TOWARD THE FORMALISING OF DERIVATIVES TRADING IN
TRINIDAD AND TOBAGO

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ABSTRACT

International evidence seems more and more to suggest that capital market development is correlated with, and perhaps even causes, economic growth and development. The authors of this paper investigate the feasibility of formalising derivatives trading in Trinidad and Tobago as a means of enhancing the capital markets of that country. A comprehensive review of existing literature is used to gather background information about derivatives trading in emerging economies, and in-depth interviews with representatives of the local commercial banks to determine the nature and extent of current derivatives trading in Trinidad & Tobago. Recommendations are made as to how the derivatives market could be widened and deepened in the future.

KEYWORDS: Derivatives, Derivatives trading, Derivatives exchanges, Over-the-Counter trading

JEL CLASSIFICATION NUMBERS: G20, O10, O54
1. Introduction

International evidence seems more and more to suggest that capital market development is correlated with, and perhaps even causes, economic growth and development (Fischer 2003). The objective of this study is to determine the feasibility of developing the capital market of Trinidad & Tobago through conducting derivatives trading on a more formalised basis and to outline the steps to make such trading possible. Research on derivatives trading in Trinidad and Tobago has never been conducted before, and the results of this study should prove vital to government, the business community and academics alike.

Derivatives are financial instruments that do not confer ownership, but rather a promise of ownership (Hird and Lott 1996). They are financial agreements whose returns are linked to, or derived from, the performance of some underlying asset. The underlying asset may include:

1) spot exchange rates;
2) commodities, such as grain, coffee beans, orange juice;
3) bonds;
4) short term “money market” negotiable debt securities, such as Treasury Bills, Commercial Paper and Bankers Acceptances; and
5) over-the-counter (OTC) money market products, such as loans and deposits.

Examples of derivatives include forward contracts, futures, swaps and options. A forward contract is an OTC traded contract for the delivery of a specified commodity, security, currency or financial instrument at a specific rate and date. A futures contract (a form of forward contract) is an exchange-traded agreement to
buy or sell a specific amount of a commodity, security, currency or financial instrument at a particular price on a stipulated dated. A swap is an agreement between two parties to exchange (swap) a set of payments that one party owns for a set of payments owned by the other party. An option is an intangible contract that gives the holder the right to buy or sell an asset at a specified price on or before a given date.

Financial derivatives\(^1\) are now considered some of the basic tools for enhancing the efficiency of capital markets. Financial derivatives allow investors to manage their risks more effectively, promote price discovery, and increase transactional efficiency. The use of derivatives in market-based economies allows for more efficient allocation of resources, thus investment projects become more productive, leading to higher rates of economic growth. Derivatives products like swaps (especially interest rate swaps) are capable of reducing the costs of firms’ borrowing by allowing them to borrow in accordance with their respective comparative advantage (Bhaumik 1998). Furthermore, derivatives products can reduce the need by firms to hold idle precautionary balances, thereby, reducing the fraction of funds held unproductively (Hentschel and Smith 1997).

The derivatives market in Trinidad and Tobago is fairly new and small and there is no secondary data available. We set out to obtain primary data through in-depth interviews with representatives of the local commercial banks and other members of the financial community. A major limitation in conducting these interviews was the hesitation of the interviewees to reveal very specific information on the topic (such

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\(^1\) A derivative is an instrument whose price depends on or is derived from the price of another asset. See Glossary for definitions of other special terms in bold font.
as, the dollar value of transactions and the proportion of their portfolio consisting of
derivatives). These interviews allowed us to ascertain the current state and nature of
the derivatives market in Trinidad and Tobago. This field survey was complemented
by a comprehensive review of existing literature, which was used to gather
background information about derivatives trading in emerging economies. We
distilled from this review the benefits and risks associated with the use of derivatives,
the regulation of derivatives markets, and the advantages and disadvantages of
differing structures of derivatives markets, in particular exchange-traded derivatives
as opposed to over-the-counter derivatives trading. Based on these analyses,
recommendations are then proposed as to how the local derivatives market can be
both deepened and widened.

The rest of this paper is as follows: section 2 briefly discusses the function of
derivatives and section 3 the dangers of derivatives. In section 4, the desired
regulatory framework for derivatives trading is introduced, in section 5 derivatives
trading in an organized exchanged is compared to over-the-counter trading, in
section 6 the requirements for a properly functioning derivatives exchange are
considered and, in section 7, the role of the Central Bank within the context of an
active derivatives market is discussed. In section 8, we discuss the current state of
the derivatives market in Trinidad and Tobago, and in section 9 we conclude the
paper and propose recommendations on the way forward for derivatives trading in
Trinidad & Tobago.

2. Functions of Derivatives
Derivatives perform three economic functions - risk management, price discovery, and transactional efficiency. Each of these functions will be briefly discussed.

**Risk Management**

Derivatives securities provide a mechanism through which investors, corporations, and countries can efficiently hedge themselves against financial risks (Jorion 1995). Hedgers use derivatives trading to shift unwanted price risk to others (speculators) who are more willing to assume this risk to make profits. Derivatives markets allow risks to be managed efficiently through the structuring of financial contracts to produce gains (or losses) that counter-balance the losses (or gains) arising from financial price movements. In a well-designed derivatives market resources are efficiently allocated and risk-sharing arrangements are optimum (Tsetsekos and Varangis 1997). The purpose of risk management is to stabilise total profits.

