

THE EVOLUTION OF THE MARKET FOR SWAP FINANCING

by

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1. INTRODUCTION

The emergence of interest rate and currency swaps (usually referred to collectively as "swap financing") as an important instrument of international finance has been among the most exciting developments in international capital markets in recent times.

While no official statistics exist, estimates from market participants suggest that the size of the market in 1985 was approximately US\$200 billion (\$140 billion in interest rate swaps and \$60 billion in currency swaps). This compares with a market size of approximately US \$75 billion in 1984 and US\$25 billion in 1983. There is also every indication that this market continues to grow strongly.

However, the growth in the absolute size of the market for swaps tends to mask the more subtle changes in the nature of the market. The primary objective of this paper is to examine the changing nature of this market and to provide an analysis of the reasons underlying the changes.

2. THE EVOLUTION OF THE SWAP MARKET

All swap transactions are predicated on the exchange by one party of a benefit which it enjoys in a particular market for a corresponding benefit available to another party in a different market.

The classical interest rate swap arbitrated the different risk/reward criteria of fixed rate investors against those of floating rate lenders. However, as in any type of arbitrage, the continuous and active exploitation of an identifiable arbitrage opportunity gradually erodes the arbitrage.

As the process of arbitrage erosion has become evident, the swap market has adapted itself by undergoing certain fundamental changes. The market has developed in two different, but complementary, directions. The first development involved the search

for "new" arbitrage opportunities and the development of transaction structures designed to exploit identified discrepancies to provide net economic gains to the parties involved. The second development was a change in the purpose for which swaps were utilized; instead of merely being an attractive way of reducing the cost of *new* funds to be raised, swaps were increasingly used as an instrument for actively managing an organization's *existing* liabilities.

3. THE EVOLUTION OF SWAP STRUCTURES

The Search for "New" Arbitrage Opportunities

The search for new arbitrage opportunities entailed primarily increased effort to understand the economics of swap transactions and to identify the underlying comparative advantages which enable the arbitrage to be undertaken. As already noted, swap transactions are predicated on the central principle of exchanging an advantage which a party enjoys in one market for an advantage enjoyed by a counterparty in a different market. Importantly, the advantage need not be absolute, it need only be comparative, that is, one party may in fact have an absolute advantage in both markets, but may have a comparatively *greater* advantage in one market. That advantage can be in terms of cost of borrowing and/or availability of funds.

As market forces eroded away the initial credit arbitrage between fixed and floating rate markets, the search for new opportunities focused on both "temporary" and "sustainable" arbitrage opportunities between various markets. Some short lived arbitrage opportunities which appeared intermittently focused on the creation of securities and related swap structures which appealed to niches of investors and borrowers at particular times. The experience of the eurobond market, where it is common to think of the market in terms of "windows" (the term being used to characterize the moments in time when a particular

type of security can be issued because the investors are “there”) became rapidly equally relevant to the swap market.

However, longer lived comparative advantages enjoyed by certain borrowers and factors which form the basis of sustainable economic advantages whose exchange can form the basis of swap transactions also emerged. It became rapidly evident that certain sources of funds were more receptive to a particular borrower than another for well entrenched economic reasons, primarily for tax and other regulatory reasons. For example:

- The presence of withholding taxes creates a “wedge” between yields on domestic securities and those on comparable securities issued in the eurobond market.
- Frequent borrowers may get better terms and a greater availability of funds by issuing in a wide range of different currency markets, thereby allowing them to reach investors who would not invest in the borrower’s usual currencies. For example, the World Bank tends to pay a bigger “penalty” for its frequent borrowing in a number of low coupon currencies in which it prefers to borrow, such as the Swiss Franc market, than it does in the Eurodollar market, by virtue of the greater depth of the latter and the frequency of the Bank’s visitation to the former.
- A number of countries operate queuing systems for their capital markets which favour domestic issuers over non-residents.
- An issuer’s domestic market may be the most attractive because the name will be best known there. In addition, portfolio restrictions on the amount of foreign securities which can be held by investing institutions, such as insurance companies and pension funds, as a proportion of their total portfolios creates a two-tier rate market which is a function of geography, not issuer quality.
- An issuer may enjoy preferential access to subsidised financing, for example, in the form of export credits or tax-based leasing etc.

