



Introducing the Citi Time-Weighted US Fallen Angel Bond Index

November 19, 2015

Contents

Introducing the Citi Time-Weighted US Fallen Angel Bond Index	02
Composition and Design Criteria.....	02
Data Availability and Accessibility	05
Index Methodology	05

CITI FIXED INCOME INDICES – REGIONAL CONTACTS

Americas

+1 212 816 0700
fi.index@citi.com

Asia Pacific

+852 2501 2358
fi.index@citi.com

EMEA

+44 20 7986 3200
fi.index@citi.com

Japan

+81 3 6270 7225
fi.index.tk@citi.com

Time-Weighted US Fallen Angel Bond Index

We are pleased to introduce the Citi Time-Weighted US Fallen Angel Bond Index, which measures the performance of “fallen angels” – bonds which were previously rated investment-grade but were subsequently downgraded to high-yield¹. The index includes US Dollar-denominated bonds issued by corporations² domiciled in the US or Canada that meet the inclusion criteria described in Figure 1. Any such bonds, with a rating changed from investment-grade to high-yield in the previous month, are eligible for inclusion in the index and will be held in the index for a period of 60 months³ from inclusion provided they continue to meet the inclusion criteria. If a bond exits and then re-enters the index, the inclusion period is reset.

Unlike traditional indices, where constituent weights are based on market value, the index's constituent weights are determined based on the time from inclusion in the index. Higher weights are assigned to bonds that have more recently become “fallen angels”. This time-based weighting approach aims to capture the price rebound effect that fallen angels tend to experience soon after their initial downgrade to high-yield. Furthermore, issuers' weights are capped at 15% and constituents' time-based weights are capped at 5 times their respective market value-based weights to help manage concentration risk.

The index provides an alternatively-weighted benchmark for the North American high-yield bond market.

Composition and Design Criteria

The Citi Time-Weighted US Fallen Angel Bond Index represents a designated subset of the Citi US High-Yield Market Index. All the bonds were issued in fully registered form or under Rule 144A offering, have a fixed-coupon, and are non-convertible.

Figure 1 details the design criteria and calculation assumptions for the Time-Weighted US Fallen Angel Bond Index.

Figure 1 Time-Weighted US Fallen Angel Bond Index — Design Criteria and Calculation Assumptions

Stated Coupon	Fixed-rate
Currency	USD
Minimum Maturity	At least one year
Maximum Inclusion Period	60 months ³
Minimum Issue Size	USD 250 million
Credit Quality	Maximum Quality: BB+ by Index Quality Minimum Quality: C by Index Quality (excludes defaulted bonds) For more information on how the Index Quality is defined, please see “Index Quality” section on page 2.
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
Weighting	Constituent weights are based on the time from inclusion of the newly eligible bond in the index with higher weights assigned to bonds that have more recently become “fallen angels”. Please refer to the Weighting Methodology section for more details. Additionally, issuers' weights are capped at 15% and individual bonds' time-based weights are capped at 5 times their respective market-value based weights.
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, calculated from the actual scheduled payment date of the cash flow through the end of the reporting period
Pricing	Third-party 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. The profile fixing dates for each year are available on the Citi Fixed Income Indices website.
Base Date	December 31, 2001

¹ The index also includes bonds that were originally rated high-yield, subsequently rated investment-grade, then downgraded again to high-yield.

² Includes Industrial, Utility and Finance sectors

³ The inclusion period for each bond is measured in terms of consecutive months. The maximum inclusion period rule will be suspended should the number of issuers in the index fall below 10 to mitigate issuer concentration risk. Such suspension of the rule will be maintained until at least 10 issuers are eligible for inclusion in the index.

MATURITY SECTOR

In addition to the broad categories published, sub-sector breakdowns are also provided for many of Citi's fixed income indices. 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-years sector of the Time-Weighted US Fallen Angel Bond Index includes all securities 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.

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 rated by neither S&P nor Moody's, the bond is not assigned an index quality. If a bond is rated as investment-grade 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.

DEFAULTS

When an issuer defaults, or is assigned a D rating by S&P, 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. The bonds will be included in the index return calculation and are calculated without coupon payment or accrued interest, where applicable. However, the bonds will not be included in the calculation of the profile statistics of the index.

