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Hedging: Is There Scope for an Active Derivatives Market in CARICOM?

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1. Introduction

Derivative markets thrive on exchange rate flexibility, interest rate differentials and volatility. In the Caribbean such situations exist. Interest rates range from 2 percent on basic deposits in Trinidad and Tobago to 5.25 percent in Barbados, while lending rates range from 10.7 percent in Barbados to 17.4 percent in Jamaica¹. At the same time exchange rate movements in Jamaica and Guyana can sometimes vary by as much as 10 percent on an annual basis. Similarly, interest rates, particularly in Jamaica, can exhibit relatively high levels of volatility.

Despite these market differentials there has been a marked increase in the volume of cross-border transactions, both among flexible exchange rate economies and between fixed and flexible exchange rate regimes. Historically, judged by developed country markets, this is the context in which derivative instruments ought to thrive. However, significant growth has not yet occurred in the Caribbean primarily because of the thin and under-developed nature of the capital markets, which emphasises that risk is not always accurately reflected in interest and exchange rates.

Derivative instruments are based on underlying securities and are usually issued as a hedge against interest or exchange rate changes or protection for non-performance of debtors. Recognising that not all hedging mechanisms depend on derivatives, this paper, though concentrating on derivatives will discuss the scope for both hedging instruments that rely on derivative instruments as well as those which are not, and will evaluate the scope for the development of such instruments in the context of a likely Caribbean Community (CARICOM) single market, a possible single regional currency and in the context of expected greater convergence in interest rate regimes as capital markets within the region become more liberalised. The paper addresses only exchange rate, interest rate and credit derivatives and related

¹ Interest rates are as at March 2007.

instruments. It is intended to stimulate discussion and dialogue on the topic and consequent private sector action, if desirable.

Section 2 deals with the motivation for derivatives use, Section 3 assesses their likely impact in the Caribbean and Section 4 evaluates the expected impact on bank capitalisation. Section 5 discusses the experiences of developing and industrialising countries. Section 6 gives the regulator's perspective and Section 7 looks at derivatives in the context of Basel II. The paper concludes by discussing some prerequisites for development of an active derivatives market.

2. Motivation for Derivative Use

Pederson (2001) in setting out the motivation for purchasing derivatives cites as possible factors the desire to hedge an existing position in financial instruments, a desire to hedge against special events by employing wealth derivatives, to hold back capital while taking risk positions in assets so that only the premium can be lost and to avoid liquidity risk in the underlying assets. He describes speculative reasons for using derivatives as including leveraging returns within managed funds and hedge funds and notes that where regulatory criteria imply that assets created cannot be held in large amounts, derivatives are utilised to manage such positions.

Other writers suggest a variety of other reasons for derivative use. In reviewing some developing and newly industrialised countries, Nguyen and Faff (2003) note that Australian companies employed derivatives with a view to value maximisation. This indicates a speculative motive since maintenance of value tends to be more related to hedging. In support of the value enhancing hypothesis Nance, *et al.*, (1993) postulate a tax motive and a financial distress reason for the use of derivatives while others (Geeczy, *et al.*, 1997), suggest funding motives. While most writers cite the need to reduce the cost of financial distress as the reason for hedging, almost all agree that size and leverage are important determinants.

A number of incidental advantages relating to the provision of information have also been claimed for derivatives. Bhyan and Chaudhury (2005), for instance, argue that derivatives are not only an additional means for informed traders to trade in information, but may lead the underlying assets in importing information that cannot be inferred from the markets in underlying assets. They assert that with the introduction of the options market, traders have an extra avenue to meet their trading needs and that options may be more lucrative than stocks owing to lower transactions costs, lesser capital outlays and higher leverage trading restrictions. The authors even contend that options could lead the underlying stock in terms of price change and trading activity.

A distinction must be made between the use of derivatives for hedging and the use of derivatives for speculation. The former is intended to reduce risks from other activities as opposed, for example, to permitting increases in the levels of interest rate exposure, which is deemed to be speculation. Indeed, despite the tendency to think of derivative users as risk-takers, results suggest that they are less risk oriented than non-users (Brewer, *et al.*, 2001).