These fundamental discrepancies enable transaction structures to be developed to allow liability managers to almost totally separate decisions in respect of the market in which to borrow from and decisions on the currency and interest rate basis (whether fixed or

floating) of borrowing. The ability to enable companies to obtain liquidity from the “best” source whilst maintaining flexibility in managing the nature of the resultant liability allowed the market in swap transactions to continue its growth even as the arbitrage basis of the classic swaps was eroded away. In essence, the arbitrage basis of swaps had been expanded to encompass elaborate tax and regulatory arbitrage.

New Swap Structures

The new swap structures which emerged can be divided into enhancements of the classic swap structure or innovations involving the type of issue (or underlying debt) utilised as the basis of the swap.

The enhancement of the classic swap structure entailed primarily the addition of a series of options on conventional currency or interest rate swaps. These options were often timing options allowing flexibility in terms of the point of time at which the swap was entered into or the rate on the swap was determined. In a number of cases, forward swaps, commencing in the future (sometimes after a number of years), were created usually relating to underlying debt with call features.

Other swap structures often entailed a “pure” option element where the party entering into the arrangement had the right but not the obligation to enter into, terminate, or extend a transaction. Such contingent swaps were undertaken in both currencies and interest rates usually being related to capital market issues of contingent claims such as issues of debt warrants.

The other major area of innovation in swap structuring related to the development of swaps to accommodate new types of capital market issues which were increasingly used to take advantage of rapidly changing patterns of demand for debt securities from international investors. The types of swaps which evolved in response to these developments included:

- Zero coupon or deep discount swaps
- Swaps against securities issues with attached warrants into additional securities
- Dual Currency Bond swaps
- Deferred Coupon swaps

These swap structures increasingly combined several discrete steps involving a series of transactions which usually included one or more currency and interest

rate swaps, a long dated forward currency contracts as well as, occasionally, the purchase or sale of futures, options or physical securities.

A major trend was the emergence of new issue structures and corresponding swaps embodying option elements. These structures have included interest rate as well as foreign currency option elements.

One structure consists of a swap transaction engineered against a "capped" Floating Rate Note ("FRN") or Certificate of Deposit ("CD") issue. The structure entails a FRN or CD issue for a maturity of up to 12 years, usually carrying a coupon of, say, 0.25 per cent over 6 month LIBOR. The issue is subject to a maximum interest rate or "cap", on recent issues of up to 13.0 per cent p.a. The swap transaction itself entails the swap counterparty effectively "buying" the interest rate cap of 13.0 per cent for a fee of say 0.5 per cent p.a., thereby reducing the issuer's floating rate cost by the amount of the fee effectively creating floating rate funding for the Issuer at, in the above example, 0.25 per cent p.a. *below* LIBOR.

Another structure entailed the issue of a 3 year US\$ debt security with a higher than conventional coupon where the redemption value of the instrument was linked to price fluctuations on the 30 year US Treasury Bond. The transaction entailed the Investor in the security purchasing and simultaneously granting options on the 30 year US Treasury Bond. These options were then stripped off and sold as part of a swap package whereby the issuer attained floating rate US\$ funding at a margin under LIBOR.

An example of structures entailing currency option elements was a number of US dollar euro-bond issues which carried higher than normal coupons but the investor effectively wrote a currency option in that if the US dollar/Yen exchange rate (in the case of a number of transactions undertaken), at maturity, was above a specified level then the principal repayment to the inventor was reduced. This long term currency option is then sold and the proceeds used to lower the effective interest cost of the issue itself which is swapped utilizing conventional swap structures.

These particular types of transactions are predicated largely on different sectors of the capital market placing differing values on particular instruments resulting from their heterogenous expectations. Many of the emerging swap structures are designed around capital market issues created to arbitrage these anomalies.

Other areas in which swap structures rapidly evolved were basis swaps (or floating-to-floating swaps) entailing the conversion of one floating rate index into another, both in the same and in different currencies. An active market in basis swaps is US\$'s between a number of indices (T-Bills, Commercial Paper, US Prime, LIBOR Etc) developed. A less active market between US\$ LIBOR and floating rate indexes in other currencies, such as the A\$ Bank Bill Rate, also emerged. The development of this basis swap market appeared to be predicated on the trading of comparative advantages enjoyed by different entities in their access to different floating rate markets as well as controlled risk arbitrage, primarily in US\$, as borrowers and investors altered their levels of exposure to different floating rate indexes in line with their expectations of altering spread relationship between them.

