TDRI Quarterly Review
Published in *TDRI Quarterly Review*
Vol. 6 No. 3 September 1991, pp. 25-30
Editor: Anne Johnson

Financial Innovations and Their Impact upon Economic Policies: Executive Summary

The following is from a recent research monograph, in Thai (publication code: RM6),
by Pakorn Vichyanond.

Since the mid-1980s governments of various industrial countries have, to a large extent, relaxed their controls on financial institutions. Such liberalization, together with a volatility of exchange and interest rates never before experienced, generated a string of new financial instruments specially designed to handle different kinds of risks. These instruments have been widely accepted in the international financial community, and it is notable that the volume of their transactions in any period of time varies directly with the degree of turbulence in money markets.

In Thailand the Monetary Authorities used to act as a buffer, in most respects, for local markets against fluctuations abroad. This conservative stance was largely due to the desire to achieve economic stability. It is therefore not surprising that the numerous economic measures adopted helped protect domestic units from external disturbance. Fixed exchange rates, restrictive exchange controls, and ceilings and floors on interest rates are examples of these measures. Later on the government realized that such protective ruling also had disadvantages. For instance, fixed exchange rates may contribute to price stability at the expense of a sustainable trade balance on the external account. Similarly, rigid regulations on interest rates may easily impede market competition and the efficiency or professionalism of local financial institutions.

As a result, the Thai Monetary Authorities recently opened up the local scenario to a considerable degree. Floating exchange rates, dismantlement of some exchange controls, and the abolition of some interest rate constraints are examples of such deregulation. In the presence of growing volatility in local as well as foreign money markets, a large number of private entrepreneurs or organizations are beginning to recognize the benefits financial innovations bring in handling their assets and liabilities. Seven new financial instruments—currency options, interest rate options, forward rate agreements, currency swaps, interest rate swaps, floating rate notes, and note issuance facilities—are described below.

CURRENCY OPTIONS

Currency options are rights to buy or sell foreign exchange at a price neither above nor below the one agreed upon in the contract within a specific period of time or on a given date. These rights are useful in curbing exchange risks for customers or units expecting to have foreign exchange dealings in the future, for example, importers, exporters, borrowers, and contractors. Typically, financial institutions offering currency options demand that their clients present supporting evidence of possible or expected foreign exchange flows so as to minimize speculation. Ordinary maturities of currency options stay within six months. Longer maturities bring about complications to both sellers and buyers, especially with regard to appropriate fees.

Among various foreign exchange tools, currency options have the following outstanding features. They are only rights, not obligations, which can be exercised or left unused at the will of the holder. Whenever holders decide to exercise these rights, they are not bound to carry out the desired transactions with the same financial institutions which sold the currency options in the first place. Customers only need verify actual transactions, wherever they are done, before receiving or paying the difference in accordance with

the option contracts. Furthermore, as long as options are not yet exercised and the contracts still remain valid, option holders can trade their rights to any party should they so desire. This allowance adds a valuable element of liquidity to currency options. Because of the flexibility mentioned above, fees charged in currency options are somewhat higher than those typically charged in outright forward contracts. Despite their higher prices, currency options have become fairly attractive, especially among those customers wishing to curtail exchange risks in possible future projects. Clear-cut examples are companies tendering to contracts which involve foreign exchange expenses. Even though there are other ways to hedge exchange risks, such as currency swaps and currency futures, they do not yield as much flexibility and customization as currency options.

Currency options are equally attractive to the financial institutions selling them, since these options are only rights and need not be reported on the sellers' balance sheets. These "off-balance-sheet" activities yield income to sellers, without necessitating the presence of adequate back-up capital funds or other conditions as in the case of typical lending activities of commercial banks.

In Thailand the first currency option, offered in 1985, was between the U.S. dollar and the local Thai baht. A year afterwards commercial banks started to market currency options between prominent Western currencies. It is notable that even though Thai commercial banks dominated the forward exchange market in Thailand, the parties which were more eager to offer currency options were foreign banks. This may be attributed to the constraint these foreign banks have in establishing branches in Thailand as well as their close connection with their headquarters abroad which provide familiarity with crucial aspects of extending services on currency options, such as risk appraisal, pricing, coverage, and trading in secondary markets. As regards pricing, empirical tests suggest that fees were based on the degree of exchange rate fluctuations in the past. And the option premium charged was, on average, more than enough to compensate for possible losses. That may be because commercial banks do not want to encounter crises similar to the one experienced in currency option markets overseas in 1984-85 arising from both underpricing and rapid fluctuations of exchange rates.