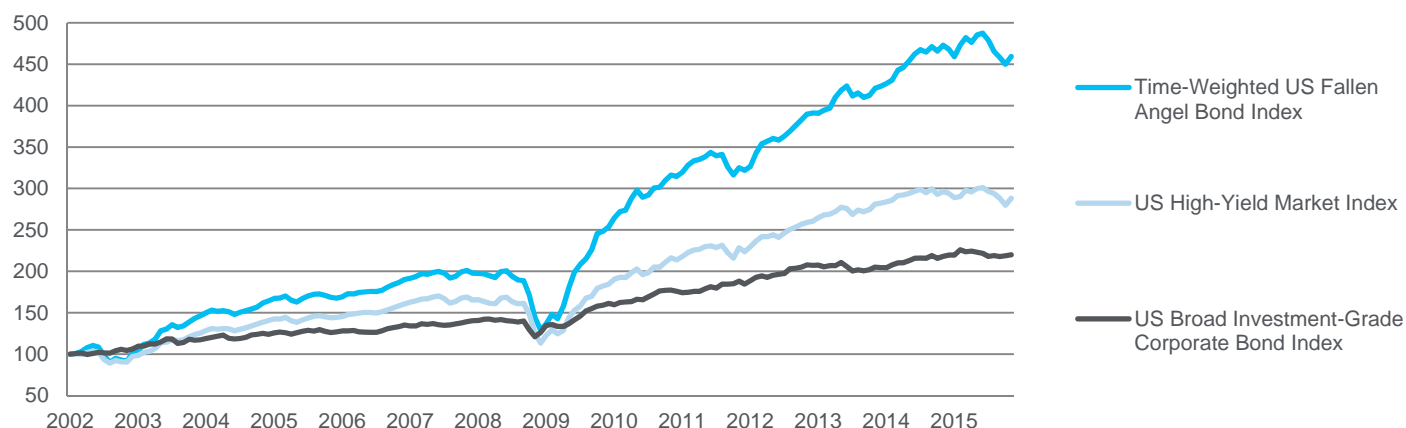
WEIGHTING METHODOLOGY

Unlike traditional indices where constituent weights are based on market value, the index's constituent weights are determined based on the time from inclusion in the index. Any bond entering the index is given a predefined time score. Starting from the 13th month upon entering the index, the time score is gradually reduced. On each monthly rebalance, the time scores for all bonds in the index are normalized to weights that sum up to 100%. The time-based weighting methodology aims to assign higher weights to bonds that have more recently become "fallen angels". Furthermore, issuers' weights are capped at 15% and individual bonds' time-based weights are capped at 5 times their respective market value based weights to help manage concentration risk.

Figure 2 Time-Weighted US Fallen Angel Bond Index — Index Profile, November 2015 (Pricing Date: October 30, 2015)

Description	# of Issues	Par Amount*	Market Value*	Market Weight (%)	Average Coupon (%)	Average Life (Years)	Yield to Maturity (%)	Effective Duration (Years)	OAS (bps)
Time-Weighted US Fallen Angel Bond Index	153	98.12	82.96	100.00	5.82	9.42	8.30	5.04	670
BB	129	79.38	71.36	86.03	5.80	9.62	7.04	5.23	542
B	14	15.76	8.84	10.65	5.78	8.73	18.12	3.55	1,674
CCC	10	2.98	2.75	3.32	6.72	7.95	9.36	4.97	780
1-3 years	40	20.20	19.62	23.66	5.58	1.99	7.06	1.77	629
3-5 years	28	17.09	14.80	17.84	5.86	3.94	8.68	3.27	742
5-7 years	31	21.63	18.75	22.60	5.46	5.91	8.08	4.86	639
7-10 years	16	11.92	10.46	12.61	5.16	8.02	7.38	6.32	544
10+ years	38	27.28	19.33	23.30	6.56	21.76	9.98	9.22	757
Industrial	95	64.31	50.37	60.72	5.70	10.33	9.69	5.19	804
Utility	25	13.31	12.23	14.74	5.97	10.30	6.91	5.74	522
Finance	33	20.51	20.36	24.54	6.13	6.00	5.69	4.25	427
US High-Yield Market Index	1686	1,071.34	1,018.14	100.00	6.80	6.13	7.95	4.20	619
US Broad Investment-Grade Corporate Bond Index	5708	4,260.66	4,493.66	100.00	4.29	10.52	3.37	7.06	159

* In USD billions

Figure 3 Historical Index Values for the Time-Weighted US Fallen Angel Bond Index compared to the US High-Yield Market Index and the US Broad Investment-Grade Corporate Bond Index, in USD terms, December 31, 2001 – October 30, 2015**Figure 4** Risk and Return for the Time-Weighted US Fallen Angel Bond Index compared to the US High-Yield Market Index and the US Broad Investment-Grade Corporate Bond Index, December 31, 2001 – October 30, 2015

	Time-Weighted US Fallen Angel Bond Index	US High-Yield Market Index	US Broad Investment-Grade Corporate Bond Index
Annualized Return	11.64%	7.94%	5.86%
Annualized Standard Deviation	11.95%	10.07%	5.74%

Figure 5 Top 10 Issuers for the Time-Weighted US Fallen Angel Bond Index, November 2015 (Pricing Date: October 30, 2015)