The new swap structures which emerged provided additional flexibility as well as enabling borrowers to arbitrage markets to generate lower effective funding costs. However, many of the innovations provided these advantages at an additional cost which often, upon analysis, outweighed the benefits of the transaction. However, as the classic swap transaction ceased to generate floating rate US dollar funds at significant margins under LIBOR, participants in the global capital market experimented with new transaction structures designed to exploit particular preferences of investors and/or borrowers and arbitrage inefficiencies between markets.

Bond Markets Utilised for Swaps

As swap transactions increasingly unbundled the process of fund raising, separating the decision to raise funds in a particular market and the process of conversion of the funds raised into the desired currency and interest rate basis, all the major global bond markets increasingly became arbitrage markets. With an ever higher percentage of issues being swap driven (estimated at up to 80 per cent of all new issues), the pricing in almost every segment of the international bond market came to be arbitrage driven — the relevant pricing being *not* the absolute interest cost of an issue per se, but the pricing achievable in US dollar terms in either fixed rate terms relative to US Treasuries or, more often, in floating rate terms as a margin under LIBOR.

As the classic credit arbitrage in the eurodollar sector of the eurobond market eroded, each sector of the international bond market came to be regarded as a potential source of swap driven issues. At various times, the Euro-Sterling, the European Currency Unit

("ECU"), the Euro-Yen, the Euro-Australian dollar, the Euro-New Zealand dollar, Euro-French Franc, Euro-lira and Euro-Kroner market became the focus of large volumes of issues as borrowers, without a legitimate direct interest in the market, used the issue as an arbitrage based vehicle to generate lower cost overall funding taking advantage of the particular circumstances that prevailed.

While it is difficult to generalise, a number of identifiable factors were evident in driving the arbitrage which determined which segment of the bond market provided the most attractive swap. These included currency and interest rate expectations of investors which fundamentally determined the demand for issues. For example, the ECU's intrinsic value as a currency hedge for both investor and borrower and the fact that access to the ECU bond market was limited to a relatively limited number of prime quality borrowers provided a substantial volume of swap transactions transacted against ECU issues.

Institutional factors, primarily investment and tax regulations, were also an influential factor. For example, the fact that an issue by a Japanese company in for example, Australian dollars, was not regarded as a "foreign issue" for Japanese institutional investors and therefore did not count towards the (then applicable) 10 per cent limit on investment in foreign securities made possible special targetted issues into Japan for a time providing attractive swaps for the issuing Japanese institutions into floating rate US dollars.

Another major factor continued to be market inefficiencies/imperfections, in particular, yield differentials between onshore and offshore securities markets in the same currencies. These yield differentials created, for example, by the existence of withholding taxes which discouraged investment in domestic securities but encouraged investment in offshore issues saw persistently lower yields on offshore issues which created attractive arbitrage swap opportunities.

The complex interaction of these factors has served, at various times, to make one or other sector of the international bond market the basis of the most attractive arbitrage swap transaction.

4. SWAPS AS A LIABILITY MANAGEMENT INSTRUMENT

As the classic arbitrage advantage of swaps diminished, there was in addition to seeking out new arbitrage opportunities, a fundamental change in the purposes for which swaps were utilised. The potential of swaps

to manage exposures to interest and currency exchange rates became increasingly recognised. The fact that the swap market effectively filled existing gaps in financial markets, synthetically "completing" markets, allowed market participants to use swaps as surrogate instruments where conventional instruments were not available.

Instead of being viewed primarily as a means by which borrowers could reduce the cost of a new fund raisings, currency and interest rate swaps came to be utilised as an instrument for the active management of an organization's *existing* liabilities. At the same time, swap applications relevant to the asset side as opposed to the liability side of the balance sheet came increasingly to be recognised, enabling portfolio/investment managers to use interest rate and currency swaps to create synthetic securities which were otherwise unavailable, to provide both yield pick-up and portfolio diversification.

