US High-Yield Market Capped Index. This aspect of the criteria provides time for the market to evaluate and adjust to any credit events associated with the fallen angels. In addition, it allows investors time to assess the value and risk of fallen angels without being underweighted in any sectors in which they are included. (Base Date: December 31, 2001)

HIGH-YIELD CASH PAY INDEX

The High-Yield Cash-Pay Index is created by removing the bonds in the Deferred-Interest Index from the US High-Yield Market Index. It includes only cash-pay bonds (both registered and Rule 144A) with at least one year to maturity and at least USD 250 million outstanding. (Base Date: December 31, 1988)

DEFERRED-INTEREST INDEX

The Deferred-Interest Index includes pay-in-kind bonds (PIKs), PIK toggle bonds, zero-to-full coupon bonds (ZTFs), zero-to-maturity bonds, step-up coupon bonds, and credit sensitive notes. (Base Date: December 31, 1990)

BANKRUPT/DEFAULT INDEX

The Bankrupt/Default Index only includes securities of companies previously in the US High-Yield Market Index or US Broad Investment-Grade Bond Index that have announced bankruptcy or filed for Chapter 7 or Chapter 11 bankruptcy protection. The Bankrupt/Default Index also includes bonds that have defaulted or that are expected to default on required interest payments, and bonds that are assigned a D rating by S&P, regardless of whether that issuer has filed for bankruptcy protection.

A bond exits the Bankrupt/Default Index when reorganization is completed or exchanged for other securities, or upon liquidation, or when neither S&P nor Moody's rate the bonds. (Base Date: December 31, 1990)

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 69 Tickers for the US High-Yield Market Index and Selected Related Indices

Ticker	Index
SBHYMI	US High-Yield Market Index, in USD terms
SBHCMCAP	US High-Yield Market Capped Index, in USD terms
SBHYCP	High-Yield Cash Pay Index, in USD terms
SBHYDI	Deferred-Interest Index, in USD terms
SBHYBKRT	Bankrupt/Default Index, in USD terms

US Treasury STRIPS Index

Sovereign | US Dollar

The US Treasury STRIPS Index represents a comprehensive selection of long-duration market sectors. The US Treasury STRIPS Index offers a wider range of duration choices and can also be combined with a range of USBIG sectors if a core spread product exposure is desired. It has been increasingly difficult to construct long-duration benchmarks using a core that combines the USBIG Credit and Collateralized Indices, since the effective duration of the USBIG Mortgage Index is significantly shorter than that of the USBIG Credit Index. The greater choice of long-duration sectors allows investors to opt for any core holding and combine it with the appropriate STRIPS sector to reach their target durations.

Figure 70 US Treasury STRIPS Index Design Criteria and Calculation Methodology

Stated Coupon	Zero coupon
Minimum Maturity ⁴¹	None, but derived from bonds with a remaining maturity of at least one year.
Minimum Issue Size ⁴¹	None, but derived from bonds with at least USD 5 billion amount outstanding.
Composition	Only those STRIPS derived from bonds in the US Treasury Index are included. The coupon STRIPS with less than one year remaining to maturity, which have been derived from this set of Treasury bonds, are also included. (The Treasury Index tracks those issues with at least USD 5 billion public amount outstanding and a remaining maturity of at least one year.) In addition, only those STRIPS from Treasury bonds maturing in the February, May, August, and November 15 cycles are included. ⁴²
Weighting	Market Capitalization
Rebalancing	Once a month at the end of the month. The first week of each month, the Bureau of Public Debt makes available the Treasury market debt outstanding held in stripped form as of the previous month-end. These figures are used along with the current Treasury Index profile to arrive at the amounts outstanding for the following month's STRIPS Index. For example, during the first week of January, the Bureau of Public Debt announced the amounts held in stripped form as of December 31. These amounts were applied to the February Index profile fixing and they were then fixed for the calendar month, and all interim returns were calculated based on its composition.
Cycles	Only those STRIPS derived from bonds within the Feb-Aug 15 or May-Nov 15 cycles
Reinvestment of Cash Flow	Maturing interest STRIPS are reinvested at the daily average one-month Eurodeposit rate from the date of the cash flow through the end of the calculation period.
Pricing	Citi trader pricing generally taken as of the local market close. Prices from third-party pricing sources and transaction-related information supplement Citi trader prices for completeness.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 1991

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

The ticker for the US Treasury STRIPS Index (in USD terms) is SBST.

⁴¹ Neither an amount outstanding cut-off nor a minimum maturity screen is imposed on the US Treasury STRIPS Index. The goal is to maintain a relatively stable universe that accommodates the broadest measure of available securities. By including coupon STRIPS with less than one year remaining to maturity, the full US Treasury STRIPS Index cash flows can be replicated closely by using bonds in the US Treasury Index.

⁴² The bond stripping of eligible monthly Treasury auctions, along with the stripping of Treasury Inflation Protected Securities, has not created a deep enough market to ensure availability to institutional investors; therefore, these STRIPS are excluded from the index.

US Large Pension Fund Baseline Bond Index (USLPF)

Multi-Asset | US Dollar

The US Large Pension Fund Baseline Bond Index (USLPF) provides a benchmark for pension funds seeking to establish long-term core portfolios that more closely match the longer duration of their nominal dollar liabilities. These portfolios might normally be benchmarked to the USBIG, but the USLPF improves on that structure by using fixed sector weights and a minimum maturity of seven years for non-mortgage issues. These design characteristics satisfy the longer duration goal of pension fund portfolios, while emphasizing the traditionally higher yielding longer-term securities.

The USLPF Index employs the calculation assumptions previously outlined for the USBIG. Figure 71 details the design criteria of this index.

Figure 71 USLPF Design Criteria and Calculation Methodology

Stated Coupon	Fixed-rate
Minimum Maturity	Non-mortgage: Seven years Mortgage: One year
Interest	Fully taxable (federal)
Minimum Issue Size	US Treasuries: USD 5 billion public amount outstanding US agencies and supranationals: USD 1 billion Corporate and asset-backed: USD 250 million Non-US sovereign and provincial: USD 500 million Mortgage: Entry: USD 1 billion minimum amount outstanding per origination year generic when the coupon has a minimum amount outstanding of USD 5 billion. Exit: An origination year generic will exit when its amount outstanding falls below USD 1 billion. If the amount outstanding for the coupon falls below USD 2.5 billion, all corresponding origination year generics will be removed from the index.
Minimum Denomination	Par value: USD 1,000
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's
Composition	Treasuries (excluding inflation-indexed securities); agencies (excluding callable zeros and bonds callable less than one year from issue date); mortgage pass-throughs; asset-backed; supranationals; credit (excluding bonds callable less than one year from issue date); Yankees, globals, and securities issued under Rule 144A with registration rights
Redemption Features	Bullet, sinking fund, puttable, extendable, or callable
Weighting	Issues: Market capitalization Sectors: fixed weight as follows <ul style="list-style-type: none"> • Treasury/Government-Sponsored: 40% • Collateralized: 30% • Credit: 30%
Calculation Frequency	Daily
Rebalancing	Once a month at the end of the month
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 1979

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

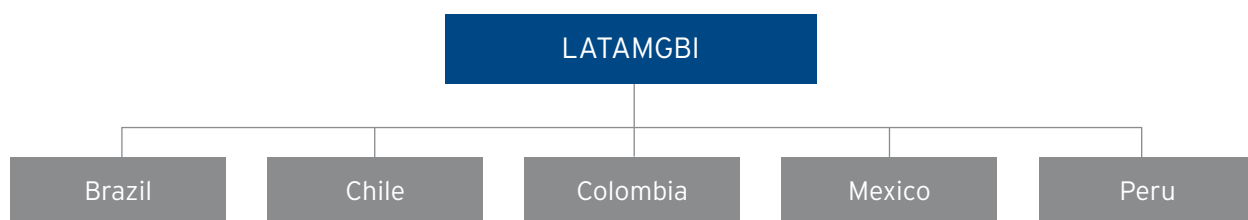
The ticker for the USLPF Index (in USD terms) is SBNLPF.

Latin American Government Bond Index (LATAMGBI)

Sovereign | Multi-Currency

The Latin American Government Bond Index (LATAMGBI) comprises government bonds from five Latin American markets, denominated in local currencies. The index is a broad benchmark for sovereign Latin American markets.

Sub-indices are available in any combination of currency, maturity, and rating.



Design Criteria and Calculation Methodology

Figure 72 LATAMGBI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	Brazil: BRL 5 billion (excludes Holdings of the Central Bank of Brazil) Chile: CLP 100 billion Colombia: COP 2 trillion Mexico: MXN 10 billion Peru: PEN 2 billion
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted bonds)
Composition	Latin American sovereign debt denominated in the domestic currencies. Securities included: Fixed-rate and zero-coupon bonds - unless otherwise stated in Figure 73. Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 73.

The index follows the general methodology of Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 73 LATAMGBI Composition

LATAMGBI Markets	Security Type
Brazil	Excludes LTNs
Chile	N/A
Colombia	Excludes Tes Control Monetario (TCM) bonds
Mexico	Excludes bonds issued prior to January 1, 2003
Peru	N/A

Figure 74 LATAMGBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Eurodeposit rate, calculated from the actual scheduled payment date of cash flow through end of reporting period
Pricing	Citi trader pricing except Chile (provided by Banco de Chile) and Mexico (provided by Proveedor Integral de Precios S.A. de C.V.). All pricing is generally taken as of local market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	March 31, 2011

Chronological Summary of Events

Figure 75 LATAMGBI Event Summary

Year	Monthly Highlights
2012	July: The outstanding amount of the Brazilian government bonds excludes the holdings of the Central Bank of Brazil.
2011	September: The Latin American Government Bond Index is introduced and includes Brazil, Chile, Colombia, Mexico, and Peru. The index is introduced with 5 months of history. These markets have been part of the index since its base date (March 31, 2011).

Related Indices and Sub-Indices

Each of the countries included in the Latin America Government Bond Index (LATAMGBI) is also available as a stand-alone index.

Access Information and Related Publication

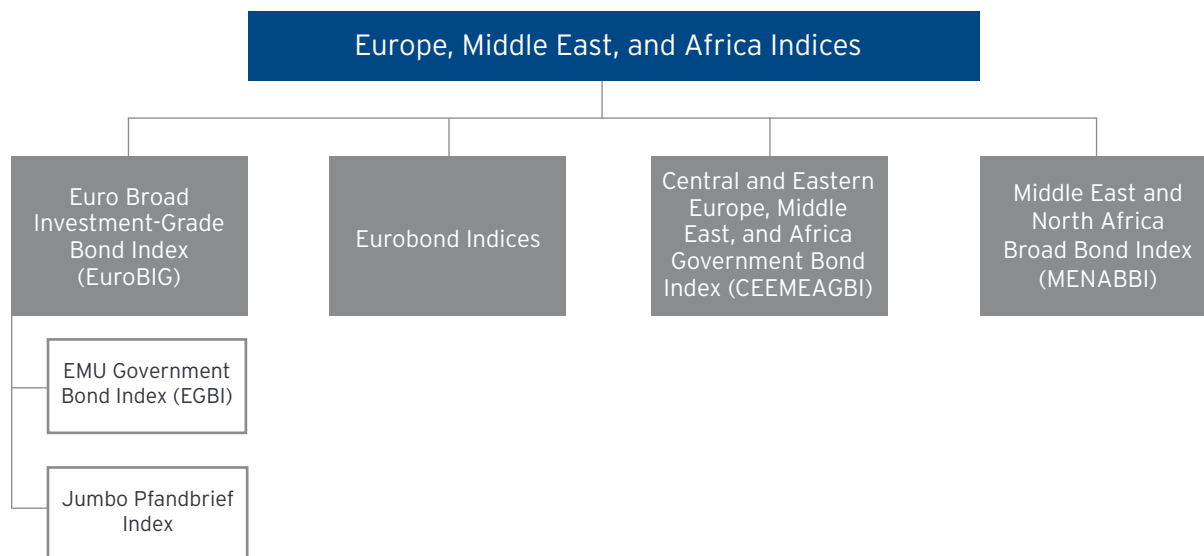
Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 76 Tickers for LATAMGBI and Selected Related Indices

Ticker	Index
SBLGBIL	Latin American Government Bond Index, in local currency terms
SBLGBIU	Latin American Government Bond Index, in USD terms
SBLGBIE	Latin American Government Bond Index, in EUR terms
SBBRL	Brazilian Government Bond Index, in BRL terms
SBCLL	Chilean Government Bond Index, in CLP terms
SBCOL	Colombian Government Bond Index, in COP terms
SBMXL	Mexican Government Bond Index, in MXN terms
SBPUL	Peruvian Government Bond Index, in PEN terms

Europe, Middle East, and Africa Indices





The Euro Broad Investment-Grade Bond Index (EuroBIG) is a multi-asset benchmark for investment-grade, Euro-denominated, fixed income bonds. Introduced in 1998, the EuroBIG includes government, government-sponsored, collateralized, and corporate debt.

The Eurobond Indices provide a comprehensive and relevant measure of performance for Eurodollar, Eurosterling, and Euroyen bonds. These indices comprise investment-grade issues with at least one year until maturity.

The Central and Eastern Europe, Middle East, and Africa Government Bond Index (CEEMEAGBI) comprises government bonds from seven CEEMEA markets, denominated in local currencies. The index provides a broad benchmark for portfolio managers looking for a measure of sovereign CEEMEA markets.

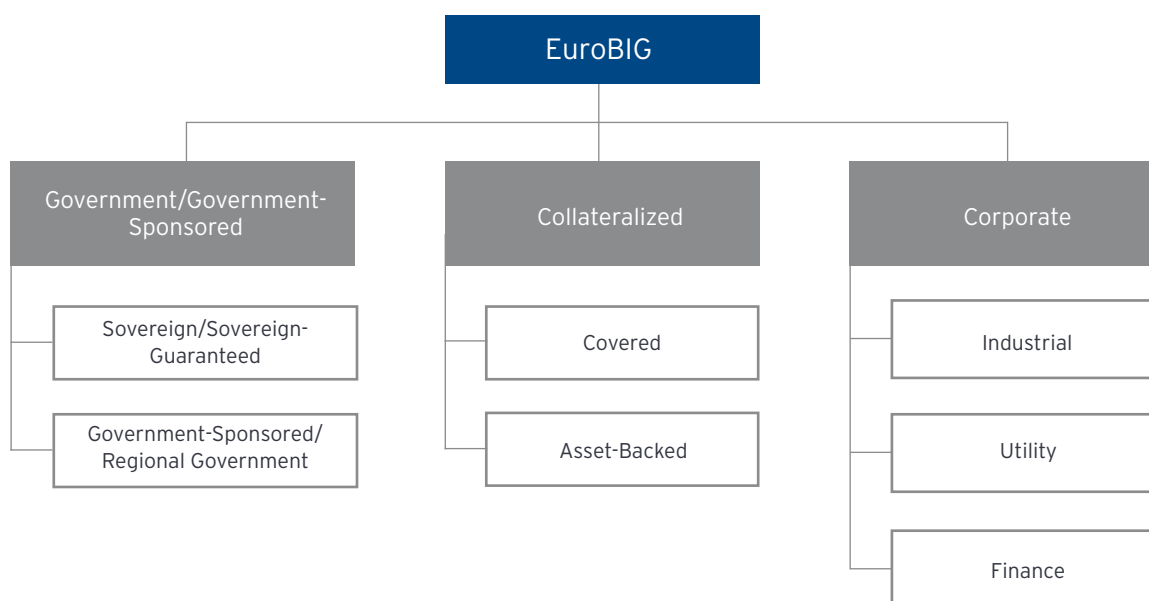
The Middle East and North Africa Broad Bond Index (MENABBI) measures the performance of both investment-grade and high-yield US Dollar-denominated debt issued by governments, agencies, and corporations domiciled in the Middle East and North Africa.

Euro Broad Investment-Grade Bond Index (EuroBIG®)

Multi-Asset | Euro

The Euro Broad Investment-Grade Bond Index (EuroBIG) is a multi-asset benchmark for investment-grade, Euro-denominated, fixed income bonds. Introduced in 1998, the EuroBIG includes government, government-sponsored, collateralized, and corporate debt.

The index provides exposure to a broad array of asset classes and sub-indices are available in any combination of asset class, maturity, and rating.



Design Criteria and Calculation Methodology

The Euro Broad Investment-Grade Bond Index covers all sectors of the Euro-denominated, investment-grade, fixed income market that are accessible to institutional investors.

Figure 77 EuroBIG Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	EMU sovereign issues: EUR 2.5 billion or the equivalent for non-redenominated bonds Other: EUR 500 million or the equivalent for non-redenominated bonds
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's
Seasoning	Both seasoned and unseasoned bonds are included
Composition	Issues denominated in EUR, ECU, or NCU, and Euro medium-term notes
Redemption Features	Bullet, sinking fund, puttable, extendable, or callable

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 78 EuroBIG Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Eurodeposit rate, calculated from the actual scheduled payment date of cash flow through end of reporting period
Pricing	Primary: Citi trader pricing, generally taken as of local market close Supplementary: third-party pricing sources, transaction-related information, and proprietary pricing models
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 1998

The asset classification of the EuroBIG reflects the current structure of the market and is in line with the structure of the World Broad Investment-Grade Bond Index (WorldBIG).

Figure 79 EuroBIG Sector Classification

Sovereign / Sovereign-Guaranteed	Government-Sponsored / Regional Government	Collateralized
Domestic Sovereign (EGBI)	Agency	Asset-Backed Securities
Foreign Sovereign	Regional Government	Covered
Sovereign-Guaranteed	Regional Government-Guaranteed	• Jumbo Pfandbrief
	Regional Government-Sponsored	• Other Covered
	Supranational	
	Other Sovereign-Sponsored	
Corporate – Utility	Corporate – Industrial	Corporate – Finance
Electric	Consumer	Banks
Gas	Energy	Independent Finance
Telecommunication	Manufacturing	Insurance
Other Utility	Service	Other Finance
	Transportation	
	Other Industrial	

Chronological Summary of Events

The table below highlights events that have marked the construction of the index.⁴³

Figure 80 EuroBIG Event Summary

Year	Monthly Highlights
1999	January: The Euro Broad Investment-Grade Bond Index is introduced.

⁴³ Also see EGBI-related events from the WGBI chronological summary of events.

Related Indices

EMU GOVERNMENT BOND INDEX (EGBI)

The EMU sovereign sector of the EuroBIG is the EMU Government Bond Index (EGBI). This index is also the euro sector of the World Government Bond Index (WGBI). The EGBI consists of the EMU-participating countries that meet the WGBI design criteria, namely Australia, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, and Spain.

JUMBO PFANDBRIEF INDEX

The Jumbo Pfandbrief Index is an integral part of the EuroBIG and represents a significant component of the German collateralized bond market. By definition, a Jumbo Pfandbrief is a Pfandbrief with at least EUR 1 billion outstanding, a fixed-rate coupon, and at least five market makers prepared to quote two-way prices during normal trading hours. Owing to their collateralization, these are high-quality securities.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

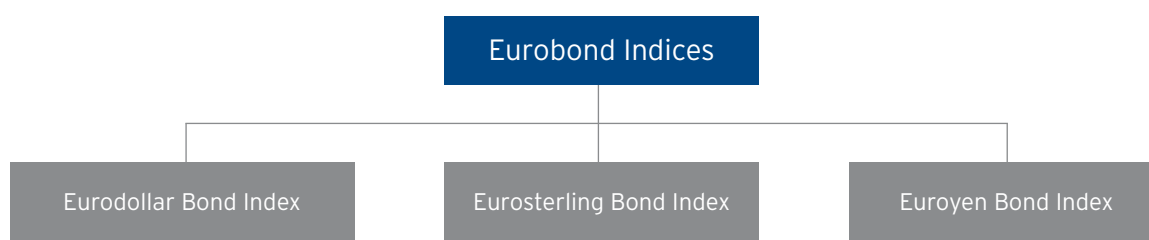
Figure 81 Tickers for the EuroBIG and Selected Related Indices

Ticker	Index
SBEB	Euro Broad Investment-Grade Bond Index, in EUR terms
SBEBGGSP	EuroBIG Government/Government-Sponsored Index, in EUR terms
SBEBCOLL	EuroBIG Collateralized Index, in EUR terms
SBEB COP	EuroBIG Corporate Index, in EUR terms
SBEGEU	EMU Government Bond Index (EGBI), in EUR terms
SBNBEB	Non-EGBI EuroBIG Index, in EUR terms
SBPFNDE	Jumbo Pfandbrief Index, in EUR terms

Eurobond Indices

Multi-Asset | Multi-Currency

The Eurobond Indices provide a comprehensive and relevant measure of performance for Eurodollar, Eurosterling, and Euroyen bonds. These indices comprise investment-grade issues with at least one year until maturity.



Design Criteria and Calculation Methodology

The Eurodollar Bond Index includes fixed-rate (including zero-coupon) eurodollar, global, Dragon bonds, certain asset-backed, and euro medium-term notes. Rule 144A corporate securities are included only if they have registration rights. Citi Fixed Income Indices also publishes returns on the subset of bonds issued by non-US entities.

The Eurosterling Bond Index includes fixed-rate eurosterling, global, Dragon bonds, and certain asset-backed and euro medium-term notes.

The Euroyen Bond Index includes fixed-rate euroyen, global, Dragon bonds, and certain asset-backed and euro medium-term notes.

Figure 82 Eurobond Indices Design Criteria

Stated Coupon	Fixed-rate Zero-coupon bonds are included in the Eurodollar Bond Index only
Minimum Maturity	At least one year
Minimum Issue size	Eurodollar: <ul style="list-style-type: none"> • US agency/supranational: USD 1 billion • Government/government-guaranteed/government-sponsored: USD 500 million • Corporate/financial/asset-backed: USD 250 million Eurosterling: GBP 200 million Euroyen: JPY 50 billion
Denominated Limit	Eurodollar: USD 100,000 Eurosterling: GBP 100,000 Euroyen: JPY 10 million
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's
Seasoning	Both seasoned and unseasoned bonds are included
Composition	Eurobonds, global bonds, Dragon bonds, certain asset-backed, and euro medium-term notes ⁴⁴
Redemption Features	Bullet, sinking fund, puttable, extendable, or callable

⁴⁴ For a medium-term note to be included, it must meet all other criteria and be publicly announced. For self-led deals, Citi Fixed Income Indices requires the issue to be managed by a syndicate with a minimum of five members; for all other deals, Citi Fixed Income Indices requires a minimum of three syndicate members. For the purposes of determining the amount outstanding of such an issue, all fungible issues will be combined.

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 83 Eurobond Indices Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of the local one-month Eurodeposit rate. Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Citi trader pricing, generally taken as of local market close Prices from third-party pricing sources, transaction-related information and Citi's proprietary pricing models supplement Citi trader prices for completeness.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	Eurodollar: June 30, 1993 Eurosterling: December 31, 1994 Euroyen: December 31, 1994

Chronological Summary of Events

Figure 84 Eurobond Indices Event Summary

Year	Monthly Highlights
2012	July: Non-corporate securities issued under Rule 144A without registration rights are eligible for inclusion. Any sukuk in Citi's Sukuk Index that meet the minimum quality, maturity, and outstanding amount entry criteria are eligible for inclusion.
2007	April: Rule 144A securities without registration rights are excluded from the Eurodollar Bond Index. Pfandbrief and asset-backed securities are re-classified into the collateralized sector. Unrated or shadow-rated bonds are excluded from all three Eurobond Indices.
2004	July: The minimum amounts outstanding increase as follows: Eurodollar: • US agency/supranational: USD 1 billion • Government/government-guaranteed/government-sponsored: USD 500 million • Corporate/financial/asset-backed: USD 250 million Eurosterling: GBP 200 million Euroyen: JPY 50 billion
2000	July: The minimum amounts outstanding increase as follows: Eurodollar: USD 250 million Eurosterling: GBP 200 million Euroyen: JPY 50 billion
1999	January: Euro-Deutschemark Index is discontinued. Most issues have been included in the EuroBIG index.
1995	January: The settlement date changes to same day for daily calculations and last calendar day for monthly calculations for the Eurodollar Bond Index. The issuance cut-off for profile changes to the twenty-fifth day of the calendar month for the Eurodollar Bond Index. The Eurosterling, Euroyen, and Euro-Deutschemark Bond Indices are introduced.
1994	January: The Eurodollar Bond Index is introduced.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 85 Tickers for the Eurobond Indices

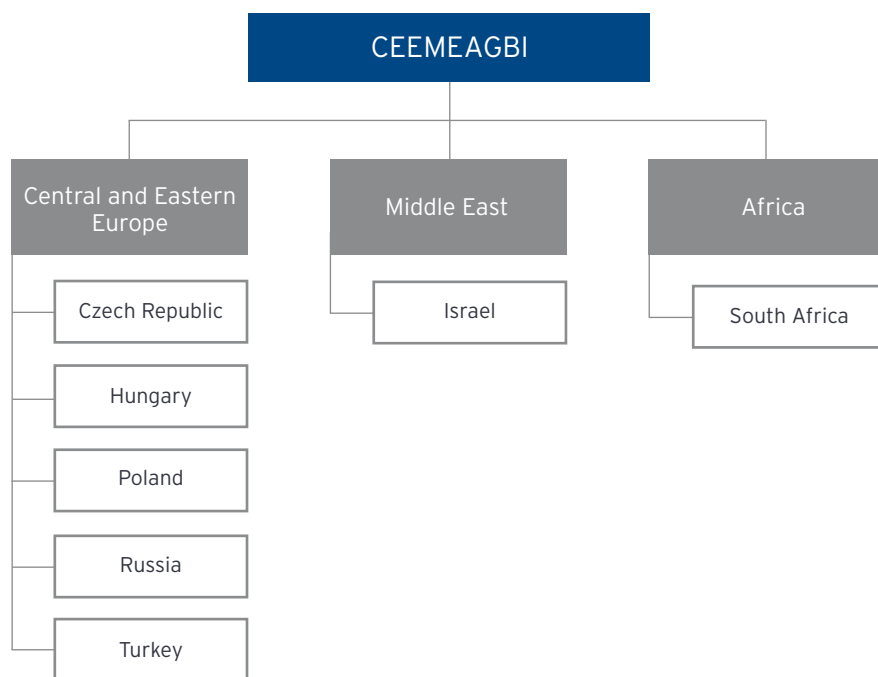
Ticker	Index
SBEID	Eurodollar Bond Index, in USD terms
SBEIS	Eurosterling Bond Index, in GBP terms
SBEIY	Euroyen Bond Index, in JPY terms

Central and Eastern Europe, Middle East, and Africa Government Bond Index (CEEMEAGBI)

Sovereign | Multi-Currency

The Central and Eastern Europe, Middle East, and Africa Government Bond Index (CEEMEAGBI) comprises government bonds from seven CEEMEA markets, denominated in local currencies. The index provides a broad benchmark for portfolio managers looking for a measure of sovereign CEEMEA markets.

