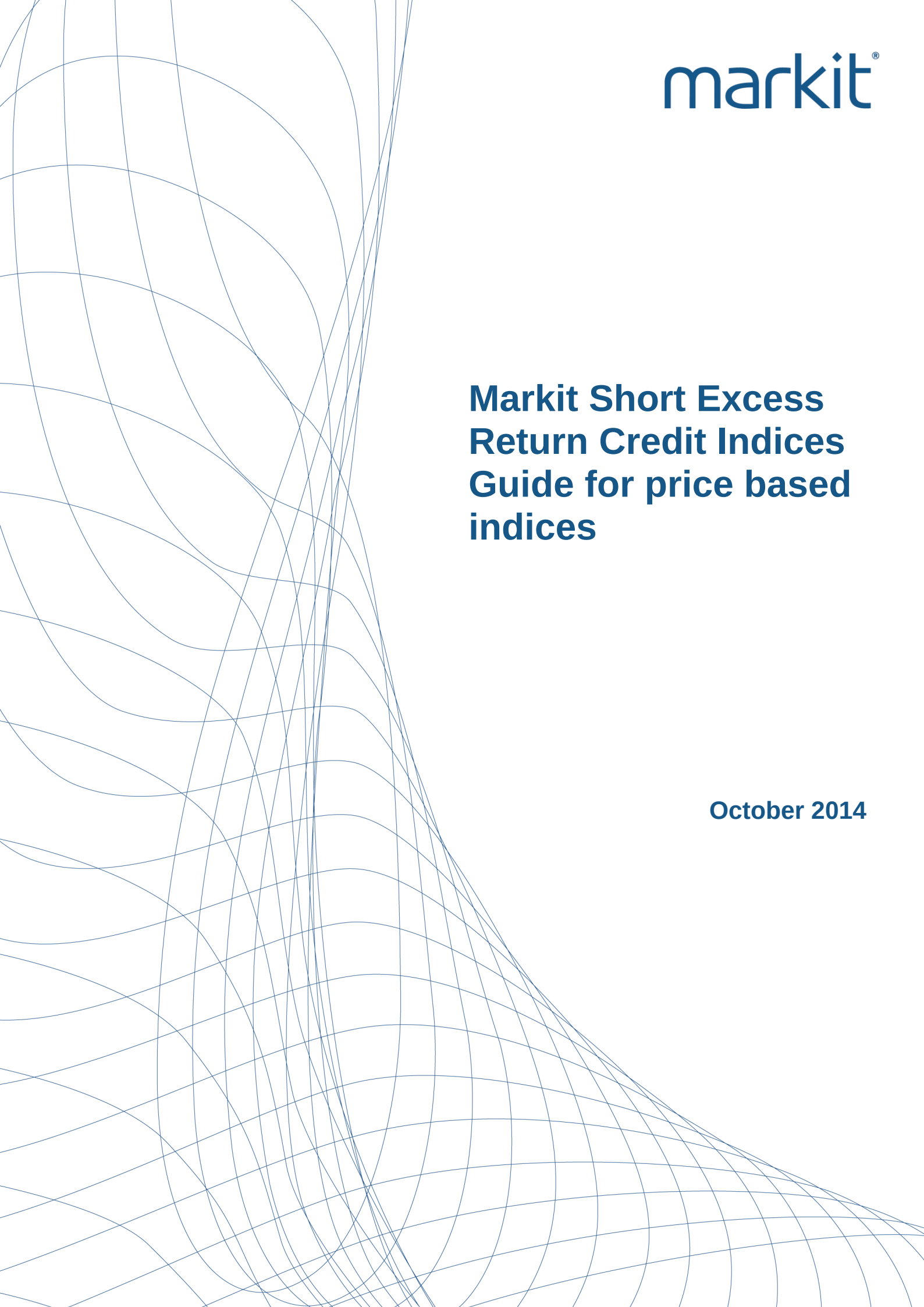

Markit Short Excess Return Credit Indices Guide for price based indices

October 2014

Contents

1 Introduction 3
2 Index Calculation 3
2.1 Methodology 3
2.2 Daily rebalancing cost 3
2.3 Semi-annual index roll process 3
2.4 Index data and disruption 4
2.5 Index restatement 4
2.6 Index review 4
3 Management of defaults in the index 5
3.1 Trigger event 5
3.2 Procedure 5
4 Appendix: Markit Short Excess Return Credit Index calculation methodology for price based indices ... 6
4.1 Index calculation 6
4.2 Index Rolls 7
5 Further information 7

1 Introduction

This document explains the technical calculation of the Markit CDX® Short Excess Return Indices which are based on price based underlying indices:

Markit CDX.NA.HY 5-year SHORT EXCESS RETURN INDEX

These indices measure the performance of holding the respective on-the-run CDX CDS index contracts. The indices reflect a short credit position i.e. buying protection on the CDX default swap indices. It therefore replicates the behavior of a fictitious unfunded portfolio that sells one CDX CDS index contract. The portfolio is always invested in the on-the-run CDX CDS index series that it tracks - each time a new CDX CDS index series is published, due to the regular index roll (every March and September) or due to a credit event in a constituent of the current series, the CDS position in the reference portfolio is rolled into the on-the-run/reduced index position.