INTEREST RATE (IR) OPTIONS

The types of IR options studied here include "cap," "floor," "collar," and "swap options." Cap is the ceiling on interest rates and can be bought by any floating-rate debtor for a certain amount of principal, thereby restricting his interest expenses. Floor, on the other hand, represents the minimum interest rate a floating-rate depositor can purchase to attain satisfactory returns on his deposit. These services are rendered because the interest rates, which serve as a basis in floating-rate commitments, can fluctuate wildly and unpredictably, causing too much burden or too little return in money markets. Cap and floor are thus favored by some borrowers and depositors as less risky. The interest rates referred to in cap and floor are ordinarily required to be standard rates, reflecting the true liquidity status of the money markets concerned. For instance, either LIBOR or SIBOR is often selected as a reference rate for IR option contracts in U.S. dollars, while the rate on CITINOTE or CHASENOTE serves contracts in Thai baht.

Collar combines cap and floor and creates a definite boundary for customers. Whenever the reference rate exceeds the ceiling of the collar, option sellers compensate the excess to customers. On the other hand, if the reference rate falls below the floor of the collar, customers have to pay the difference. Neither party loses if the reference rate stays between ceiling and floor. Collar also helps customers restrict their interest obligations within certain ranges.

Swap options specify the maximum or minimum interest rate differential between two currencies. This service can accommodate both units that count on foreign borrowing and units that receive income from abroad. In the former case, for instance, prudent swapping of foreign funds for local cost financing has to be matched up with appropriate cover in the forward exchange market. Otherwise, gains from tapping cheaper funds abroad may disappear because of exchange rate appreciation. Usually prices of forward covers vary directly with interest rate differentials. Therefore, swap options can assure local companies of certain total cost of swapping foreign loans for local currency.

Before employing any of the aforementioned IR options, customers have to declare the desired amounts of principal concerned, the maturities of the contracts, the relevant currencies, and the interest payment periods. These factors are taken into account when up-front fees are negotiated. Since their innovation, IR options have attracted strong and continuing attention from various money markets worldwide. The primary reason for this popularity is the following advantages to both buyers and sellers. For buyers, IR options provide protection as well as flexibility. For instance, even though cap assists borrowers by restraining interest liabilities within a certain level, no matter how tight the money market has become, it also allows borrowers to enjoy a lighter burden when relevant interest rates drop. Compared to other ways to cope with interest rate volatility, such as swaps or futures, IR options allow more leeway to fit in with the differing needs of individuals. They are also tradable as long as contract maturities have not expired, so buyers are furnished with an element of liquidity.

For sellers, IR options are rights of buyers, and do not have to be reported on financial balance sheets. Consequently, financial institutions offering IR options are not bound to support these activities by putting up further capital funds, nor do they have other obligations. Moreover, sellers of IR options are exposed to only market risks or interest rate fluctuations, and not to credit risks or creditworthiness of customers. Thus, IR options yield fees to financial institutions with less risk than typical credit extension. In short, IR options represent an income-earning channel at cheaper overall costs.

The first cap and floor were offered in Thailand during 1985 for only U.S. dollar interest rates. Later on, these services were developed for Thai baht interest rates. Branches of foreign banks in Thailand took a leading role in this context. As regards terms and fees, sellers of IR options in Thailand were fairly accurate in their interest rate projections, e.g., collars offered in the past were correct, in spite of lengthy maturities, and fees were more than enough to compensate for the interest rate exposure that IR option sellers took on behalf of buyers.

FORWARD RATE AGREEMENTS

The forward rate agreement (FRA) is a financial instrument which helps manage interest rate exposure of customers. A buyer selects a certain level of reference interest rate at any particular point in the future for one notional principal amount (which is not exchanged). The situation is similar to purchasing insurance so that the effective interest rate in the future will be at a pre-specified level. If the actual interest rate on the due date is higher (lower) than that agreed, the difference will be refunded to (by) FRA buyers. Examples of typical FRA buyers are private corporations about to borrow or invest but afraid that interest rates may rise in the future. Conversely, depositors expecting certain returns in the future worry that interest rates may decline. They therefore sell FRAs ahead of time to eliminate uncertainty.