The index provides exposure to a broad array of countries and sub-indices are available in any combination of currency, maturity, and rating.



Design Criteria and Calculation Methodology

Figure 86 CEEMEAGBI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year ⁴⁵
Minimum Issue Size	Czech Republic: CZK 15 billion Hungary: HUF 200 billion Poland: PLN 5 billion Russia: RUB 25 billion Turkey: TRY 2 billion Israel: ILS 5 billion South Africa: ZAR 10 billion
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted bonds)
Composition	Central and Eastern European, Middle Eastern, and African sovereign debt denominated in the domestic currencies. Securities included: Fixed-rate non-callable bonds - unless otherwise stated in Figure 87. Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 87.

Figure 87 CEEMEAGBI Composition

CEEMEAGBI Markets	Security Type
Czech Republic	Excludes zero-coupon bonds
Hungary	N/A
Israel	N/A
Poland	N/A
Russia	Includes fixed-rate bullet federal government bonds (OFZ-PD) only
South Africa	Excludes zero-coupon bonds
Turkey	N/A

⁴⁵ Due to the structure of the South African three-legged instruments, the minimum maturity for R186 (10.50%, 12/21/2026), R2044 (8.75%, 01/31/2044), and R2048 (8.75%, 02/28/2048) is one year based on the first maturity date and the three legs from the split of R186, R2044, and R2048 will not be eligible for index inclusion. By convention, the stated maturity date of a three-legged bond is the middle maturity date.

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 88 CEEMEAGBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Citi trader pricing, except for Israel (provided by Tel Aviv Stock Exchange) and Poland (provided by BondSpot). All pricing is generally taken as of local market close. ⁴⁶
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	March 31, 2011

Chronological Summary of Events

Figure 89 CEEMEAGBI Indices Event Summary

Year	Monthly Highlights
2014	October: The pricing source and closing time for Polish government bonds become the following: Poland, 4:30 p.m. (Warsaw), 2nd fixing bid price from BondSpot
2013	March: Russia enters the index.
2011	September: The Central and Eastern Europe, Middle East, and Africa Government Bond Index is introduced and includes: Czech Republic, Hungary, Israel, Poland, South Africa and Turkey. The index is introduced with 5 months of history. These markets have been part of the index since its base date (March 31, 2011).

Related Indices

Each of the countries included in the Central and Eastern Europe, Middle East, and Africa Government Bond Index (CEEMEAGBI) is also available as a stand-alone index.

⁴⁶ Trading calendar for Israel is Sunday-Tuesday. Since index performance is calculated based on a Monday-Friday calendar, Friday pricing will be rolled from Thursday's closes. If Israel's last trading day of the month is a Sunday, the end-of-month pricing will be rolled from Thursday's closes.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 90 Tickers for CEEMEAGBI and Selected Related Indices

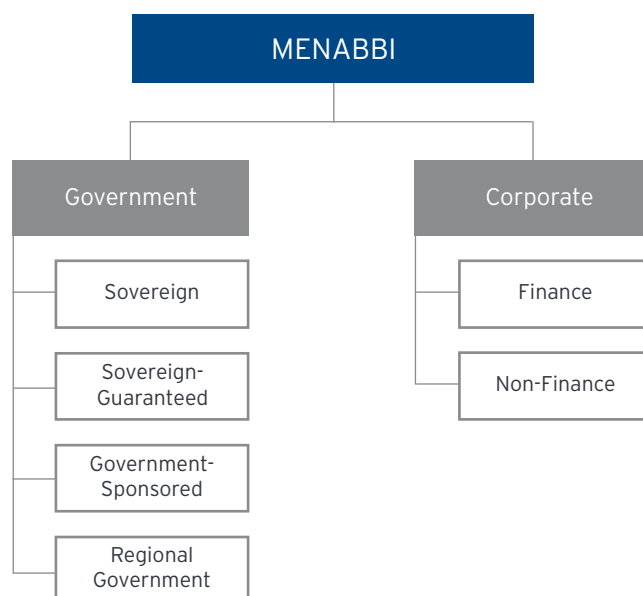
Ticker	Index
SBCGBIL	Central and Eastern Europe, Middle East, and Africa Government Bond Index, in local currency terms
SBCGBIU	Central and Eastern Europe, Middle East, and Africa Government Bond Index, in USD terms
SBCGBIE	Central and Eastern Europe, Middle East, and Africa Government Bond Index, in EUR terms
SBCZL	Czech Republic Government Bond Index, in CZK terms
SBHUL	Hungarian Government Bond Index, in HUF terms
SBPLL	Polish Government Bond Index, in PLN terms
SBRUL	Russian Government Bond Index, in RUB terms
SBISL	Israeli Government Bond Index, in ILS terms
SBTRL	Turkish Government Bond Index, in TRY terms
SBZAL	South African Government Bond Index, in ZAR terms

Middle East and North Africa Broad Bond Index (MENABBI)

Multi-Asset | US Dollar

The Middle East and North Africa Broad Bond Index (MENABBI) measures the performance of both investment-grade and high-yield US Dollar-denominated debt issued by governments, agencies, and corporations domiciled in the Middle East and North Africa.

Sub-indices are available in any combination of country, asset class, maturity, and rating.



Design Criteria and Calculation Methodology

Figure 91 MENABBI Design Criteria

Stated Coupon	Fixed-rate (excludes zero-coupons)
Minimum Maturity	At least one year
Minimum Issue size	USD 250 million
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted issues)
Accessibility	Limited to bonds and markets that are fully accessible to foreign investors.
Composition	Investment-grade and high-yield, US Dollar-denominated debt issued by governments, agencies and corporations domiciled in the Middle East and North Africa. Israel Saving, Income, and Jubilee series bonds are excluded.

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 92 MENABBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Primary: Citi trader pricing, generally taken as of local market close Supplementary: third-party pricing sources, transaction-related information, and proprietary pricing models
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 2010

Figure 93 MENABBI Indices Event Summary

Year	Monthly Highlight
2011	February: The Middle East and North Africa Broad Bond Index is introduced.

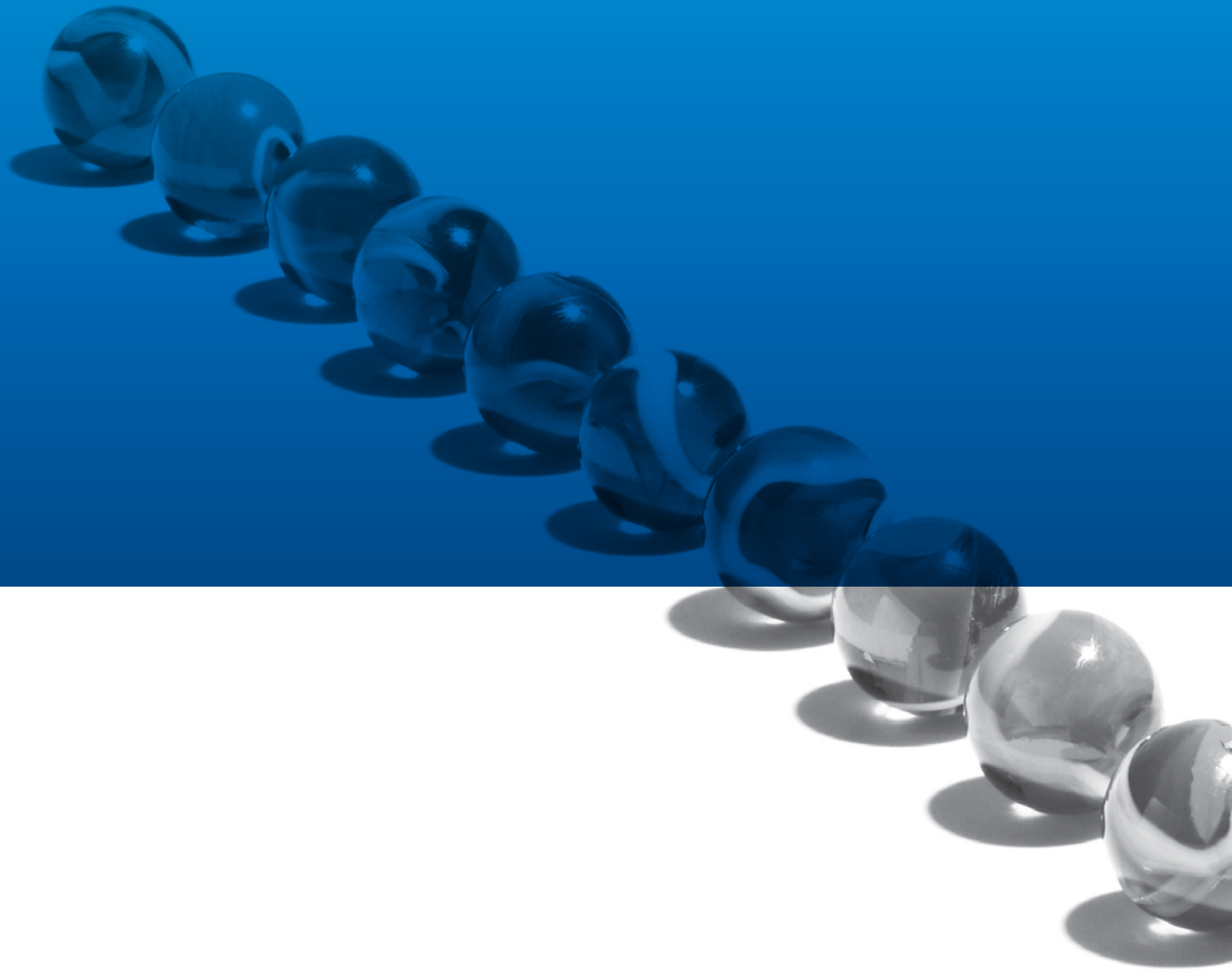
Access Information and Related Publications

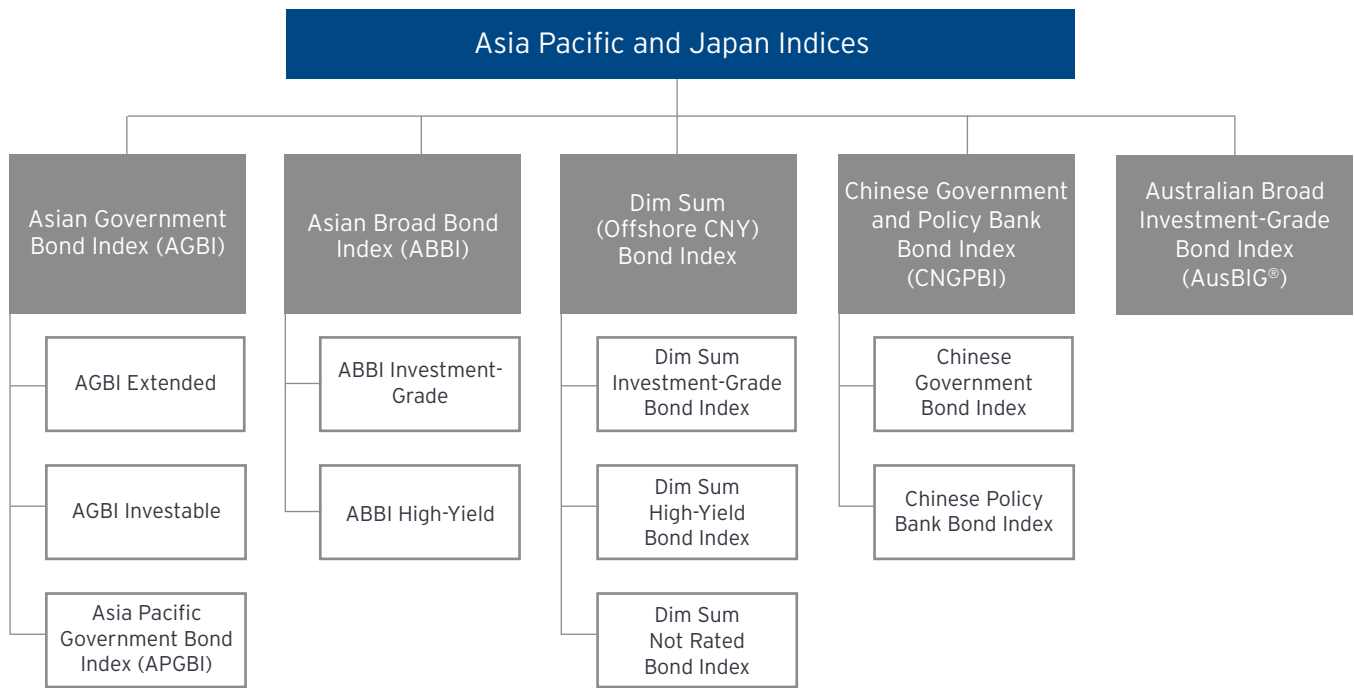
Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 94 Tickers for MENABBI and Selected Related Indices

Ticker	Index
SBMENA	MENA Broad Bond Index, in USD terms
SBMENAGV	MENA Broad Bond Index, Government, in USD terms
SBMENACP	MENA Broad Bond Index, Corporate, in USD terms

Asia Pacific and Japan Indices





The Asian Government Bond Index (AGBI) comprises local currency Asian government bonds, providing a broad benchmark for the Asian sovereign market. The AGBI rules and methodologies are consistent with those of the World Government Bond Index (WGBI), to enable performance comparisons across sovereign debt markets.

The Asian Broad Bond Index (ABBI) measures the performance of both investment-grade and high-yield US Dollar-denominated debt issued by governments, agencies, and corporations domiciled in Asia (excluding Japan). The index provides a comprehensive measure of the Asian fixed income market across various asset classes and credit sectors.

The Dim Sum (Offshore CNY) Bond Index measures the performance of RMB-denominated “Dim Sum” bonds issued and settled outside Mainland China. The index includes fixed-rate securities issued by governments, agencies, supranationals, and corporations.

The Chinese Government and Policy Bank Bond Index (CNGPBI) comprises Yuan-denominated fixed-rate government bonds and policy bank bonds issued in mainland China. The eligible Chinese policy bank bonds are those issued by the China Development Bank, the Agricultural Development Bank of China, and the Export-Import Bank of China. These policy banks are state-owned and their objectives typically include providing social benefit, stimulating the economy, and supporting growing local industries. Another version of the index is also available where eligibility of securities is limited to government and policy bank bonds issued within the last 12 months.

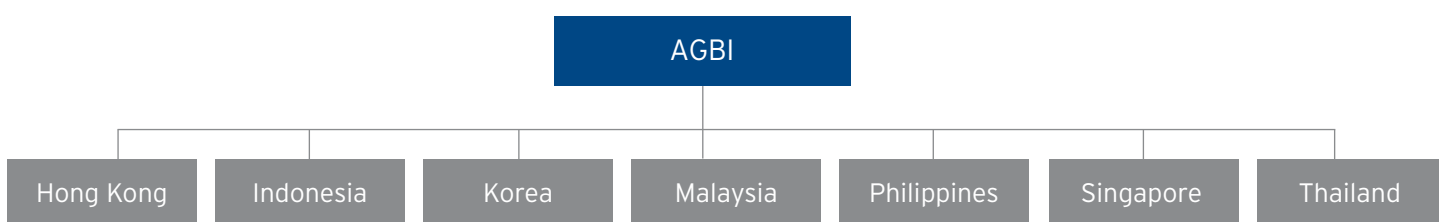
The Australian Broad Investment-Grade Bond Index (AusBIG) is designed to represent the Australian fixed-coupon bond market, including government, semi-government, and credit markets. It covers most sectors of the investment-grade, Australian Dollar-denominated fixed income market that are accessible to Australian institutional investors.

Asian Government Bond Index (AGBI)

Sovereign | Multi-Currency

The Asian Government Bond Index (AGBI) comprises local currency Asian government bonds providing a broad benchmark for the Asian sovereign market. The AGBI rules and methodologies are consistent with those of the World Government Bond Index (WGBI), to enable performance comparisons across sovereign debt markets.

The index provides exposure to a broad array of countries and sub-indices are available in any combination of currency, maturity, and rating.



Design Criteria and Calculation Methodology

For a market to be considered for inclusion into the AGBI it must satisfy the market size, credit quality and accessibility requirements set out in the table below.

For an issue to be eligible for inclusion in the index it must meet the maturity, amount outstanding, and credit quality requirements outlined in the design criteria table. Once a market has met all the requirements, an announcement will be made that this market is eligible for inclusion into the AGBI. If it continues to meet all requirements for three consecutive months after the announcement, the market will join the AGBI at the end of the three months that follow. Note that any new market inclusion due the month of January will be postponed by one month and the market will join the respective index in February.

If an announced market meets any of the exit criteria in Figure 95 it will not be included in the AGBI.

Figure 95 AGBI and Related Indices Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Market Size	<p>Entry: The outstanding amount of a market's eligible issues must total at least USD 5 billion and each market must be fully accessible to foreign investors.</p> <p>Exit: A market is removed if the outstanding amount of its eligible issues falls below USD 2.5 billion, half of the entry-level market size criteria, for three consecutive months, or if the market is no longer fully accessible to foreign investors.</p>
Minimum Issue Size	<p>AGBI</p> <p>Hong Kong: HKD 800 million</p> <p>Indonesia: IDR 7.5 trillion</p> <p>Korea: KRW 1 trillion</p> <p>Malaysia: MYR 4 billion</p> <p>Philippines: PHP 45 billion</p> <p>Singapore: SGD 1.5 billion</p> <p>Thailand: THB 25 billion</p>

Figure 95 AGBI and Related Indices Design Criteria, continued

Minimum Issue Size	<p>AGBI Extended China: CNY 20 billion India: INR 250 billion (except Benchmark bonds, which are included regardless of size) Sri Lanka: LKR 50 billion Taiwan: TWD 40 billion For Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand, please see AGBI criteria.</p> <p>AGBI Investable China (offshore): RMB 1 billion For Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand, please see AGBI criteria.</p> <p>Asia Pacific Government Bond Index (APGBI) Australia: AUD 750 million New Zealand: NZD 750 million For Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand, please see AGBI criteria.</p>
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted bonds)
Accessibility	AGBI: Limited to bonds and markets that are fully accessible to foreign investors
Composition	<p>Sovereign debt from Asian countries (excluding Japan) denominated in their domestic currency. Securities included: Fixed-rate non-callable bonds - unless otherwise stated in Figure 96. Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 96.</p>

Figure 96 AGBI, AGBI Extended, AGBI Investable, and APGBI Composition

AGBI Markets	Security Type
Australia	Excludes tax rebate bonds
China	Excludes zero-coupon bonds, special government bonds, bonds greater than 30-year tenor and bonds issued prior to January 1, 2005
China (Offshore)	Excludes zero-coupon bonds
Hong Kong	Excludes zero-coupon bonds
India	Includes benchmark bonds
Indonesia	Excludes Recapitalization bonds and Sukuk bonds
Korea	Excludes Monetary Stabilization Bonds and 10-Years securities issued prior to January 1, 2003
Malaysia	Includes callable bonds Excludes Government Investment Issues (GII)
New Zealand	N/A
Philippines	Excludes zero-coupon bonds and special purpose bonds
Singapore	N/A
Sri Lanka	Excludes zero-coupon bonds and bonds with tenor equal to or greater than 10 years
Taiwan	N/A
Thailand	Excludes bonds with maturity tenor greater than 30 years at issuance

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 97 AGBI and Related Indices Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Eurodeposit rate, except for China where one-month onshore deposit rate is used. Calculated from the actual scheduled payment date of cash flow through end of reporting period.
Pricing	Primary sources: Citi trader pricing except for Malaysia (provided by Amanah Butler) and Singapore (provided by Monetary Authority of Singapore). Prices are generally taken as of local market close. Supplementary sources: third-party pricing, transaction-related information, and proprietary pricing models.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 2007

Chronological Summary of Events

Figure 98 AGBI, AGBI Extended, AGBI Investable, and APGBI Event Summary

Year	Monthly Highlights
2014	October: The pricing source and closing time for Malaysian and Singapore government bonds become the following: Malaysia, 5:00 p.m. (Kuala Lumpur), average bid price from brokers Amanah Butler and Affin Singapore, 4:30 p.m. (Singapore), bid price from Monetary Authority of Singapore
2013	July: The timing for inclusion of new eligible markets into the index changes to six calendar months after the announcement of eligibility, provided that during the first three months of that time period all requirements for inclusion are met.
2012	January: The AGBI market size criteria for inclusion and exclusion are defined as follows: Entry: The outstanding amount of a market's eligible issues must total at least USD 5 billion and each market must be fully accessible to foreign investors. Exit: A market is removed if the outstanding amount of its eligible issues falls below USD 2.5 billion, half of the entry-level market size criteria, for three consecutive months, or if the market is no longer fully accessible to foreign investors. February: Taiwan and Sri Lanka are excluded from the AGBI and APGBI and included in the AGBI Extended. April: Hong Kong and India are included in the AGBI Extended. May: The Asian Government Bond Investable Index is introduced. October: Hong Kong is included in the AGBI and APGBI.
2011	March: The following indices are introduced: • Chinese Government Bond Index • Sri Lankan Government Bond Index • Asian Government Extended Bond Index (AGBI Extended): The index is introduced with 2 years of history. All markets, namely China, Indonesia, Korea, Philippines, Singapore, Taiwan, and Thailand, have been part of the index since its base date (February 28, 2009) • Asia Pacific Government Bond Index (APGBI): The index is introduced with over 3 years of history. All markets, namely Australia, New Zealand, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand, have been part of the index since its base date (December 31, 2007) April: Sri Lanka joins the AGBI and APGBI. China joins the AGBI Extended.
2010	March: 10-year Korean Treasury Bonds issued prior to January 2003 are excluded from the Korean Government Bond Index.
2008	April: The Asian Government Bond Index (AGBI) is introduced and includes Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, and Thailand. The index is introduced with 3 months of history. These markets have been part of the index since its base date (December 31, 2007).

Related Indices

ASIAN GOVERNMENT EXTENDED BOND INDEX (AGBI EXTENDED)

The Asian Government Extended Bond Index (AGBI Extended) includes the AGBI markets - Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand - with the addition of China, India, Sri Lanka, and Taiwan.

ASIAN GOVERNMENT BOND INVESTABLE INDEX (AGBI INVESTABLE)

The Asian Government Bond Investable Index (AGBI Investable) includes the AGBI markets - Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand - with the addition of offshore Chinese government bonds. To limit the exposure to any one sovereign market, an individual cap of 20% is applied to market weights.

ASIA PACIFIC GOVERNMENT BOND INDEX (APGBI)

The Asia Pacific Government Bond Index (APGBI) includes the AGBI markets - Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand - with the addition of Australia and New Zealand.

