Synthetic Funding Structures: The Art of Complex Trades

The development of synthetic funding structured vehicles has enabled a wider range of participants to enter the credit derivatives market. What exactly are these vehicles and how do they work? And can they help financial institutions perform asset liability management and liquidity management? Moorad Choudhry dissects the synthetic funding landscape.

In the credit derivatives arena, synthetic funding structures are rapidly gaining popularity. In fact, the structures — which combine credit derivatives (such as total-return swaps) with commercial paper and medium-term note issuance vehicles — are now being used by banks and other financial services firms for liquidity and balance sheet asset liability management (ALM). This article will identify, explain and analyze various types of credit derivatives-based synthetic funding structures.

To start, we will consider the simplest arrangement: a funded basket total-return swap (TRS), the essential building block used in the arrangement of synthetic funding structures.

When used for funding purposes, a TRS is more akin to a synthetic repo contract.[1] To illustrate this application, we describe here the use of TRS to fund a portfolio of bonds, as a substitute for a repo trade.[2]

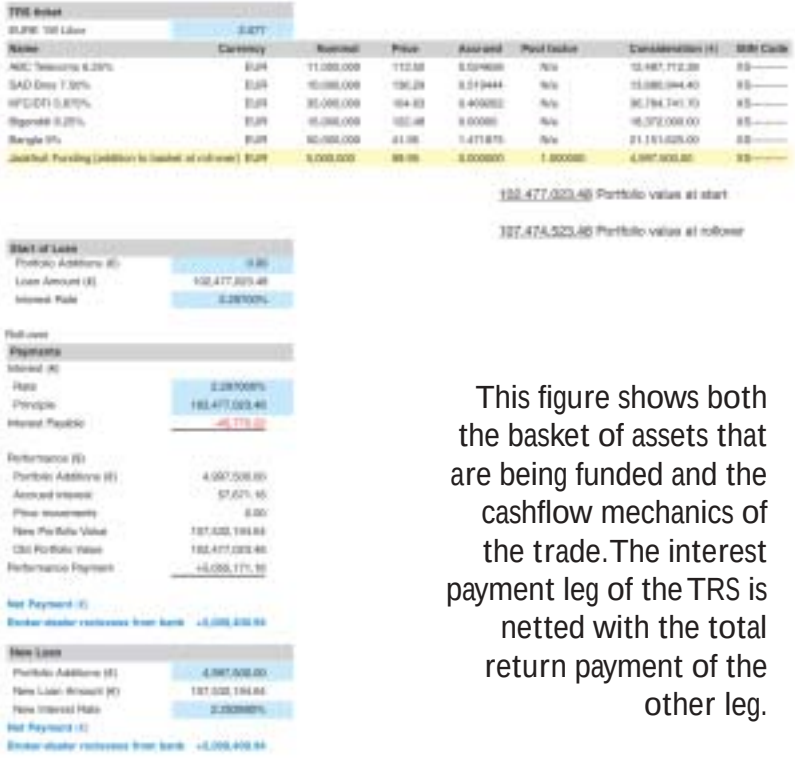
Consider, for example, a financial institution such as a regulated broker-dealer that needs to obtain funding for a portfolio of assets on its balance sheet. Suppose these assets are investment-grade-rated structured finance bonds, such as credit card asset-backed securities, residential mortgage-backed securities or credit derivatives obligation notes. In the repo market, the broker-dealer is able to fund these at Libor plus 16 basis points (bps) — i.e., it can repo the bonds out to a bank counterparty and will pay Libor plus 16 bps on the funds it receives.

Let's also assume that for operational reasons, the bank can no longer fund these assets using repo. Instead, it can fund them using a basket TRS contract, providing that a suitable counterparty can be found.

Under this contract, the portfolio of assets is swapped out to the TRS counterparty and cash is received from the counterparty. The assets are therefore sold off the balance sheet to the counterparty, an investment bank. The investment bank will need to fund this itself, either through receiving a line of credit from a parent bank or through swapping the bonds out into the market. The funding rate it charges the broker-dealer will depend to a large extent on what rate the bank can fund the assets itself.

In addition, assume that the TRS rate charged is Libor plus 22 — the higher rate reflecting the lower liquidity in the basket TRS market for non-vanilla bonds. At first this

Fig. 1: **TRS Funding Trade Example**



This figure shows both the basket of assets that are being funded and the cashflow mechanics of the trade. The interest payment leg of the TRS is netted with the total return payment of the other leg.

trade may appear illogical, because of the higher funding rate the broker-dealer will be paying to fund its book with the TRS. However, we assume that there are reasons — connected with funding diversity and balance sheet requirements — why the trade makes sense. The TRS portfolio is shown in Figure 1 (page 19).