Though FRA transactions do not require margins or collateral as in futures markets, FRAs do not leave as much room or flexibility to purchasers as do IR options. Once committed in an FRA contract, a buyer has to either win or lose. Nevertheless, what he gains is to know in advance the exact amount of forthcoming interest obligations. The reference rates ordinarily used in FRA contracts are the standard rates, such as LIBOR or SIBOR, which reflect true market liquidity.

The two salient features of FRAs engendering widespread popularity are as follows. FRAs allow customers to adjust their interest rate exposure without having to immediately shift the liquidity profile of their current assets and liabilities. Because of their off-balance-sheet nature, FRAs appeal to financial institutions, as the institutions can sell them without having to raise additional capital or satisfy certain obligations. Moreover, the FRA attracts a large number of customers, especially at times of substantial interest rate volatility, since the terms of FRAs are so customer-oriented that the agreed interest rate, maturity, and beginning date of interest calculation can be tailored to fit individual needs. This aspect of flexibility enables customers to easily adjust their profiles as desired or offset any existing interest rate mismatch.

Yet, FRAs also have drawbacks. First, there is no secondary market trading for FRAs before maturity. Nonetheless, either partner of an FRA can enter a reverse FRA contract with another party to dissolve the original obligation. Second, in contrast with IR options, FRAs give rise to both market and credit risks. This

can have a strong impact on financial institutions rendering FRAs to earn income or to adjust interest rate exposure.

In Thailand few banks offered FRAs and initially FRAs were only for U.S. dollar interest rates. This may have been due to the limited capability of FRA sellers to safely cover their positions via reverse FRAs. With regard to terms and pricing, FRA sellers were largely accurate in their expectations of interest rate movements and fees were adequately high, yielding profits to some extent.

CURRENCY SWAPS

A currency swap is an exchange of newly-committed or current debts denominated in different currencies between two parties according to a specific rule. After the principals have been exchanged, each party must service the corresponding interest payments attached to the received principals. On maturity dates, each party has to return the original amount of principal to its counterpart. In some cases an agreement is reached so that there is no initial exchange of principals, and in others not at maturity either.

The outstanding benefits of currency swaps are plentiful. For instance, a company can execute an arbitrage via currency swap that generates a desired currency at a cheaper all-in cost than borrowing the currency directly. Currency swap can help eliminate currency exposure by matching assets and liabilities, both in terms of currencies and maturities, or help cover long-term commitments in foreign currencies. Moreover, currency swap is utilized to gain access to both convertible and blocked currencies with respect to either party. As regards current debts, it can lock in exchange gains or mitigate exchange losses.

Development of currency swaps stemmed from several underlying factors. Greater volatility of exchange rates, particularly in the late 1970s and the early 1980s, together with market imperfection and different perceptions among participants, created abundant opportunities. New instruments or methods were sought to hedge against exchange rate risks, to reduce financing costs, to gain access to virtually most currencies, and to help circumvent foreign exchange regulations. Nowadays, a main driving force is the capability of market participants to find the best solutions to suit their needs and the market environment at any point in time.

A sizable portion of currency swap markets is dominated by consideration of accessibility to desired currencies. Compared to interest rate swap markets, there is a wide diversity of types of participants in currency swap markets, with financial institutions, especially banks, playing a smaller role than sovereigns, supranationals, or corporates. Secondary markets of currency swaps are relatively active, giving chances to both parties to speculate on both interest and exchange rates. For the most part, secondary trading is driven by profit motives, changes in market environment, and the differing perceptions of market participants.

In Thailand, genuine currency swap is yet to be developed since its so-called "swap" involves only the exchange of principals without the associated interest burden. In other words, such a swap resembles ordinary forward contracts. The major obstacles to currency swaps in Thailand have been foreign exchange regulations and the lack of benchmark interest rates, especially the long-term ones. Nevertheless, given the recent rounds of foreign exchange liberalization and the attempts of the authorities to develop market-oriented financial papers, the prospects for currency swap are better than before.

INTEREST RATE SWAPS

An interest rate swap is a transaction in which two parties agree to make to each other periodic interest payments, calculated on the basis of specified interest rates, and a notional principal amount denominated in one currency. Typically, the payment made by one party is based on a floating rate of interest, e.g., LIBOR, while the payment made by the other is determined by a fixed rate of interest or a different floating rate.