These indices provide broad benchmarks of the Asian and Asian Pacific sovereign markets.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 99 Tickers for AGBI and Selected Related Indices

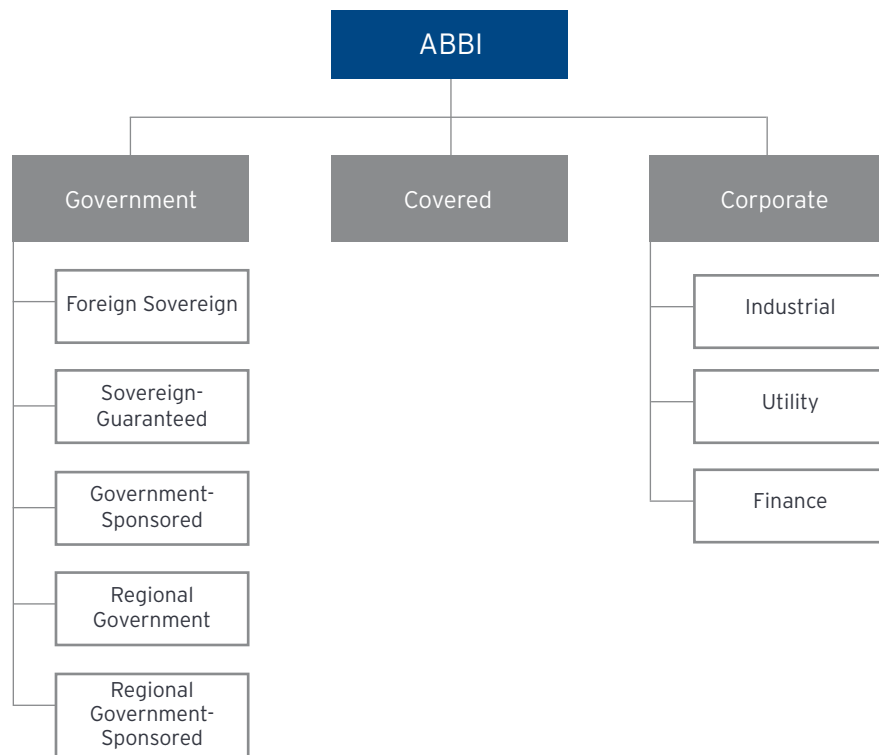
Ticker	Index
SBAGBIU	Asian Government Bond Index, in USD terms
SBAGBIE	Asian Government Bond Index, in EUR terms
SBAGBIY	Asian Government Bond Index, in JPY terms
SBAGBIG	Asian Government Bond Index, in GBP terms
SBAGBIL	Asian Government Bond Index, in local currency terms
SBAGBEU	Asian Government Extended Bond Index, in USD terms
SBAGBEE	Asian Government Extended Bond Index, in EUR terms
SBAGBEY	Asian Government Extended Bond Index, in JPY terms
SBAGBEG	Asian Government Extended Bond Index, in GBP terms
SBAGBEL	Asian Government Extended Bond Index, in local currency terms
SBAIU	Asian Government Bond Investable Index, in USD terms
SBAIE	Asian Government Bond Investable Index, in EUR terms
SBAIY	Asian Government Bond Investable Index, in JPY terms
SBAIG	Asian Government Bond Investable Index, in GBP terms
SBAIL	Asian Government Bond Investable Index, in local currency terms
SBAPGBU	Asia Pacific Government Bond Index, in USD terms
SBAPGBE	Asia Pacific Government Bond Index, in EUR terms
SBAPGBY	Asia Pacific Government Bond Index, in JPY terms
SBAPGBG	Asia Pacific Government Bond Index, in GBP terms
SBAPGBL	Asia Pacific Government Bond Index, in local currency terms

Asian Broad Bond Index (ABBI)

Multi-Asset | US Dollar

The Asian Broad Bond Index (ABBI) measures the performance of both investment-grade and high-yield US Dollar-denominated debt issued by governments, agencies, and corporations domiciled in Asia (excluding Japan). The ABBI provides a comprehensive measure of the Asian fixed income market across various asset classes and credit sectors.

Sub-indices are available in any combination of asset class, maturity, and rating.



Design Criteria and Calculation Methodology

Figure 100 ABBI Design Criteria

Stated Coupon	Fixed-rate and fixed-to-floating bonds
Minimum Maturity	At least one year Fixed-to-floating bonds are removed one year prior to the fixed-to-floating date.
Minimum Issue Size	Government: ⁴⁷ USD 500 million Collateralized/Corporate: USD 200 million
Minimum Credit Quality	C by S&P and Ca by Moody's (excludes defaulted bonds)
Composition	Investment-grade and high-yield US Dollar-denominated debt issued by governments, agencies, and corporations domiciled in Asia (excluding Japan)

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 101 ABBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Primary: Citi trader pricing, generally taken as of local market close Supplementary: third-party pricing sources
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	September 30, 2008

Figure 102 ABBI Event Summary

Year	Monthly Highlight
2010	November: The Asian Broad Bond Index is introduced.

Related Indices

ABBI INVESTMENT-GRADE

The ABBI Investment-Grade measures the performance of the investment-grade bonds included in the ABBI.

ABBI HIGH-YIELD

The ABBI High-Yield measures the performance of the high-yield bonds included in the ABBI.

⁴⁷Government includes foreign sovereign, sovereign-guaranteed, government-sponsored, regional government-guaranteed, and regional government-sponsored.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 103 Tickers for ABBI and Selected Related Indices

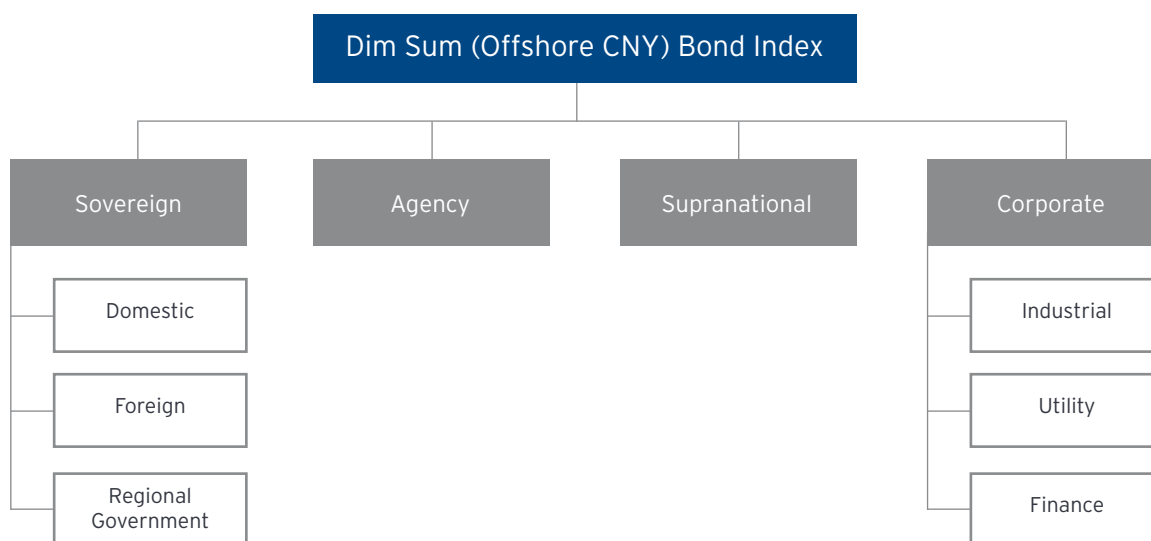
Ticker	Index
SBABBI	Asian Broad Bond Index, in USD terms
SBABBIE	Asian Broad Bond Index, in EUR terms
SBABBIY	Asian Broad Bond Index, in JPY terms
SBABBIG	Asian Broad Bond Index, in GBP terms
SBABBIIG	ABBI Investment-Grade, in USD terms
SBABIGE	ABBI Investment-Grade, in EUR terms
SBABIGY	ABBI Investment-Grade, in JPY terms
SBABIGG	ABBI Investment-Grade, in GBP terms
SBABBIHY	ABBI High-Yield, in USD terms
SBABHYE	ABBI High-Yield, in EUR terms
SBABHYY	ABBI High-Yield, in JPY terms
SBABHYG	ABBI High-Yield, in GBP terms

Dim Sum (Offshore CNY) Bond Index

Multi-Asset | Renminbi

The Dim Sum (Offshore CNY) Bond Index measures the performance of RMB-denominated “Dim Sum” bonds issued and settled outside Mainland China. The index includes fixed-rate securities issued by governments, agencies, supranationals, and corporations.

The index provides exposure to a broad array of asset classes and sub-indices are available in any combination of asset class, maturity, and rating.



Design Criteria and Calculation Methodology

Figure 104 outlines the design criteria for the index. In the securities selection, RMB-denominated but non-RMB-settled (typically USD-settled) synthetic securities and convertible bonds are excluded from the Dim Sum (Offshore CNY) Bond Index. Retail securities, mainly issued by the Chinese government and financial institutions for retail customers, and certificates of deposits (CDs) with a limited potential issuer universe and less onerous disclosure requirements, are also excluded from the index.

Figure 104 Dim Sum (Offshore CNY) Bond Index Design Criteria

Stated Coupon	Fixed-rate (excludes zero-coupon)
Minimum Maturity	At least one year
Minimum Issue Size	RMB 1 billion
Minimum Credit Quality	No minimum S&P or Moody's rating requirement, defaulted bonds are excluded.
Composition	RMB-denominated governments, agencies, supranationals, and credit securities excluding synthetics, convertible bonds, retail bonds, and certificates of deposits.

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 105 Dim Sum Index Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Eurodeposit rate, calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Primary: Citi trader pricing, generally taken as of local market close Supplementary: third-party pricing sources
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 2010

Figure 106 Dim Sum (Offshore CNY) Bond Index Event Summary

Year	Monthly Highlight
2011	April: The Dim Sum (Offshore CNY) Bond Index is introduced.

Related Indices

DIM SUM (OFFSHORE CNY) INVESTMENT-GRADE BOND INDEX

The Dim Sum Investment-Grade Bond Index measures the performance of investment-grade bonds in the Dim Sum (Offshore CNY) Bond Index.

DIM SUM (OFFSHORE CNY) HIGH-YIELD BOND INDEX

The Dim Sum High-Yield Bond Index measures the performance of high-yield bonds in the Dim Sum (Offshore CNY) Bond Index.

DIM SUM (OFFSHORE CNY) NOT RATED BOND INDEX

The Dim Sum Not Rated Bond Index measures the performance of bonds in the Dim Sum (Offshore CNY) Bond Index that are unrated by S&P and Moody's.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

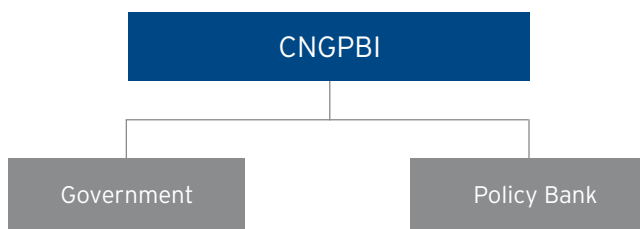
Figure 107 Tickers for the Dim Sum (Offshore CNY) Bond Index and Selected Related Indices

Ticker	Index
SBDSBIL	Dim Sum (Offshore CNY) Bond Index, in RMB terms
SBDSBIU	Dim Sum (Offshore CNY) Bond Index, in USD terms
SBDSBIE	Dim Sum (Offshore CNY) Bond Index, in EUR terms
SBDSBIH	Dim Sum (Offshore CNY) Bond Index, in HKD terms
SBDSBIS	Dim Sum (Offshore CNY) Bond Index, in SGD terms
SBDSBIY	Dim Sum (Offshore CNY) Bond Index, in JPY terms
SBDSIGL	Dim Sum (Offshore CNY) Investment-Grade Bond Index, in RMB terms
SBDSIGU	Dim Sum (Offshore CNY) Investment-Grade Bond Index, in USD terms
SBDSHYL	Dim Sum (Offshore CNY) High-Yield Bond Index, in RMB terms
SBDSHYU	Dim Sum (Offshore CNY) High-Yield Bond Index, in USD terms
SBDSNRL	Dim Sum (Offshore CNY) Not Rated Bond Index, in RMB terms
SBDSNRU	Dim Sum (Offshore CNY) Not Rated Bond Index, in USD terms

Chinese Government and Policy Bank Bond Index (CNGPBI)

Multi-Asset | Chinese Yuan

The Chinese Government and Policy Bank Bond Index (CNGPBI) comprises Yuan-denominated fixed-rate government bonds and policy bank bonds issued in mainland China. The eligible Chinese policy bank bonds are those issued by the China Development Bank, the Agricultural Development Bank of China, and the Export-Import Bank of China. These policy banks are state-owned and their objectives typically include providing social benefit, stimulating the economy, and supporting growing local industries. Another version of the index is also available where eligibility of securities is limited to government and policy bank bonds issued within the last 12 months.



Design Criteria and Calculation Methodology

Figure 108 outlines the design criteria for the index.

Figure 108 CNGPBI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	Government: CNY 20 billion; Policy Bank: CNY 15 billion
Composition	<p>Securities included: Government: fixed-rate government bonds Policy Bank: bonds issued by the China Development Bank, the Agricultural Development Bank of China, and the Export-Import Bank of China</p> <p>Securities excluded: Government: zero-coupon bonds, saving bonds, special government bonds, bonds with maturity greater than 30 years from issuance, and bonds issued prior to January 1, 2005 Policy Bank: central bank bills, private placements, callable and puttable bonds, bonds with maturity greater than 30 years from issuance, and bonds issued prior to January 1, 2005</p>

Figure 109 CNGPBI Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month onshore deposit rate, calculated from the actual scheduled payment date of cash flow through end of reporting period
Pricing	Primary: Citi trader pricing , generally taken as of local market close Supplementary: third-party pricing sources
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	December 31, 2010

Figure 110 CNGPBI Event Summary

Year	Monthly Highlight
2014	February: The Chinese Government and Policy Bank Bond Index is introduced.

Related Indices

CHINESE GOVERNMENT BOND INDEX

The Chinese Government Bond Index comprises fixed-rate government bonds issued in mainland China. To improve liquidity, any bonds whose maturity is greater than 30 years are excluded from the index.

Another version of the index is also available where eligibility of securities is limited to government bonds issued within the last 12 months.

CHINESE POLICY BANK BOND INDEX

The Chinese Policy Bank Bond Index comprises fixed-rate policy bank bonds issued in mainland China. The eligible Chinese policy banks are state-owned and their objectives typically include providing social benefit, stimulating the economy, and supporting growing local industries. To improve liquidity, any bonds whose maturity is greater than 30 years are excluded from the index.

Another version of the index is also available where eligibility of securities is limited to policy bank bonds issued within the last 12 months.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 111 Tickers for CNGPBI and Selected Related Indices

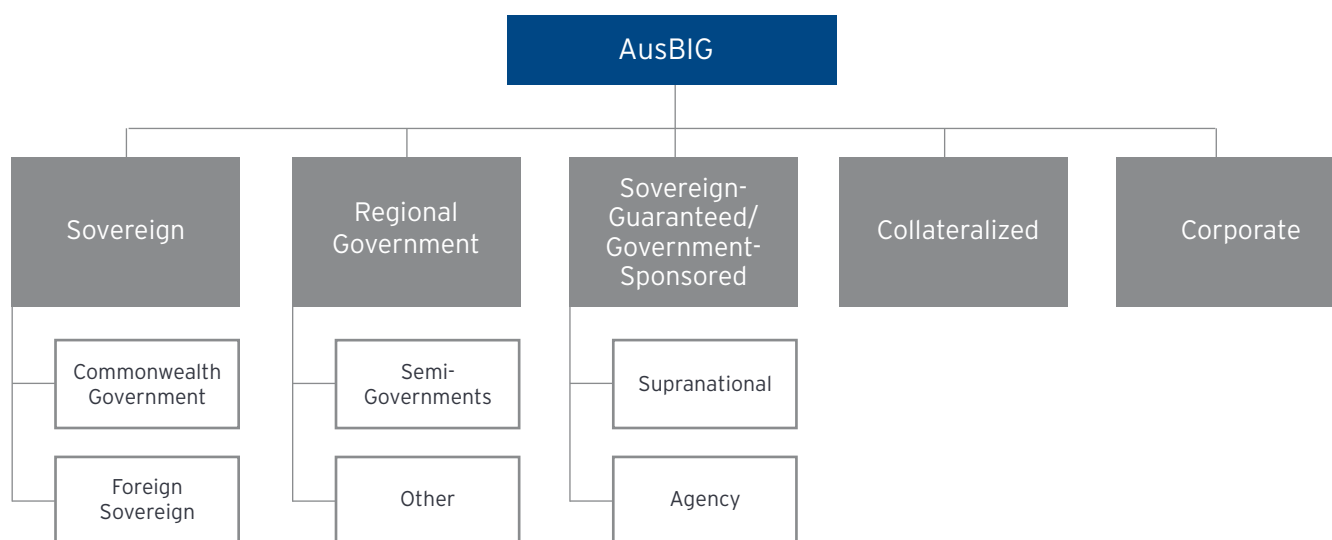
Ticker	Index
SBCNGL	Chinese Government and Policy Bank Bond Index, in CNY terms
SBCNGU	Chinese Government and Policy Bank Bond Index, in USD terms
SBCNL	Chinese Government Bond Index, in CNY terms
SBCNU	Chinese Government Bond Index, in USD terms
SBCNPL	Chinese Policy Bank Bond Index, in CNY terms
SBCNPU	Chinese Policy Bank Bond Index, in USD terms

Australian Broad Investment-Grade Bond Index (AusBIG®)

Multi-Asset | Australian Dollar

The Australian Broad Investment-Grade Bond Index (AusBIG) is designed to represent the Australian fixed-coupon bond market, including government, semi-government, and credit markets. It covers most sectors of the investment-grade Australian Dollar-denominated fixed income market that are accessible to Australian institutional investors.

The index provides exposure to a broad array of asset classes and sub-indices are available in any combination of asset class, maturity, and rating.



Design Criteria and Calculation Methodology

The index includes any fixed-coupon, investment-grade bonds issued in the Australian market or semi-government bonds issued in the global market that meet specific amount outstanding criteria and matures in more than one year.

Figure 112 AusBIG Design Criteria

Stated Coupon	Fixed-rate and fixed-to-floating bonds
Minimum Maturity	At least one year Fixed-to-floating bonds are removed one year prior to the fixed-to-floating date
Minimum Issue Size	Government: AUD 750 million Semi-government: AUD 250 million, including amounts issued under interest-withholding tax-free formats ⁴⁸ Corporate, supranational, agency, and collateralized: AUD 100 million
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's or bonds guaranteed by the Commonwealth of Australia
Redemption Features	Bullet, callable, puttable, and extendable

⁴⁸ Such as Queensland Treasury Corporation's Global Bond Program and New South Wales Treasury Corporation's Exchangeable Program. These bonds may be exchanged at any time for ordinary bonds from the issuer.

The index follows the general methodology for Citi's fixed income indices as outlined in Section 2 of this publication. More specifically, the following calculation rules apply to the index.

Figure 113 AusBIG Calculation Methodology

Weighting	Market capitalization
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of one-month Australian dollar bank bill swap reference rate (BBSW), calculated from actual scheduled payment date of cash flow through end of reporting period
Pricing	Primary: Citi trader pricing, generally taken as of local market close Supplementary: third-party pricing sources
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	June 30, 2000

Figure 114 AusBIG Event Summary

Year	Monthly Highlight
2007	July: The minimum issue size criteria for government issues increase to AUD 750, net of Loan Consolidation and Investment Reserve (LCIR) amounts, from AUD 250 million.
2000	June: The Australian Broad Investment-Grade Bond Index is introduced.

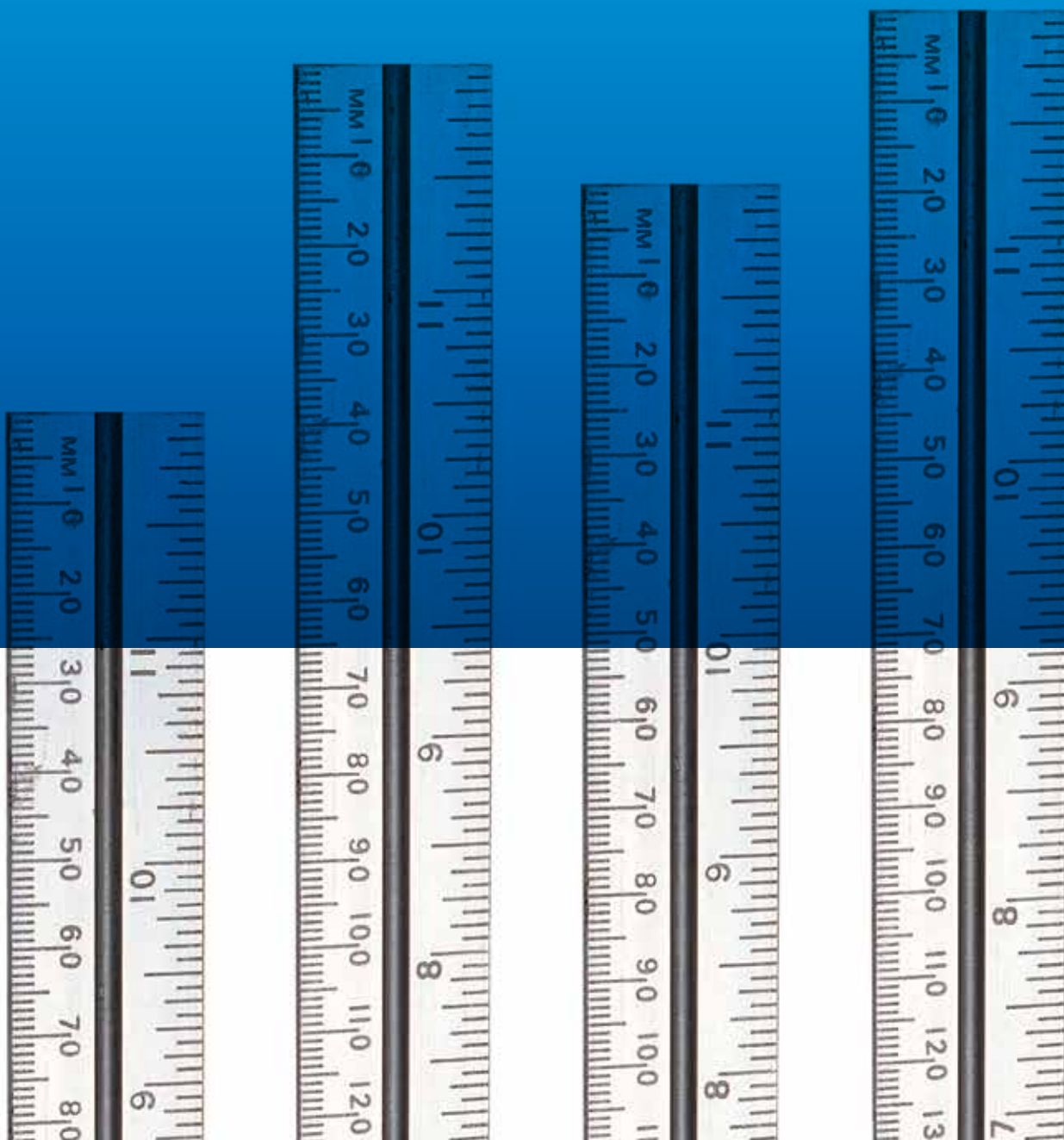
Access Information and Related Publications

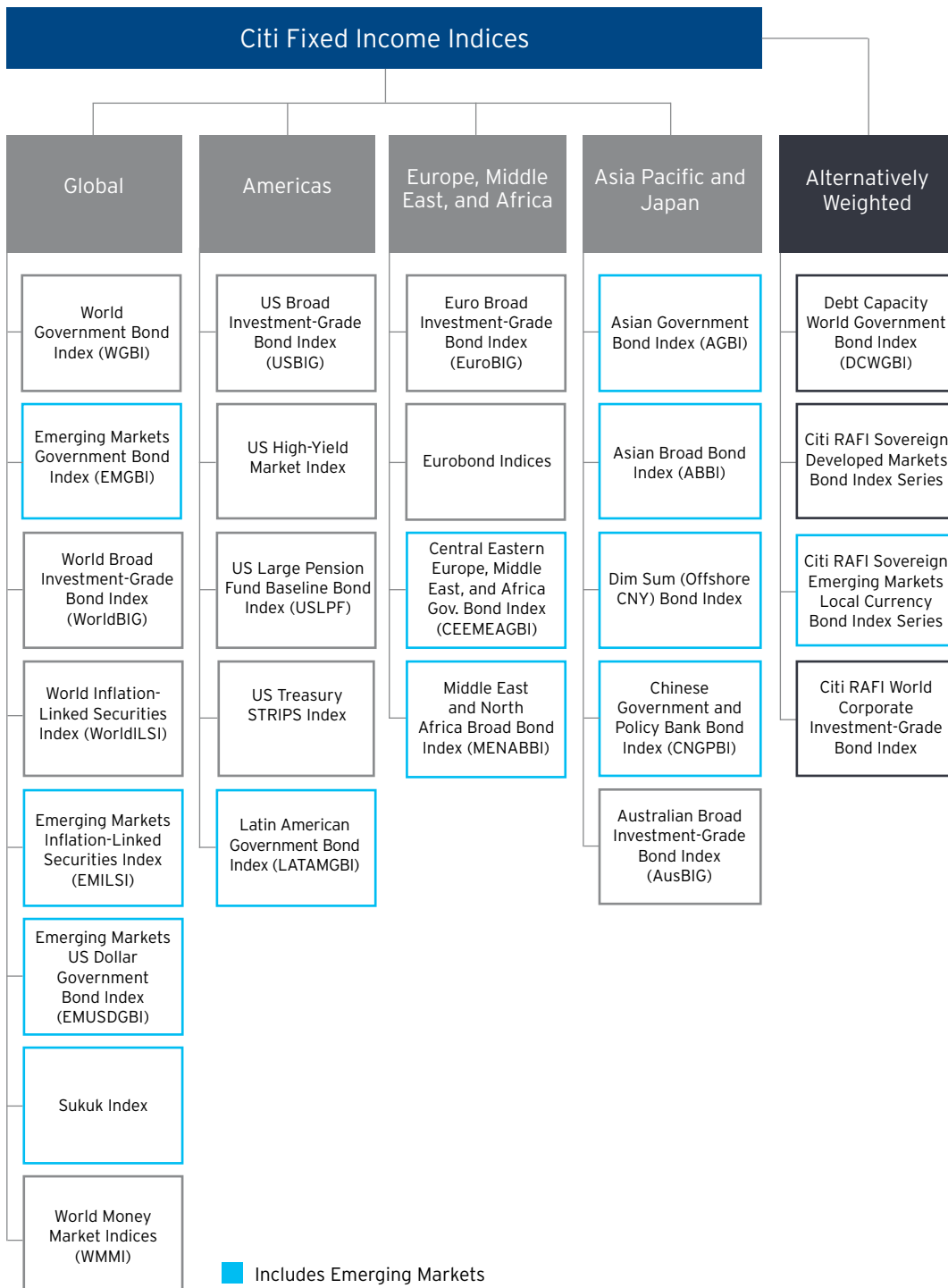
Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, Citi VelocitySM, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 111 Tickers for AusBIG Index and Selected Related Indices

Ticker	Index
SBABIG	Australian Broad Investment-Grade Bond Index, in AUD terms
SBABCOL	AusBIG Collateralized Index, in AUD terms
SBABCRP	AusBIG Corporate Index, in AUD terms
SBABSEM	AusBIG Semi-Government Index, in AUD terms

Emerging Markets Indices





80+

Countries in which Citi has a local presence in foreign exchange and interest rate trading

1500+

Emerging Market bonds included inside Citi Fixed Income Indices global family

400+

Institutions worldwide use The Yield Book, the leading fixed income analytics platform

Citi Fixed Income Indices classifies a country to be “emerging” if it is defined by the International Monetary Fund (IMF) World Economic Outlook to be among “emerging and developing economies”⁴⁹ or if it is defined by the World Bank (WB) to be among “low-income economies” or “lower-middle-income economies” or “upper-middle-income economies”.⁵⁰

⁴⁹ <http://www.imf.org/external/ns/cs.aspx?id=28>

⁵⁰ <http://data.worldbank.org/about/country-classifications/>

Indices Denominated in Local Currencies

EMERGING MARKETS SOVEREIGN DEBT

Citi Fixed Income Indices' line-up includes local currency sovereign bond indices for 17 Emerging Market countries. These indices comprise fixed-rate sovereign debt with at least one year until maturity. They are market capitalization weighted and rebalanced monthly.