The base index level of the Markit CDX.NA.HY 5-year SHORT EXCESS RETURN INDEX will be 100 at the launch of Series 8 of the CDX.NA.HY index (i.e., 27 March 2007).

2 Index Calculation

2.1 Methodology

The Short Excess Return Indices measure the performance of shorting the respective on-the-run CDX CDS index contracts.

The CDX.NA.HY index is a price based index and is quoted in the market directly in price terms.

The Short Excess Return Indices involve buying protection on the CDX credit default swap indices - the index return then reflects a long credit position. On the first trading day of the new on-the-run indices – on 20 March and 20 September if these days are business days[1], if not the next business day - the position in the off-the-run index is unwound and a position in the new series is entered into. The contracts on all price based indices are sold and purchased at the official Markit 17:00 New York mid-price index levels of the relevant trading day.

The indices reflect a protection buyer's position and therefore pay a coupon on a quarterly basis.

2.2 Daily rebalancing cost

Due to returns being compounded daily, exposure to the underlying index would have to be rebalanced daily when trying to replicate these returns with a contract on the underlying index. Therefore, for price based indices a daily rebalancing transaction cost of 0.15% flat is applied on the absolute change in the level of the index.

2.3 Semi-annual index roll process

During the regular roll process the index return should reflect the value of exiting the short risk position in the old (i.e. off-the-run) CDX index contract and simultaneously entering the new (i.e. on-the-run) index contract at mid at the end of the first day of trading of the new index. Transacting at mid means that transaction costs are not included. Therefore, for the CDX.NA.HY 5-year SHORT EXCESS RETURN INDEX a flat roll transaction cost of 0.15% for the "old" and "new" series is applied.

[1] Relevant holiday calendar for all iTraxx Indices: http://www.markit.com/en/products/data/indices/credit-and-loan-indices/itraxx/itraxx-calendar.page?
CDX indices follows the SIFMA recommended a holiday schedule
Coupon payment dates are on Mar/Jun/Sep/Dec 20th, business day adjusted following.
All Coupons and recovery rates are available in the index documentation on www.markit.com

2.4 Index data and disruption

For Markit to be able to publish the daily Markit Short Excess Return index level the relevant iTraxx / CDX price must be published. In periods of market stress or disruption as well as in illiquid or fragmented markets preventing the publication of a daily Markit iTraxx/CDX price, Markit will publish a statement outlining the course of action due to the disruption on the Markit website www.markit.com/Product/Indices under the iTraxx News page and CDX News page.

In the event of a major structural change within the CDS market impacting the Excess Return indices calculation, Markit will confer with all relevant stakeholders and publish the outcome of any material change as well as any decisions taken at Markit's discretion that has led to the resulting methodology change.

2.5 Index restatement

Index restatement follows the policy described in the Index restatement policy document, available on the Markit website www.markit.com

2.6 Index review

Index methodology reviews for the Excess Return indices outlined within this guide are performed on a periodic basis. Any material changes to the methodology governing the Excess Return indices are published on the Markit website www.markit.com/Product/Indices under the iTraxx News page and CDX News page.

3 Management of defaults in the index

When credit events occur, Markit announces that a new "reduced" contract will replace the current "full" contract as the official one. Markit does not determine credit events, but effectively credit events are treated in the Short Excess Return Indices as an early roll into this new "reduced" contract.

3.1 Trigger event

Following a credit event in a constituent of the Markit CDX.NA.HY index, the ISDA Determinations Committee votes to decide if a credit event has occurred for the entity and if an auction for the defaulted entity is to be held. If the outcome of this vote is positive, Markit publishes a new version of the index annex zero weighting the relevant entity i.e. the "reduced" index.