For the borrower, interest rate swaps have four major applications: to lock in the cost of floating rate debt; to create term floating rate debt; to unlock the cost of existing high coupon fixed rate debt and to actively manage the cost of an organization's floating rate debt in a manner consistent with interest rate expectations.

The continued use of interest rate swaps to generate a synthetic fixed or floating rate liability, even when they are *not* necessarily a method of creating liabilities at rates more advantageous than a conventional capital market transaction (such as a direct fixed rate bond issue), highlights the increased focus on factors other than simply cost savings in the decision to utilize swaps. The flexibility, speed and anonymity of swap transactions are increasingly major considerations in utilising swaps.

For the investor, swaps have emerged as an instrument for creating synthetic assets and as a means for more active portfolio management. Interest rate swaps can be utilised to effectively, create a fixed rate yield using floating rate securities, or transform a fixed rate asset into a floating rate investment. Interest rate swaps can also be used to lock-in capital gains or minimize losses arising from the impact of interest rate fluctuations on investment portfolios.

Currency swaps, against underlying asset/investment portfolios, enable portfolio managers to create fixed or floating rate securities in currencies different to that of the underlying securities in which funds are invested. They can also be used to manage the foreign exchange

risk of investments as well as protecting portfolios from possible reversals of gains arising from investments made during a period of favourable interest or exchange rates.

The gradual emergence of swaps as an accepted instrument for the *ongoing* management of liabilities has altered, perhaps for ever, the way financial officers and borrowers view their liability portfolios. At their simplest, swaps have become a proxy for conventional financing transactions, that is, an alternative source of fixed or floating rate funds. However, beyond that, swaps have facilitated a whole new set of strategies for managing the liability mix of an organization — in terms of both currency and interest rate basis.

Most importantly, the fact that swaps enable borrowers to manage their liabilities *without* the need to repay existing borrowings or undertake new fund raisings significantly lowers the transaction costs of active liability management facilitating a hitherto inconceivable flexibility in the approach that borrowers, at their option, may adopt in the management of their borrowings.

Swaps against assets/investments may be utilised to generate improvements in yields relative to conventional investment alternatives or to structure investments of a type not otherwise available. Even where higher yields and/or security availability is not a consideration, factors such as the flexibility, speed and anonymity of portfolio operations entailing swaps, instead of purchases and sales of securities, have increasingly forced portfolio managers to view swaps as an investment management instrument. For example, the problems of an illiquid security held in a portfolio can be overcome, in part, by utilizing swaps against that asset.

For the portfolio manager, the impact of swap transactions on investment strategies in respect of holdings of debt securities is more subtle. The active investment management approach of many portfolio managers seeking improved performance means that swaps have not altered their approach to portfolio management but rather changed the way in which active portfolio management may be undertaken. Swaps have emerged as an alternative technique whereby existing investments can be transformed through swaps into selected currencies and/or interest rate basis without the need to physically trade the underlying security.

5. THE MARKET IN SWAPS

The Market Making Function in Swaps

Many of the developments, in terms of both the greater range of swap structures that have emerged and the changes in the way swaps are used, were made possible by fundamental changes in the way the swap market operated.

The earliest transactions were purely counterparty transactions where a commercial or investment bank structured a transaction on behalf of two (or more) counterparties with matched but mirror reverse requirements. However, as the market matured, the major participants in the market moved to being principals in transactions rather than being only agents structuring transactions on behalf of counterparties. This shift accelerated the creation of a secondary market in swaps as these institutions began to act as market makers routinely quoting two-way prices on swaps. While the major emphasis was on US dollar interest rate swaps, a much smaller group of institutions emerged as market makers in cross currency swaps in and between, inter alia, Swizz Francs, Deutsch Marks, Yen, Sterling, Australian Dollars and US dollars. The smaller number of market makers in currency swaps reflected the smaller transaction volume, the complexity and difficulty of hedging and managing positions in this type of transaction.