Figure 116 Emerging Markets Local Currency Sovereign Bond Indices

Minimum Issue Size	Europe, Middle East, and Africa
	Hungary: HUF 200 billion
	Poland: PLN 5 billion
	Russia: RUB 25 billion
	South Africa: ZAR 10 billion
	Turkey: TRY 2 billion
	Latin America
	Brazil: BRL 5 billion
	Chile: CLP 100 billion
	Colombia: COP 2 trillion
	Mexico: MXN 10 billion
	Peru: PEN 2 billion
	Asia Pacific and Japan
	China: CNY 20 billion
	India: INR 250 billion
	Indonesia: IDR 7.5 trillion
	Malaysia: MYR 4 billion
	Philippines: PHP 45 billion
	Sri Lanka: LKR 50 billion
	Thailand: THB 25 billion

Individual indices can be easily combined to provide regional or geographic exposure.

Figure 117 Local Currency Composite Indices, including Emerging Markets

Region	Indices	Markets
Global	Emerging Markets Government Bond Index (EMGBI)	Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Philippines, Peru, Poland, Russia, South Africa, Thailand, and Turkey
	Emerging Markets Government Bond Index - Japanese Investment Trust (EMGBI-JIT)	
	Emerging Markets Inflation-Linked Securities Index (EMILSI)	Brazil, Chile, Mexico, Poland, South Africa, Turkey
Americas	Latin American Government Bond Index (LATAMGBI)	Brazil, Chile, Colombia, Mexico, and Peru
Europe, Middle East, and Africa	Central and Eastern Europe, Middle East, and Africa Government Bond Index (CEEMEAGBI)	Czech Republic, Hungary, Israel, Poland, Russia, South Africa, and Turkey
Asia Pacific and Japan	Asian Government Bond Index (AGBI)	Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand
	Asian Government Extended Bond Index (AGBI Extended)	China (Onshore), Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Sri Lanka, Taiwan, and Thailand
	Asian Government Bond Investable Index (AGBI Investable) ⁵¹	China (Offshore), Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand
	Asia Pacific Government Bond Index	Indonesia, Korea, Malaysia, Philippines, Singapore, Hong Kong, Thailand, Australia, and New Zealand
	Dim Sum Bond Index	China (Offshore)
	Chinese Government and Policy Bank Bond Index	China (Onshore)

⁵¹ The AGBI Investable methodology differs from that of AGBI with the inclusion of offshore Chinese government bond markets. It also caps the market weight of an individual market at 20% to limit the exposure to any one sovereign market.

FUNDAMENTALLY WEIGHTED INDICES

The Citi RAFI Bonds Index Series weights index components by the issuer's economic footprint, which is correlated with the issuer's debt service capacity, providing an alternative to market capitalization weighting. This series has been developed in partnership with Research Affiliates based on the RAFI® methodology.

The Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series provides a measure of government securities in 14 markets: Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russia, Thailand, Turkey, and South Africa.

Indices Denominated in US Dollars

EMERGING MARKETS SOVEREIGN DEBT

The Emerging Markets US Dollar Government Bond Index (EMUSDGBI)⁵² includes US Dollar-denominated Emerging Market sovereign debt issued in the global, Yankee, and Eurodollar markets. The EMUSDGBI comprises debt of more than 50 countries from Latin America, Europe, Africa, the Middle East, and Asia and offers geographical diversification without exposure to local currency fluctuations.

Figure 118 EMUSDGBI Market Coverage, as of December 2014

Regions Within Index	Markets Within Index
Europe, Middle East, and Africa	
Eastern Europe	Armenia, Azerbaijan, Belarus, Croatia, Georgia, Hungary, Lithuania, Poland, Romania, Russia, Serbia, Turkey, and Ukraine
Africa / Middle East	Bahrain, Egypt, Gabon, Ghana, Ivory Coast, Kenya, Lebanon, Morocco, Namibia, Nigeria, Qatar, Senegal, South Africa, and Zambia
Asia Pacific	Indonesia, Kazakhstan, Mongolia, Pakistan, Philippines, Sri Lanka, and Vietnam
Latin America	Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Venezuela

EMERGING MARKETS GOVERNMENT, AGENCY, AND CORPORATE DEBT

Citi's range of fixed income indices includes broad bond indices measuring the performance of both investment-grade and high-yield US Dollar-denominated debt issued by governments, agencies, and corporations domiciled in the specific regions. Indices are market capitalization weighted.

Figure 119 MENABBI and ABBI Market Coverage, as of December 2014

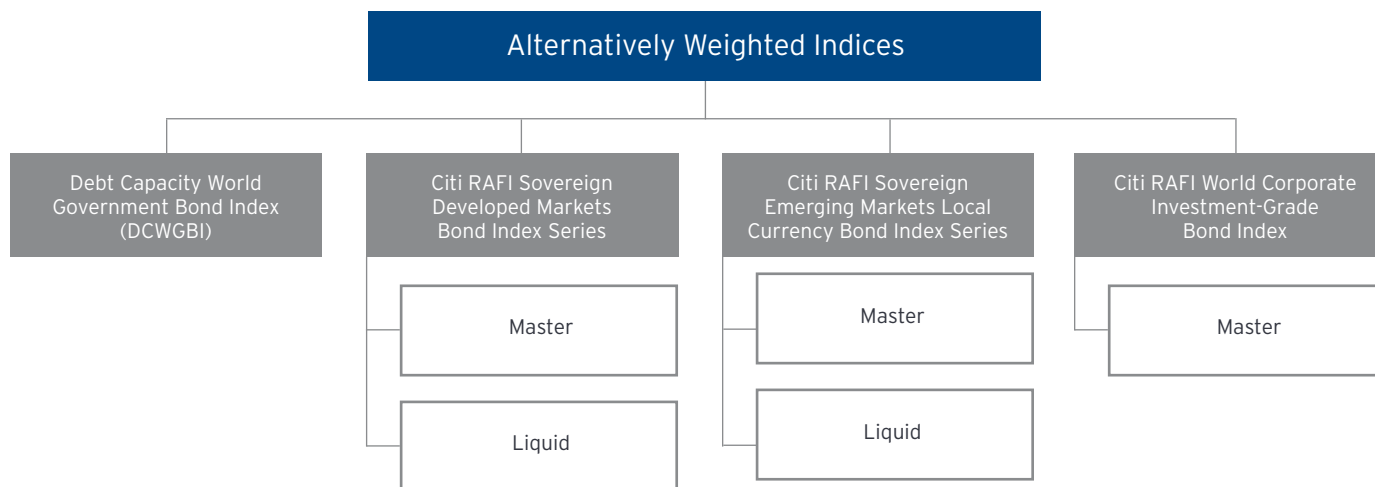
Region	Indices	Markets
Europe, Middle East, and Africa	Middle East and North Africa Broad Bond Index (MENABBI)	Bahrain, Egypt, Israel, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, and United Arab Emirates
Asia Pacific and Japan	Asian Broad Bond Index (ABBI)	China, Hong Kong, India, Indonesia, Korea, Macao, Malaysia, Mongolia, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Thailand, and Vietnam

⁵² As of November 2013, the index has been renamed from "Global Emerging Market Sovereign Bond Index (ESBI)" to "Emerging Markets US Dollar Government Bond Index (EMUSDGBI)" to better align with Citi Fixed Income Indices' naming conventions. In addition, the index's design criteria have been modified to reflect Citi Fixed Income Indices' methodology of classifying a country to be "emerging". More information on the definition of emerging countries can be found on page 116 of the publication. For further details on the upcoming changes, visit the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices).

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Alternatively Weighted Indices





The Debt Capacity World Government Bond Index (DCWGBI) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds with a focus on countries with lower debt issuance relative to their gross domestic product (GDP) and stronger debt servicing capabilities. The index comprises sovereign debt from over 20 countries, denominated in a variety of currencies.

Unlike traditional indices where country weights are solely based on the market capitalization of an issuer's outstanding debt, the index also accounts for the countries' capacity to repay their debt. It is rebalanced monthly with weights based on each country's market value adjusted by scores derived from its actual Debt-to-GDP and calculated Debt Service-to-GDP ratios, both determined annually in May.⁵³ These factors aim to reweight the index to provide higher weights to countries that have stronger fiscal health and greater capacity to service their debt based on those two factors as proxy indicators. The DCWGBI provides an alternatively weighted broad benchmark for the global sovereign fixed income market.

Citi Fixed Income Indices and Research Affiliates have developed a series of bond indices based on the RAFI® methodology. The Citi RAFI Bonds Index Series weights index components by measures of the issuer's economic size, which are correlated with the company's or country's debt service capacity. This approach provides an alternative to market capitalization weighting where index components are weighted by the issuer's amount of outstanding debt.

This is a strategic partnership between Citi and Research Affiliates, where Citi brings its expertise and experience in fixed income index related products and services to provide stable and replicable indices, and where Research Affiliates brings its research strength, product development capabilities and pioneering proprietary methodology on securities selection and weighting based on fundamental measures.

While traditional fixed income indices use market value weights, which tend to increase exposure to issuers as they become more indebted, Research Affiliates has developed an innovative methodology for constructing indices, which determines component weights based on fundamental measures. The essence of this approach is to focus on capturing the economic "footprint" of a sovereign or company, which is correlated with the issuer's ability to service its debt. Simultaneously, the RAFI methodology preserves the advantages of passive investing, namely: diversification, liquidity, transparency, broad economic representation, and limited transaction costs.

Holdings for both the Citi RAFI Sovereign Developed Markets Bond Index Series and the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series are weighted based on metrics that signify the importance of a country in the world economy: population, GDP, energy consumption, and rescaled land area.

Citi RAFI World Corporate Investment-Grade Bond Index weights a company's debt according to fundamental measures of the company's debt service capacity rather than solely on the amount of debt outstanding. The measures used for weighting constituents are long-term assets and cash flow.

⁵³ The actual GDP and Debt-to-GDP ratios for the previous calendar year are published each year, generally in April, by the International Monetary Fund (IMF) in its World Economic Outlook (WEO).

Debt Capacity World Government Bond Index (DCWGBI)

Sovereign | Multi-Currency

The Debt Capacity World Government Bond Index (DCWGBI) measures the performance of fixed-rate, local currency, investment-grade sovereign bonds with a focus on countries with lower debt issuance relative to their gross domestic product (GDP) and stronger debt servicing capabilities. The index comprises sovereign debt from over 20 countries, denominated in a variety of currencies.

Unlike traditional indices where country weights are solely based on the market capitalization of an issuer's outstanding debt, the index also accounts for the countries' capacity to repay their debt. It is rebalanced monthly with weights based on each country's market value adjusted by scores derived from its actual Debt-to-GDP and calculated Debt Service-to-GDP ratios, both determined annually in May.⁵⁴ These factors aim to reweight the index to provide higher weights to countries that have stronger fiscal health and greater capacity to service their debt based on those two factors as proxy indicators. The index offers an alternatively weighted broad benchmark for the global sovereign fixed income market.

Design Criteria and Calculation Methodology

The index composition is based on the global sovereign markets and constituents of the Citi World Government Bond Index (WGBI). A new market entering the WGBI will also enter the DCWGBI at the same time. Markets being removed from the WGBI because they are subjected to WGBI's exit criteria will also be removed from the DCWGBI.

Figure 120 DCWGBI Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year ⁵⁵
Market Size	<p>Entry: The outstanding amount of a market's eligible issues must total at least USD 50 billion, EUR 40 billion, and JPY 5 trillion for the market to be considered eligible for inclusion.</p> <p>Exit: When the outstanding amount of a market's eligible issues falls below half of all the entry-level market size criteria, namely USD 25 billion, EUR 20 billion, and JPY 2.5 trillion, for three consecutive months, the market will be removed from the next month's profile.</p>
Minimum Issue Size	<p>Americas Canada: CAD 2.5 billion (excludes Bank of Canada Cash Management bond buybacks) Mexico: MXN 10 billion United States: USD 5 billion public amount outstanding (excludes Federal Reserve holdings)</p> <p>Europe, Middle East, and Africa Denmark: DKK 20 billion EMU Markets: EUR 2.5 billion Norway: NOK 20 billion Poland: PLN 5 billion South Africa: ZAR 10 billion Sweden: SEK 25 billion Switzerland: CHF 4 billion United Kingdom: GBP 2 billion (excludes Bank of England holdings)</p> <p>Asia Pacific and Japan Australia: AUD 750 million Japan: JPY 500 billion; 20+ year bonds: JPY 450 billion (excludes Bank of Japan holdings and Ministry of Finance buybacks) Malaysia: MYR 4 billion Singapore: SGD 1.5 billion</p>

⁵⁴ The actual GDP and Debt-to-GDP ratios for the previous calendar year are published each year, generally in April, by the International Monetary Fund (IMF) in its World Economic Outlook (WEO).

⁵⁵ Due to the structure of the South African three-legged instruments, the minimum maturity for R186 (10.50%, 12/21/2026), R2044 (8.75%, 01/31/2044), and R2048 (8.75%, 02/28/2048) is one year based on the first maturity date and the three legs from the split of R186, R2044, and R2048 will not be eligible for index inclusion. By convention, the stated maturity date of a three-legged bond is the middle maturity date.

Figure 120 DCWGBI Design Criteria, continued

Minimum Credit Quality ⁵⁶	Entry: A- by S&P and A3 by Moody's, for all new markets Exit: Below BBB- by S&P and Baa3 by Moody's
Barriers-to-Entry	Entry: A market being considered for inclusion should actively encourage foreign investor participation and show a commitment to its own policies. Exit: Circumstances can change over time and a country may find that revising its policies makes sense for its national welfare. However, it is possible that new policies, including but not limited to ownership restrictions and capital controls, can have the effect of limiting investors' ability to replicate the returns of that country's portion of the index. In that case, it may be necessary to remove that country from the index. If barriers-to-entry are identified, an announcement will be made that the particular market has become ineligible, stating the reasons. That market will then be removed from the following month's profile.
Composition	Sovereign debt denominated in the domestic currency. Securities included: Fixed-rate non-callable bonds - unless otherwise stated in Figure 122. For EMU Markets, fixed-rate bonds originally issued in their euro-converting currency are included. Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index-linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 122.

Figure 121 DCWGBI Calculation Methodology

Weighting	Individual country weights are determined monthly based on each country's market value adjusted by scores derived from its actual Debt-to-GDP and calculated Debt Service-to-GDP ratios, both determined annually in May. ⁵⁷ For more information, please see the Weighting Methodology section.
Rebalancing	Once a month at the end of the month
Reinvestment of Cash Flow	At daily average of local currency one-month Euro Deposit rate, except for Australia where the dollar bank bill swap reference rate (BBSW) is used. Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Citi trader pricing except for Malaysia (provided by Amanah Butler and Affin), Mexico (provided by Proveedor Integral de Precios S.A. de C.V.), Poland (provided by BondSpot), Singapore (provided by the Monetary Authority of Singapore), and Switzerland (provided by Swiss Exchange). All pricing is generally taken as of local market close. For more information on local market close, refer to Figure 2.
Calculation Frequency	Daily
Settlement Date	Monthly: Settlement is on the last calendar day of the month. Daily: Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Fixing Date	Each month, the upcoming month's index constituents are "fixed" on the profile fixing date. Each year's scheduled fixing dates are published on the Citi Fixed Income Indices website.
Base Date	May 31, 2004

⁵⁶ Each month, the upcoming month's Index constituents are "fixed" on the profile fixing date. The credit qualifications of the index are treated as provisional, in order to give market participants time to react to last-minute downgrades. A market will be removed from the index after the fixing if it becomes rated below investment-grade by both S&P and Moody's. This exception window is kept open until 5:00 p.m. New York time on the second to last business day of the month for removal only. Removal from the index, on or after the fixing date, is not reversible except by qualifying for the index once again, which takes a minimum of six months. There is no specific rule concerning default or what constitutes default. Conceivably, a market could technically default, but an immediate rescue could leave its existing bonds in the investment-grade category. Only a downgrade to below investment-grade would trigger a credit-related expulsion from the index.

⁵⁷ The actual GDP and Debt-to-GDP ratios for the previous calendar year are published each year, generally in April, by the International Monetary Fund (IMF) in its World Economic Outlook (WEO).

WEIGHTING METHODOLOGY

Individual country weights are determined monthly based on each country's market value adjusted by scores derived from its actual Debt-to-GDP and calculated Debt Service-to-GDP ratios, both determined annually in May.⁵⁸ Within each country, constituents are assigned weights in proportion to their market capitalization.

A country's actual GDP and Debt-to-GDP ratios for the previous calendar year are published each year, generally in April, by the International Monetary Fund (IMF) in its World Economic Outlook (WEO). The country's Debt Service-to-GDP ratio is computed by taking the forecasted debt payment, as represented by the principal and coupon payments due over the coming twelve months for the country's relevant bonds in the WGBI, and dividing such forecast by the country's GDP. The forecasted debt payment is computed every May by reviewing the twelve monthly index bond composition lists since last June, determining the principal and coupon payments corresponding to the bonds that were included in those twelve historical composition lists which are due to pay within the year to come and summing up such payments after converting each of them to USD terms at the prevailing FX rates. Both Debt-to-GDP and calculated Debt Service-to-GDP ratios are determined annually in May, following the IMF publication, and are used in the calculation of the index country weights in its twelve monthly profiles thereafter.

The Debt-to-GDP and calculated Debt Service-to-GDP ratios of each country are converted into weights with lower ones assigned to the country that is more heavily indebted or with higher expected payments to service outstanding debts as a percentage of its GDP. The final weight of each country is determined as the weighted average of: i) the country's market value weight; ii) its Debt-to-GDP based weight, and iii) its Debt Service-to-GDP based weight.

Figure 122 DCWGBI Composition

DCWGBI Markets	Security Type
Australia	Excludes tax rebate bonds
Austria	Includes Bundesanleihen Excludes Bundesobligationen bonds
Belgium	N/A
Canada	N/A
Denmark	Excludes mortgage credit bonds
Finland	Excludes sinking fund, putable, extendable, housing fund and yield bonds
France	Includes Obligations Assimilables du Trésor (OATs) and Bons du Trésor à Intérêt Annuel Normalisé (BTANs)
Germany	Includes Bundesrepublik, Schatzanweisungen, Bundesobligationen, Unity bonds, Treuhandanstalt, and Treuhandobligationen Excludes Schuldscheine, Unverzinsliche, Bundespost, Bundesbahn, and European Recovery Program Bonds
Ireland	N/A
Italy	Includes Buoni del Tesoro Poliennale (BTPs)
Japan	Includes callable bonds Excludes JGBs for individuals and discount bonds
Malaysia	Includes callable bonds Excludes Government Investment Issues (GII)
Mexico	Excludes bonds issued prior to January 1, 2003
Netherlands	N/A
Norway	Includes benchmark bonds Excludes loans and lottery loans issued before 1991
Poland	N/A
Singapore	N/A
South Africa	Excludes zero-coupon bonds
Spain	Includes Bonos and Obligaciones del Estado Excludes discount bonds (Letras and Pagares del Tesoro)
Sweden	Includes Riksobligationer

⁵⁸ The actual GDP and Debt-to-GDP ratios for the previous calendar year are published each year, generally in April, by the International Monetary Fund (IMF) in its World Economic Outlook (WEO).

Figure 122 DCWGBI Composition, continued

DCWGBI Markets	Security Type
Switzerland	Includes callable bonds Excludes book liabilities
United Kingdom	Includes callable, partly paid, and convertible (into other gilt issues) bonds Excludes rump gilts and perpetuals (undated)
United States	Includes callable bonds

Figure 123 DCWGBI Event Summary

Year	Monthly Highlight
2014	November: The Debt Capacity World Government Bond Index is introduced and includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Malaysia, Mexico, Netherlands, Norway, Poland, Singapore, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States.

The construction of DCWGBI is based on the same events that mark the World Government Bond Index (WGBI). For more details, please refer to Figure 9.

Related Indices

WORLD GOVERNMENT BOND INDEX

The World Government Bond Index (WGBI) measures the performance of fixed-rate, local currency, investment grade sovereign bonds. It consists of countries that meet specific criteria for market size, credit quality, and barriers-to-entry. The WGBI is a widely used benchmark that currently comprises sovereign debt from over 20 countries, denominated in a variety of currencies. The index provides a broad market value weighted benchmark for the global sovereign fixed income market.

Access Information and Related Publications

Index data is available on the Citi Fixed Income Indices website (www.yieldbook.com/citi-indices), The Yield Book, as well as data and analytic vendors and financial news organizations (for a full list, please see appendix).

Figure 124 Tickers for Debt Capacity World Government Bond Index

Ticker	Index
SBDWU	Debt Capacity World Government Bond Index, in USD terms
SBDWE	Debt Capacity World Government Bond Index, in EUR terms
SBDWY	Debt Capacity World Government Bond Index, in JPY terms
SBDWG	Debt Capacity World Government Bond Index, in GBP terms

Citi RAFI Sovereign Developed Markets Bond Index Series

Sovereign | Multi-Currency

The Citi RAFI Sovereign Developed Markets Bond Index Series seeks to reflect exposure to the government securities of a universe of 23 developed markets. By weighting components by their fundamentals, the indices aim to represent each country's economic footprint, which is correlated to the country's ability to service its debt.

The Citi RAFI Sovereign Developed Markets Bond Index Master includes all debt instruments that qualify for inclusion under the Citi Fixed Income Indices rules. Because the Master Index includes more securities than can be readily replicated in an investable portfolio, the Citi RAFI Sovereign Developed Markets Bond Index Liquid selects a reduced number of bonds to provide the country and duration exposures of the Master Index in a replicable portfolio. The following describes the rules and processes to create and calculate these indices.



Design Criteria and Calculation Methodology

CITI RAFI SOVEREIGN DEVELOPED MARKETS BOND INDEX MASTER

The Citi RAFI Sovereign Developed Markets Bond Index Master includes specific government markets tracked by Citi. To be included in the Citi RAFI Sovereign Developed Markets Index Master, countries must have an investment-grade domestic sovereign debt rating by either S&P or Moody's. An individual country's removal from the index due to rating follows the methodology for Citi's fixed income indices, outlined in section 2 of this publication.

The eligibility of the countries is verified annually in August based on the data available by July 31 (Country Selection Cut-Off Date). Changes become effective on September 30. The list of eligible countries is published on August 31. The bond-specific eligibility rules for each country are outlined in figures 125 and 126.