3.2 Procedure

For the Total Return Indices, the date on which the indices are rolled from the "full" index (with the defaulted name) to the "reduced" index (without the defaulted name) is usually done on the business day following the auction date. The exception being "restructuring" credit events where the contract will usually be rolled on the business day following the Event Determination Date (EDD). Due to the hardwiring of Credit Event Auctions into the ISDA Definitions, transaction costs are no longer reflected in the index calculation methodology, except in instances where "restructuring" credit events trigger the CDS.[2]

Following all determined credit events the "full" and the "reduced" index values are determined using the Markit Group 17:00 New York price.
The price for the "full" previous version on the business day following the auction date will be derived from the auction recovery rate and new "reduced" version price. For restructuring events the price for the "full" previous version on the business day following the EDD will be derived using the spread/upfront of the restructured entity and the new "reduced" version price. A transaction cost reflecting that the position on the restructured entity would not be unwound at mid would be determined according to the below process:

- For a calculation to be valid, Markit must observe valid bid/offer levels from more than five market participants for the restructured entity. The average bid/offer spread will be used to determine the price at which the restructured entity would be unwound and thus the relevant price to be used in the calculation of the derived price described above.
- The bid/offer spread will be capped at 10% of the Markit composite spread of the restructured entity.
- The minimum bid/offer spread will be 2% of the Markit composite spread of the restructured entity.
- If there is not sufficient valid bid/offer spreads available from market participants, the maximum bid/offer spread will be applied.

[2] In the unlikely event that an auction is not held following a constituent credit event and provided market condition warrant, Markit could at its discretion and following consultation with stakeholders include an appropriate transaction cost in the index reversioning methodology.

4 Appendix: Markit Short Excess Return Credit Index calculation methodology for price based indices

In this appendix, P_t is the market price of the current CDX series at day *t* for all price based indices, i.e., the official CDX price published by Markit Group at each closing of day *t*. Mid prices are used.

4.1 Index calculation

The base index level is set at 100 at the launch day of Series 8 of the CDX.NA.HY index (i.e., 27 March 2007) for the Markit CDX.NA.HY 5-year SHORT EXCESS RETURN INDEX
.
The total return index level I_t on day *t* is calculated as

$$I_t = I_{t-1}(1 + R_t^{CDS}) - DRC_t$$

where
R_t^{CDS} is the daily return on day *t* of the CDX index price.

$$R_t^{CDS} = (P_t + AC_t - 1) - (P_{t-1} + AC_{t-1} - 1) + Coupon_t$$

where
P_t is the market price of the current CDX series at day *t* i.e. $1 - P_t$ is the clean price for buying protection on the CDX index.
AC_t is the Accrued Coupon till day *t* from the last coupon day.

DRC_t is the Daily Rebalancing Cost , 0 if *t* is a roll or reversioning day. Defined as:

$$DRC_t = ABS\left(R_t * I_{t-1} * 0.15\%\right)$$

$Coupon_t$ is the coupon paid on day *t* by the current CDX index, 0 if *t* is not a coupon day

When *t* is a roll date, the return is adjusted to account for the transaction costs during index roll as described below. Either the Daily rebalancing cost or Roll transaction cost will be charged on any one day but not both.

4.2 Index Rolls

In case of the regular semi-annual index rolls and in case of a roll into a reduced contract, the portfolio is rolled over and the return on the roll date is calculated in the usual way, as specified above, and an "excess return" is added to account for Bid / Ask trading cost.

For prices based indices, the excess return is the sum the cost of switching at *t* from the old series to the new one

$$ExcessR_t^{CDS} = -(TC^{newseries} + TC^{oldseries})$$

where

$TC^{oldseries}$ is the transaction cost of rolling out of the old series / version

$TC^{newseries}$ is the transaction cost of rolling into the new series / version

Note that on the roll date *t* the R_t^{CDS} is calculated using the mark-to-market value / price of the old CDX series at day *t-1* and day *t*, and on date *t+1* the R_{t+1}^{CDS} is calculated using the mark-to-market value / price of the new CDX series at day *t* and day *t+1*.

5 Further information

- Further information regarding use of the Markit credit indices and glossary of key terms are available in the Markit Credit Index Primer located in the indices documentation section under Primers on www.markit.com/indices
- For contractual or content issues please refer to

  Markit

Tel:	00800 6275 4800
Fax:	+44 20 7260 2001
E-mail:	support@markit.com
Internet:	www.markit.com

- For technical issues and client support please contact support@markit.com
- Formal complaints can be sent electronically to a specifically dedicated email address: complaints_indices@markit.com. Please note complaints_indices@markit.com should only be used to log formal complaints. For any general index enquiries, please contact Markit indices support group support@markit.com
- Licences and Data
  Markit owns all iTraxx, iTraxx SovX and CDX data and indices and the intellectual property rights therein. A licence is required to create and/or distribute any product that uses, is based upon or refers to any iTraxx, iTraxx SovX and CDX index or iTraxx, iTraxx SovX and CDX data.