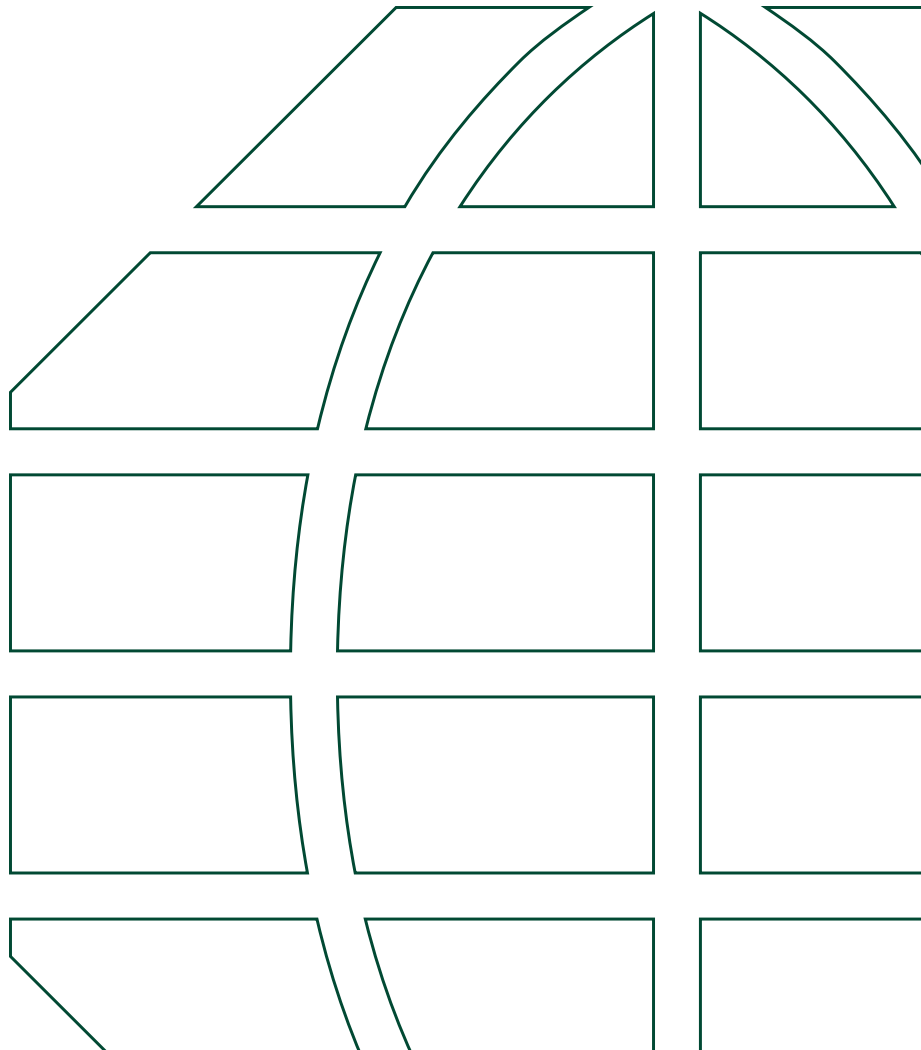


RESEARCH AND PRODUCT DEVELOPMENT

Synthetic Swap Spreads

By Frederick Sturm, Director,
Financial Research and Development



This article examines the characteristics of swap spreads, including historical levels, volatility and correlations with Treasury yields, and ways to isolate and trade swap exposure.

Market participants who use swap spreads to manage credit risk exposure or to capitalize on anticipated spread movement will find that U.S. Treasury futures and CBOT Interest Rate Swap futures offer an attractive alternative for structuring these trades. This article examines the characteristics of swap spreads, including historical levels, volatility and correlations with Treasury yields, and ways to isolate and trade swap exposure.

At any given term to maturity, the swap spread is the differential between the risk-free Treasury yield and the credit risk presented by the financial institutions that commonly stand as counterparties to plain-vanilla interest rate swaps. For ISDA Benchmark rates, which serve as the underlying references for CBOT Interest Rate Swap futures, the embedded credit premium reflects the representative creditworthiness of the 15 banks that serve as contributors to daily U.S. Dollar ISDA Benchmark fixing.

Exhibits 1 and 2 illustrate the empirical stylized facts of swap spreads, with daily data for November 1987 through August 2008. These prompt three observations.

First, the swap spread ebbs and flows with the credit cycle, as shown in the upper panels of Exhibit 1. Swap spreads trended down through the late 1980s. After a spell of stability in the early 1990s, they widened again. Intriguingly, they peaked in spring 2000, as the great equity market rally of the late 1990s also reached its apex.