[Eligible countries as of September 30, 2014](#)

Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Korea, the Netherlands, New Zealand, Norway, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Figure 125 Citi RAFI Sovereign Developed Markets Bond Index Master Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year
Minimum Issue Size	Australia: AUD 750 million Canada: CAD 2.5 billion (excludes Bank of Canada Cash Management bond buybacks) Czech Republic: CZK 15 billion Denmark: DKK 20 billion EMU Markets: EUR 2.5 billion Israel: ILS 5 billion Korea: KRW 1 trillion Japan: JPY 500 billion; 20+ year bonds: JPY 450 billion (excludes Bank of Japan holdings and Ministry of Finance buybacks) New Zealand: NZD 750 million Norway: NOK 20 billion Singapore: SGD 1.5 billion Sweden: SEK 25 billion Switzerland: CHF 4 billion United Kingdom: GBP 2 billion (excludes Bank of England holdings) United States: USD 5 billion public amount outstanding (excludes Federal Reserve holdings)
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's
Composition	Sovereign debt denominated in the domestic currency. Securities included: Fixed rate non-callable bonds - unless otherwise stated in Figure 126. For EMU Markets, fixed-rate bonds originally issued in their euro-converting currency are included. Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index-linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements. For more information on market specific security types, refer to Figure 126.

Figure 126 Citi RAFI Sovereign Developed Markets Bond Index Composition

Markets	Security Type
Australia	Excludes tax rebate bonds
Austria	Includes Bundesanleihen Excludes Bundesobligationen bonds
Belgium	N/A
Canada	N/A
Czech Republic	Excludes zero-coupon bonds
Denmark	Excludes mortgage credit bonds
Finland	Excludes sinking fund, putable, extendable, housing fund and yield bonds
France	Includes Obligations Assimilables du Trésor (OATs) and Bons du Trésor à Intérêt Annuel Normalisé (BTANs)
Germany	Includes Bundesrepublik, Schatzanweisungen, Bundesobligationen, Unity bonds, Treuhandanstalt, and Treuhandobligationen Excludes Schuldscheine, Unverzinsliche, Bundespost, Bundesbahn, and European Recovery Program Bonds
Ireland	N/A
Israel	N/A
Italy	Includes Buoni del Tesoro Poliennale (BTPs)
Japan	Includes callable bonds Excludes JGBs for individuals and discount bonds
Korea	Excludes Monetary Stabilization Bonds and 10-Year securities issued prior to January 1, 2003
Netherlands	N/A
New Zealand	N/A

Figure 126 Citi RAFI Sovereign Developed Markets Bond Index Composition, continued

Markets	Security Type
Norway	Includes Benchmark bonds Excludes loans and lottery loans issued before 1991
Singapore	N/A
Spain	Includes Bonos and Obligaciones del Estado Excludes discount bonds (Letras and Pagares del Tesoro)
Sweden	Includes Riksobligationer
Switzerland	Includes callable bonds Excludes book liabilities
United Kingdom	Includes callable, partly paid, and convertible (into other gilt issues) bonds Excludes rump gilts and perpetuals (undated)
United States	Includes callable bonds

Figure 127 Citi RAFI Sovereign Developed Markets Bond Index Master Calculation Methodology

Weighting	The weights for each country are determined once per year based on the RAFI methodology. For more information, please see Weighting Methodology section.
Rebalancing	Monthly: See Monthly Reconstitution section.
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, except for Australia Australia: Australia dollar bank bill swap reference rate (BBSW). Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Citi trader pricing except for Israel (provided by Tel Aviv Stock Exchange), Singapore (provided by Monetary Authority of Singapore), and Switzerland (provided by Swiss Exchange). All pricing is generally taken as of the local market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Base Date	September 30, 2001

WEIGHTING METHODOLOGY

The weights for each country are determined once per year based on the RAFI methodology. Weights are based on country fundamentals rather than the amount of debt outstanding. The weights for each country are determined on August 31 and become effective on September 30. The Master Index rebalances to these weights once per year on September 30.

The eligible constituents for each country are defined on a monthly basis as indicated in the general methodology for Citi's fixed income indices, outlined in Section 2 of this publication. The aggregate country weight, determined by the RAFI methodology, is applied to all bonds that qualify for inclusion from that country.

Each country is weighted by a combination of that country's GDP, population, land area, and energy use. Research Affiliates gathers data for GDP (converted to a common currency using purchasing power parity), population, and land area (scaled by taking the square root of each value) from the World Bank, and data for energy consumption from the British Petroleum Statistical Use of World Energy Report. Research Affiliates uses five-year lagged average values for each of these metrics as the input for the country weights and then constructs four series of weights, one for each metric. The country weight in each of these is the proportion of that country's GDP (or population, land area, energy use) to the aggregate GDP (population, land area, energy use) across all countries in the index. The composite RAFI weight for each country is determined by taking the equally weighted average of each country's weights across the four metrics.

As a final step, portfolio weights are modified via exponentiation to reduce concentration risk. In particular, each weight is raised to the same exponent whose value is between 0 and 1 and resulting weights are renormalized so that their sum is again 1. If the exponent were 1, the weights would be unchanged. If the exponent were 0, every new weight would be 1 and the resulting index would be equally weighted. The current exponent has been fixed since inception of the Citi RAFI index and no change is expected unless there is a significant change in the number of issuers. If the number of issuers were to change, concentration may increase or decrease making it desirable to change the exponent from its current value.

MONTHLY RECONSTITUTION

Several events can trigger a monthly reconstitution of a country’s bonds: coupon flows, new issuance of eligible bonds, bonds aging out of the index, and other events that eliminate certain bonds, like a drop in the amount outstanding below the index threshold caused by government buybacks.

At the end of every month, a country’s market value is determined by multiplying the par amounts by the full prices of the bonds, and adding in any coupons received or other proceeds. The relative performance of the various countries likely results in a realignment of country weights away from the annually-specified RAFI weights. Unless this is an annual reconstitution, the ending market value of each country becomes the beginning market value for that country in the following month. The par amount and market value for the bonds in the country will be re-scaled based on its market capitalization weight to reflect the new weight of the country on a pro-rata basis.

Figure 128 Citi RAFI Sovereign Developed Markets Bond Index Event Summary

Year	Monthly Highlight
2014	October: Czech Republic joins the Citi RAFI Sovereign Developed Markets Bond Index Series. The pricing source and closing time for Singapore government bonds become the following: Singapore, 4:30 p.m. (Singapore), bid price from Monetary Authority of Singapore
2012	January: The Citi RAFI Sovereign Developed Markets Bond Index Series is introduced and includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, United Kingdom, and United States. October: Portugal exits the Citi RAFI Sovereign Developed Markets Bond Index Series.
	The Citi RAFI Sovereign Developed Markets Bond Index Series is introduced in 2012 with over 10 years of history. Since the Series’ base date (September 30, 2001) the following events marked its history:
2011	October: Israel joins the Series
2010	October: Greece exits the Series
2009	October: Korea joins the Series
2005	October: Singapore joins the Series
2001	October: Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and United States join the Series.

Related Indices

CITI RAFI SOVEREIGN DEVELOPED MARKETS BOND INDEX LIQUID

The Liquid Index is a subset of bonds and aims to replicate the return and duration of the Citi RAFI Sovereign Developed Markets Bond Index Master. The Liquid Index follows the methodology previously outlined in the Master Index construction rules for pricing, settlement, exchange rates, and returns calculations. The Liquid Index differs from the Master Index in that it is reconstituted annually. Citi and Research Affiliates meet annually to review the bond selection criteria (and in unusual circumstances, select the specific bonds) that are announced on September 30.

ELIGIBILITY AND SELECTION CRITERIA

An issue is eligible (both to enter and to remain in the index) if it satisfies the following criteria:

- It is a constituent of the Citi RAFI Sovereign Developed Markets Bond Index Master.
- Its maturity exceeds 1 year and 11 months at the annual reconstitution.

ANNUAL RECONSTITUTION - ISSUE SELECTION CRITERIA

Group A: Canada, France, Germany, Italy, Japan, UK, US

For each country in Group A, four bonds are selected from eligible bonds to match the weight of the 1-3 years, 3-7 years, and 7+ years maturity sectors in the Master Index. The weight is shifted between the two longest bonds such that the duration of the country in the Liquid Index equals to the duration of the country in the Master Index.

Group B: all other markets

For each country in Group B, one short- and one long-maturity bond are selected from the eligible bonds. The bonds are assigned weights such that the duration of the country in the Liquid Index equals to the duration of the country in the Master Index.

MONTHLY REBALANCE

At the end of each month, if the duration of the country in the Liquid Index differs from the duration of the country in the Master Index by more than 0.25, the appropriate weight is shifted between the shortest bond and the longest bond in the country in such a way as to make the duration of the country in the Liquid Index equal the duration of the country in the Master Index. If this would result in a negative weight assigned to one of the bonds, such bond is assigned a weight of zero, instead. Cash is invested in the bonds in proportion to their month-end values.

WEIGHTING METHODOLOGY

On an annual basis, the sum of the market values of the issues in each country, divided by the sum of the market values in all countries, is set to match the RAFI percentage weights defined on September 30 of each year.

Access Information and Related Publications

For more information about the Citi RAFI Bonds Index Series, please go the Citi RAFI Bonds Index Series section of the Yield Book website (www.yieldbook.com/m/indexes/citi-rafi-bond-index-series), the Research Affiliates website (www.researchaffiliates.com), The Yield Book, and Citi VelocitySM.

Figure 129 Tickers for Citi RAFI Sovereign Developed Markets Bond Index Master and Liquid

Ticker	Index
CRFDMU	Citi RAFI Sovereign Developed Markets Bond Index Master, in USD terms
CRFDU	Citi RAFI Sovereign Developed Markets Bond Index Liquid, in USD terms

Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series

Sovereign | Multi-Currency

The Citi RAFI Emerging Markets Local Currency Bond Index Series seeks to reflect exposure to the government securities of a universe of 15 emerging markets. By weighting components by their fundamentals, the indices aim to represent each country's economic footprint, which is correlated to the country's ability to service its debt.

The Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master includes all debt instruments that qualify for inclusion under the Citi Fixed Income Indices rules.

The design criteria reflect Citi Fixed Income Indices' methodology of classifying a country to be "emerging". A country is classified to be "emerging" if it is defined by the International Monetary Fund (IMF) World Economic Outlook to be among "emerging and developing economies", or if it is defined by the World Bank (WB) to be among "low-income economies" or "lower-middle income economies" or "upper-middle-income economies".

Because the Master Index includes more securities than can be readily replicated in an investable portfolio, the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Liquid selects a reduced number of bonds to provide the country and duration exposures of the Master Index in a replicable portfolio. The following describes the rules and processes to create and calculate these indices.



Design Criteria and Calculation Methodology

CITI RAFI SOVEREIGN EMERGING MARKETS LOCAL CURRENCY BOND INDEX MASTER METHODOLOGY

The Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master includes specific government markets tracked by Citi Fixed Income Indices. To be included in the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master, countries must have a domestic sovereign debt rating of at least C by S&P and Ca by Moody's. An individual country's removal from the index due to rating follows the methodology for Citi's fixed income indices.

The eligibility of the countries is verified annually in August based on the data available by July 31 (Country Selection Cut-Off Date). Changes become effective on September 30. The list of eligible countries is published on August 31. The bond specific eligibility rules for each country are outlined in figures 130 and 131.

[Eligible countries as of September 30, 2014](#)

Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, Thailand, and Turkey.

Figure 130 Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master Design Criteria

Stated Coupon	Fixed-rate
Minimum Maturity	At least one year ⁵⁹
Minimum Issue Size	Brazil: BRL 5 billion Chile: CLP 100 billion Colombia: COP 2 trillion Hungary: HUF 200 billion Indonesia: IDR 7.5 trillion Malaysia: MYR 4 billion Mexico: MXN 10 billion Peru: PEN 2 billion Philippines: PHP 45 billion Poland: PLN 5 billion Russia: RUB 25 billion South Africa: ZAR 10 billion Thailand: THB 25 billion Turkey: TRY 2 billion
Minimum Credit Quality	C by S&P and Ca by Moody's
Composition	Sovereign debt denominated in the domestic currency. Securities included: Fixed-rate and non-callable bonds - unless otherwise stated in Figure 131 Securities excluded: Variable rate, floating rate, fixed-to-floating rate, index linked, retail directed, bills, stripped zero coupon, convertibles, savings, and private placements For more information on market specific security types, refer to Figure 131

Figure 131 Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Composition

Markets	Security Type
Brazil	Excludes LTNs
Chile	N/A
Colombia	Excludes Tes Control Monetario (TCM) bonds
Hungary	N/A
Indonesia	Excludes Recapitalization bonds and Sukuk bonds
Malaysia	Includes callable bonds Excludes Government Investment Issues (GII)
Mexico	Excludes Bonds issued prior to January 1, 2003
Peru	N/A
Philippines	Excludes zero-coupon bonds and special purpose bonds
Poland	N/A
Russia	Includes fixed-rate bullet federal government bonds (OFZ-PD) only
South Africa	Excludes zero-coupon bonds
Thailand	Excludes bonds with maturity tenor greater than 30 years at issuance
Turkey	N/A

⁵⁹ Due to the structure of the South African three-legged instruments, the minimum maturity for R186 (10.50%, 12/21/2026), R2044 (8.75%, 01/31/2044), and R2048 (8.75%, 02/28/2048) is one year based on the first maturity date and the three legs from the split of R186, R2044, and R2048 will not be eligible for index inclusion. By convention, the stated maturity date of a three-legged bond is the middle maturity date.

Figure 132 Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master Calculation Methodology

Weighting	The weights for each country are determined once per year based on the RAFI® methodology. For more information, please see Weighting Methodology section.
Rebalancing	Monthly: See Monthly Reconstitution section.
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate
Pricing	Citi trader pricing except for Chile (provided by Banco de Chile), Malaysia (provided by Amanah Butler and Affin), Mexico (provided by Proveedor Integral de Precios S.A. de C.V.), and Poland (provided by BondSpot). All pricing is generally taken as of market close.
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Base Date	September 30, 2011

WEIGHTING METHODOLOGY AND MONTHLY RECONSTITUTION

See weighting methodology and monthly reconstitution for Citi RAFI Sovereign Developed Markets Bond Index Master on pages 129-130.

Figure 133 Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Event Summary

Year	Monthly Highlight
2014	October: Czech Republic is removed from the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series in accordance with Citi’s new emerging market classification. The pricing source and closing time for Malaysian and Polish government bonds become the following: Malaysia, 5:00 p.m. (Kuala Lumpur), average bid price from brokers Amanah Butler and Affin Poland, 4:30 p.m. (Warsaw), 2nd fixing bid price from BondSpot
2013	October: Russia joins the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series.
2012	January: The Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Series is introduced and includes Brazil, Chile, Colombia, Czech Republic, Hungary, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, South Africa, Thailand, and Turkey. The Series is introduced with 3 months of history. These markets have been part of the index since its base date (September 30, 2011).

Related Indices

CITI RAFI SOVEREIGN EMERGING MARKETS LOCAL CURRENCY BOND INDEX LIQUID

The Liquid Index is a subset of bonds that aims to replicate the return and duration of the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master. The Liquid Index follows the methodology previously outlined in the Master Index construction rules for pricing, settlement, exchange rates, and returns calculations. The Liquid Index differs from the Master Index in that it is reconstituted annually. Citi and Research Affiliates meet annually to review the bond selection criteria (and in unusual circumstances, select the specific bonds) that are announced on September 30.

ELIGIBILITY AND SELECTION CRITERIA

An issue is eligible (both to enter and to remain in the index) if it satisfies the following criteria:

- It is a constituent of the Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master.
- Its maturity exceeds 1 year and 11 months at the annual reconstitution.

ANNUAL RECONSTITUTION – ISSUE SELECTION CRITERIA

Due to the evolving nature of the emerging countries' capital markets the bond selection is necessarily specific to the country's issuance pattern. The bonds are selected based on feedback on their liquidity and any trading restrictions. The selection rules will be revisited nearer the annual reconstitution to assess the changing issuance patterns and market structure.

Group A: Indonesia, Mexico, Russia

For each country in Group A, one short-, one medium-, and one long-term bond is selected from the eligible universe. The short- and long-term bonds are assigned weights such that the duration of the country in the Liquid Index equals the duration of the country in the Master Index. The weight of the medium-term bond is set to reflect the weight of the middle maturity bucket of that country in the Master Index. The middle maturity bucket may vary by country, depending on tenors of that country's issues.

Group B: Brazil, Chile, Colombia, Hungary, Malaysia, Peru, Philippines, Poland, South Africa, Thailand, Turkey

For each country in Group B, one short-, and one long-term bond is selected from the eligible universe. The bonds are assigned weights such that the duration of the country in the Liquid Index equals the duration of the country in the Master Index.

MONTHLY REBALANCE

At the end of each month, if the duration of the country in the Liquid Index differs from the duration of the country in the Master Index by more than 0.25, the appropriate weight is shifted between the shortest bond and the longest bond in the country in such a way as to make the duration of the country in the Liquid Index equal that of the Master Index. If this would result in a negative weight assigned to one of the bonds, such bond is assigned a weight of zero, instead. Cash is invested in the bonds in proportion to their month-end values.

WEIGHTING METHODOLOGY

On an annual basis, the sum of the market values of the issues in each country, divided by the sum of the market values in all countries is set to match the RAFI percentage weights defined on September 30 of each year.

Access Information and Related Publications

For more information about the Citi RAFI Bonds Index Series, please go to the Citi RAFI Bonds Index Series section of the Yield Book website (www.yieldbook.com/m/indexes/citi-rafi-bond-index-series), the Research Affiliates website (www.researchaffiliates.com), The Yield Book, and Citi VelocitySM.

Figure 134 Tickers for Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master and Liquid

Ticker	Index
CRFELMU	Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Master, in USD terms
CRFEMLU	Citi RAFI Sovereign Emerging Markets Local Currency Bond Index Liquid, in USD terms

Citi RAFI World Corporate Investment-Grade Bond Index

Credit | Multi-Currency

The Citi RAFI World Corporate Investment-Grade Bond Index weights a company's debt according to fundamental measures of the company's debt service capacity rather than solely on the amount of debt outstanding, providing an alternative approach to investable fixed income indices.

For the Citi RAFI World Corporate Investment-Grade Bond Index, cash flow and long-term assets have been chosen as the basis for the fundamental size of a company's debt service capacity.

Cash flow is a direct measure of the funds available to service debt. Long-term assets are a measure of the value supporting the contingent claim underlying the long term debt issues. Relative to market value weighted indices, cash flow weighting generally tilts an index toward higher debt coverage, and long-term assets weighting lowers an index's aggregate leverage.

The following describes the rules and processes to create and calculate the index.



Design Criteria and Calculation Methodology

The Citi RAFI World Corporate Investment-Grade Bond Index includes a subset of corporate bonds in Citi's World Broad Investment-Grade Bond Index and Citi's Australian Broad Investment-Grade Bond Index.

The bond-specific design criteria and calculation assumptions are outlined in Figure 135.

Figure 135 Citi RAFI World Corporate Investment-Grade Bond Index Design Criteria

Stated Coupon	EUR, GBP, JPY, USD: Fixed-rate (excludes zero-coupon bonds) AUD: Fixed-rate and fixed-to-floating bonds
Currency	AUD, EUR, GBP, JPY, USD
Minimum Maturity	At least one year
Minimum Issue Size	AUD: 100 million EUR: 500 million or the equivalent for non-denominated bonds GBP: 300 million JPY: 50 billion USD: 500 million
Minimum Credit Quality	BBB- by S&P or Baa3 by Moody's
Redemption Features	Bullet, sinking fund, puttable, extendable, or callable

Figure 136 Citi RAFI World Corporate Investment-Grade Bond Index Calculation Methodology

Weighting	The weights for each country are determined once per year based on the RAFI methodology. For more information, please see Weighting Methodology section.
Rebalancing	Monthly. For more information, see Monthly Reconstitution section.
Reinvestment of Cash Flow	At daily average of local currency one-month Eurodeposit rate, except for AUD. AUD: Australia dollar bank bill swap reference rate (BBSW). Calculated from actual scheduled payment date of cash flow through end of reporting period.
Pricing	Primary: Citi trader pricing generally taken as of the local market close Supplementary: third-party sources, transaction-related information, proprietary pricing models
Calculation Frequency	Daily
Settlement Date	Monthly - Settlement is on the last calendar day of the month. Daily - Same day settlement except if the last business day of the month is not the last calendar day of the month; then, settlement is on the last calendar day of the month.
Base Date	March 31, 2012

WEIGHTING METHODOLOGY

The weights of the issuers will be determined once per year based on the RAFI® methodology. Weights are based on company fundamentals rather than solely on the amount of debt outstanding. The index rebalances to these weights once per year on September 30.

The eligible constituents are defined on a monthly basis as indicated in Citi’s general methodology for fixed income indices, outlined in a subsequent section of this document. Each bond is matched with an issuer for the purpose of calculating fundamental size. Each issuer is weighted by a combination of that issuer’s cash flow and long-term assets, as described below. The aggregate issuer weight applies to all the issuer’s bonds, which are individually weighted in proportion to the total market value of the securities that are determined to be constituents of that issuer.

The issuer’s factor score for cash flow is calculated as the average cash flow from up to five of the most recently available annual reporting periods. The long-term assets factor reflects the ability of the issuer to repay its long term debt, measured as the firm value of assets less the liabilities with claims senior to those of long term bondholders. An aggregate fundamental weight is calculated for each issuer by averaging the company’s normalized cash flow factor and normalized long-term assets factor. (Each factor has been normalized to sum to one across the company universe.) Research Associates also screens out issuers that are susceptible to downgrade risk from the starting universe of issuers, by allocating a weight of zero. Issuers that rank in the bottom 3% of companies by a combination of selected financial health ratios (working capital to total debt, cash flow to total debt, and sales to total debt) are considered more susceptible to downgrade risk.

As a final step, a capacity screen is applied whereby the fundamental weight of each issuer is reduced, if necessary, to maintain a maximum of 10% of the aggregate face value of the issuer when a notional value of \$100 billion is assumed to be invested in the index. The weights are then renormalized at the universe level to sum up to 100% by proportionately increasing the weights of the issuers which are not bound by the constraints. This process is repeated until the fundamental weights of all issuers in the index are within the maximum cap outlined above.

MONTHLY RECONSTITUTION

Several events can trigger a monthly reconstitution of a company’s bonds: coupon flows, new issuance of eligible bonds, bonds aging out of the index, and other events that eliminate certain bonds or issuers.

At the end of every month, an issuer’s market value is determined by multiplying the par amounts by the full prices of its bonds, and adding in any coupons received or other proceeds. The relative performance of the various issuers likely results in a realignment of issuers’ weights away from the annually-specified RAFI weights. Unless this is an annual reconstitution, the ending market value of each issuer becomes the beginning market value for that issuer in the following month. The par amounts and market values of the issuer’s bonds will be re-scaled proportionate to the securities’ aggregate market value to reflect the issuer’s new weight on a pro-rata basis.

The following four cases treat changes in security “ownership” and newly qualifying issues:

1. A newly qualifying security of an existing company: it will share the existing weight of the company by market value.
2. A newly qualifying security issued by a new company: it will be assigned an issuer’s weight as outlined in the weighting methodology section.
3. An existing company that is merged with another company already in the index: the weights of the two companies will be combined and treated as one.
4. A company that is merged with a company that is not already in the index: it will maintain its weight in the index and be deemed not to have merged.

Figure 137 Citi RAFI World Corporate Investment-Grade Bond Index Event Summary

Year	Monthly Highlight
2014	October: The weighting methodology for the Citi RAFI World Corporate Investment-Grade Bond Index is adjusted to account for capacity constraints of the bonds underlying the Index which, if and when triggered, could result in capping the weight of these bonds.
2013	November: The Citi RAFI World Corporate Investment-Grade Bond Index is introduced.

Access Information and Related Publications

For more information about the Citi RAFI Bonds Index Series, please go to the Citi RAFI Bonds Index Series section of the Yield Book website (www.yieldbook.com/m/indexes/citi-rafi-bond-index-series), the Research Affiliates website (www.researchaffiliates.com), The Yield Book, and Citi VelocitySM.

Figure 138 Tickers for Citi RAFI World Corporate Investment-Grade Bond Index

Ticker	Index
CRFWCIGU	Citi RAFI World Corporate Investment-Grade Bond Index, in USD terms
CRFWCIGE	Citi RAFI World Corporate Investment-Grade Bond Index, in EUR terms
CRFWCIGG	Citi RAFI World Corporate Investment-Grade Bond Index, in GBP terms

With respect to the portion of this Index Guide titled “Alternatively Weighted Indices:”

Citigroup Index LLC, a subsidiary of Citigroup Inc., and Research Affiliates, LLC have agreed to jointly create and distribute investable fixed income indices (the “Citi RAFI Bonds Index Series”) based on Research Affiliates’ patented Fundamental Index[®] methodology. All intellectual property, including trademarks, contributed by Research Affiliates, LLC and Citigroup Index LLC shall remain solely vested with the respective contributor.

All data and information contained herein (collectively, “Index Data”) is provided for informational purposes only. Reproduction of Index Data in any form is prohibited except with the prior written permission of Citigroup Index LLC and Research Affiliates, LLC. Although Index Data is believed to be reliable, neither Citigroup Index LLC or Research Affiliates, LLC make any representation as to the accuracy, adequacy, completeness or availability of Index Data and are not responsible for any errors or omissions or for the results obtained from the use of Index Data. BOTH CITIGROUP INDEX LLC AND RESEARCH AFFILIATES, LLC GIVE NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE. In no event shall Citigroup Index LLC or Research Affiliates, LLC be liable for any direct, indirect, special or consequential damages in connection with any use of Index Data.