Description	# of Issues	Par Amount*	Market Value*	Market Weight (%)	Average Coupon (%)	Average Life (Years)	Yield to Maturity (%)	Effective Duration (Years)	OAS (bps)
TECK RESOURCES LTD	12	12.15	8.132	9.80%	4.73	14.41	10.92	5.66	918.50
TRANSOCEAN LTD	9	7.80	6.099	7.35%	6.12	10.77	10.50	4.79	891.94
NAVIENT CORP	10	6.12	5.929	7.15%	6.14	6.16	6.24	4.19	484.97
AERCAP HOLDINGS NV	9	4.92	5.463	6.59%	6.69	3.98	3.62	3.46	236.58
GENWORTH FINANCIAL INC	8	6.06	5.421	6.53%	6.58	7.35	8.05	4.68	650.54
CENTURYLINK INC	10	4.28	4.094	4.94%	6.68	11.55	6.71	6.04	493.70
AVON PRODUCTS INC	6	4.93	4.066	4.90%	6.51	8.54	11.23	3.99	980.33
DCP MIDSTREAM LLC	6	4.40	4.066	4.90%	6.75	12.39	7.75	6.73	583.33
DCP MIDSTREAM PARTNERS LP	5	3.86	3.388	4.08%	3.99	10.18	6.41	5.80	474.15
DELL INC	6	3.32	3.049	3.68%	5.86	12.95	6.33	6.81	447.36

* In USD billions

Data Availability and Accessibility

Citi’s fixed income indices are widely followed and published broadly. 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 request. 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 by request.

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.

Index information is also available from independent sources, such as data and analytic vendors. 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 vendor. For more information, please refer to the [Citi’s Index Guide](#) on www.yieldbook.com/citi-indices.

Figure 6 Ticker* for the Time-Weighted US Fallen Angel Bond Index

Ticker	Index
SBUSTWFA	Citi Time-Weighted US Fallen Angel Bond Index

* The ticker can be used to access data for these indices on Bloomberg and other vendor platforms.

Index Methodology

Unless otherwise stated, the index follows the general methodology for Citi’s fixed income indices. For details, please see [Citi’s Index Guide](#) on www.yieldbook.com/citi-indices.

www.yieldbook.com/citi-indices

The information and data (collectively, "Index Data") contained in this Citi Fixed Income Indices Introduction Paper (the "Introduction Paper") is provided by Citigroup Index LLC ("CitilIndex") solely for information purposes with respect to the index discussed herein (the "Index") and nothing in this Introduction Paper constitutes (a) a recommendation or an offer to sell or a solicitation to deal in any financial product, enter into any transaction or adopt any investment strategy or (b) legal, tax, regulatory, financial or accounting advice. None of CitilIndex, its directors, officers, employees, representatives, delegates, contractors or agents (each, a "CitilIndex Person") makes any express or implied representations or warranties as to (a) the accuracy, adequacy or completeness of the Index Data, (b) the levels of the Index at any particular time on any particular date, (c) the advisability of purchasing or entering into any financial product the performance of which is linked, in whole or in part, to the Index, (d) the results to be obtained by the issuer of any product linked to the Index or by any other person or entity, from the use of the Index or any data included therein for any purpose, (e) the merchantability or fitness for a particular purpose of the Index, or (f) any other matter. Each CitilIndex Person hereby expressly disclaims, to the fullest extent permitted by applicable law, all warranties of accuracy, completeness, merchantability or fitness for a particular purpose with respect to the Index and any Index Data. To the fullest extent permitted by applicable law, no CitilIndex Person shall have any liability (direct or indirect, special, punitive, consequential or otherwise) to any person even if notified of the possibility of damages. CitilIndex is not under any obligation to continue the calculation, publication and dissemination of the Index nor shall any CitilIndex Person have any liability for any errors, omissions, interruptions or delays relating to the Index. CitilIndex acts as principal and not as agent or fiduciary of any other person.

The Index reflects the performance of notional investment positions in its constituents. There is no actual portfolio of assets to which any person is entitled or in which any person has any ownership interest. The Index merely identifies certain hypothetical investment positions, the performance of which will be used as a reference point for the purpose of calculating the level of the Index. The Index and the information contained in this Introduction Paper are CitilIndex's proprietary material. No person may use the Index in any way or reproduce or disseminate the information contained in this Introduction Paper without the prior written consent of CitilIndex. The Index is not in any way sponsored, endorsed or promoted by the issuer or sponsor, as applicable, of any of its constituents.

©2015, Citigroup Index LLC. All rights reserved. Citi, Citi and Arc Design, and Citi Velocity are trademarks and service marks of Citigroup Inc. or its affiliates and are 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.