**Price Discovery**

A well-functioning derivatives market should provide participants with information about market-clearing prices. Price-discovery is the process of providing equilibrium prices that reflect current and prospective demands on current and prospective supplies, and making these prices available to all (Jorion 1995). The price-discovery function of derivatives exchanges is essential for investors, consumers, and producers for them to make informed decisions. Futures prices reflect current market expectations about what cash prices will be at specific points in the future. This is useful for producers to make more informed decisions on production, consumption, and storage. The wider the use of derivatives, the wider the distribution of price information (Melamed 1997).
Transactional efficiency

Transactional efficiency is enhanced through the use of derivatives since trading in them allows for increased liquidity and lower transaction costs than in underlying cash markets. Liquidity measures the ease and speed with which transactions can be executed. It also reflects adverse price movements due to the execution of a trade. A large transaction can be reflected on the same day in a futures market, at prevailing prices. This same transaction in the stock market may take more time to be reflected in price movement. Transaction costs may be broken down into commissions, fees, taxes, and bid-ask spreads. In the United States, the total costs of buying and selling stocks are estimated to be about 0.90 percent, whereas, these costs are only 0.09 percent in futures markets (Jorion 1995).

3. Dangers of Derivatives

The use of derivatives transfers risk, but does not eliminate it. Two main dangers to participants in derivatives markets are the shortage of capital and a lack of policies and systems to cope with financial risks (Norton 1994). Therefore, it is essential for participants to have sufficient capital to buffer against losses and to have sound policies and systems that enable proper evaluation and management of risk positions. These dangers are significantly reduced if directors and managers have sufficient education and training in the use of derivatives to set sensible risk policies (Melamed 1997).

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2 The dangers discussed in this section are neither created by nor specific to derivatives markets but the financial sector as a whole, but still worth mention.
Counterparty risk (default risk or credit risk) is defined as the risk or possibility that one of the counterparties may default on payment. In derivatives contracts either party may default during the life of the contract. For example, either counterparty may default on any of the settlement dates during the life of a swap agreement. Default risk has two components: first, the expected exposure (that is, the expected replacement cost of the contract minus the expected recovery from the counterparty); and second, the probability that default will occur (Hentschel and Smith 1995). Credit risk is often negligible in exchange-traded contracts since trades are settled via a clearinghouse. For OTC derivatives trading, banks and other dealers usually only cater to highly rated clients (Bhaumik 1998).

Market risk arises from the possibility of incurring losses due to sudden and unforeseen market movements associated with the price/value of the underlying asset. Participants in derivatives markets can incur huge losses due to sudden unfavourable market movements. These (unexpected) movements in the value of the underlying securities jeopardize the liquidity of derivatives markets and make derivatives trading difficult since the formation of expectations about the future becomes problematic (Bhaumik 1998).

Another danger with derivatives is financial system risk. If one bank fails, this may cause problems for other banks due to loss of customer confidence. Systemic risk can be defined as the likelihood of a major failure or disruption in one institution or segment of the market, which may affect other institutions - potentially in other, connected industries- and ultimately may lead to a breakdown of the financial system.
(Gibson and Zimmermann 1996). Here, sound bank supervision by the central bank can help restore financial stability (Norton 1994).

Agency risk and the avoidance of fraud are important - any misalignment between owners’ objectives and employees’ actions can create a common principal-agent problem. For instance, when employees (the agents) do not work towards the general corporate objectives set by senior management and shareholders (the principals), problems may arise, commonly referred to as agency risks (Hentschel and Smith 1995). The payoffs to dealers are usually linked to the profits generated from trading activity. However, the individual dealer’s liability (at worst, (s)he may lose his/her job worth a few thousand dollars) is diminutive relative to the potential losses to the firm (Bhaumik 1998). In this scenario, the dealer has the incentive to take high risk-high return gambles, increasing the riskiness of the firm’s portfolio. Therefore, providing sensible incentives, implementing adequate risk controls to prevent fraud or unauthorised trading, and ensuring a system of checks and balances to measure market exposure is vital (Melamed 1997).

Legal uncertainties are another danger in derivatives markets. Sometimes counterparties enter into derivative contracts without the legal or regulatory authority to do so. This may result in large losses for banks. Legal risks also include compliance and regulatory risks, which concern activities that might breach government regulations, such as market manipulation, insider trading, and suitability restrictions (INTERNATIONAL MONETARY FUND 2000).
Finally, lack of information poses another danger. If company accounts are not readily available it is difficult to value that company, and evaluating the company’s derivatives position is greatly hampered. Lack of information on derivatives (example, market size, price and turnover trends) in some financial markets makes it difficult to price financial assets.

4. Regulation of Derivatives Markets

The objectives of derivatives regulation are to ensure the integrity of markets, to deter manipulation by agents, and to protect participants from losses arising from fraud or the insolvency of counterparties. However no market is ever truly unregulated (Greenspan 1997). The self-interest of market participants generates private market regulation. Whether markets should be regulated or not does not seem to be the appropriate question, but rather if government intervention will weaken or strengthen private regulation (Greenspan 1997). There exists a moral hazard problem associated with government intervention - if private market participants believe that government is protecting their interests, their own efforts to protect their interests may diminish. If the incentives of private participants are weak or they lack the capabilities to pursue their interests, then government intervention may improve regulation.

The characteristics of the market should determine, if any, the optimal form of government regulation (Greenspan 1997). Market characteristics include the types of instruments traded, the types of market participants, and the nature of the relationships among market participants. A ‘one-size-fits-all’ approach to financial market regulation is almost always not suitable. The behaviour of market
participants, that is, migrating to and from government-regulated to privately regulated markets - should signal to government regulators whether or not the costs of intervention exceed the benefits. Greenspan also states that if participants migrate towards private regulated markets, government regulators should consider changing the form of regulation or should pursue less regulation in order to improve the cost-benefit trade-off without compromising public policy objectives.

But what is the optimal balance between governmental regulation and self-regulation? The two forms of regulation should be compared simultaneously by evaluating their competencies and flaws (Lazzarini and Mello 2001). Those in favour of governmental deregulation stress on the costs associated with government intervention, ignoring the shortcomings of self-regulation, while those supportive of governmental regulation tend to disregard the costs of government regulation. Proponents of government regulation also suggest that the presence of market failures justifies intervention, sometimes overlooking the feasibility of the proposed change (that is, more governmental or self-regulation).

