

# Palmer Square Indices Methodology

Palmer Square CLO Senior Debt Index (CLOSE)  
Palmer Square CLO Debt Index (CLODI)



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December 31, 2018

The Palmer Square CLO Senior Debt Index (“CLO Senior Debt Index”) (ticker: CLOSE) and the Palmer Square CLO Debt Index (“CLO Debt Index”) (ticker: CLODI) are rules-based observable pricing and total return indices for collateralized loan obligation (“CLO”) debt for sale in the United States, original rated AAA, AA, A, BBB, BB or equivalent.

The following types of CLOs are eligible for inclusion in the Underlying CLO Indices:

- “Arbitrage” CLOs, collateralized by broadly syndicated loans
- Only floating rate tranches are eligible for inclusion
- Tranche must be denominated in U.S. dollar
- Closing date on or after January 1, 2009
- Minimum deal size of \$600 million for deals issued Jan 1, 2009 – Dec 31, 2012
- Minimum deal size of \$500 million for deals issued Dec 31, 2012 – current

The following types of CLOs are **NOT** eligible for inclusion in the Underlying CLO Indices:

- “Middle-market” CLOs, collateralized by loans to small or medium-sized firms and/or by loans of a small or medium size
- Fixed rate, revolver, combo, and step up notes
- Asset-backed CDOs, collateralized by residential, commercial or consumer credit loans
- Emerging market CLOs, collateralized by loans to or securities of emerging markets issuers
- “Balance Sheet” CLOs

In addition to being Original-Rated, AAA, AA, A, BBB, BB CLO debt eligible for inclusion in the Underlying CLO Debt Index must be issued on or after January 1, 2009, following the financial crisis of 2008. Index components must include debt issued by CLOs managed by managers who manage at least three outstanding CLOs, at least two of which commenced on or after January 1, 2009. For managers with more than 2 deals issued in one calendar year, the two largest based on par outstanding will be included. Additionally, the CLO tranches eligible for inclusion in the Underlying Index will include the top 50% based on deal issuance size per quarter. Using the Index’s rules-based criteria, Moody’s assigns a “diversity score” to eligible Index components, based on the diversification of the CLO’s underlying loan assets. CLOs that are collateralized by loans of a limited number of issuers or that are limited to a particular industry are considered to be less diversified and are assigned a lower diversity score. CLO debt with a score lower than 45 during its reinvestment period will be excluded from the Underlying Index, in accordance with the Underlying Index methodology. After the reinvestment period ends, deals originally in the Index will not be removed if the diversity score falls below 45. Each tranche of a CLO included in the Underlying CLO Debt Index is treated as a separate Index component. There is no limit to the number of components in the Underlying CLO Debt Index. Individual weightings are based on market value.

The Index will be rebalanced at the close of the last business day of each quarter, following the U.S. holiday calendar. Refinancing transactions will be included in rebalances at the close of the last business day of each month, following the U.S. holiday calendar. New transactions that meet the above inclusion criteria and that are priced by the service provider will be included.

## Palmer Square CLO Indices - Calculations

The indexes started on 5/29/2015 with a value of 100.00

On a daily basis the index is calculated as follows:

$$Index_t = Index_{t-1} \times (1 + TR_t)$$

Where:

$Index_t$	= Index close on day t
$Index_{t-1}$	= Index close on day t-1
$TR_t$	= Total Return on day t

### Market Value

The market value of each CLO index on day t is calculated as follows:

$$MV_t = \sum_{i=1}^n MF_t \times PAR_t \times \frac{P_t + AI_i}{100}$$

Where:

$MV_t$	= Market Value of the tranche i on day t
$Par_t$	= Par amount of the tranche i as of the last rebalance adjusted for principal pre-payments etc.
$P_t$	= Clean price of the tranche i on day t
$AI_i$	= Accrued interest on tranche i up to and including day t
$MF_t$	= Mortgage factor of tranche i used to adjust the par at principal paydown ( $0 \leq MF_t \leq 1$ )

The weights of the CLO tranche is defined as the market value of the tranche expressed as a percentage of the aggregate market value of all the tranches in the index portfolio

$$weight_k = \frac{MV_k}{\sum_{i=1}^n MV_i}$$

### Returns

#### Total Return

The Total Return  $TR_t$  of a tranche at time t is the sum of the Interest Return and the Price Return on the day t

$$TR_t = IR_{i,t} + PR_{i,t}$$

Where:

$IR_t$	= Interest Return on day t
$PR_t$	= Price Return on day t

Price return measures the return due to the change in the market price of the tranche. Interest Return (or Coupon Return) includes the return due to the interest earned on that tranche.

#### Interest Return

$$IR_{i,t} = \sum_{i=1}^n \frac{PAR_{i,t} \times C_{i,t} \times d_{i,t,t-1}/360}{MV_{i,beg}}$$

Where:

$IR_{i,t}$	= Interest Return of tranche i on day t
$PAR_{i,t}$	= Par balance of the tranche i as on day t adjusted for principal pre-payments etc.
$C_{i,t}$	= Coupon amount of tranche i as of day t
$d_{i,t,t-1}$	= Day-count from the previous business day, t-1 to today, t
$MV_{i,beg}$	= Market Value of tranche i at the beginning of day t

#### Price Return

$$PR_{i,t} = \sum_{i=1}^n \frac{PAR_{i,t} \times \left( \frac{P_{i,t} - P_{i,t-1}}{100} \right) + PP_{i,t} \times \left( \frac{RP - P_{i,t-1}}{100} \right)}{MV_{i,beg}}$$

Where:

$PR_{i,t}$	= Price Return of tranche i on day t
$PAR_{i,t}$	= Par balance of the tranche i as on day t adjusted for principal pre-payments etc.
$P_{i,t}$	= Clean price of tranche i on day t
$P_{i,t-1}$	= Clean price of tranche i in previous business day, t-1
$PP_{i,t-1}$	= Principal Prepayment of tranche i on day t
$MV_{i,beg}$	= Market Value of tranche i at the beginning of day t
RP	= Redemption Price, always 100

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