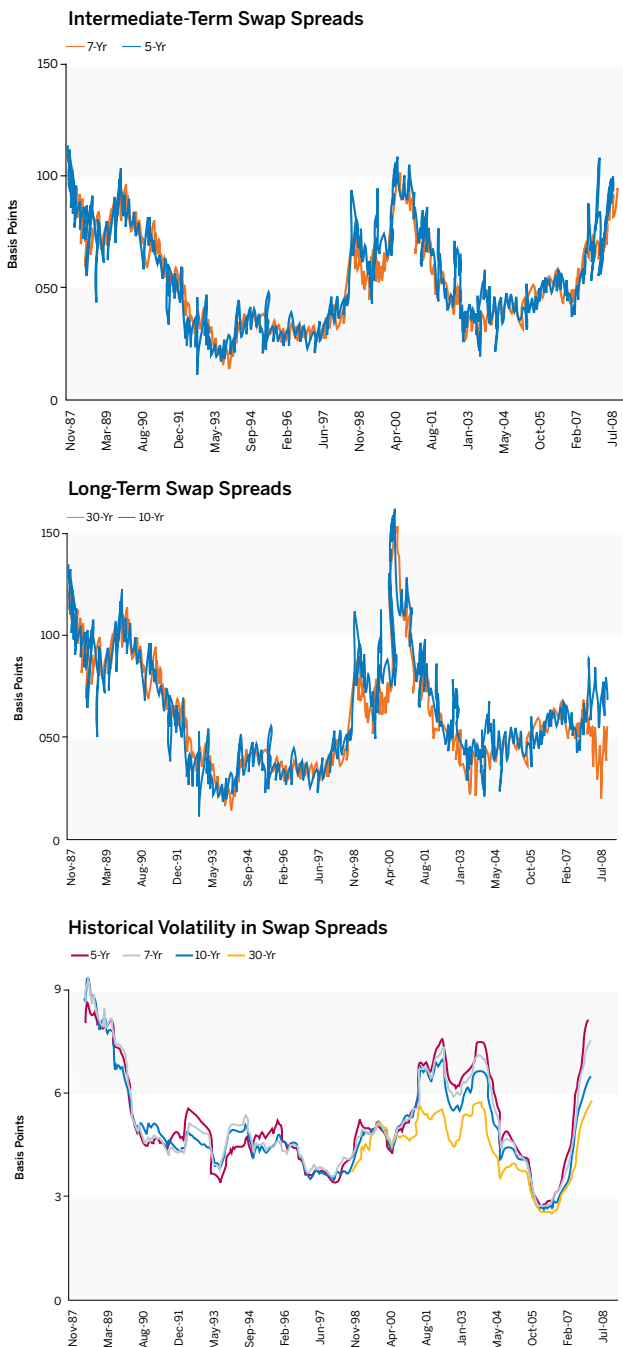
Between mid-2000 and early 2003 they retreated, then bounced back modestly between early 2003 and mid-2005. Since mid-2007 5-year, 7-year and 10-year spreads have soared back to their highest levels since the millennium turn.

Among many interesting features of this history is the contrast between two relatively placid intervals: mid-1993 to mid-1997 and mid-2005 to late 2006. Despite the proliferation of various mechanisms for mitigating the credit exposure in over-the-counter (OTC) swap contracts (e.g., bilateral collateralization facilities, auxiliary OTC credit default swaps), the level of swap spreads during the 2005-06 plateau is nonetheless higher than what had prevailed approximately a decade earlier – by 20 basis points (bps) or so for 5-year and 7-year swap spreads, and by around 13 bps for 10-year swap spreads.

Second, volatility in swap spreads is likewise cyclical. The lower panel of Exhibit 1 illustrates moving standard deviations of daily changes in swap spreads. (The moving sample window is 252 business days, essentially a year.)

Third, swap spreads are negatively directional. That is, they tend to move counter to their corresponding Treasury yields. As Exhibit 2 indicates, over the long run the correlation of daily changes in 5-year, 7-year and 10-year swap spreads with daily changes in their companion Treasury yields is around -0.365. (Given that the market for 30-year interest rate swaps is relatively younger, the pertinent definition of long run is necessarily shorter. Between early 1998 and summer 2008, the correlation of daily changes in 30-year swap spreads with daily changes in 30-year Treasury yields is around -0.35.)