Lazzarini and Mello (2001) compare the two regulatory mechanisms by focusing on the regulatory failures of both - that is, how each mechanism creates inefficiencies. The authors rely on Coase’s insistence that market failures do not necessarily justify market intervention:

“…and solutions have costs and there is no reason to suppose that government regulation is called for simply because the problem is not well handled by the market or the firm…” (Coase, 1960, p.18)
They stress the importance of studying the least costly mechanism to moderate market failures and the feasibly of implementing the proposed change (more regulation or self-regulation). The institutional environment of the particular country (for instance, how politics can influence the credibility of governmental regulation) needs to be considered and there should be the avoidance of ‘one-size-fits-all’ recommendations.

There are four types of failures associated with governmental regulation: 1) the costs to run regulation bureaus, to collect information and to monitor markets, 2) the credibility of the proposed mechanism, 3) rent seeking behaviour by constituencies directly or indirectly affected by the regulation, and 4) constraints on financial innovation (Lazzarini and Mello 2001). Problems associated with self-regulation include: 1) agency problems in the organisational structure of the exchange; and 2) nonsocially optimal provision of goods (Lazzarini and Mello 2001). Each of these problems is briefly discussed.

Those opposed to governmental regulation site that bureaucratic costs associated with intervention may exceed the benefits. Bureaucratic costs include nontrivial expenses associated with the collection of information, monitoring of trades, and the management of disputes. These costs tend to increase significantly for governmental regulatory agencies.

Governmental regulation must be credible in order to be effective (Lazzarini and Mello 2001) - *ex ante* rules when defined must be implemented *ex post*. When governments intervene in derivatives markets to promote discretionary economic
policies and the judicial system is weak or under governmental influence, traders may not be able to enforce pre-existing regimes. Where commitments are less than credible and regulatory rules are not enforced \textit{ex post}, traders may anticipate possible market intervention that may cause losses to their individual positions and avoid entering the market. This problem is more severe in countries where judicial systems and central banks are not insulated from government discretion and the motivation for intervention may not be the reduction of market failures.

Rent seeking behaviour of constituencies has two related problems. First, the constituencies directly or indirectly affected by the regulatory regime may have incentives to lobby for changes that favour their own interests. The social costs involved with this behaviour can have unexpected effects concerning regulations attempting to reduce market failures. Second, regulatory agencies have a direct interest in the perpetuation of governmental intervention (Lazzarini and Mello 2001) - the power of these agencies has a great influence on the resources they command.

Organisations (such as, exchanges and other financial organisations) are usually heavily regulated. This level of regulation imposes high costs to innovation and hence counterincentives to developing new contracts (Lazzarini and Mello 2001). In other words, governmental regulation imposes extra costs when designing new contracts, including expenses to register these products and delays in the regulatory process. In this light, government regulation may curb innovation in the financial sector.
One of the shortcomings associated with self-regulation involves agency problems. Members of exchanges sometimes do not fully internalise the benefits related to the reduction of market failures, due to agency problems related to the governance of exchanges (Lazzarini and Mello 2001). First, when membership is heterogeneous, there may be coalition of members’ benefits from new contracts or the strategic positioning of the exchange at the expense of others. Second, agency problems arise from the brokers-exchanges relationship and credit risk management. Clearinghouses are usually established in order to prohibit individual default from affecting the entire market, and margin deposits are important safeguarding devices. However, margin deposits increase the costs of transacting and may affect the demand for contracts. Therefore, the exchange may face a trade-off between credit risk management versus attracting new customers (Lazzarini and Mello 2001).

Derivatives trading produces two important goods: price signals and contracts offering broad risk-sharing opportunities. Self-regulated exchanges may not produce the social optimum level of these two goods. Agents benefit from the prices generated by the exchange at a low cost, but exchanges may not have incentives to produce fully informative price signals (Lazzarini and Mello 2001). Further, if exchanges reduce information asymmetries, they may be less equipped to deter insiders from using other forms of private information, such as changes in economic policy or corporate returns. Internal conflicts among exchange members may disperse resources that could be used to develop contracts able to broaden the risk sharing opportunities for a larger number of clients.
In summary, there is no \textit{a priori} optimal balance between governmental regulation and self-regulation. This balance depends on country specific conditions, especially the country’s institutional environment (Lazzarini and Mello 2001). Also, constituencies profiting from the regulatory framework sometimes oppose changes that enhance social benefits. However, governmental regulation, when feasible, should compliment self-regulation attempting to both reduce market failures and the shortcomings of self-regulation. Governments should impose rules to mitigate agency problems within exchanges; and self-regulation can help prevent governments from advocating counterproductive government rules (Lazzarini and Mello 2001).

5. Comparison of Over-The-Counter Trading and Exchange Trading

An over-the-counter (OTC) contract is a bilateral transaction between a client and a financial institution, negotiated privately between the parties, whereas, an exchange-traded contract is a transaction where a specific instrument is bought or sold on a regulated exchange\(^3\). OTC contracts are tailored to meet individual needs of the parties involved and may be based on commodities, instruments and/or maturities/delivery dates that are not available on an exchange. OTC derivatives markets possess the following features (INTERNATIONAL MONETARY FUND 2000):

- decentralised management of counterparty (credit) risk by individual institutions;
- no formal centralised limits on individual positions, leverage, or margining;

\(^3\) See Table 1 for a summary of the key features of exchange-traded and OTC derivatives.
• no formal rules for risk and burden sharing;
• no formal rules or mechanisms for ensuring market stability and integrity and for safeguarding the collective interests of market participants.

Exchange-traded contracts are engaged within a centrally regulated market in which a large number of buyers and sellers come together to transact in a competitive, transparent and open environment. Derivatives exchanges make more information publicly available, credit systems and capital markets are more responsive, with uniform repayment regulations and market surveillance, transaction costs are lower, forward prices are more accurate and resources are better allocated (Chang, Kaplan, and Knapp 1999, Peck 1985).