Citi is a trademark and service mark of Citigroup Inc. or its affiliates and is used and registered throughout the world. The Yield Book is a registered service mark of The Yield Book Inc. and is registered in the U.S. and other countries. The trade names Fundamental Index[®], RAFI[®], and the Research Affiliates corporate name and logo are the exclusive intellectual property of Research Affiliates, LLC and are registered trademarks in the United States and other countries. Any use of Research Affiliates, LLC’s trade names and logos without the prior written permission of Research Affiliates, LLC is expressly prohibited and Research Affiliates, LLC reserves the right to take any and all necessary action to preserve all of its rights, title and interest in and to these marks. Various features of the Fundamental Index[®] methodology, including an accounting data-based non-capitalization data processing system and method for creating and weighting an index of securities, are protected by various patents, and patent-pending intellectual property of Research Affiliates, LLC. (See all applicable US Patents, Patent Publications, and Patent Pending intellectual property located at <http://www.researchaffiliates.com/Pages/legal.aspx#d>, which are fully incorporated herein.)

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Custom Indices



While Citi's fixed income indices are designed to appeal to a wide range of market participants, they can also be easily customized to meet the most specific investment needs or portfolio risk profiles.

The Yield Book Consulting Team offers bespoke solutions to clients' functional and specific requirements, from tailor-made risk analysis, customized reporting, and efficient data delivery to custom benchmark index creation.

A Wide Range of Customization Options

Figure 139 Customization Options

Dimension	Description
Sector	Government, Government Sponsored (agency, supranational, other) Collateralized (mortgage, asset-backed) Credit, and Corporate
Industry	Industrial (Consumer, Energy, Transportation, Manufacturing, Service, Other Industrial) Utility (Electric, Gas, Power, Telecom, Other Utility) Finance (Banking, Other Finance) For additional information on industry classification, please see appendix pages 155 and 156
Geography	Global, regional, country level
Weighting	Market capitalization, equal weighting, other bespoke rules-based methodology
Capping	Limit the weight of a market sector that might otherwise skew the risk exposure.
Partial Currency Hedging	For management of FX exposure. Benchmark returns can be expressed in unhedged, hedged, or partially hedged terms.
Exchange Rates	If, for example, a client has difficulty replicating currency exposure due to differences in geographical location and local market timing, we can create a benchmark that uses FX rates based on a different market closing time or data source.
Other	Maturity, issue size, and rating

Experience in Customizing Indices

Some indicative examples of past consulting projects for the creation of custom indices include:

GDP-WEIGHTED WORLD GOVERNMENT BOND INDEX

Objective: Create a custom benchmark that measures the performance of fixed-rate, local currency, investment-grade, sovereign bonds and that has an alternative weighting scheme.

Solution: The Yield Book Consulting Team created a custom benchmark that uses GDP values to calculate the weights for the individual countries that are included in the World Government Bond Index.

EURO BROAD INVESTMENT-GRADE CORPORATE 1-3 YEAR INDEX, EXCLUDING UTILITIES

Objective: Create a custom benchmark that has exposure to the Euro-denominated corporate market, but with limited exposure to certain industries and capped years to maturity.

Solution: A custom benchmark was created based on the EuroBIG Corporate 1-3 years Index. Per the client's specifications, the Yield Book Consulting Services Team excluded the Utilities sector to satisfy their benchmark needs.

WORLD BROAD INVESTMENT-GRADE BOND INDEX, EXCLUDING FNMA & FHLMC MBS, 50% HEDGED TO HKD

Objective: Create a custom benchmark that provides a broad-based measure of the global fixed income markets, having limited exposure to the US Mortgage Backed Securities sector. In addition, the benchmark has reduced exposure to foreign exchange rates.

Solution: The World Broad Investment-Grade Bond Index was modified by excluding Fannie Mae and Freddie Mac MBS securities. To reduce the exposure to foreign exchange rate changes, a 50% partial hedge was applied.

The Yield Book

The Yield Book is the trusted and authoritative source for fixed income analytics that enables market makers and institutional investors to perform complex and accurate portfolio analysis and risk management.



Accurate. Insightful. Efficient.

Our leading models are developed in collaboration with Citi research and strategy teams, and used by Citi's own traders.

The Yield Book products offer analytical insight into an extensive range of financial products in the fixed income space including Governments, Agencies, Corporates, High Yield, Emerging Markets, Mortgages, ABS, CMBS, CMOs, and Derivatives.

Powerful technology utilizing dedicated centralized servers ensures reliable, prompt data delivery.

Our global team of analysts and engineers provide training, analytics, usage, and technical support to customers around the world.

Client Focused

For over twenty years, we have built a track record of client engagement with a wide range of the largest and most sophisticated financial institutions including:

- 94% of the largest 50 U.S. fixed income money managers⁶⁰
- Investment management firms, banks, central banks, insurance companies, pension funds, and hedge funds
- A substantial number of U.S. broker-dealers, including many regional dealers⁶¹
- Institutions worldwide in North and Latin America, Japan and Asia-Pacific, Europe, and the Middle East

25

Million calculations every 24 hours

Trust

Trusted by both buy-side and sell-side professionals to perform complex and accurate calculations, The Yield Book is genuinely market-tested in the real world, in real time.

Commitment

Unwavering client commitment has driven our business since its inception in 1989. We put our clients in control with tools that work for them. We support them 24/7 with the highest level of personalized service.

⁶⁰ Source: Ranked by total fixed income assets under management by Institutional Investor, *The 2011 II 300 - America's Top 300 Money Managers*

⁶¹ Source: The Yield Book, based on New York Federal Reserve's list of primary dealers. Data as of May 2012

The Yield Book

Analyze portfolio positions, quantify risk, and identify drivers of performance with the help of a complete portfolio analytics solution

Analysis of Single Securities and Portfolios

- View the impact of trades in real time
- Evaluate the portfolio on an absolute basis or relative to a benchmark
- Extract and visualize the most important and relevant information using customized report templates

Scenario Analysis

- Generate cash flow and return projections based on user-defined shifts for interest rates, spreads, currencies, volatilities, and prepayments

Return Attribution

- Understand key drivers of total return using factors such as yield curve movements, spread changes, volatility fluctuations, and prepayments
- Customize sectors based on your portfolio structure, and evaluate sector and issue allocations
- Understand / evaluate effectiveness of currency hedging in multi-currency portfolios

Tracking Error and Value-at-Risk (VaR)

- Isolate and measure the components of risk and potential sources of return with a Monte Carlo simulation-based approach

Optimization

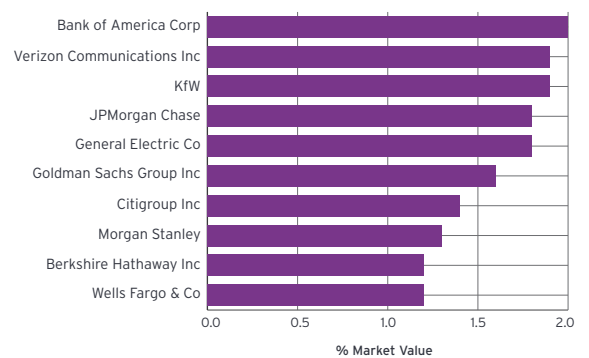
- Make informed decisions around trade weighting, portfolio optimization relative to a benchmark, hedging a portfolio, and more

Automation

- Base your analysis on up-to-date information; automated overnight processes update portfolios, analytics, and reports so that data from the previous market close is available at the start of each business day

Top 10 Credit Issuer Holdings (Sorted by Market Value)

Issuer	# Issues	Index Rating	% Market Value	\$ Duration	% \$ Duration	YTM
Bank Of America Corp	50	A-	2.0	52.40	1.5	2.63
Verizon Communications Inc	44	BBB+	1.9	94.67	2.7	3.82
KfW	28	AAA	1.9	39.00	1.1	1.32
JPMorgan Chase	44	A	1.8	49.88	1.4	2.60
General Electric Co	48	AA+	1.8	64.38	1.9	2.63
Goldman Sachs Group Inc	27	A-	1.6	49.11	1.4	3.01
Citigroup Inc	45	A-	1.4	41.59	1.2	2.85
Morgan Stanley	28	A-	1.3	34.58	1.0	2.82
Berkshire Hathaway Inc	95	A	1.2	53.80	1.6	3.00
Wells Fargo & Co	37	A+	1.2	39.31	1.1	2.60
Top 10 Issuers			16.1	518.72	14.9	2.71

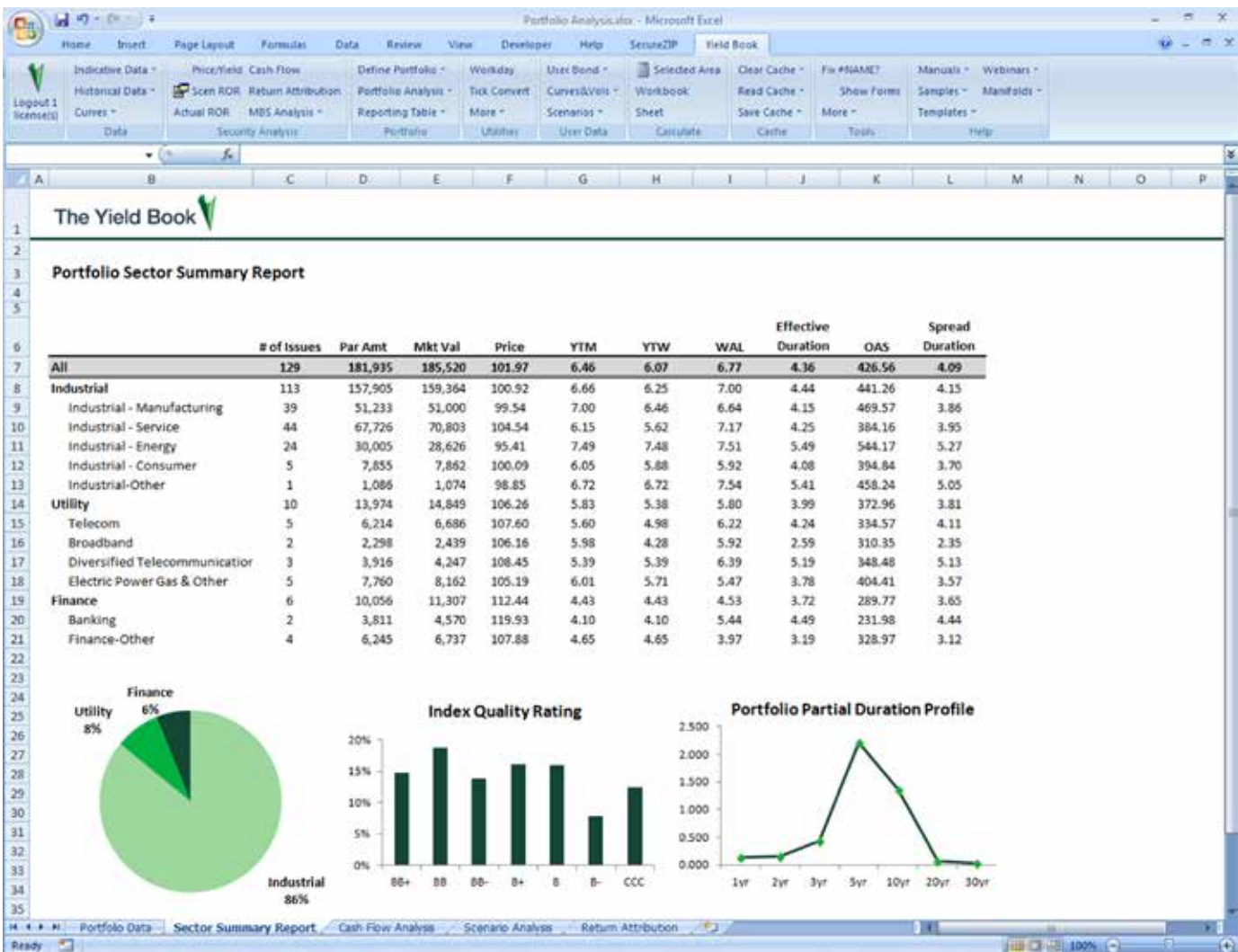


Source: The Yield Book Inc. Data as of December 2014

Yield Book Add-In

Bring the power of The Yield Book analytics into your familiar spreadsheet environment

- Leverage from the best of The Yield Book calculations and Microsoft Excel® functionality⁶²
- Simply start with a Yield Book template, or design your own worksheet
- Create charts and graphs in your worksheet based on The Yield Book analytics



Source: The Yield Book Inc. Hypothetical portfolio as of December 2014

⁶² Microsoft and Excel are trademarks of the Microsoft group of companies.

Yield Book Calculator

Analyze single securities using The Yield Book models and functionality

- Leverage The Yield Book models to examine bond characteristics and risk measures, scenario analysis results, projected cashflows, and historical trends
- Analyze single securities with this easy-to-use trading tool

FNMA12.1 PA
CUSIP: 3136A3TZ4

CMO Coupon: 2.2500 **FIX** Bond: **AD/PAC1** Principal: **REG**

Price/Yield Price

Pricing Setup Help

Auto P/Y Level: 98-29 Calculate

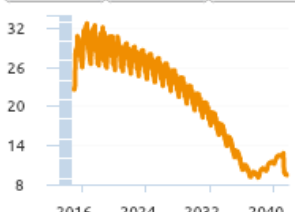
Volatility: LMM Skew Curve Date: LIVE

Prepay: Model (20) Settlement Date: MARKET

Curve: Swap USD

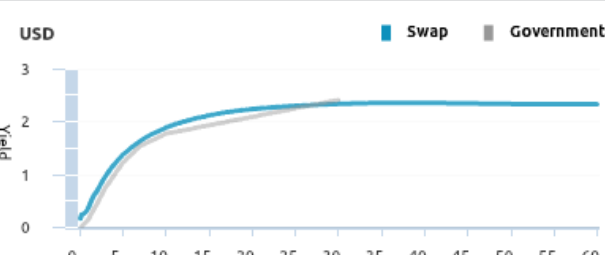
Tenor	0.25	0.50	1	2	3	5	10	20	30
Yield	0.253	0.264	0.370	0.684	0.972	1.370	1.886	2.236	2.333
Swap Spread	0.253	0.264	21.8	24.0	21.3	14.6	11.3	14.5	-7.7

Curve Detail

Prices		Settlement: 01/21/2015																									
Flat Price	98.906	Full Price	99.031																								
Yield	2.62188	Accrued Interest	0.12500																								
Nominal Measures		Option Model Measures Distribution																									
Spread	169.8	OAS	43																								
Duration	2.611	Effective Duration	5.240																								
Convexity	0.146	Effective Convexity	-1.722																								
WAL	2.833	Yield Curve Margin	118.9																								
DV01	0.0259	Effective DV01	0.0519																								
Prepayment Model Projection		Partial Measures																									
<div style="display: flex; justify-content: space-between; font-size: x-small;"> Summa... Detail Graph </div> 		<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th></th> <th>Duration</th> <th>DV01</th> </tr> </thead> <tbody> <tr><td>1 Year</td><td>0.10120</td><td>0.00100</td></tr> <tr><td>2 Year</td><td>0.16510</td><td>0.00164</td></tr> <tr><td>3 Year</td><td>0.37540</td><td>0.00372</td></tr> <tr><td>5 Year</td><td>1.23400</td><td>0.01222</td></tr> <tr><td>10 Year</td><td>1.95010</td><td>0.01931</td></tr> <tr><td>20 Year</td><td>1.20450</td><td>0.01193</td></tr> <tr><td>30 Year</td><td>0.18800</td><td>0.00186</td></tr> </tbody> </table>			Duration	DV01	1 Year	0.10120	0.00100	2 Year	0.16510	0.00164	3 Year	0.37540	0.00372	5 Year	1.23400	0.01222	10 Year	1.95010	0.01931	20 Year	1.20450	0.01193	30 Year	0.18800	0.00186
	Duration	DV01																									
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2 Year	0.16510	0.00164																									
3 Year	0.37540	0.00372																									
5 Year	1.23400	0.01222																									
10 Year	1.95010	0.01931																									
20 Year	1.20450	0.01193																									
30 Year	0.18800	0.00186																									

Additional Durations

Volatility Duration	0.110	CC Spread Duration	1.118
Spread Duration	3.521	Prepay	-0.023
Spread DV01	0.0349	Turnover	-0.011
Spread Convexity	0.299	Refinancing	-0.003
Z Spread Duration	-	Elbow Shift	0.011
Effective CV01	-0.0171		
Partial Vegas		Additional Measures	
Shift		Years to Maturity	26.761
1	0.00417	Convexity Effect	-76.028
2	0.00839	Effective Yield	1.677
3	0.04000	Effective WAL	4.302
4	0.03999	Forward WAL	3.34
5	0.01717	Forward Yield	2.573
		Window	02/2015-10/2041
		Annualized Yield	2.639



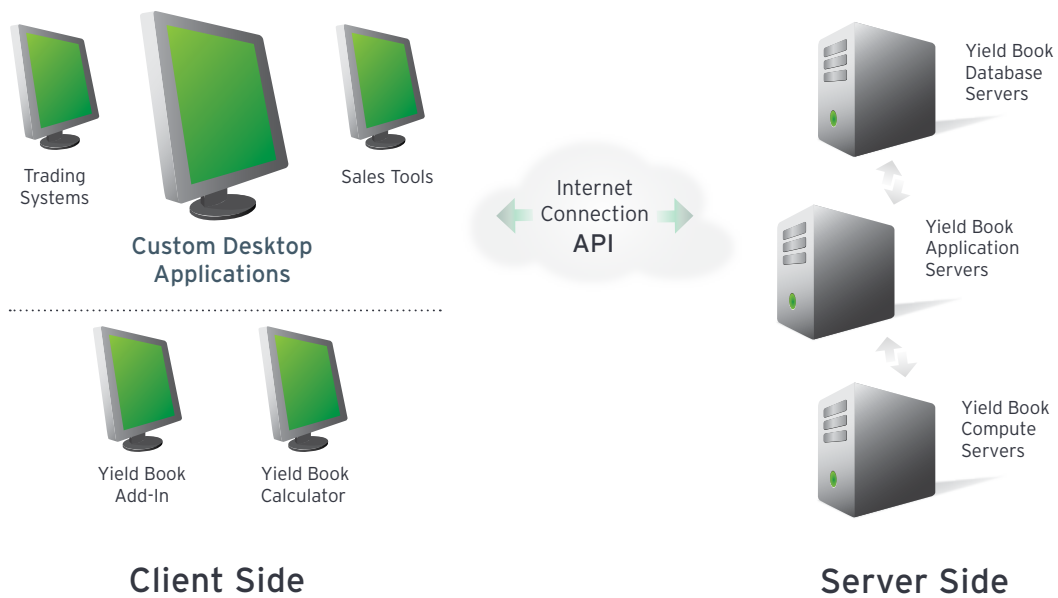
USD Legend: Swap (Blue), Government (Grey)

Source: The Yield Book Inc. Data as of December 2014

Yield Book API

Incorporate The Yield Book analytics and data into your own custom application

- Customize for use in real-time front office analytics, overnight risk processing, back office calculations, and more
- Communicate securely with The Yield Book servers 24/7
- Use XML format in your preferred programming environments that support internet connection



Source: The Yield Book Inc.

Appendix - Frequently Asked Questions

Where to Find Citi's Fixed Income Indices

1. Citi's fixed income indices are widely followed and broadly published:

- Index website (www.yieldbook.com/citi-indices)
- The Yield Book
- Citi VelocitySM (www.citivelocity.com)

2. Data and Analytic Vendors, and Investor Service Providers

Albridge Solutions	JP Morgan Chase Bank
AMC Co. Ltd.	KAS Bank N.V.
Apex Fund Services Ltd.	Library Information Services Limited
The Bank of New York Mellon Corporation	Mercer Investment Consulting
Barclays Capital - POINT	Mitsubishi Asset Brains Co., Ltd.
BlackRock Financial Management, Inc.	Mizuho Research Institute Ltd.
BNP Paribas Securities Services	Morningstar, Inc.
Citco Fund Services	MSCI Inc.
Citibank N.A. SFS	Nikko Financial Intelligence Inc.
Complementa Investment - Controlling AG	Nikko Global Wrap Ltd.
Confluence Technologies Inc.	Nomura Funds Research & Technologies Co., Ltd.
CoreOne Technologies - DeltaOne Solutions Inc.	Nomura Holdings Inc.
Daiwa Fund Consulting Co., Ltd.	Nomura Research Institute, Ltd.
Defined Contribution Plan Services Co., Ltd	The Northern Trust Custody Services
DPG	NTT Data ABIC Co., Ltd
eVestment Alliance	Orion Advisor Services, LLC
FactSet Research Systems	QUICK Corporation
fi360, Inc.	Rating & Investments Information, Inc.
FinAnalytica Inc.	RBC Dexia Investor Services Trust
Financial Express	Reuters Limited
FirstRate	RIMES Technologies Corporation
Fiserv Solutions, Inc.	Rockit Solutions LLC
GreenHill & Co., Inc.	SGSS Deutschland KAG mbH
Haver Analytics	SIX Financial Information Ltd.
HSBC Bank PLC	SMBC Nikko Securities Inc.
IIC Partners Co. Ltd	Societe Generale Securities Services S.p.A.
Index Universe, LLC	StatPro Group PLC
Informa Investment Solutions, Inc.	Strategic Financial Solutions Inc.
Interactive Data Corporation	Sumitomo Trust and Banking Co., Ltd.
Internationale Kapitalanlagegesellschaft mbH	Sungard Frontier Analytics
Investment Metrics, LLC	Sungard Shaw Data Services Inc.
Investor Force, Inc.	Tokio Marine & Nichido Ashin Company
Japan Pension Navigator	Towers Watson KK
Japan Trustee Services Bank, Ltd.	Trust & Custody Services Bank, Ltd.
Jiji Press Ltd.	vwd group Belgium NV

2. Data and Analytic Vendors, continued

Wells Fargo Advisors, LLC

Wilshire Associates Inc.

Windham Capital Management LLC

Zephyr Associates, Inc.

3. Financial News Organizations

Prominent Financial News Organizations including Bloomberg (go to SBI or SBBI page) and Reuters (go to CITIINDICES page) publish detailed information on Citi Fixed Income Indices.

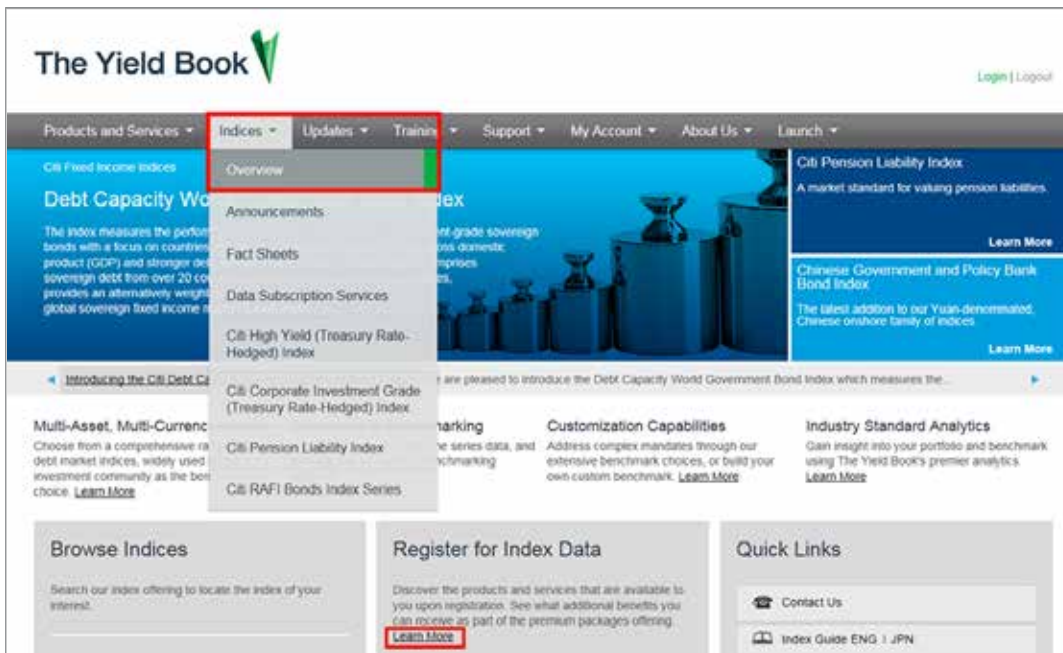
4. Independent Sources

One can also get extensive information from many independent sources. The level of data carried by these services varies from monthly sector level returns to details on the individual security holdings of each index. The level of detail and coverage is solely at the discretion of each representative vendor.

How to access Citi Fixed Income Indices Data (buy-side)

How to Register

1. Go to www.yieldbook.com.
2. Click "Indices" from the top navigation menu.
3. Select "Overview", then click "Learn More", under "Register for Index Data".
4. Click on "Register" at the bottom of this page.
5. Fill out your information and click "Next".



How to Register, continued

5. An email with a temporary password will be sent to you. Once you receive this email, click the link in the email. Enter the temporary password and create a new password. Then click "Continue".
6. To complete the registration process, review the End User License Agreement for Citigroup Fixed Income Index Data ("End User License Agreement") carefully.
7. Please note that your registration will be reviewed and further inquiry of your usage may be warranted to ensure that your intended usage is in line with the terms and conditions of the End User License Agreement.