At the start of the trade, the portfolio consists of five (hypothetical) EUR-denominated convertible bonds. The broker-dealer enters into a three-month TRS with the investment bank counterparty, with a one-week interest rate reset. This means at each one-week interval, the basket is revalued.

The difference in value from the last valuation is paid (if higher) or received (if lower) by the investment bank to the broker-dealer; in return, the broker-dealer also pays one-week interest on the funds it received at the start of the trade.

If any stocks have been sold or bought, they can be removed or added to the basket on the reset date. If the bonds have not moved in price between the reset dates, then there is no performance payment for the investment bank to make. The terms of this hypothetical trade are shown below:

Trade Date	**March 24, 2004**
Value Date	**March 26, 2004**
Maturity Date	**June 28, 2004**
Rate Reset	**March 31, 2004**
Interest Rate	**2.297%** *(One-week EUR Libor fix of 2.07% plus 22 bps)*

The combined market value of the entire portfolio is taken to be, roughly, EUR 102,477,023. There is no haircut. At the start of the trade, the five bonds are swapped out to the investment bank, which pays the portfolio value for them. On the first reset date, the portfolio is revalued and the following calculations confirmed:

Old Portfolio Value	**EUR 102,477,023**
Interest Rate	**2.2970%**
Interest Payable by Broker-Dealer	**EUR 45,770.22**
New Portfolio Value	**EUR 107,532**
Portfolio Performance	**+5,055,171.16**
Net Payment: Broker-Dealer Receives	**EUR 5,009,400.94**

The values above are depicted in Figure 1 (previous page). Taking this trade further, we assume there has been no change in the prices of the five convertible bonds, but the broker-dealer has added a new security to the portfolio. In addition, there has been one week's accrued interest on the original portfolio. This makes up the new portfolio value.

The rate is reset for value, for the period from April 2 – April 9, 2004. The new rate is 22 bps more than the one-week EUR Libor fix on March 31, 2004 — an all-in rate of 2.252880%. This interest rate is payable on the new "loan" amount of EUR 107,532.

This trade has the same goals and produced the same economic effect as a classic repo transaction.

Synthetic Funding Structures

Investment banks are increasingly turning to off-shore synthetic structured solutions for their funding, regulatory capital and accounting treatment requirements. We saw earlier how TRS could be used to obtain off-balance sheet funding of assets at close to Libor, as well as how synthetic conduit structures can be used to access the asset-backed commercial market at Libor or close to Libor.[3]

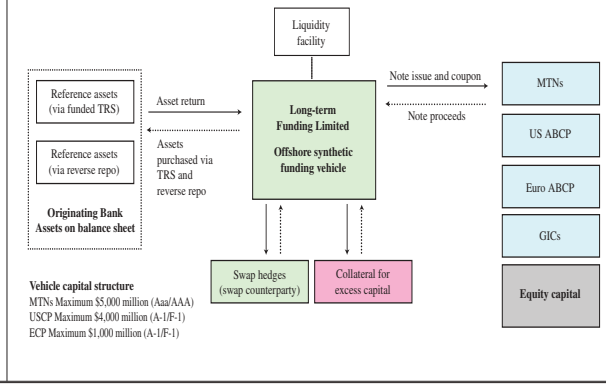
In this section, we discuss synthetic structures that issue in both the Commercial Paper (CP) and medium-term note (MTN) markets — structures that are set up to provide funding for either investment bank portfolios or the reference portfolios of the bank's clients. There are a number of ways to structure these deals, some using multiple legal entities or "special purpose vehicles" (SPV).

We illustrate the approach taken when setting up these structures by describing hypothetical funding vehicles. A commercial bank or investment bank can set up an offshore SPV that issues both CP and MTNs to fund underlying assets that are acquired synthetically. How would this process work?

Let's assume an investment bank wishes to access the CP and MTN markets and borrow funds at close to Libor. It sets up an offshore SPV — dubbed Long-Term Funding Limited — that has the freedom to issue the following liabilities as required: CP; MTNs; guaranteed investment contracts (these are deposit contracts that pay either a fixed coupon to lenders or a fixed spread over Libor); and repo agreements.