Derivatives exchanges can help make markets more liquid. Risk-adverse participants (banks, farmers, processors, and traders) can offset risk or transfer it to other participants willing to accept the risk-return ratio, whereby, attracting more participants to enter the derivatives market. In turn, the volume of trades is increased creating a more liquid market.

Exchange traded derivatives contracts tend to be standardised and a clearinghouse guarantees transactions between parties – that is, it acts as a buyer to all sellers and a seller to all buyers. Derivatives exchanges require buyers and sellers to have security (margins) for their transactions and, as market prices change, the margins are adjusted. Therefore the clearinghouse reduces, and sometimes eliminates counterparty risk among participants.

Derivatives exchanges facilitate the efficient determination of prices in the underlying cash (or spot) market by providing improved and transparent information
on both current and future prices for an asset. Price-discovery produced by the derivatives exchange gives market participants better knowledge when making decisions about future production, processing, and trade.

Derivatives exchanges write the specifications for contracts and set standards for grading, measurement, methods of transfer, times of delivery, and contractual obligations. This standardisation makes the execution of trades easier and stimulates higher trading volume than does the spot market.

Exchange-traded contracts have rigid structures compared with OTC derivatives contracts. Organised exchange markets have several components, including:

- membership requirements;
- rules governing conduct (including risk management);
- centralised trading, clearing, and settlement;
- rules that mutualise risk, including loss sharing in case of defaults.

Exchange-traded contracts are standardised with regard to quantity or ‘lot’ size, quality/grade, and delivery/settlement months (INTERNATIONAL MONETARY FUND 2000).

Exchange-traded contracts are heavily regulated, often by both a regulatory authority and the exchange’s self-regulatory organisation. Regulation promotes:

- investor protection;
- market integrity with regards to the potential for manipulation when supplies of the underlying goods, securities, or commodities are limited;
- efficient price-discovery.
On the other hand, OTC derivatives instruments are lightly and indirectly regulated since the justifications for regulating exchange-traded contracts are irrelevant for OTC contracts, which are principal-to-principal agreements between sophisticated counterparties. Investor protection in OTC contracts is not considered as important since counterparties deal mostly with highly rated and well-capitalised intermediaries in order to minimise counterparty risk. Additionally, there is minimal risk of manipulation in OTC derivatives markets, since contracts do not serve a price-discovery role, as do exchange-traded derivatives. Even though OTC contracts are essentially unregulated, they are affected indirectly by national legal systems, regulations, banking supervision, and market surveillance.

Exchanges impose disclosure, transparency, and prudential requirements on members in order to maintain market stability and financial integrity. Exchanges normally enforce minimum capital requirements, protection of customer funds, reporting, compliance with other rules and regulations, and closely monitor trading activity. Transparency is achieved by reporting positions, turnover, and price data, and determining settlement prices (usually on a daily basis). The clearinghouse manages credit risk and is the central legal counterparty to every transaction.

OTC derivatives markets, unlike exchanges, do not have a formal structure. Instead, OTC markets consist of an informal network of bilateral relationships with no physical central trading place. There is no central mechanism to limit individual or aggregate risk taking, leverage, and credit extension, and risk management is completely decentralised (INTERNATIONAL MONETARY FUND 2000).
Market participants perform risk management individually. Managing credit risks poses a challenge especially when prices of the underlying asset change drastically. In contrast to derivatives exchanges, the operational aspects of OTC derivatives are decentralised. There is no centralised trading, clearing, or settlement mechanism in these markets. Transparency is also limited.

Official surveillance of OTC derivatives markets is limited. The supervision of financial institutions and market surveillance helps to promote the smooth functioning of OTC derivatives markets, by seeking to ensure the overall soundness of the institutions that comprise these markets. Market discipline (reflected by share price movements, constraining the supply of credit, and the willingness to engage in business through counterparty relationships) promotes market stability by rewarding financial institutions based on their performance and creditworthiness. Market discipline therefore consists of two main elements - first, investors’ ability to accurately assess a firm’s financial condition (“monitoring”) and second, the responsiveness of the firm’s management team to investor feedback (“influence”) (INTERNATIONAL MONETARY FUND 2000). It should be noted that “monitoring” and “influence” are hampered by limited information disclosure. For instance, when derivatives transactions are off-balance sheet it is difficult for outside financial stakeholders to evaluate the financial health of the institution and its contingent liabilities.

Groups, such as ISDA (International Swaps and Derivatives Association), the Counterparty Risk Management Policy Group, the Group of Thirty, and Derivatives Policy Group have helped to promote the well-functioning of OTC derivatives
markets through different initiatives. These include the dissemination of best practices in risk management, standardisation and clarification of documentation, identification of gaps in risk-management practices and flaws in the operational infrastructure, and assessments of legal and other operational risks. Corporate governance monitoring by financial stakeholders and private initiatives also impose discipline on OTC derivatives activities and increase the incentives for transactions to reflect the degree of counterparty risk in pricing, margins, or collateral (INTERNATIONAL MONETARY FUND 2000).

Table 1
Key Features of Exchange-Traded and OTC Derivatives

<table>
<thead>
<tr>
<th></th>
<th>Exchange-Traded</th>
<th>OTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trading practices</td>
<td>Central market place. Trading under defined rules and regulation. Access is only via exchange members.</td>
<td>Direct contracts between counterparties, often via brokers.</td>
</tr>
<tr>
<td>Transparency</td>
<td>Exchange provides continually updated information about prices and volumes of contracts traded.</td>
<td>Very little publicly available information about the prices of recently agreed contracts. Indicative prices are often posted on brokers’ screens.</td>
</tr>
<tr>
<td>Credit risk</td>
<td>Minimal credit risk since the exchange clearinghouse acts as the counterparty to all trades. Most exchanges insist on initial margin deposits and daily marking to market. Netting different positions is easy.</td>
<td>Counterparty credit risk is an important consideration. Margins, regular revaluation and posting of collateral can be agreed, but are not obligatory. Similarly, there is no netting of positions with different counterparties, but netting of positions with the same counterparty can be agreed.</td>
</tr>
<tr>
<td>Contract types</td>
<td>Standardisation of contracts and expiry dates. There are a small number of contract types, and individual contracts are of small and fixed size. Maturities, and times to expiry of options, are shorter on average than OTC markets.</td>
<td>Products are flexible and can be tailored to users’ specifications. There is a proliferation of contract types, but there is also &quot;plain vanilla&quot; contracts, which are more standardised.</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Liquidity created by standardisation of contracts, a wide range of market participants, and a concentration of contracts at short maturities.</td>
<td>OTC contracts are more often held to maturity than exchange-traded contracts.</td>
</tr>
<tr>
<td>Market participants</td>
<td>Wide range of market participants.</td>
<td>Almost exclusively a wholesale market.</td>
</tr>
</tbody>
</table>