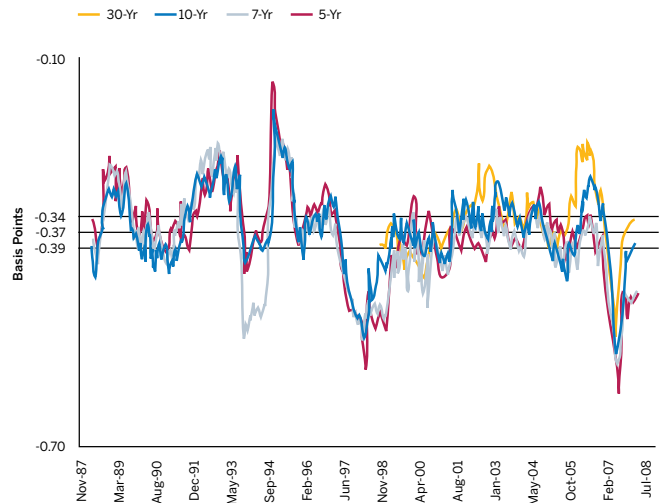
Exhibit 1:
Swap Spreads: Daily Levels and Volatility, November 1987 to August 2008



Data Sources: Federal Reserve Board, Global Insight.

Exhibit 1 Notes: For any given term to maturity, the swap spread is measured as the difference between (a) mid-market plain-vanilla swap rates and (b) constant maturity Treasury yields. Historical volatility is shown through a centered, moving 252 business-day window. For each swap spread, volatility is computed as the square root of the mean of squared daily changes for each 252 business-day sample, and is represented as bps per day.

Exhibit 2:
Correlations Between Swap Spreads and Treasury Yields, November 1987 to August 2008



Data Sources: Federal Reserve Board, Global Insight.

Exhibit 2 Notes: Rolling yearly (252 business day) correlations between daily changes in swap spreads and daily changes in corresponding constant maturity Treasury yields.

The predefined spread ratios on CME Globex offer easier, more efficient alternatives for implementing swap spreads while eliminating the risk involved with executing each leg individually.

Exhibit 2 indicates, moreover, that the negative market directionality of swap spreads is a statistically stable feature. Although the strength of the inverse relationship between a swap spread and its companion Treasury yield does fluctuate, the correlation seldom strays too far or for too long from its long-term secular value. Thus, at both 5-year and 10-year maturities, if we estimate correlations between daily changes in swap spreads and daily changes in Treasury yields over short intervals – as before, 252 business days – we find that the resulting estimates seldom occur outside the range of -0.25 and -0.5.

U.S. Treasury and CBOT Interest Rate Swap futures make it reasonably simple to isolate and trade swap spread exposure. For example, to act on the view that financial sector credit spreads around 10 years to maturity are wider than economic and credit conditions warrant, traders can sell the 10-year term swap spread by selling either 10-Year Treasury Note futures or on-the-run cash 10-Year Treasury Notes, and buying a DVO1-matched number of 10-Year Swap futures. The Swap futures complex is structured so that either approach offers benefits:

- By implementing the spread as cash (Treasuries) to futures (Swap), market participants can take advantage of the flexibility of the CME Group Exchange-for-Physical (EFP) facility in entering or exiting the trade. (See Rule 538, “Exchange of Futures for Related Positions,” in the CBOT Rulebook.)
- By setting up the spread with U.S. Treasury futures and Swap futures, market participants take on a certain amount of yield curve exposure, to the extent that the Treasury futures contract’s cheapest-to-deliver issue represents a term to maturity other than 10 years. In exchange, they enjoy the capital efficiencies arising from performance bond reductions that CME Clearing typically applies to such intercommodity futures spreads.

Moreover, swap spreads can be traded on the CME Globex electronic platform at predefined ratios between U.S. Treasury and CBOT Interest Rate Swap futures. This provides an easier, more efficient alternative for implementing these strategies while eliminating the risk involved with executing each leg individually.

For more information on trading Swap spreads on CME Globex, visit www.cmegroup.com/ics.

ISDA® is a registered trademark and ISDAFIX™ is a registered service mark of the International Swaps and Derivatives Association, Inc. ISDA Benchmark mid-market par swap rates are collected at 11 a.m. Eastern Time by Reuters Limited and ICAP plc and published on Reuters page ISDAFIX3 and Bloomberg page ISDAFIX1. Source: Reuters Limited.

The Globe Logo, CME®, Chicago Mercantile Exchange®, CME Group™ and Globex® are trademarks of Chicago Mercantile Exchange Inc.

The information within this brochure has been compiled by CME Group for general purposes only. CME Group assumes no responsibility for any errors or omissions. Although every attempt has been made to ensure the accuracy of the information within this brochure, CME Group assumes no responsibility for any errors or omissions. Additionally, all examples in this brochure are hypothetical situations, used for explanation purposes only, and should not be considered investment advice or the results of actual market experience.

All matters pertaining to rules and specifications herein are made subject to and are superseded by official CME, CBOT and CME Group rules. Current rules should be consulted in all cases concerning contract specifications.