Domestic denominated securities in foreign markets also encourage derivative use. This is evidenced, in recent years, in several Latin American countries, especially in Mexico and Brazil. Indeed, peso-denominated securities are commonly issued and actively sold on international markets.

Additionally, dollarisation and debt structures influence derivative use. There has been an increasing level of involuntary dollarisation world-wide, including in the Caribbean, thus decreasing the need for an exchange rate hedge where most financial activity is in United States (US) dollars. Additionally, in terms of the manageability of external debt ratios, the limit on the issue of external debt is more pressing for developing countries than the size of their domestic debt, and since these economies may find it advantageous to issue securities denominated in domestic currencies in foreign markets, the availability of hedging instruments might be helpful in these circumstances.

While fixed exchange rate regimes like Barbados tend to discourage currency hedges against other fixed exchange rate currencies as this can undermine confidence in fixed rate pegs, hedging by fixed and floating rate currencies against floating rate currencies has generally been an option. Official positions on this issue have also changed globally. The trading of futures, for example, was at one time discouraged and even in the US, the use of futures was prohibited in some states, but today, futures are exchange-traded instruments.

In addition, the large futures exchanges of London and Chicago will also trade in other major currencies, besides G7 currencies, but it is unlikely that Caribbean currencies will be considered sufficiently important to encourage these exchanges to offer hedging instruments in their currencies or their paper. If, therefore, Caribbean countries are desirous of developing an active hedging and derivatives market in the region it is very clear that they would need to attempt it themselves.

3. Derivatives and Likely Impact on the Caribbean

In the Caribbean, the wide range in interest rate structures and the increasing level of cross-border transactions suggest that there is scope for interest rate hedging mechanisms beyond the current embryonic stage. The advantages are that while legitimate hedging could facilitate cross-border borrowing and lending, assist in the development of a derivative market, aid

price discovery and develop more readily available opportunities for risk management. However, the existence of a market in forwards and futures could reduce the intended impact of monetary policy measures.

The scope for the development of a derivatives market is often linked to the level of integration with the stock, bond foreign exchange and commodities markets. The view is that a high degree of integration among markets indicates that prices are fixed in a correct way and, therefore, agents interested in a well-diversified portfolio and appropriate risk return ratios will concentrate on the available assets. Pardo, *et al.*, (2003) argue that a low degree of integration dissuades hedged positions and leads to arbitrage strategies that generate riskless profits derived from discrepancies in prices, and that the higher the degree of integration the better is price discovery.

On a global basis it is asserted that loan and capital markets have been converging for over a decade. In the Caribbean, however, integration has been slower. With the reduced dependence on mandatory required Government securities by banks in most of the CARICOM and the increase in funds under management in Trinidad and Tobago and Jamaica, there is evidence of greater integration of bond, capital and banking markets in some jurisdictions. Indeed, in some markets the share of the banking sector in savings has declined as commercial banks lose market share to mutual funds.

In addition, except in the floating exchange rate economies of Trinidad and Tobago and Jamaica, corporations in the Caribbean have been slow to turn to bonds and commercial paper as an alternative to bank loans; in Barbados and in the Organisation of Eastern Caribbean States (OECS) this has not taken off as these countries' capital market development lags the two floating exchange rates economies. This behaviour is not in tune with global trends. In the US, for example, the share of bank loans fell from 50 percent in the 1980s to 35 percent in the 1990s. Greater integration of markets would allow for deepening of the credit derivatives and capital markets and would permit users to find lending opportunities while putting aside risks with other financial institutions (Misra and Tierney, 2001). Such integration is still loose in the Caribbean and limits the development of an active derivatives market in the region.