The screenshot shows the registration page for Citi Fixed Income Index Data on The Yield Book. The page features a navigation bar with links for Products and Services, Indices, Updates, Training, Support, My Account, About Us, and Launch. A blue banner highlights the product name. Below the banner is a registration form with the following sections:

- Registration Form**
The data is being made available to qualified institutional investors only. Redistribution of the data is strictly prohibited. If you are not an institutional investor, please contact carol.sabia@citi.com (212-816-8535) for a copy of our commercial terms. These terms are generally applicable, but not limited, to all of the following types of firms:

Broker/Dealer	Data Redistributor
Analytics Provider	Reference Data Provider
Back Office Provider	Trust and Custody Provider
Data Consolidator	

Tell us about yourself. All * fields are required.
Alpha and numeric characters only, special characters are not allowed (e.g. >, ', ").

Please complete registration ...

First Name *

City *

Last Name *

State/Province

Title

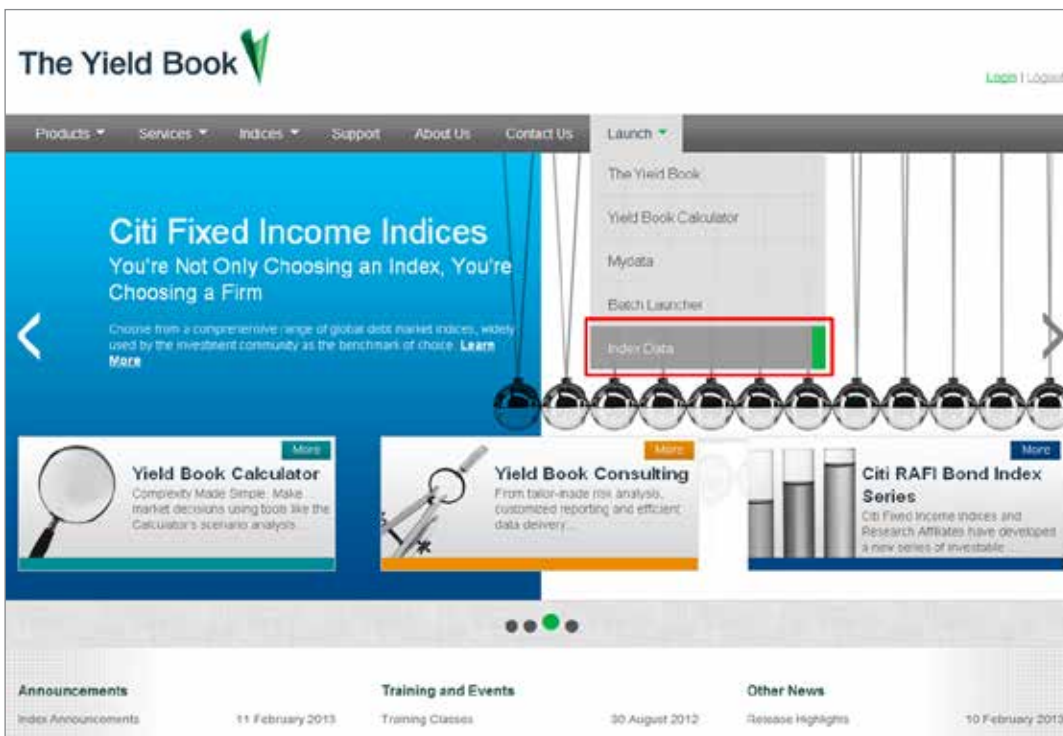
Zip/Postal Code

Company *

Country *

How to Access Index Data on Citi Fixed Income Indices Website

1. Once registered, go to www.yieldbook.com (For more information see question “How to Register” in this section).
2. Click “Launch” from the top navigation menu and select “Index Data” from the drop-down menu.
3. Insert your login and password details and click the “Login” button.
4. Select any index on the left hand side of the page. You will be directed to a page with index-specific publications including index monthly profiles, daily profiles and returns, issue and sector level data, and more.



How to Access Premium Issue-Level Data on Citi Fixed Income Indices Website

Please contact the Citi Fixed Income Indices Team:

The Americas	+1 212 816 0700 or fi.index@citi.com
EMEA	+44 20 7986 3200 or fi.index@citi.com
Asia Pacific	+852 2501 2358 or fi.index@citi.com
Japan	+81 3 6270 7225 or fi.index.tk@citi.com

How to Access Ticker Data (Sector-Level Data) on Bloomberg

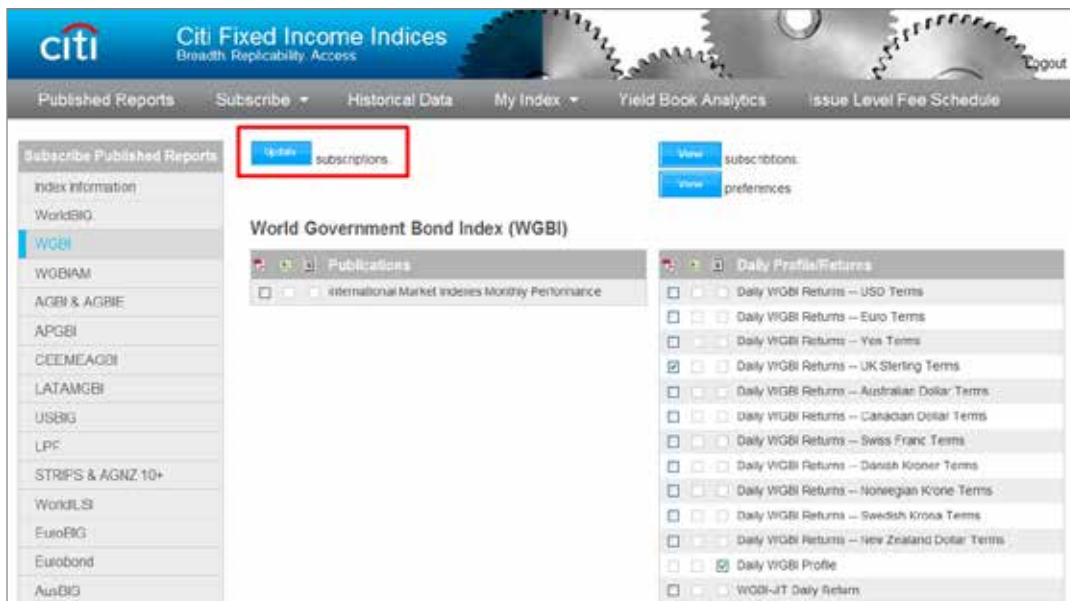
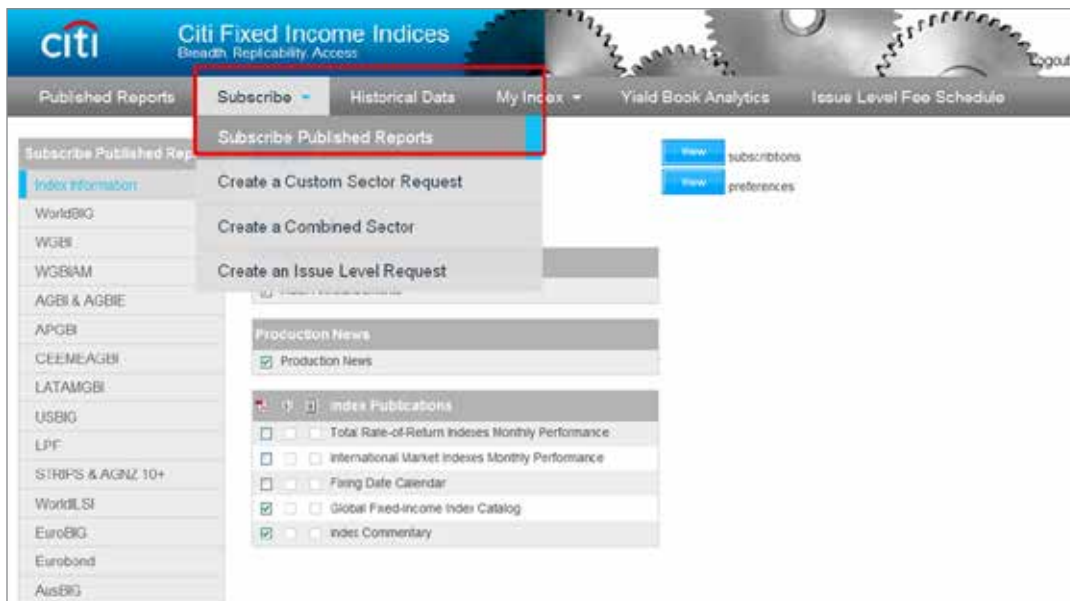
1. Go to www.yieldbook.com.
2. Click "Indices" and select "Overview". Then, click "Access our Indices on Bloomberg".
3. Save a copy of the completed form, appending your name to the file name.
4. Email the completed form to fi.index@citi.com.
5. Upon receipt we will review your application.

The screenshot displays the homepage of 'The Yield Book'. At the top left is the logo, and at the top right are 'Login' and 'Logout' links. A navigation bar contains 'Products and Services', 'Indices', 'Updates', 'Training', 'Support', 'My Account', 'About Us', and 'Launch'. The 'Indices' dropdown menu is open, showing 'Overview', 'Announcements', 'Fact Sheets', 'Data Subscription Services', 'Citi High Yield (Treasury Rate-Hedged) Index', 'Citi Corporate Investment Grade (Treasury Rate-Hedged) Index', 'Citi Pension Liability Index', and 'Citi RAFI Bonds Index Series'. The 'Overview' option is highlighted with a red box. Below the navigation bar, there are several index cards, including 'Debt Capacity World Government Bond Index' and 'Citi Pension Liability Index'. At the bottom, there are three main sections: 'Browse Indices' with a search bar, 'Register for Index Data', and 'Quick Links'. The 'Quick Links' section contains several buttons, with 'Access our Indices on Bloomberg' highlighted by a red box.

How to set up automatic subscriptions to index publications

How to Subscribe to Published Reports

1. To subscribe to our published reports, you need to be registered (for more information see question “How to Register” in this section).
2. Launch Index Data (for more information see question “How to Access Index Data on Citi Fixed Income Indices Website” in this section).
3. Click “Subscribe” from the top navigation menu. Then, select “Subscribe Published Reports” from the drop-down menu.
4. Select an index from the list on the left hand side.
5. Choose the reports you would like to receive on a daily or monthly basis and click “Update” subscriptions.



How to Create a Custom Sector Request

When you want to create a subscription that only contains the indices and keywords that you are interested in, you can set up a custom sector request:

1. Launch Index Data (for more information see question "How to Access Index Data on Citi Fixed Income Indices Website" in this section).
2. Click "Subscribe" from the top navigation menu. Then, select "Create Custom Sector Request" from the drop-down menu.
3. Select the index you are looking for from the Standard Sector Sets drop-down menu and click "Next".
4. From the table that appears at the bottom of the page, select your Sector choices and click "Add". Then click "Finish". You should now see the selected sector(s) on the upper right hand side of the page.
5. Now you should be on the Keyword Selection Page. Select a set from the Standard Keyword Sets and click "Next".
6. From the table that appears at the bottom of the page select the keywords needed and click "Add". Then click "Finish".
7. You will now be on the Request Summary Page. Review your sector selection and assign your desired order of appearance in the report. Click "Proceed".
8. Lastly, you need to type in a "Request Name". For "Request Type", select "Ongoing" and/or "Historic Data" (fill in the dates) and fill out the rest accordingly. Then click "Save".
9. The file will be delivered to you once it is ready. It should take no longer than 15-20 minutes.

Citi Fixed Income Indices
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Create Custom Sector Request

1. Sectors Selection
View Selected Sectors
2. Keywords Selection
View Selected Keyword
3. Request Summary
Request Save/Update
Clear Request

2 sectors were added to your custom sector report
To use a standard set or add custom sectors, choose from one of the following options:

Standard Sector Sets
AGBI [Next]

Your Sector Sets
Select One [Next]

Search For
[Text Box]

AND OR
Select Root Index [Submit]

Selected Sectors [Edit]
Asian Government Bond Index, 1
Asian Government Bond Index, 7

Selected Keywords 0

Sector	Description	Curr	Base	Type
<input type="checkbox"/> AGBI	Asian Government Bond Index	LCL	20080101	C
<input type="checkbox"/> AGBI_1-3	Asian Government Bond Index, 1-3 years	LCL	20080101	C
<input checked="" type="checkbox"/> AGBI_1-5	Asian Government Bond Index, 1-5 years	LCL	20080101	C
<input type="checkbox"/> AGBI_3-5	Asian Government Bond Index, 3-5 years	LCL	20080101	C
<input type="checkbox"/> AGBI_3-7	Asian Government Bond Index, 3-7 years	LCL	20080101	C
<input type="checkbox"/> AGBI_5-7	Asian Government Bond Index, 5-7 years	LCL	20080101	C
<input checked="" type="checkbox"/> AGBI_7-10	Asian Government Bond Index, 7-10 years	LCL	20080101	C
<input type="checkbox"/> AGBI_5+	Asian Government Bond Index, 5+ years	LCL	20080101	C
<input type="checkbox"/> AGBI_7+	Asian Government Bond Index, 7+ years	LCL	20080101	C
<input type="checkbox"/> AGBI_10+	Asian Government Bond Index, 10+ years	LCL	20080101	C

[Add] checked items into custom sector report
[Finish] sector selection, proceed to keyword selection

How to Combine Sectors to Create a Custom Index

When you are looking to combine certain sectors to customize your index, you will first need to create the Combined Sector and then set up the Custom Sector Request:

1. Launch Index Data (for more information see question "How to Access Index Data on Citi Fixed Income Indices Website" in this section).
2. Click "Subscribe" from the top navigation menu. Then, select "Create Combined Sector" from the drop-down menu.
3. Select the index you are looking for from the Standard Sector Sets drop-down menu and click "Next".
4. From the table that appears at the bottom of the page, select the sectors that you would like to combine and click "Add". Then click "Finish".
5. You should now see all the sectors that you would like to combine. Click "Create" to combine them all.
6. In the new pop-up window, fill in the details as required. Only select Combine Logic option "WGBI" if you wish your combined WGBI sector to follow WGBI's inclusion and exclusion criteria, otherwise choose "NONE". Then click "Save".

The screenshot shows a web browser window titled "Citigroup Global Fixed Income Index - Windows Internet ...". The address bar shows the URL "https://apps.yieldbook.com/ixweb/makeComposite.jsp". The page content is a form for creating a combined sector. The form fields are as follows:

- Description:** My_new_sector
- Display In Report:** My_new_sector
- Currency:** LCL
- Base Date:** 20110401
- Sector Type:** User Defined Composite
- Combine Logic:** NONE (dropdown menu)
- Save options:**
 - Save to current custom sector request only
 - Save permanently for future use
 - Save both

At the bottom of the form, there are two buttons: "Save" and "Cancel". The browser's status bar at the bottom shows "Don", "Internet", and "100%" zoom level.

7. Now that you have created your combined sector you can set up the Custom Sector Request.
8. Click "Subscribe" from the top navigation menu. Then, select "Create Custom Sector Request" from the drop-down menu.
9. If you saved the Combined Sector Request for the current sector request, you will see the combined sectors already in the upper right box. If you saved it permanently, you can select the combined sector by selecting "My Composites" under "Your Sector Sets" and then click "Next".
10. From the table that appears at the bottom of the page select your custom index and click "Add". If you would like to add more sectors, select the index you are looking for from the Standard Sector Sets and click "Next". Add the sectors needed. Then click "Finish".
11. Now you should be on the Keyword Selection Page. Select a set from the Standard Keyword Sets and click "Next".
12. From the table that appears at the bottom of the page select the keywords needed and click "Add". Then click "Finish".
13. You will now be on the Request Summary Page. Review your sector selection and assign your desired order of appearance in the report. Click "Proceed".
14. Lastly, you need to type in a "Request Name". For "Request Type", select "Ongoing" and/or "Historic Data" (fill in the dates) and fill out the rest accordingly. Then click "Save".
15. The file will be delivered to you once it is ready. It should take no longer than 15-20 minutes.

How to manage your account

How to Manage Delivery Settings

1. Launch Index Data (for more information see question “How to Access Index Data on Citi Fixed Income Indices Website” in this section).
2. Click “My Index” from the top navigation menu and select “My Preferences” from the drop-down menu.
3. Click “View” next to “Delivery Preference for Published Reports”. You can either select Web or Email.

By selecting Web, your reports will be delivered to your “MyData” account. To access “MyData” go to www.yieldbook.com, click “Launch” from the top navigation menu, and select “MyData” from the drop-down menu. Once you have been directed to “MyData” page, all your reports can be downloaded by clicking on the download arrow next to “ix#####”.



How to Add an Individual to Your Account

Once your co-worker has registered for the index website, you can add their email address to your account so that they receive the same reports as you do.

1. Launch Index Data (for more information see question “How to Access Index Data on Citi Fixed Income Indices Website”) in this section.
2. Click “My Index” from the top navigation menu and select “My Preferences” from the drop-down menu.
3. Click “View” next to “Manage Email Address” and then insert the email address of your colleague in the Individual Addresses Box.
4. Finally, click “Update”.



If you would like your colleague to receive the reports, you will need to change your settings as follows:

FOR CUSTOM SECTOR REQUESTS

1. Go to "My Index" at the top navigation menu and select "View/Edit Requests" from the drop-down menu.
2. Select "Custom Sector Requests" from the menu at the left hand side of the page.
3. Toggle on all the custom sector requests that you want your co-worker to receive and click "Change" email distribution list for the selected subscriptions.
4. Click "Add" to include the email address, so that it appears in the left box. Lastly, click "Save Changes".

FOR PUBLISHED REPORTS

All subscriptions: go to "My Index" and then "My Preferences". If the reports are delivered by email, click "View" next to Email Delivery Preference and toggle on the additional email recipients of data. Then, click "Update". If the reports are delivered to your "MyData" account and you wish your co-workers to be notified when the files are posted, go to "My Index", then "My Preferences" and click "View" next to Web Delivery Preference. Toggle on the email addresses that should receive a notification and lastly click "Update".

Selected reports: go to "My Index". Select View/Edit Requests and select Published Reports from the menu on the left hand side of the page. Toggle on all the published reports that you want your colleagues to receive and click "Change" email distribution list for the selected subscriptions. Then add the email addresses so that they appear in the left box. Finally, click "Save Changes".

How to Add a Group Email Address to Your Account

Please contact the Citi Fixed Income Indices Team:

The Americas	+1 212 816 0700 or fi.index@citi.com
EMEA	+44 20 7986 3200 or fi.index@citi.com
Asia Pacific	+852 2501 2358 or fi.index@citi.com
Japan	+81 3 6270 7225 or fi.index.tk@citi.com

Currency-Hedged Returns Calculation

In addition to returns expressed in local currency terms, Citi's fixed income indices returns are also computed in base currency terms, with and without the effects of currency hedging. The monthly currency-hedged returns are based on the assumption of a rolling strategy of buying the foreign currency at the beginning of each month and selling the foreign currency one-month forward. The source for spot and forward rates is the published WM/Reuters Closing Rates.

The convention used in the foreign exchange market for computing and quoting one-month forward rates results, from time to time, in a forward period that is longer (never shorter) than the actual number of calendar days in the month in question. This is inconsistent with the common index convention of using last-calendar-day settlement for the calculation of accrued and re-investment income in computing monthly returns.

Furthermore, the use of one-month forwards poses philosophical questions relating to the interpretation of intra-month currency-hedged returns.

To address and simplify both of these issues, Citi Fixed Income Indices calculates monthly and intra-month currency-hedged returns.

SPOT SETTLEMENT CONVENTION

Spot rates quoted on the screen are for settlement on a day that is calculated using the following steps:

1. The date on which the quotes are displayed is taken to be the trade date;
2. Spot settlement date is two days after the trade date in the local (non-USD) currency. It must be a valid trading and settlement date for both currencies; furthermore, the intervening days must be valid trading and settlement dates for the local currency.⁶³

ONE-MONTH FORWARD SETTLEMENT CONVENTION

One-month forward rates quoted on the screen are for settlement on a day that is calculated using the following steps:

1. The date on which the quotes are displayed is taken to be the trade date.
2. Spot settlement date is calculated as above.
3. Move forward from the spot settlement date to the same date in the following calendar month.
4. If this is a valid settlement date in BOTH currencies, then it is the forward settlement date.
5. If it is not, then the forward settlement date is the first date after that which is valid for both currencies.

Thus from step 5, it is clear that, from time to time, the number of calendar days between the spot settlement date and the forward settlement date will exceed (but never be less than) the number of calendar days in the month.

Take the USD/CAD one-month forward contract for the month of August 2010 as an example. For the month-end currency forward rates quoted on July 31, 2010, the spot settlement date is August 4, 2010. Because September 4 and 5, 2010 is the weekend and September 6 is a Canadian holiday, the settlement date for the one-month forward contract is "bumped" to September 7, 2010. Thus, the number of calendar days between the spot settlement date and the Forward settlement date is 34 days, in contrast to the 31 calendar days in August 2010.

IMPACT ON MONTHLY RETURNS

The effect of this "bumping" of settlement dates is material because the difference between the quoted spot and forward rates ("the drop") is calculated by applying the one-month interest rates in each currency, over the actual number of days between the two settlement dates and not over the number of calendar days in the month. The implicit assumption in the monthly currency-hedged returns is that the foreign currency is purchased spot at the beginning of the month and sold forward to the end of the month and, furthermore, that the following month's spot purchase coincides with the previous month's forward sale. Due to the incorporation of settlement day "bumping" into the calculation of the quoted forward rates, the forward drops will occasionally exaggerate the correct calendar-based premium or discount of a true calendar month hedge. The extent of this impact will depend on the number of instances when bumping occurs in any given year and the magnitude of the difference between the two currencies' short-term interest rates. In any one month, however, the difference rarely exceeds 1-2 basis points.

ADJUSTING THE FORWARD RATES

In order to correct for the "bumping" of settlement dates effect, the published forward drops will be adjusted for the US Dollar-based forward rates to reflect a drop that corresponds to the number of actual calendar days in the month. This will be achieved by determining the number of "convention" days used to calculate the published drops and then scaling the drops by the ratio of the number of days in the month to the number of "convention" days. This scaled drop will then be applied to the quoted spot rate to produce the adjusted one-month forward rate. The adjusted forward rates will also be used to derive adjusted forward cross rates. The following table illustrates this process.

⁶³ Prior to February 1, 2011, the spot settlement date must be a valid trade and settlement date for both currencies but the intervening days only needs to be a valid trade date for the local currency, it doesn't have to be a valid settlement date.

Adjustment of USD/CAD One-Month Forward Rate for August 2010

Spot: 1.02995	Spot Settlement Date: August 4, 2010
Forward: 1.03032	Forward Settlement Date: September 7, 2010
Forward Drop (%): -0.0359	Drop Days: 34
Days in Calendar Month for August: 31	
Adjusted Forward Drop = $-0.00037 * 31 / 34 = -0.000337$	
Adjusted Forward Rate = $1.02995 + 0.000337 = 1.030287$	
Adjusted Forward Drop (%) = -0.03275	

Source: Currency rates were quoted from WM Company in conjunction with Reuters as of July 30, 2010

The spot and forward settlement dates and the adjustment factor are published monthly. They are available by subscription on the Citi Fixed Income Indices website, (www.yieldbook.com/citi-indices).

MONTH-TO-DATE AND DAILY CURRENCY-HEDGED RETURNS

Intra-month index levels and returns are helpful for return attribution calculations when money enters or leaves the benchmarked portfolio but they pose the following philosophical dilemma:

- Should the month-to-date return on the 10th, for example, be calculated as if one had hedged only 10 days forward - as if planning to liquidate the fund on the 10th?
- Should the return from the 10th of the month to the end of the month reflect the effect of a forward hedge entered into on the 10th out to the end of the month - as if setting up the fund on the 10th?
- Should the daily currency-hedged return on the 10th of the month reflect only an overnight "forward" contract entered into on the 9th?

It is evident that a single time series of intra-month index levels cannot incorporate more than one of these.

The month-to-date returns and index levels are calculated to reflect approach (a) (e.g. for the 10th of the month, as if a 10-day forward had been entered into at the beginning of the month). Rather than derive the 10-day forward rate from the forward rate term structure at the end of the previous month, the one-month drop (adjusted when necessary to a calendar month, as described earlier) will simply be scaled to a 10-day drop and the 10-day forward rate will be computed using this. Thus, the intra-month forward rates will linearly converge to the rate used for the full month. This will have a minimal impact on the month-to-date returns and these will still converge to the monthly returns.

The daily currency-hedged returns are calculated simply as the ratio of successive daily month-to-date returns, as described in the previous paragraph. This, by construction, ensures consistency between successive month-to-date returns and the daily returns and that daily returns compound to the monthly return.

HOW MUCH IS HEDGED?

Clearly, one cannot know at the beginning of the period what the market value of a security holding will be at the end of the period. Instead, an assumption must be made: sell this amount forward and convert any end-of-period excess or shortfall at the end of period spot rate.