Borrowers in international money markets are attracted to interest rate swaps' distinctive features. For

instance, an interest rate swap enables a participant to tailor his interest obligations to meet his needs in a given rate environment, to reduce his cost of borrowing, to hedge against future changes of interest rates, or, in some circumstances, to lock in certain profit margins. Furthermore, interest rate swaps, particularly basis swaps, can be used to rectify maturity mismatch, to diversify interest rate risks, and to unwind existing swap obligations.

Many factors accounted for the development of interest rate swaps. Imperfect information and markets, coupled with the different credit risks of the same participant as perceived by different markets and differential risk premiums as demanded in fixed versus floating rate markets in the same currency, have created a comparative advantage between the two parties and the corresponding arbitrage opportunity to be exploited. Another major factor was the growing volatility of interest rates in the 1970s and the 1980s that prompted market participants to find ways to hedge. The combined features of risk and cost reduction render interest rate swaps a positive sum game, i.e., no losers at no cost to the system.

Participants in the primary market for interest rate swaps are normally large corporations and financial institutions. Commercial and investment banks may enter the market as both end-users and intermediaries. In a secondary market, existing swap positions are traded to match or square up the profile or speculate in expectation of interest rate movements. Before trading is carried out, a consent is often requested from the original counterparties unless the deal was arranged through intermediaries from the very beginning.

Interest rate swaps are rarely adopted in Thailand due to the absence of market clearing interest rates and sluggish domestic interest rates. But they may become popular, in light of present liberalization, especially after truly benchmark rates such as market-oriented government bond rates are established.

FLOATING RATE NOTES

A floating rate note (FRN) is a medium- to long-term bearer note which is liberally traded. Interest from FRNs is paid periodically and pegged to a standard interest rate that constantly reflects actual market liquidity, such as LIBOR in London or SIBOR in Singapore. Normally, an FRN holder receives interest income equal to the sum of a standard rate and a certain spread. Besides, minimum interest rates are often stipulated, so as to assure investors of minimum returns. Most FRNs are listed in securities markets, thus compensating for their long maturities with some liquidity. In addition, prices of FRNs as quoted in secondary market trading are more stable than those of fixed rate securities, since interest rates are periodically adjusted in accordance with prevailing reference rates.

An FRN is often resorted to as a source of long-term funding by financial institutions, especially by commercial banks. Its maturity and floating rate nature fit well with commercial banks' syndication lending, whose interest rates are periodically reset. Furthermore, under the general terms of FRN, timing of debt commitment is viewed by borrowers as flexible, unlike fixed rate bonds where borrowers may hesitate depending upon how interest rate movements are predicted. For investors or lenders, FRNs give higher yields than short-term notes and yet have some degree of liquidity. Also, these yields are continually updated.

A number of Thai commercial banks issued FRNs in overseas markets so as to tap funds from abroad and adjust their maturity profiles. Within the local market itself, however, both borrowers and savers were still unaccustomed to the mechanisms of FRNs. That FRNs did not exist in Thailand before 1988 is therefore not surprising. Later on, some businesses did make efforts to borrow via FRNs. However, the market remained so immature that bank guarantees were needed and notes could only be sold to a restricted group of investors. The lack of secondary markets necessitated possible redemption of funds before maturity by concerned finance companies at prices artificially below par.

Obstacles to the further development of FRN markets in Thailand are the absence of a reliable rating agency and a truly market clearing interest rate. The former is indispensable as the concerned parties only care about the note-issuers' creditworthiness. The latter is required so that returns from FRNs can be arranged to reflect the actual status of prevailing market liquidity.

NOTE ISSUANCE FACILITIES

A note issuance facility (NIF) is a medium-term agreement between financial institutions and a borrower which allows the borrower to issue short-term paper in his own name, but underwriting banks are committed to purchase any notes which the borrower is unable to sell—or, in effect, to provide standby credit. An NIF commitment typically lasts five to seven years, while the paper is issued on a revolving basis, each round for maturities of three to six months. Most papers, often called Euronotes, are in U.S. dollars and issued with high face values at competitive bidding rates. They are intended for use by professional or institutional investors, rather than private individuals. The majority of NIFs settled in the past had a ceiling on borrowing costs in relation to market rates.

The NIF has been widely adopted in international markets because it has several attractive characteristics to all parties concerned. From a borrower's viewpoint, the NIF represents direct access to surplus units, while banks only function as managers or arrangers. Therefore, the overall costs of borrowing tend to be lower than other channels, even after various management fees are taken into account. In addition, NIF customers are provided with rights regarding the timing of note issuance and whether or not they are to be rolled over. Due to the underwriting commitment, borrowers are also assured of the availability of funds whenever needed. Borrowers are also able to immediately transform the maturity profiles of their portfolios or undertake investment at will.