It is sometimes posited that the signalling effect of forwards and futures is likely to have an impact on interest rates and expectations and, hence, on interest rate determination, implying that rates in floating rate regimes could be affected by forward exchange rates². The countervailing argument is that based on the purchasing power parity theory, forward rates usually reflect the existing expected pay-offs given interest rate and exchange rate differentials and are rather a consequence of these differentials instead of a cause of future differentials.

² It is recognised that derivatives also have an important signalling effect for commodity prices but the scope of this paper is not intended to cover derivative markets in commodities.

For developing countries the verdict is out on this relationship. In small countries where the resources required to keep the exchange rate within reasonable bounds are limited, it would not be advantageous if, by embracing the development of a derivatives market in the Caribbean, the risk is run of undermining the level of influence which central banks can exert over the movement in exchange rates and interest rates and force a more costly use of resources and a greater degree of effort to bring about desired macroeconomic results.

A relevant concern may be the conflict between the region's short-term objectives of risk management and its objectives of macroeconomic management, given the planned introduction of a regional single currency, which is likely to lead to further convergence³. The issue is what can be done about risk mitigation in the interim?

There are, however, other positives, which can result from developing an active derivatives market in the Caribbean. Indeed, it can improve the opportunity of building pan Caribbean securitisation issues in national currencies and might reduce the level of spontaneous dollarisation.

In an environment of macroeconomic convergence, interest rate differentials should become much narrower, the likely impact of volatility lesser and the need for hedging facilities to manage interest rate risk may be reduced for intra-regional transactions. Similarly, in a region, which is aiming to establish a single currency the need for exchange rate hedging intra-regionally will not exist when this is realised. The issue, therefore, is whether the region should devote its resources to the short- to medium-term development of a derivatives market whose maximum use may be short-lived, or to encourage one that could serve the purpose of accelerating the process of convergence, by mitigating intra-regional risk, even if usage is not maximised in the long run. Continued utilisation in the area of interest rate and credit derivatives could also be useful after convergence and establishment of a single currency.

The environment for the growth of credit default swaps is dependent on perceptions of risk, and in the Caribbean, concerns about cross-border risk are likely to be more important if investment in corporate bonds takes off. Protection buyers may be happy to pay a premium to safeguard transactions against credit events in situations where they are less familiar with the companies in other countries in the region as they are with the companies in their own home market. Credit derivatives would allow protection buyers to hold higher risk credits in their portfolios and the availability of protection could help the regional market in corporate securities to grow. However, regulatory concerns about risks are real and cannot be ignored.

³ For example, a country, which wishes to add liquidity to lower interest rates may find liquidity being mopped up by overseas buyers who are now protected against risk through the derivatives market.

4. Risk Mitigation, Capitalisation and Financial Performance of Banks

There is often the view that derivatives are high risk (and this may be related to the integration argument) but the evidence in some cases points to the contrary. Hundman (1999) notes that the financial press during 1994 widely reported that traditional derivatives for profit are risky and may expose firms to large losses, however, in the extreme case of hedge funds, research has shown that such funds have no correlation with traditional stock, bond and currency markets and are, therefore, powerful tools for portfolio diversification (Ppurgin and Schneeweis, 2001). This is not, however, a recommendation for hedge funds, as this paper is about the use of derivatives for risk mitigation.

Other analysts have made the point that modern regulatory regimes support the growth of derivatives. It is believed, for example, that because Basel II favours market oriented banking and in such an environment derivatives markets are likely to thrive, particularly among large banks, (Misra and Tierney, 2001), regulators, therefore, may be assisting in the increased use of derivatives.

In the case of the impact on capital, Brewer, *et al* (2001) argue that interest rate derivatives lessen the likelihood of insolvency and allow banks to hold less capital and, in particular, that the use of interest rate swaps offsets interest rate risk in fixed rate lending. Their findings also show that banks that utilise derivatives grow their business loan portfolios faster than banks that do not, and that the employment of interest rate derivatives by banks tends to lead to lower levels of expensive capital. Additionally, the authors suggest that large banking organisations are much more likely to use derivatives than small banking organisations. This, they claim, is consistent with the idea that there is a fixed cost associated with initial learning of how to utilise derivatives and large banks are more willing to incur this fixed cost because they employ derivatives on a larger scale.