The emergence of market makers in swap transactions required the development by the institutions concerned of techniques to manage the often large temporary risk positions in a variety of currencies created where the institution transacted swaps as a principal when there was no immediately available counterparty. The risk confronting a swap market maker is that in providing *one* side of a swap transaction, it may not be able to profitably cover the *other* side in the market. This temporary risk position can be in the form of position taking in the swap market as a natural extension of position taking in other fixed interest markets, or alternatively, it can be viewed as a transient unmatched position, not entered into as an interest rate or currency (in the case of currency swaps) bet, but, with the exposure in rate or currency values being hedged either through the physical securities market (e.g. bonds, deposits, borrowing, etc) or in a corresponding futures market on the relevant underlying physical security. The latter is often referred to as swap "warehousing".

The emergence of a select group of institutions willing to act as principals in interest rate and currency swap transactions while important is often overstated. While adding flexibility in terms of execution of transactions and undertaking complex "cocktail" swaps entailing a series of cross-currency, fixed/floating, amortising permutations, the additional costs of hedging and warehousing as well as the necessity to commit capital and earn acceptable returns on risk where the institution acting as principal in a swap transaction effectively assumes a term commitment means that intermediated swaps are often uneconomic. In particular, the erosion of arbitrage margins dictates that intermediation in swap transactions, at least where the institution acting as a principal is adequately compensated for the risk assumed, does not always add value to the transaction.

Consequently, an active agency market in swaps where financial institutions arrange swap counterparties and design the transactions has continued to exist. Where the counterparties are mutually acceptable, the institution merely structures and arranges the swap acting only as principal and intermediating the transaction only for credit enhancement reasons or where it otherwise makes economic sense. The emergence of a number of swap brokers, usually traditional euro-market broking firms, with extensive data bases on potential swap counter parties has also helped ensure the continuance of direct counterparty transactions.

Secondary Market in Swaps

A useful distinction can be made between primary and secondary market transactions. A primary market transaction usually refers to a transaction between two counterparties, in contrast, a secondary market transaction refers to subsequent transactions involving the original contract between the counterparties.

This secondary market in swaps has emerged for two reasons; firstly, the emergence of market makers who must eventually move to "square" their temporary risk position (protected by hedges) created by entering into one side of the swap by entering into an equal and opposite swap which provides the only "perfect" hedge; and secondly, the move by borrowers to actively manage their asset or liability portfolios by entering into swaps then subsequently unwinding their initial position.

Both types of transactions envisaged can be accomplished by one of two methods. Under the first, the

reversal is accomplished by entering into a "mirror" or identical but reverse position but at current market rates, while under the second, the reversal is done by effectively selling, at the prevailing market rate, to another participant the swap obligation entered into by the party now wishing to reverse its initial position.

It is in this area of terminating existing swaps that significant differences and opinions exist. Some participants want swaps to become freely transferable, so that a transaction can be terminated by a simple assignment to another company without the original party having to take a position as principal, except for a short period. The alternative is to transact reverse swaps whereby the intermediary enters into a new transaction each time a transaction is matched, creating an ever increasing number of "open" transactions on the intermediary's books.

The preferences reflect very different perspectives. While some participants see swaps as another trading and arbitrage vehicle in its trading portfolios, others view swaps as akin to longer term commitments such as an extension of credit.

However, several difficulties exist, in practical terms, to a fully transferable secondary market in swaps. The lack of standard documentation, pricing indexes or bench marks, sizes and maturities as well as the absence of standardised measures of counterparty risks in swap transactions are clear obstacles to increasing the depth and liquidity of the secondary market. The major participants in swap markets set up the International Swap Dealers Association ("ISDA") to seek solutions to these difficulties.

The ISDA has recently published the Code of Standard Wording, Assumptions and Provisions for Swaps 1985 Edition ("the Code"). The Code seeks to establish a uniform vocabulary for US dollar rate swap. By standardising the principal terms of interest rate swaps, the Code should facilitate swap transactions and lead to a more efficient market. The ISDA hopes that future versions of the Code will include additional provisions for matters that are relevant to cross-border interest rate swaps and currency swaps.

In Australia, a local swap dealers association has been formed recently and at the time of writing is undertaking tasks similar to that of the ISDA.

6. THE FUTURE OF SWAPS

As the market for swaps matured and the classic credit arbitrage diminished to the point where a simple eurodollar bond issue combined with an interest rate swap could no longer be relied upon to routinely produce sub-LIBOR funding, there were many who predicted the demise of swaps. However, swap transactions, unlike many other recent financial innovations such as original issue discount bonds, debt-equity swaps and debt defeasance which relied on special accounting or tax treatments for their economic benefit and were therefore susceptible to changes in the relevant regulations, have continued to grow and prosper.