Below is a summary of the methodology determining the amount of foreign currency sold forward for each security:

- Reduce the par amount of the bond by any sinking fund payments, calls, prepays, etc.
- Allow for these cash receipts plus any re-investment income on these amounts to the end-of-period date.
- Add any coupons that will be paid during the period, together with re-investment income.
- Re-price the remaining par amount, using the beginning-of-month yield and the end-of-period date as the new settlement date, including Accrued Interest on this date.
- The sum of these amounts (2, 3 and 4) will be the amount of foreign currency sold forward.
- This amount, converted back to base currency at the appropriate forward rate to give the "assumed hedged value", will be the predominant component of the end-of-period value in currency-hedged base-currency terms.

If the actual end-of-period price is higher than this assumed price, the excess in foreign currency is converted back to the base currency at the end-of-period spot rate and added to the assumed hedged value. If the price is lower, the shortfall is converted back to base currency at the end-of-period spot rate and subtracted from the assumed hedged value. This gives the actual end-of-period hedged value.

The beginning-of-month value is the full market value of the security converted to the base currency at the beginning-of-month spot rate. The currency-hedged month-to-date return is the ratio of the end-of-period hedged value and beginning-of-month value, minus 1.

It is worth pointing out that the approach described in Step 4, on the previous page, does mean that the size of the hedge used in calculating the month-to-date currency-hedged return for, say, the 10th of the month is different from the size of hedge used in calculating the month-to-date currency-hedged return for the 20th of the month, and different again from that used for the full month. As noted earlier, the forward rate used for each of these dates is also different. Both of these effects are consistent with the idea that the month-to-date returns should reflect an intention to hedge only out to the date in question.

Market Value and Return Calculations for Non-Yen Sectors of the WGBI-JIT

Japanese yen sectors are calculated using current WGBI methodology. The following notations are used in the formulas. The WGBI and WJIT refer to the non-yen component of the index.

Figure 140 Notation

t	Today
m	Current Month
e	Last business day of Previous Month
WGBI_MODDUR	WGBI Modified Duration
WGBI_RORP	WGBI Daily Principal Return
WGBI_MTDROP	WGBI Month-to-Date Principal Return
WGBI_MTDROI	WGBI Month-to-Date Income Return
WJIT_RORP	WGBI-JIT Daily Principal Return
WJIT_MTDROP	WGBI-JIT Month-to-Date Principal Return
WJIT_MTDROI	WGBI-JIT Month-to-Date Income Return
WJIT_MTDROT	WGBI-JIT Month-to-Date Total Return

Market Value Computation

For the WGBI, the current month's index profile market value is calculated using the prices of the last business day of the previous month for all its constituents. For the WGBI-JIT, the market value is adjusted by the principal returns and the modified duration.

$$WJIT_MKV(m) = \frac{WGBI_MKV(m)}{1 + \left(\frac{WGBI_RORP(e)}{100} \times \frac{WGBI_MODDUR(m)}{WGBI_MODDUR(e)} \right)}$$

Return Computation

The returns are computed by modifying the previous day's principal return as well as the current day's income return.

Month-to-Date Returns in Local Currency Terms

Step 1: Calculate the First Business Day Principal Return

The first business day principal return is calculated based on the last business day principal return of the previous month. The last business day principal return is adjusted by a duration ratio to account for the change in portfolio.^{64, 65}

$$WJIT_RORP(1) = WGBI_RORP(e) \times \left(\frac{WGBI_MODDUR(m)}{WGBI_MODDUR(e)} \right)$$

Step 2: Calculate the Month-to-Date Principal Return

The month-to-date principal return is calculated by compounding the previous day's WGBI_MTDROP and the first business day's WJIT_RORP. This is equivalent to shifting the prices of all securities by one day.

$$WJIT_MTDRORP(t) = WJIT_RORP(1) + WGBI_MTDRORP(t-1) \times \left[1 + \left(\frac{WJIT_RORP(1)}{100} \right) \right]$$

⁶⁴ Prior to January 1999, WGBI_MODDUR(e) was not available, therefore the default ratio is set to 1.

⁶⁵ If WGBI_RORP(e) is not available, WJIT_RORP(1) is set to 0.0. For example, the initial principal returns for PL_TSY and MY_TSY is set to 0.0 because these sectors start after the WGBI-JIT inception date of December 31, 1996.

Step 3: Calculate the Month-to-Date Income Return

The month-to-date income return is calculated based on the current month's market value at the beginning of the month. It is adjusted by the first business day principal return.

$$WJIT_MTDRORI(t) = WGBI_MTDRORI(t) \times \left[1 + \left(\frac{WJIT_RORP(1)}{100} \right) \right]$$

Step 4: Calculate the Month-to-Date Total Return

The total return is the sum of the month-to-date WGBI-JIT principal and income returns.

$$WJIT_MTDRORT(t) = WJIT_MTDRORP(t) + WJIT_MTDRORI(t)$$

Month-to-Date Total Return in JPY Terms

The WGBI-JIT uses the same standard calculation to convert the local currency returns to base currency returns. The exchange rates used are the telegraphic transfer middle (TTM) rates provided by Bank of Tokyo-Mitsubishi UFJ. If the TTM rates are not available, the WM/Reuters rates are used.

$$WJIT_MTDRORT(t)_{JPY} = \left\{ \left[1 + \left(\frac{WJIT_MTDRORT(t)_{LCL}}{100} \right) \right] \times \left[1 + \left(\frac{CRCY_RTN(t)_{TTM}}{100} \right) \right] - 1 \right\} \times 100$$

Daily Total Return in Local Currency Terms

Daily total return is calculated using today's and the previous day's month-to-date returns.

$$WJIT_RORT(t) = \left\{ \left[\frac{\left(1 + \frac{WJIT_MTDRORT(t)}{100} \right)}{\left(1 + \frac{WJIT_MTDRORT(t-1)}{100} \right)} \right] - 1 \right\} \times 100$$

Estimate Daily Return of the Non-Yen WGBI-JIT: Calculation Methodology

The Non-Yen WGBI-JIT estimate daily return is calculated based on the previous day's WGBI Month-to-Date Total Return and today's TTM exchange rates, provided by the Bank of Tokyo-Mitsubishi UFJ at 10:00 a.m. JST.

For the first business day estimate daily return calculation, the previous day's return is simply the WGBI principal return of the last business day of the previous month. For subsequent days, the previous day's return is the WGBI principal return of the last business day of the previous month plus the previous day's WGBI Month-to-Date Total Return.

Step 1: Calculate the Currency Return Using 10:00 a.m. JST TTM Rates

$$Currency_Return_{Today, LCL Base} = \left(\frac{TTM_{Today} - TTM_{BOM}}{TTM_{BOM}} \right) \times 100$$

TTM_{BOM} = TTM rate as of the Beginning of Month

TTM_{Today} = TTM rate as of 10:00 a.m. JST today

Step 2: Estimate Month-to-Date Total Return in JPY Terms

For the first business day:

$$EST_MTD_RORT_{Today, JPY, WJIT} = \left[\left(1 + \frac{RORP_{EOM, LCL, WGBI}}{100} \right) \times \left(1 + \frac{CRCY_RTN_{Today, LCL:Base}}{100} \right) - 1 \right] \times 100$$

From second business day onward:

$$EST_MTD_RORT_{Today, JPY, WJIT} = \left[\left(1 + \frac{(RORP_{EOM, LCL, WGBI} + MTD_RORT_{PrevDay, LCL, WGBI})}{100} \right) \times \left(1 + \frac{CRCY_RTN_{Today, LCL:Base}}{100} \right) - 1 \right] \times 100$$

$RORP_{EOM, LCL, WGBI}$ = WGBI Previous Month's last day Principal Return in local currency terms

$MTD_RORT_{PrevDay, LCL, WGBI}$ = WGBI Previous Day's Month-to-Date Total Return in local currency terms

$CRCY_RTN_{Today, LCL:Base}$ = from Step 1

Step 3: Estimate Daily Return in JPY Terms

$$EST_DAILY_RORT_{Today, JPY, WJIT} = \frac{\left[\left(1 + \frac{EST_MTD_RORT_{Today, JPY, WJIT}}{100} \right) - 1 \right]}{\left[\left(1 + \frac{MTD_RORT_{PrevDay, JPY, WJIT}}{100} \right) - 1 \right]} \times 100$$

$EST_MTD_RORT_{Today, JPY, WJIT}$ = from step 2

$MTD_RORT_{PrevDay, JPY, WJIT}$ = WGBI-JIT Previous Day's Month-to-Date Total Return in JPY terms

Step 4: Estimate Month-to-Date Return for the Non-Yen WGBI-JIT in JPY Terms

$$EST_MTD_RORT_{Today, JPY, WJIT} = \frac{\left(\sum_{i=1}^N EST_MTD_RORT(i)_{Today, JPY, WJIT} \times MKV(i)_{BOM} \right)}{\sum_{i=1}^N MKV(i)_{BOM}}$$

i = each country in the Non-Yen WGBI-JIT

$MKV(i)_{BOM}$ = Beginning-of-Month Market Value of each country

Appendix - Industry Classification

Citi Fixed Income Indices utilizes two proprietary industry/asset classification codes: Global Industry Code (GLIC) and Corporate Bond Sector (COBS) code.

Figure 141 Global Industry Code (GLIC)

GLIC	Description
SVGN	Sovereign
SGTD	Sovereign Guaranteed
SGSP	Sovereign Government-Sponsored
RGTD	Regional Government Guaranteed
RGSP	Regional Government-Sponsored
RGOV	Regional Government
MBS	Collateralized – Mortgage
ABS	Collateralized – Asset-Backed
PFBF	Collateralized – Covered
IMAN	Industrial – Manufacturing
ISRV	Industrial – Service
ICON	Industrial – Consumer

GLIC	Description
IEGY	Industrial – Energy
ITRN	Industrial – Transportation
IOTH	Industrial – Other
UELC	Utility – Electric
UGAS	Utility – Gas
UTEL	Utility – Telecom
UOTH	Utility – Other
FBNK	Finance – Bank
FIND	Finance – Independent
FINS	Finance – Insurance
FOTH	Finance – Other

Figure 142 Corporate Bond Sector (COBS) Code

COBS	Description
Government/Government Sponsored	
DSOV	Domestic Sovereign
FSOV	Foreign Sovereign
RGOV	Regional Government
AGEN	Agency
SPRA	Supranational
Collateralized	
MTGE	Mortgage
CARD	Credit Cards
CARS	Cars
STRA	Stranded Asset
RMTR	Residential Mortgage Master Trust
EQLS	Securitized Equipment Lease
WBUS	Whole Business Securitization
ABSO	ABS – Other
PFFF	Covered – Jumbo Pfandbrief Offentliche
PFHY	Covered – Jumbo Pfandbrief Hypotheken
PFOF	Covered – French
PFCE	Covered – Spanish
PFOT	Covered – Other
Industrial – Manufacturing	
AERO	Aerospace
AUTO	Auto Manufacturing
VEHL	Vehicle Parts
BLDG	Building Materials
HOME	Home Builders
CSTR	Construction Business
CHEM	Chemicals
CONG	Capital Goods
INFO	Information & Data Technology
TRON	Electronics

COBS	Description
Industrial – Manufacturing, continued	
MACH	Machinery
METL	Metals/Mining
PACK	Container/Packaging
PAPR	Paper & Forest Products
TEXT	Textiles
Industrial – Service	
BCAS	Broadcast/Outdoor
CBLE	Cable
SATE	Satellite
PUBL	Publishing
GAME	Gaming
FUNN	Leisure
LODG	Lodging
HEAL	Health Care Supply
HLCF	Health Care Facilities
PHRM	Pharmaceuticals
REST	Restaurants
FDRG	Retail Food & Drug
RETL	Retail
ENVS	Environmental Services
TWER	Tower
PDEV	Property/Real Estate Developer
GTCO	General Trading Company (sogo shosha)
OTHS	Other Service
Industrial – Consumer	
CONS	Consumer Products
TOBC	Tobacco
FOOD	Food Processors
BEVG	Beverage/Bottling
FISH	Fishery

Figure 142 Corporate Bond Sector (COBS) Code, continued

COBS	Description	COBS	Description
Industrial – Energy		Utility – Gas	
SOGP	Secondary Oil & Gas Producers	GASL	Gas Utility - Local Distributors
OILE	Oil Equipment	Utility – Electric	
OILS	Oil Service	ELEC	Electric Utility
OILR	Oil Refining & Marketing	Utility – Other	
OILI	Integrated Oil	PWER	Power
PPAN	Retail Propane Distributors	WATR	Water
GSPL	Gas Pipelines	OTHU	Other Utility
Industrial – Transportation		Finance – Bank	
AIRL	Airlines	BANK	Banks
RAIL	Railroads	Finance – Independent	
OTHT	Other Transportation	IFIN	Independent Finance
Industrial – Other		Finance – Insurance	
OTHI	Other Industrial	LIFE	Life Insurance
Utility – Telecommunication		PCAS	Property & Casualty Insurance
BBND	Broadband	Finance – Other	
CLEC	Competitive Local Exchange Company	LEAS	Leasing
DIVT	Diversified Telecom	MTGB	Mortgage Banking
ISPD	ISP/Data	SECS	Securities
PAGE	Paging	REIT	Real Estate Investment Trust
WLES	Wireless	OTHF	Other Finance

Appendix - Glossary

Asset-Backed

Financings that are backed purely by pools of assets and supporting credit enhancement structures, such as American Express Master Trust issues that are backed by credit card loans.

Corporate

Bonds issued by industrial companies, utilities, and financial service companies, including those that carry bank guarantees. In addition, special purpose debt-issuing subsidiaries of such corporations are included, as are subsidiaries whose primary purpose is to provide financing to customers for the purchase and/or lease of the parent companies' products.

Covered

All Pfandbrief and Pfandbrief-like securities predominant in the Euro region.

Eurodollar Bond

A bond issued outside the boundaries of the United States that pays interest and principal in US Dollars.

Euro Medium-Term Note

A facility for an issuer to issue debt in the Euromarkets in various currencies, maturities, and structures, using a single set of documentation.

European Economic and Monetary Union (EMU) Member Countries (as of December 2014)

Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

European Union (EU) Member States (as of December 2014)

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

Eurosterling Bond

A bond issued outside the boundaries of the United Kingdom that pays interest and principal in British pounds sterling.

Euroyen Bond

A bond issued outside the boundaries of Japan that pays interest and principal in Japanese yen.

Financial

The issuer must be solely engaged in the financial sector. This includes commercial and investment banks, insurance companies, savings and loans, and building societies. It also includes the financial subsidiaries of conglomerates when the subsidiary does not operate for the primary benefit of the manufacturing arm (such as, General Electric Capital Corporation).

Global Bond

Registered bonds issued simultaneously within and outside of the United States. These issues are traded across all markets and can settle through Cedel, Euroclear, and DTC.

Group-of-Ten (G-10) Countries

Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States (Switzerland is the honorary eleventh member of the G-10).

Industry Code

- GLIC - Global Industry Code (GLIC) is one of Citi Fixed Income Indices' two proprietary industry classification codes. It is a high level sectorization of industry and asset class. Detailed GLIC code classifications can be found on page 163.
- COBS - Corporate Bond Sector Code (COBS) is one of Citi Fixed Income Indices' two proprietary industry classification codes. It provides detailed industry classifications of the GLIC code. Detailed COBS code classifications can be found on page 163.

National Currency Unit (NCU)

The pre-EMU currencies of the EMU member countries (for example, French francs). These currencies continue to exist and circulate, but the intra-NCU exchange rates and the NCU exchange rates with the euro are irrevocably locked. Most EMU sovereign debt issued in NCUs has been redenominated into euros, but most other bonds remain denominated in NCUs. For index purposes, all NCU amounts are quoted in euro terms whether or not individual bonds have been redenominated, because there is no foreign exchange effect.

Official and Agency

This includes all local government, provincial, and city debt as well as other agencies such as non-sovereign-guaranteed central and state banks and export credit agencies. Issues in this sector may have provincial or local government guarantees, but do not have sovereign-guarantees. Examples include Canadian provinces, Bank of Greece, Crédit Local de France, and the German Landesbanks.

Regulation S and Rule 144A, continued

Securities issued under Reg S and sold initially to non-US investors may subsequently be sold to US investors in the secondary market after a brief “seasoning” period has elapsed, typically 40 days. However, a holding of securities issued under Reg S and sold initially to QIBs under Rule 144A cannot be sold to other US investors in the secondary market until a two-year seasoning period has elapsed.

Non-corporate securities issued under Rule 144A without registration rights are eligible for inclusion in the US Broad Investment-Grade Bond Index and the Eurodollar Index.

The High-Yield Market Index includes issues available for sale under Rule 144A immediately on satisfaction of the index’s entry criteria. Before 1999, entry of these securities was delayed until the SEC registration process was completed.

Seasoning

The rules defining the length of time by which a bond is seasoned are complex and vary for different issuers. A simplifying rule is adopted for the purpose of determining when a bond becomes seasoned: An issue is to be deemed seasoned for the purposes of the Eurobond Indices 40 calendar days after the initial payment date.

Sovereign and Sovereign-Guaranteed

These sectors include sovereign debt and any issues carrying an explicit sovereign-guarantee irrespective of the function of the issuer – for example, Qantas Airways and Kobe City.

Supranational

Supranationals are supported by the capital of more than one sovereign state, such as the World Bank and the Asian Development Bank.

Yankee Bond

A bond denominated in US Dollars issued in the United States by foreign banks, sovereigns, other government entities, and corporations whose parent companies reside outside the United States. These bonds are registered with the SEC.

Index and Analytic Related Terminology

COBS Code

Please refer to Industry Code on the previous page. Corporate Bond Sector Code (COBS) is one of Citi Fixed Income Indices’ two proprietary industry classification codes. It provides detailed industry classifications of the GLIC code. Detailed COBS code classifications can be found on page 163.

Common Frequency

A mathematical adjustment to report a duration measure according to a different assumed payment frequency. Citi Fixed Income Indices methodology for common frequency is to use semi-annual compounding frequency for all securities.

Convexity

The degree of curvature of a security’s price/yield curve. It numerically approximates the second derivative of the price/yield curve and is calculated using the same curve shift as effective duration. The higher degree of positive convexity, the more sensitive the bond price is to decreasing interest rates and the less sensitive the bond price is to increasing rates. The more negative the convexity, the more sensitive the bond price is to increasing interest rates and the less sensitive the bond price is to decreasing rates. The calculation permits the cash flows of securities with optionality to vary in each scenario.

$$\left(\frac{\text{Full Price Down} + \text{Full Price Up} - (2 \times \text{Full Price Base})}{\text{Full Price Base} \times \left(\frac{\text{shock}}{100} \right)^2} \right) \times 100$$

Effective Duration

The percent price change if yield changes 100 basis points (1.0%). For most bonds there is an inverse relationship between prices and yields. To arrive at this, the yield curve is shifted up and down 25 basis points, recalculate the price assuming a constant option-adjusted spread, and use the following formula:

$$\left(\frac{\text{Full Price Down} - \text{Full Price Up}}{\text{Full Price Settle}} \right) \times 2 \times 100$$

GLIC Code

Please refer to Industry Code on page 165. GLIC - Global Industry Code (GLIC) is one of Citi Fixed Income Indices' two proprietary industry classification codes. It is a high level sectorization of industry and asset class. Detailed GLIC code classifications can be found on page 163.

Gross Spread

The spread between the yield-to-maturity of a security and the yield of the matching weighted average life point on the pricing yield curve.

Currency Hedging Methodology

Currency hedging in general is used to reduce or eliminate any foreign exchange rate risk. Citi Fixed Income Indices methodology for monthly currency-hedged returns is based on the assumption of a rolling strategy of buying the foreign currency at the beginning of each month and selling the foreign currency one-month forward. The source for spot and forward rates is the Published WM/Reuters Closing Rates. Further modifications to the forward rates are needed to account for differences between foreign exchange market conventions and Citi Fixed Income Indices convention.

Index Quality

An index quality is assigned to each index bond as of profile fixing. The quality is first mapped to the Standard & Poor's Financial Services LLC ("S&P") rating. If a bond is not rated by S&P but it is rated by Moody's Investor Service, Inc ("Moody's"), the S&P equivalent of the Moody's rating is assigned to the index quality. If a bond is split-rated (an investment-grade rating by one rating agency and high-yield by the other), the S&P equivalent of the investment-grade rating is assigned to the index quality. These ratings remain unchanged for the entire performance month.

Index Value

An accumulating value expressed over the time of the index. An index begins with an original value of 100 and adjusts based on daily nominal returns. The current index value can be found by multiplying the previous day's index value by 1 + nominal return.

Index Weight

Weight of an individual issue as a percentage of the total index market value.

Maturity Sector

Maturity sector buckets are defined by including all underlying issues with a remaining average life at least equal to the lower bound, but less than the upper bound of the particular category. For example, the one- to three-year sector of the WGBI includes all securities in the WGBI with a remaining average life of at least one year, but less than three years. The set of bonds is then held constant for the calculation month, even though the average life declines. The only exception to this rule is the mortgage sector, which is included in its entirety in the one- to ten-year sector.

Modified Duration

The first derivative of price as a nominal function of yield expressed as a percent of full price change for 100 basis points.

$$\text{Modified Duration} = \frac{\text{Macaulay Duration}}{\left(1 + \frac{\text{YTM}}{\text{Compound Frequency} \times 100} \right)}$$

Option Adjusted Spread (OAS)

OAS is the single spread that when added to each path of the option model interest rate tree, will discount the cashflows such that the average of their present values (price per path) is equal to the current price. The OAS is not the average spread across the paths; rather it is based on average prices.

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Appendix - Discontinued Indices

The indices in this section have been discontinued.

US Agency Zero 10+ Index

The US Agency Zero 10+ Index, discontinued on December 31, 2012, included non-callable, zero-coupon bonds issued by Fannie Mae and Freddie Mac, as well as interest and principal pieces created from stripping the Fannie Mae Benchmark and Freddie Mac Reference bonds. Also included were the zeros created by stripping Financing Corp (FICO) and Resolution Funding Corp (REFCORP) and bonds issued as serial zeros, such as those issued through the Agency of International Development – Israel (AID).

Global Government Bond Composite Index

The Global Government Bond Composite Index, discontinued in September 2006, included all government bond markets that Citi tracked. In addition to the 22 countries included in the WGBI, New Zealand was included in this index.

European Government Bond Composite Index

The European Government Bond Composite Index, discontinued in September 2006, included the 17 sectors of the Global Government Bond Composite Index that were geographically located in Europe, namely: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Targeted Index Matrix Series (TIMS)

The Targeted Index Matrix Series (TIMS), discontinued on March 31, 2005, was designed to provide a generalized framework for constructing customized benchmarks that spanned the realm of duration and quality combinations available in the investment-grade fixed income market. The matrix was based on two fundamental variables: (1) a percentage core holding in the credit and collateralized component of the USBIG Index, which provided an approximate gauge of quality level; and (2) effective duration as a measure of interest-rate sensitivity. For a desired effective duration, an index “cell” was created by combining the credit/collateralized core with an appropriate sector of Treasury securities. The Treasury sector acted as the swing component required to attain the desired index duration.

Brady Bond Index

Market coverage of the Brady bonds was migrated to the ESBI Index. The performance and characteristics will be available via the Brady bond sector of the ESBI family of indices.

The Brady Bond Index was designed to measure the performance of US Dollar emerging market debt that has been restructured under the Brady Plan and has a minimum of US \$500 million per issue amount outstanding. The index measured returns for all Brady bonds beginning with the first issue by Mexico in March 1990.

Emerging Markets Mutual Fund (EMMF) Debt Index

The Emerging Markets Mutual Fund (EMMF) Debt Index, discontinued on June 30, 2003, was designed to provide the managers of regulated mutual funds with a more appropriate benchmark than the Brady Bond Index. Regulated mutual funds face diversification rules that prevent the managers from matching the market weightings of the Brady Bond Index, which are concentrated in a few large credits. The EMMF Index was constructed to conform to mutual fund diversification regulations. Under these rules, half of a portfolio could have been invested in individual credits in amounts of less than 5% of the total portfolio size. The remaining half could have been invested in positions no greater than 25%.

An alternative to the EMMF Index is the ESBI-Capped Index, which limits exposure to any one country by placing a ceiling on the par value contribution of each country.

Safest of High-Yields Index

The Safest of High-Yields Index, discontinued on June 30, 2003, was a market capitalization weighted managed portfolio of high-yield securities selected by Citi credit research analysts for high-coupon income and stable or improving credit quality.

Government and Eurobond Composite Index (GECI)

The GECI was discontinued in January 2002. It was originally created to track the performance of the international investment-grade bond markets. With the launch of the World Broad Investment-Grade (WorldBIG) Bond Index in August 2000, the GECI benchmark grew obsolete. The WorldBIG Index is designed to be our broadest market measure for global investors. It is a liquid-replicable index that offers a natural extension of credit risk for investors who favor traditional government debt.

World Bond Index

The World Bond Index was discontinued on December 31, 1995. This index served as a broad benchmark measuring the performance of government, Eurobonds, and foreign bonds in ten currencies. The index was sample-based and focused on the five-year and longer sectors of these markets. It was introduced in 1981 and had historical returns dating back to January 1978. The introduction of the World Government Bond Index in 1986 made the World Bond Index obsolete.

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