The link is sometimes made between derivative use and overall financial performance. It can be argued that interest rate derivative contracts enable banks to reduce their exposure to systematic risk and might be used to replace traditional lending activity and can improve financial performance. As interest rate levels become more volatile, depository institutions recognise the importance of derivatives, particularly interest rate instruments and interest rate swaps, in reducing risk and in achieving acceptable financial performance.

Profitability is not often a factor in determining the use of derivatives, and risk mitigation tends to be a more important objective, but it is still argued that derivatives can improve profitability and according to some analysts, this is likely to lead to increased utilisation of these instruments (Pedersen, 2001).

A 2001 study by Brewer, *et al* determines that banks with total assets greater than US\$10 billion reported the highest average rate of notional amount

of interest rate swaps. The authors also showed definitively that banks using derivatives had experienced greater growth in their loan portfolio than banks that did not employ these financial instruments. Moreover, they found that managing interest rate risk through balance sheet adjustment to securities and loans utilises more capital than managing interest rate risk through derivatives and this is so, even for smaller banks. According to their findings, the authors reported that derivatives use affords banking organisations the opportunity to operate with less capital. Furthermore, it is pointed out that the ability to utilise derivatives can decrease the volatility of earnings and that a contraction in earnings variability will consequently improve debt capacity.

On a global scale, widespread use of interest rate and exchange rate derivatives has not occurred. Credit derivatives are still in the embryonic stage, even in the US. A 2004 survey revealed that of 75 North American institutions surveyed, 54 percent stated that they were not currently active in credit derivatives, 20 percent were actively using credit default swaps and 14 percent were active users of collateralised debt obligations (O'Leary, 2004). Similar surveys are not needed for the Caribbean in order to state that the percentage use is very small.

5. Derivatives and Developing and New Industrialising Countries

In new industrialising economies such as Australia, derivative use is on the increase. The factor of size, which was evident in the case of banks, also emerges as important with respect to utilisation of derivatives by corporations. Australian corporations, which had more debt in their capital structure, were more inclined to hold foreign currency derivatives if they had greater leverage and liquidity. Other factors posited by Nguyen and Faff (2003) as determinants of derivative use in Australia are the rate of market value to book value of equity, current rate dividend yield and executive shareholding.

Beatty (1999), however, pointed out that an exogenous factor of decrease in transactions costs is often overlooked in the decision to utilise derivatives. This may be an important omission and would be quite relevant in the Caribbean case where markets are small and there is significant under-utilisation of these instruments. Since derivatives use must be cost-effective, transaction costs must be low if they are to propel growth in these instruments. The decline in transactions costs of derivatives, however, is occurring in large markets and may take some time before it appears in small markets like the Caribbean.

Unlike banks where large size is more important in determining the use of derivatives, small firms who utilise derivatives tend to employ foreign currency derivatives more actually than large firms. That is, though large firms are more likely to use derivatives than small firms, once the decision

to utilise derivatives has been made, small firms tend to employ them more extensively. The general conclusion was that leverage and firm size are the two most important factors that induce a firm to use financial derivatives. The underlying objectives, however, tend to be risk mitigation. Given the cost of learning about the use of derivatives it is most likely that this phenomenon of use by large firms could be the case in the Caribbean as well.

With respect to developing countries, derivatives utilisation is growing in Nigeria where markets have developed rapidly in the past five years. Derivatives are used there in a conventional way – to shift risk exposures, raise capital, convert one asset class to another, invest directly and change frozen assets to liquid assets. Counter-party and performance risks are, however, concerns – as they are world-wide – while swaps constitute the greatest source of worry to regulators. Oaikhenan and Osunde (2006), however, note that futures exchanges should be fairly safe, since they guarantee performance. Findings on Nigeria also showed that the demand for rights was particularly dependent on the behaviour of stock prices, the interest rate, inflation and exchange rates and those high levels in the stock market. The derivatives market there appears to be in a very early stage of development.