The general flexibility of the swap concept and its adaptability to various market situations has almost certainly guaranteed swaps a permanent place in corporate finance. The market seems likely to develop further in the two directions already identified.

The various arbitrage opportunities that occur almost constantly between various bonds markets and even between various sectors in these markets means that the new issue arbitrage designed to generate funding at rates more attractive than directly accessing markets utilizing more conventional instruments will persist although the type of host bond utilised — in terms of issue type, currency, market, interest basis etc — will vary significantly. New swap structures, such as those discussed, will evolve to facilitate the new types of transactions. Some transaction structures will survive over the longer term as they facilitate the exploitation of persistent arbitrage opportunities between markets. Others will be “one off” transactions or will persist for shorter periods until the underlying market discrepancy is eliminated. The complexity and transaction costs of certain innovative swap structures makes them prohibitive in an economic sense, with the sheer cost of engineering the transaction eroding any possible arbitrage benefits.

The second and more fundamental direction in which the market will continue to develop is the increased use of swaps as a method of actively managing the cost of existing debt or in the case of portfolio managers, managing investment portfolios. In this regard, swaps appear likely to emerge as an over-the-counter financial futures contract complementing traditional futures markets, particularly in the three years and beyond maturity range which are usually beyond the coverage of futures markets.

However, there are already indications that swaps are being supplanted by newer instruments — primarily, long term options on debt instruments. The fundamental limitation of swaps, which they share, with financial futures contracts, is that for a company with current floating rate debt wishing to limit its interest rate exposure from a sharp increase in short term rates, swaps only enable it to fix its rate at the expense of increasing its current interest cost in a positively-sloped yield curve environment. In addition, in fixing its rates utilizing swaps, the borrower forgoes any possibility of benefitting from favourable movements in interest rates.

“Caps” and “Collars” represent two new techniques developed to overcome the limitations of swap transactions. A Cap contract effectively insulates a borrower against a major rise in short term rates, but preserves the benefit of any decrease in rates. Collars are similar to caps except that there is a minimum as well as maximum rate, that is, the borrower's interest rate is free to fluctuate within a nominated range.

Currently, a number of basic types of long term debt options are available: customised options sold by financial institutions; debt options usually on financial futures contracts traded on major futures exchanges; and options related to capital market issues which are separated and sold separately.

Caps and Collars are currently available primarily for periods up to three years, although a few institutions are willing to write transactions for longer periods — up to ten years. The considerable risks assumed by providers of such facilities and the inexact science of pricing option contracts, which continue to mean that long term options are driven more by short-term expectations than by fundamentals or by statistical modelling theories, has meant that the high fees for cap and collar contracts demanded by providers makes such instruments still relatively expensive. The lack of understanding on the part of users of such facilities has also contributed to the lack of utilization of such instruments. However, it is clear that, in the longer term, these types of instruments will emerge as major alternatives to swap contracts complementing them in the same way that options on financial futures have complemented the futures contracts themselves.

7. CONCLUSIONS

The emergence of deep and relatively liquid markets in swaps with transactions being undertaken for reasons other than the pure capital market arbitrage

which motivated early transactions represents perhaps the most significant development in corporate finance in recent times. The adaptability of the basic concept to different market conditions seems likely to ensure the future of swap transactions in international capital markets.

As long as arbitrage opportunities between various markets continue to exist, swaps will be used as tools for corporations to obtain lower cost funding. The flexibility of swap transactions also ensures their continued utility as an instrument for the management of liabilities. The development of swaps as in "over the counter" futures contract has complemented existing futures and options markets as well as foreign

exchange markets particularly in three to seven year maturity spectrum where corresponding markets are non-existent or thinly traded.

However, as futures and option maturities are extended, as is already apparent in the form of cap and collar transactions, swaps will become one of a number of financial instruments available for managing liability, as well as asset, portfolios. As the concept of active management of an organisation's liabilities becomes the established norm, swaps, in conjunction with the rapidly evolving foreign exchange, financial futures and options markets, will provide both tremendous scope and challenge to the task of financial management.

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