6. Requirements of a properly functioning derivatives exchange

Economic and non-economic reasons (including such emotional intangibles as national pride) motivate the establishment of derivatives exchanges in preference to OTC trading arrangements (Tsetsekos and Varangis 2000). To be truly effective, however, certain preconditions must be met. These include well-functioning cash markets, a large number of traders and speculators, a legal structure that includes a system of property rights and enforceable contracts, well-functioning credit institutions, the support of the government and policymakers, adequate financial resources (particularly for the clearinghouse), and the absence of competing derivatives products and exchanges (Leuthold 1992).

Regulatory operations in emerging markets need to be improved to ensure prompt financial disclosure, which is essential for investors to make informed decisions. This involves the use of internationally recognised accounting standards (commonly called Generally Accepted Accounting Principles, GAAP) and credit rating agencies. All material information should be available to investors at the time of offering, and investors should be well informed of any material changes in a company’s status. As capital markets in emerging markets develop there should be minimum standards and registration systems for market professionals, securities issuers and investment companies (Inter American Development Bank 1995).

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4 Much of what is discussed here in reference to exchange traded derivatives applies also to OTC trading, but is of considerably greater significance for the former.
5 The very first Caribbean rating agency (CariCRISP) was launched in late 2004. Its effectiveness is yet to be established.
Before the establishment of a derivatives exchange, local currency debt and equity markets should be promoted in order to encourage growth of the local organised stock exchange (Inter American Development Bank 1995). Such exchanges in emerging economies generally lack adequate trading systems, clearance and settlement mechanisms and depositories. Therefore, in order to develop capital markets in emerging economies, these need to be addressed.

A well functioning banking system can provide important synergies with capital markets (Inter American Development Bank 1995). Securities markets often use banking systems to clear payments while the banking system benefits from the price information generated by securities trading. Competition between the two markets serves to lower transaction costs and increase allocative efficiency.

The design of the formal structures and systems created to ensure the efficient trading of exchange transactions is important. The microstructure of the derivatives exchange may become a form of competitive advantage to the degree that it motivates, facilitates, or enables price discovery and eliminates asymmetric information (Tsetsekos and Varangis 2000). The microstructure is important for several reasons. First, it ensures the smooth execution of transactions. Second, it allows for the creation and dissemination of market information - trading activity and price determination are sensitive to institutional arrangements.

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6 The microstructure of a derivatives exchange includes trading mechanisms, clearing arrangements, the regulatory structure, and the choice of derivatives to be traded.
Trades can be executed on the floor (open outcry) or through electronic trading. Clearing trades involves processing of transactions, reporting to transacting parties, confirming trades, and matching of orders. The function of the clearinghouse is to eliminate or reduce the counterparty credit (performance) risk by standardising and simplifying the processing of transactions (Tsetsekos and Varangis 2000). On a daily basis the clearinghouse matches all purchases and sales. As a consequence, the clearinghouse guarantees the contractual obligations of each transaction and absorbs settlement failures should they arise (Hentschel and Smith 1994; Mengle 1995). The ability to absorb failures is dependent on the provisions for capitalising the agents involved (Iben and Brotherton-Ratcliffe 1994). Derivatives exchanges can own their own clearinghouse, or other exchanges or financial institutions, such as banks, can own it.

Exchange regulation includes monitoring, control, and enforcement. Governments need to monitor the exchange’s activities and set parameters for its operations. As discussed above, minimum standards should be established and adhered to with respect to contract design, market surveillance, reporting and record keeping, market transparency, safe-guarding customer funds and assets, ensuring financial integrity in trades, and protecting customers from fraud and market manipulation and trading abuses (Tsetsekos and Varangis 2000). Derivatives exchanges also need to be able to self-regulate by monitoring trading activities, ensuring contract execution, resolving disputes, enforcing rules and sanctions, and promoting professional conduct in order to increase investors’ confidence (van der Bijl 1997).
The success of a derivatives exchange depends, in part, on the choice of products to be traded. The main types of commodities traded include interest rates, currencies, individual stocks, and stock indices. The more common derivatives used for these products are options and futures. These products need to have the following characteristics to be traded: a sufficiently high level of price volatility to attract hedgers or speculators; a significant amount of money at risk; a significant number of domestic market participants; a large number of producers, processors, and banks interested in using derivatives contracts; and a weak correlation between the price of the underlying asset and the price of the already-traded derivatives contract(s) in other exchanges (Tsetsekos and Varangis 2000).

7. Derivatives and Central Banking

Central banks perform two main roles within the macroeconomy: first, the conduct of monetary policy and second, the supervision of commercial banks (Hentschel and Smith 1997). These two policy roles are not entirely separate. The conduct of monetary policy sometimes relies on the banking system. For instance, the reserve requirement (a monetary policy tool as well as a bank regulation) is regulated by the central bank, but the central bank is also the ‘lender of last resort’ and changing the discount rate (another monetary policy tool) operates alongside bank regulation (Hentschel and Smith 1997).