6. Regulators and the Derivatives Market

Regulatory concerns about the derivative market appear to be growing again. In May 2004, banking regulators and the Security Exchange Commission of the US issued proposed guidelines intended to help banks avoid regulated and legal risks stemming from an array of structured finance products. The guidelines actively shifted more risks to banks by requiring that they police their corporate customers. The financial industry in the US has also rewritten the banking systems code to allow for immediate termination of almost all types of derivative contracts in the event of default (Bankers Protection Act).

Additionally, in the US, former Chairman of the Federal Reserve Bank of New York, Alan Greenspan, for most of his time in office was supportive of derivatives, but in May 2006 he noted that the operational risk if counterparties failed to meet their contractual obligations when defaults occur could have significant repercussions. This was also in the context of increasing concern about the unregulated nature of hedge funds.

Some writers have further noted the downside of protection from a regulator's perspective. For example, Reason (2005) highlights the potential moral hazard for investors that purchase protection, since they might not have the incentive to pursue a successful work-out that a traditional bank lender normally would. Moreover, he noted the avoidance element; that is, that a bank which structures a securitisation without taking risk into its own balance

sheet is not sharing liabilities in the traditional sense so that the risk is moved out of the banking system. This emphasises the importance of the need for oversight of the market but it must be such that it does not over-regulate embryonic markets (like those in the Caribbean) out of existence before they have a chance to start.

7. Risk Management, Basel II and Derivatives

By packaging debt to various forms of structured securities and selling them to investors, banks lower their balance sheet risk. In addition, they market the same risk management techniques as corporate customers in the form of credit-default swaps. As a consequence, the percentage of bank assets made up of corporate loans tends to fall, though increased risk aversion and the need for fee income also partly explain the decline in loan portfolios of banks in some jurisdictions, particularly mature jurisdictions. In Trinidad and Tobago, for example, banks have been using various techniques to lower their balance sheet risks for some time by increasing use of managed funds, but credit default swaps have not taken off.

While there has been increasing concern by regulators in developed markets with respect to the greater use of derivatives, at the same time, the growing emphasis in banking regulation on the evaluation of risk could lead to greater utilisation of risk mitigation techniques and hence to the greater use of derivatives which were an initial cause of concern. For this reason, clarity on how international regulators view derivatives as risk mitigation techniques and the impact on capital requirements can be an important influence on the extent to which derivatives are likely to be used by banks and financial institutions.

8. Conclusion

In the Caribbean, growing corporate bond markets, the differentials and volatility in interest rate and exchange rates which obtain in some markets in the region, suggest there is scope for the development of a more active market in derivatives, though the size and scale of operations of Caribbean banks and corporations, the fledgling nature of the capital markets and concerns about the monetary impact imply that this could take some time. In addition, some derivatives can be misused, though the prime purpose of employing derivatives is risk management they can be utilised for speculation. It is therefore important to proceed with caution. Also, training and preparation of users for trading in derivatives will be necessary and only large institutions may be able to afford the cost of preparation. If scale is small it may prevent

these mechanisms from being cost-effective and since cost-effectiveness is important if a derivative market is to thrive, this could slow the process.

From a regulatory perspective, there will also be a need for regulators to be fully conversant with these instruments. Some risk could be reduced by having exchange traded derivatives, for example, futures - but the question of critical mass might prevent official involvement for some time in the future and it is unlikely that the private sector will find it attractive if the scale is small and costs are high, since any private sector initiative will be driven by demand and will be influenced by cost and scale. Therefore, slow development of this activity is anticipated particularly since the expected realisation of a single market and economy, economic convergence and the possible single currency could serve to reduce the scope for an active derivatives market in interest and exchange rates within the region over the long term. However, the opportunity does exist for such markets to develop.

This paper is not intended to make the case for the development of active derivative markets in the Caribbean but merely to ventilate the issues so that discussion and dialogue on the pros and cons of an active derivatives market in the Caribbean can be stimulated.

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