These liabilities are used to fund the purchase of assets that are held by the investment bank — assets that are purchased synthetically via TRS contracts or sometimes in cash form as a reverse repo trade. The vehicle is illustrated in Figure 2 (below).

Fig. 2: **Synthetic CP/MTN Funding Structure**



As you can see, the vehicle is structured in such a way that the liabilities it issues are rated at A-1/F-1 and Aaa/AAA. This enables the originating bank to access the money and capital markets at rates that are lower than it would otherwise obtain in the interbank (unsecured) market. The originator invests its own capital in the structure in the form of an equity piece. At the same time, a liquidity facility is also put in place, to be used in the event that the vehicle is not able to pay maturing CP and MTNs.

Moorad Choudhry

Multi-SPV: Driving Growth

One of the main drivers behind the growth of synthetic funding structures has been the need for banks to reduce regulatory capital charges. While this can be achieved by setting up an offshore SPV that references assets synthetically, recent proposals on changing accounting treatment for SPVs means that this approach may not be sufficient for some institutions.[4]

But a multi-SPV structure can reference an entire existing SPV synthetically, in effect creating a synthetic transfer of assets that have already been synthetically transferred. This type of vehicle would be used by banks or fund managers to obtain funding and capital relief for an entire existing portfolio without having to move any of the assets themselves.

The key to the synthetic multi-SPV conduit is the CP and MTN issuance vehicle, which is a standalone vehicle established by a commercial or investment bank. This provides funding to an existing SPV or SPVs and acquires the assets of the SPV synthetically. The assets are deemed as being held within the structure and as such attract a 0% risk-weighting under Basel I. This structure is illustrated in Figure 3 (right).

The arrangement of this multi-SPV structure is an example of the flexibility of credit derivatives — as well as structured credit products created from credit derivatives — in the debt capital markets today.

Exploring the Buy Side

Hedge funds are commonly funded via a prime brokerage facility set up with banks. Put simply, under a prime brokerage the provider of the facility holds the assets of the hedge fund in custody, and these assets act as security collateral against which funds are advanced.

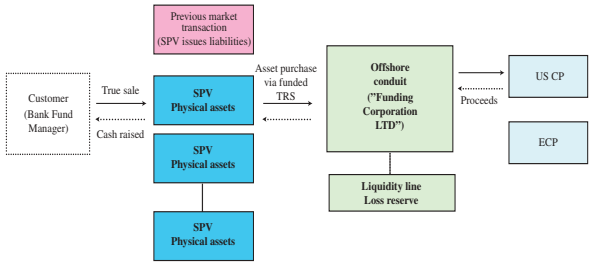
These funds are used by the hedge fund to pay for the assets it has purchased, and are lent by the prime broker at a spread over Libor, typically 50-70 bps. The prime broker also lends assets to cover short positions.

Many investment companies hold positions in illiquid assets, such as hedge fund of funds shares or other difficult-to-trade assets. It is more difficult to raise funds in the wholesale markets using such assets as collateral, because of the problem associated with transferring them to the custody of the cash lender. But the advent of credit derivatives and financial engineering has enabled companies to get around this problem by setting up tailor-made structures for funding purposes.

In figure 4 (pg. 23), we depict an example of a funding or liquidity structure that raises cash in the wholesale market via a Note and (TRS) structure that references a basket of illiquid assets.

This example assumes that two entities are part of a Bancassurance[5] group: a regulated broker-dealer ("Smith Securities") and a hedge fund derivative investment house ("Smith Investments Company"). The investment house raises funds primarily from its parent banking group; however, for diversity purposes it also wishes to raise funds from other sources. One such source is the wholesale markets, via a Note and TRS structure, illustrated in Figure 4.

Fig. 3: **Multi-SPV Synthetic Funding Structure**



The lender is an investment bank ("ABC Bank plc"). It is willing to advance funds to the investment company, secured by its assets, at a rate of Libor plus 20 bps. This is a considerable savings on the investment company's cost of funds with a prime broker and comparable with its parent group funding rate. However, its assets cannot be transferred, because they are untradeable assets and thus cannot act as collateral in the normal way one observes in (for example) repo trades.

To enable the funding to be raised, in lieu of transferring the assets, we must take the following steps to build the liquidity structure:

• ABC Bank plc does not lend funds directly; instead, it purchases a two-year Note at a price of par. The return on this Note is linked to the performance of a basket of assets held by Smith Investment Company. As Smith Investment Company is an unregulated entity, it cannot issue a Note into the wholesale markets. Therefore, the Note is issued by its sister company, Smith Securities.