Central banks supervise and regulate banks since they are a vital part of the payment system. Individual bank failures may have negative externalities on the functioning of the payments system and these “externalities” can justify the regulation of banks (Hentschel and Smith 1997). Central banks’ motivation for supervising and
regulating banks also stems from deposit insurance. Deposit insurance programs sometimes reduce the incentives of depositors to monitor the risk-taking behaviour of the commercial bank. Here, managers of commercial banks have greater incentive to undertake riskier projects (Hentschel and Smith 1997).

Banks are active participants in derivatives markets and use derivatives to manage their own risks and/or act as market makers. Given the dangers and risks involved in the use of derivatives, central banks must take heed of the influence of derivatives on the stability of the banking system (Hentschel and Smith 1997). Systemic risk is the most worrisome to central banks. Regulations which are too restrictive, however, may prompt financial institutions to relocate their derivatives activities outside of the domestic economy (Hentschel and Smith 1997).

Others argue that the potential danger of systemic risks in derivatives transactions is exaggerated (Hentschel and Smith 1994). Institutions use derivatives primarily for hedging purposes rather than for speculation, and the default risk associated with derivatives has been greatly overstated. They argue that derivatives markets help to reduce systemic risk by spreading the impact of economic shocks among institutional investors and financial intermediaries who are in a better position (due to capitalisation and diversification) to absorb them.

All in all, the growth of derivatives trading has affected the manner in which monetary policy is conducted (Hunter and Marshall 1999). Derivatives change the demand for money. Derivatives provide an efficient means of managing risks and creating innovative investment strategies linked to market events. As a consequence,
the transactions, precautionary, and speculative demands for money are reduced.
Since derivatives reduce transactions costs, economic agents can operate with lower
transactions balances. A major transaction cost in financial markets is the bid-ask
spread, which is determined in part by informational asymmetries and trading
volume. Derivatives markets attract information-motivated investors whose private
information are assimilated into publicly observable prices and help to reduce the
bid-ask spread. The presence of arbitrage opportunities between derivatives and the
underlying cash market keeps prices in these two markets linked. Thus, the
information of the derivatives markets is also reflected in the underlying cash market.
This informational efficiency in the derivatives market reduces the spread in the
underlying cash market, reduces transactions costs and thereby reduces the demand
for narrow money. These structural shifts in money demand increase the uncertainty
about the ‘demand for money’ function, complicating the conduct of monetary
policy (Hunter and Marshall 1999).

8. The Derivatives Market in Trinidad and Tobago

Trinidad and Tobago has six major commercial banks in operation and senior
executive members from four of these were interviewed⁷. Those interviewed all
expressed the opinion that the commercial banks were the major, if not the only,
players in the local derivatives market. The authors themselves were unable to
identify any other institutions that offer derivatives products to their clients.

⁷ The interviewees represented the following commercial banks: First Citizens Bank Limited, RBTT Merchant Bank Limited,
Republic Bank Limited, and Citibank (Trinidad and Tobago) Limited.
The conduct of these interviews was not a simple task since the bankers were not enthusiastic about revealing information about their derivatives trading activities. In addition, the market is relatively youthful, as well as diminutive. One of the banks interviewed has conducted only one derivatives transaction thus far.

The in-depth interviews were an attempt to gather information regarding the types of clients/organisations that utilise derivatives, the demand factors driving the use of derivatives in Trinidad and Tobago, the types of underlying instruments upon which the derivatives are based, the infrastructure/architecture used for trading, and regulations/laws governing trades.

All four banks interviewed do not have a derivatives trading desk, but do engage in derivatives transactions occasionally. Table 2 summarises the key features of Trinidad and Tobago’s derivatives market.

Clients include top local corporates, banks, insurance companies, governments, and companies from the manufacturing sector. These institutions would be attracted to derivatives usage for risk management since they would have large amounts of money at risk.

The banks engage in derivatives transactions either for hedging against their own risks or those of their clients. The demand for these products stems mainly from the volatility in prices in international markets, and managers becoming more aware and
sophisticated about new methods of managing risk. Although derivatives may be used for speculative purposes, the banks try to discourage their use for this purpose.

The most common used derivative products are forward exchange rate contracts (forward exchange rate swaps and options), cross-currency swaps, interest rate swaps, oil options and swaps, and bond options. These products are utilised to hedge against exchange-rate risk, currency risk, and interest rate risk and to combat the local mismatch in bond maturities.

Since no actual derivatives trading occurs locally, when banks enter into a derivative contract (on behalf of their clients) they trade on an already established derivatives exchange, and trades are confirmed via the telephone system. Upon entering into a derivative contract, the bank takes an equal and opposite position in the international market. This ensures that all market risk is hedged and the only risk the bank accepts is counterparty or credit risk.

All trades are governed by the ISDA Master Agreement. ISDA (International Swaps and Derivatives Association) is a global trade association representing participants in the privately negotiated derivatives industry (www.isda.org). The association deals with swaps and options of all asset classes including interest rate, currency, commodity and energy, credit and equity. ISDA was chartered in 1985 and has helped to identify and reduce the sources of risk involved with derivatives and risk management. The ISDA Master Agreement is widely used by industry participants since it has established international contractual standards governing privately
negotiated derivatives transactions. These standards help to reduce legal uncertainty and credit risk (credit risk is alleviated through the netting of contractual obligations).

Local banks act as swap dealers for their clients. Before taking a ‘position’ in a derivative contract, the bank performs appropriateness tests on potential clients. These appropriateness tests include examination of their financial statements, market capitalisation, and sales per year. The banks also try to educate their clients on the benefits and dangers of using derivatives to manage (or hedge) risk. Banks profit from derivative transactions through the bid-offer spread and embedded fees.

The potential danger of using derivative contracts locally involves the size of the market itself. Because the market is so small, if one participant defaults the entire system may be de-stabilised (systemic risk). Therefore in order for the market to develop in Trinidad and Tobago, there needs to be adequate regulation (self-regulation or governmental regulation) governing trading activity and dissemination of relevant education and training of market participants (none of the employees at the commercial banks are trained in derivatives).