For banks, unless called upon, underwriting commitments remain off-balance-sheet, entailing no obligations but with various types of fees. Acting as arrangers of the NIF, banks are not subject to ordinary costs of credit extension, e.g., interest on deposits and reserve requirements. For investors, returns on NIF are usually higher than short-term deposit rates, owing to the periodical adjustment of NIF rates, while variations of deposit rates tend to be more sluggish. And most note issuers are large creditworthy corporations, thus entailing little risk to investors.

In Thailand large companies in the oil business made use of this facility, even though commercial banks were not yet permitted to legally underwrite notes. Instead, participating banks themselves bought unsold papers first and then later resold these papers at discounted prices.

IMPACT

Under normal circumstances, economic policy-makers have two primary objectives: stability and the ability to influence the pace of economic activities. The impact of the financial instruments under study here are examined in this regard.

The distinct roles of financial instruments are to segregate, disperse, and transfer financial risks so that individual units can cope well with uncertainty and attain better asset or liability management. A clear-cut example, demonstrating numerous possible benefits from financial innovations, is the case whereby a private corporation hinges upon floating-rate foreign debt. In such a case, the company, frustrated by possible interest rate rise and exchange rate appreciation, could resort to swaps, options or FRAs by remitting the relevant fees and thus lessening risk exposure to a manageable degree. However, although financial innovations can enable each separate organization to handle its position comfortably, stability of the financial system as a whole may be endangered in three aspects.

1. The risks, after being segregated and transferred, may be clustered among few banks, few exchange rates or interest rates, and few maturity dates. Such bunching could arise due to the availability of very few banks with enough expertise or widespread networks, turbulent fluctuations of exchange or interest rates during particular intervals of time, and underpricing of financial services.
2. Most financial innovations (except FRNs) are off-balance-sheet items which may not be backed up by adequate capital funds of service suppliers.
3. Caps and swaps could bring too many low-ranking debtors into credit markets, thus depressing the asset quality of the markets. Similarly, direct modes of financing such as NIF and FRN, if popular, will not only take away high-quality borrowers from, but also weaken the deposit base of, financial

institutions.

Because of the possible adverse effects on overall financial stability, it is recommended that financial companies and banks be required to report these activities more often and in more detail. Customers' motives should be included in these reports and details on whether or how much offering companies or banks hedge. In addition, the Monetary Authorities should demand that risks from the financial innovations in use be backed up by sufficient capital funds despite the fact that such activities are off-balance-sheet. The volume of these activities ought to be given some weights, though less than those given to ordinary credits, reflecting the actual degree of associated risks.

As regards the government's ability to guide momentum and direction of economic activities, new financial instruments generate repercussions via four channels:

1. Credit flows are stimulated. For instance, with IR options and FRAs, customers are more likely to request and commit debts. The NIFs and FRNs, which are direct financing, help reinforce the purchasing power of borrowers.
2. Financial innovations raise the extent and speed of capital mobility into and out of the country. Currency swaps, currency options, and swap options, for example, facilitate foreign borrowing. Net inflows of funds from abroad directly affect the amount of local money supply, thus the effectiveness of implemented monetary policies.
3. The popularity of the new instruments may give rise to some constraints on local banks regarding their capacity to finance fiscal deficits. Because of these constraints, fiscal policies could be hindered and inflationary sources of financing, such as central banks or external loans, may be resorted to.
4. In another possible scenario, public agencies themselves utilize new financial instruments. This enables government agencies to cover all costs of investment or maintenance projects. Hence, the direction and degree of desirable fiscal policies could vary.

Although most of the macroeconomic effects of financial innovations, as mentioned above, tend to be negative, the favorable aspects should not be overlooked. Examples of benefits are as follows:

- Once borrowers and savers have more alternatives to choose from in attempts to find credit, avert risk, or invest, banks and other financial institutions are pressured to improve their services. Financial innovations, in other words, encourage efficiency in and further development of money markets.
- These financial innovations function as automatic stabilizers within the financial system. This stability is crucial, otherwise private enterprises could experience a greater frequency of business failures because of wild fluctuations of interest rates, exchange rates, and money market liquidity.