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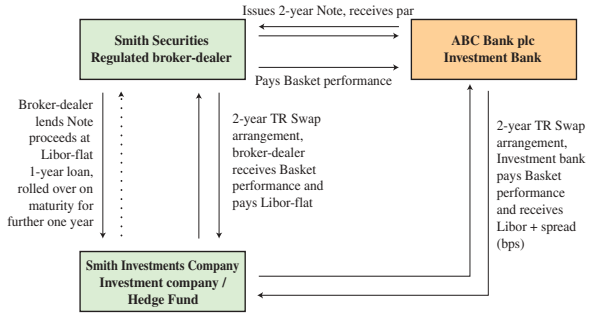
• The funds raised by the sale of the Note are transferred, in the form of a loan, from Smith Securities to Smith Investment Company at Libor-flat.

• Simultaneously, the two companies enter into a TRS arrangement, with start and maturity dates matching that of the Note. Under this TRS, Smith Securities receives the performance of the basket of assets and pays Libor-flat.

• Lastly, Smith Investment Company and ABC Bank plc also simultaneously enter into a TRS arrangement whereby the bank pays the performance of the basket of assets and receives Libor plus 20 bps.

The net cashflow of this structure is that Smith Investment Company pays ABC Bank plc Libor plus 20 bps, and raises funds via the proceeds of the Note issued by Smith Securities. The economic effect is that of a two-year loan from ABC Bank to Smith Investment Company — but because of legal, regulatory, operational and administrative restrictions, we need to set up the structure described above to create this effect.

Fig. 4: Note and TRS Structure



Please note that under some jurisdictions, it is not possible for Group companies to make inter-company loans without attracting withholding tax on the loan. To get around this, in Figure 4 we have shown the loan from Smith Securities to be a one-year loan, which is then rolled over for another year on maturity following a break period of some days or weeks between the rollover dates.

Closing Thoughts

The market for credit derivatives has seen significant progression since its inception as, essentially, a hedging tool for banks. The development of synthetic structured products has enabled a wider range of participants to enter the market and has also provided access to wider opportunities for disintermediation.

This article has demonstrated how Treasury desks — not hitherto large users of credit derivatives — can access money markets in a way that previously would not have been possible: i.e., via the use synthetic securitization technology.

The vehicles described here have enabled financial institutions to conduct asset liability and liquidity management on a more flexible basis. They also have enabled other financial institutions to obtain funding for assets that are illiquid or un-tradeable.

The rapid expansion of the credit derivatives market has occurred during a period that has seen market corrections, large-scale market defaults and subsequent improving credit fundamentals. As more and more reference names, structured finance and high-yield instruments are traded synthetically, we can expect to see more frequent application of these products by banks and other financial institutions for balance sheet management purposes. ■

FOOTNOTES:

1. The economic effect may be the same, but they are considered different instruments. TRS actually takes the assets off the balance sheet, whereas for tax and accounting purposes, a classic repo is deemed to leave the assets on the balance sheet. In addition, a TRS trade is conducted under the ISDA standard legal agreement, while repo is conducted under the BMA/ISMA "GMRA" standard repo legal agreement. It is these differences that, under certain circumstances, make the TRS funding route a more favorable one for certain market practitioners.
2. There may be legal, administrative, operational or other reasons why a repo trade is not entered into to begin with. In these cases, provided that a counterparty can be found and the funding rate is not prohibitive, a TRS may be just as suitable.
3. For more information on asset-backed commercial paper, see Choudhry (2004).
4. We refer to new US accounting rules on consolidating those SPVs whose business functions are not deemed truly arms-length. This was in response to the Enron episode, which uncovered the use of SPVs for less-than-savory purposes. While we discuss a new synthetic structure that would enable banks to maintain separate accounting treatment for offshore companies, the subject of accounting treatment is outside the scope of this article.
5. Bancassurance is a term used to describe the diversification of banks operations into insurance activities.

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✎ MOORAD CHOUDHRY is a Visiting Professor at the department of economics, London Metropolitan University; he is also the co-founder of the e-Journal YieldCurve.com. His recent publications on the subject of structured finance include *Structured Credit Products: Credit Derivatives and Synthetic Securitisation* (Wiley Asia, 2004) and *Corporate Bonds and Structured Financial Products* (Butterworth Heinemann, 2004).