<table>
<thead>
<tr>
<th>Table 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Features of Trinidad and Tobago’s Derivatives Market</strong></td>
</tr>
<tr>
<td>Uses</td>
</tr>
</tbody>
</table>

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8 This may become a problem if there is a vast increase in the number of market participants utilising derivatives products and default by one participant affects other related industries and/or the underlying cash market.
<table>
<thead>
<tr>
<th>Market participants</th>
<th>Commercial banks, top local corporates, insurance companies, governments, and manufacturers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract types</td>
<td>Forward exchange rate swaps and options, cross-currency swaps, interest rate swaps, bond options, and oil options and swaps.</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Telephone system</td>
</tr>
<tr>
<td>Regulation</td>
<td>ISDA Master Agreement</td>
</tr>
<tr>
<td>Training</td>
<td>No specialised training in derivatives</td>
</tr>
<tr>
<td>Dangers involved</td>
<td>Counterparty risk and possibly systemic risk</td>
</tr>
</tbody>
</table>

**Source:** author’s own analysis.

At present, the deepening and widening of the local derivatives market is restricted due to the lack of understanding in the use of derivatives by both professionals (that is, bankers) and potential clients, the lack of volatility in the local exchange rate- Trinidad and Tobago has a ‘managed float’, the small number of possible participants, the lack of excess funds necessary for **mark-to-market**, and incomplete yield curves on local bonds\(^9\).

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\(^9\) Currently in Trinidad and Tobago the Treasury Bonds issued are short-term (3 months – 1 year) and long-term (15 years – 25 years), and there is a gap in the issuance of medium-term bonds (1 year - 5 to 10 years). This gap in issuance makes derivation of an actual yield curve awkward, which is essential to price derivatives based on interest rates (as per discussions with bankers).
9. Conclusions and Recommendations

The objective of this report is to assess the feasibility of conducting derivatives trading in Trinidad and Tobago on a more formalised basis. Currently in Trinidad and Tobago all derivatives transactions occur over-the-counter, and this appears to be more feasible than attempting to establish a derivatives exchange. This conclusion is based on the following considerations.

The prerequisites for establishing a derivatives exchange (see section 3.6) include: a large number of traders and speculators, a legal structure that includes a system of property rights and enforceable contracts, and adequate financial resources (particularly for a clearinghouse) (Leuthold 1992). Trinidad and Tobago’s derivatives market has a small number of (potential) traders and speculators, no domestic regulatory body governing trades, and limited financial resources to establish a clearinghouse.

The success of a derivatives exchange also depends on the types of products to be traded (Tsetsekos and Varangis 2000). These products should have the following characteristics: a sufficiently high level of price volatility to attract hedgers and speculators, a significant amount of money at risk, a significant number of domestic market participants, and a large number of producers, processors, and banks interested in using derivatives contracts. However, the deposit rates in Trinidad and Tobago tend to move in tandem with each other; therefore, the financial system is not dynamic and lacks volatility. Volatility in the financial sector is also curbed since Trinidad and Tobago is under a “managed float” exchange-rate regime. In addition,
the small number of domestic market participants makes finding appropriate counterparties problematic. Furthermore, some of the local corporates interested in using derivatives show a preference for already established derivatives exchanges. For example, multinational corporations operating in Trinidad and Tobago that use derivatives to manage (hedge) risk usually rely on their headquarters (located outside of Trinidad and Tobago) to perform this function.

Exchange-traded derivatives contracts are standardised contracts transacted within a central regulated market where large numbers of buyers and sellers (exchange members) operate in a competitive environment. Since Trinidad and Tobago’s derivatives market has only a few participants, continuing with OTC trading seems to be more appropriate than establishing a derivatives exchange, particularly as OTC contracts are flexible and can be tailored to meet specific needs of the parties.

Additionally, there are limited issues of Treasury bonds with differing maturities, and exchange-traded derivatives based on interest rates and bond options cannot be appropriately priced without a complete yield curve. A yield curve is a graph depicting the yields of different maturity bonds of the same credit quality and type. A reliable yield curve is therefore an essential input into bond-pricing models (CMMB 2004).

Limited understanding of derivatives trading on the part of dealers and directors of corporates can become a hindrance to the development of the market. Furthermore, for a local derivatives exchange to operate efficiently it is imperative for employees
to have sufficient education and training in the use of derivatives. Presently, none of the banks interviewed have employees with professional expertise in derivatives.

Consequently, the following recommendations are proposed to ensure the continued growth and enhanced efficiency of OTC derivatives trading in Trinidad and Tobago.

**Recommendation 1: Enhance education and knowledge among all market participants**

Education and confidence enhancing strategies, with active competition are some of the most efficient self-regulating mechanisms of derivatives markets (Gibson and Zimmermann 1996). There should be promotion of attaining ‘professional expertise’ in derivatives by the Central Bank of Trinidad and Tobago, by financial institutions already trading in derivatives as well as those financial institutions interested in using derivatives products, and by end users. The pricing of derivatives products and management risk models require managers to have sufficient educational training in finance and quantitative methods used for asset pricing. Thus, it is essential professionals attend specialised courses in financial management and derivatives.

**Recommendation 2: Reinforce information standardisation and disclosure at all levels of the derivatives industry.**

Credit and liquidity risks are affected by perceived uncertainties arising from accounting and information disclosure procedures (Gibson and Zimmermann 1996). This prevents market participants from effectively measuring credit or liquidity shocks that can impact the entire financial system (systemic risk). Therefore, the
publication of complete information on derivative products’ specification, trading activity and harmonising accounting standards should be enforced.

**Recommendation 3: Ensure performance measurement and financial compensation schemes of employees are incentive-compatible.**

Efficient self-regulation of derivatives markets can be achieved in part by designing appropriate incentives for derivatives dealers and managers (Gibson and Zimmermann 1996). Performance assessment should be compatible with the long-run objectives of the firm. In order to reduce *agency risk*, the design of incentive-compatible compensation schemes, monitoring (reporting) structures and risk control systems need to be appropriately implemented. Remuneration packages should be delinked from the revenues generated from trading activities (Bhaumik 1998) in order to prevent dealers and managers from assuming unnecessary risk.

**Recommendation 4: Introduce government regulating mechanisms (only if self-regulating mechanisms fail).**

Before external regulation is introduced the following factors need to be considered (Gibson and Zimmermann 1996). First, there should be a full cost-benefit assessment of the explicit and implicit costs and benefits to be derived before the introduction of external regulation. Second, there should be *harmonisation* in the legal treatment of identical functions performed by different products and/or institutions, and the rules governing market segments. Third, regulation needs to dynamic in order to adapt to changes in market structures and financial product innovation.
Recommendation 5: The Central Bank of Trinidad and Tobago should have a more active role in the domestic derivatives market

The Central Bank can become more active in the local derivatives market by assessing and informing market participants about the impact of derivatives trading on underlying economic factors and their effects on monetary and exchange rate policies (Gibson and Zimmermann 1996).

Recommendation 6: Pursue credit risk reduction mechanisms (such as netting and settlement agreements) (Gibson and Zimmermann 1996).

Credit risk can be mitigated using bilateral or multilateral netting of contractual payments due on settlement dates, and of unrealised losses against unrealised gains if counterparty default arises. Netting reduces counterparty risk as well as credit exposures, thereby, reducing the likelihood of systemic risk materializing (Group of Thirty 1993).

Recommendation 7: Introduce derivatives products that can be used to manage risks in the petroleum and natural gas industries, and other commodity-based industries.

Trinidad and Tobago is heavily dependent on natural resources such as petroleum and natural gas for export revenue, and risk managers in these industries can use derivatives to achieve certainty about the prices they pay and receive (Energy Information Administration 2002). Increasing pipeline capacity, increasing storage capacity, and making other physical and economic changes to the delivery system itself can reduce volatile price movements in these industries. But, derivatives can provide a less costly approach to manage price risk.
References


International Swaps and Derivatives Association, Inc. official website: <www.isda.org>


Glossary

Broker: an intermediary between buyers and sellers that acts in a transaction as an agent, rather than a principal, charges a commission or fee, and—unlike a dealer—does not buy or sell for its own account or makes markets.

Clearing and settlement: the process of matching parties in a transaction according to the terms of a contract, and the fulfillment of obligations (for example, through the exchange or securities or funds).

Clearinghouse: an entity, typically affiliated with a futures or options exchange, that clears trades through delivery of the commodity or purchase of offsetting futures positions and serves as a central counterparty. It may also hold performance bonds posted by dealers to ensure fulfillment of futures and options obligations.

Derivatives: financial contracts whose value derives from underlying securities prices, interest rates, foreign exchange rates, market indices, or commodity prices.

Dealer: an intermediary that acts as a principal in a transaction, buys (or sells) on its own account, and thus take positions and risks. It earns profit from bid-ask spreads. A dealer can be distinguished from a broker, who acts only as an agent for customers and charges commission.

Forward contract: a contractual obligation between two parties to exchange a particular good or instrument at a set price on a future date. The buyer of the forward agrees to pay the price and take delivery of the good or instrument and is said to be “long the forward,” while the seller of the forward agrees to deliver the good or instrument at the agreed price on the agreed date. Collateral may be deposited, but cash is not exchanged until the delivery date. Forward contracts, unlike futures, are not traded on organized exchanges.

Futures: a negotiable contract to make or to take delivery of a standardised amount of a commodity or securities at a specific date for an agreed price, under terms and conditions established by a regulated futures exchange where trading takes place. It is essentially a standardised forward contract that is traded on an organised exchange and subject to the requirements defined by the exchange.

Margin: the amount of cash or eligible collateral an investor must deposit with a counterparty or intermediary when conducting a transaction. For example, when buying or selling a futures contract, it is the amount that must be deposited with a broker or clearinghouse. If the futures price moves adversely, the investor might receive a margin call—that is, a demand for additional funds or collateral (variation margin) to offset position losses in the margin account.

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**Mark-to-market:** the valuation of a position or portfolio by reference to the most recent price at which a financial instrument can be bought or sold in normal volumes. The mark-to-market value might equal the current market value—as opposed to historical accounting or book value—or the present value of expected future cash flows.

**Market-maker:** an intermediary that holds an inventory of financial instruments (or risk positions) and stands ready to execute buy and sell orders on behalf of customers at posted prices or on its own account. The market-maker assumes risk by taking possession of the asset or position. In organised exchanges, *market-makers* are licensed by a regulating body or by the exchange itself.

**Netting arrangements:** a written contract to combine offsetting obligations between two or more parties to reduce them to a single net payment. For example, two banks owing each other $10 million and $12 million, respectively, might agree to value their mutual obligation at $2 million for accounting purposes. Netting can be done bilaterally—when two parties settle contracts at net value, or multilaterally through a clearinghouse. Closeout netting combines offsetting credit exposures between two parties when a contract is terminated.

**Off-balance-sheet items:** financial commitments that do not involve booking assets or liabilities, and thus do not appear on the balance sheet.

**Option:** a contract granting the right, and the obligation, to purchase or sell an asset during a specified period at an agreed-upon price (the exercise or strike price). A *call option* is a contract that gives the holder the right to buy from the option seller an asset at a specified price; a *put option* is a contract that gives the holder the right to sell an asset at a predetermined price. Options are traded both on exchanges and over-the-counter.

**Swap:** a derivatives contract that involves a series of exchanges of payments. Examples are agreements to exchange interest payments in a fixed-rate obligation for interest payments in a floating-rate obligation (an interest rate swap) and reverse the exchange at a later date. A cross-currency interest rate swap is the exchange of a fixed-rate obligation in one currency for a floating-rate obligation in another currency.