

Improving the Effectiveness of the Market for Bonds in the CARICOM sub region

Cécile M S Pemberton
Antoinette L Stewart
&
Patrick K Watson*

Abstract

The main objective of this paper is to study the structure and functioning of the bond market in the CARICOM sub region, to compare it with more developed markets, and to make policy recommendations for improving its efficiency and effectiveness. Bond indices are calculated for Barbados, Jamaica and Trinidad and Tobago using, as a basic raw material, yield curves for the three jurisdictions, which are also estimated. A composite CARICOM bond index is constructed as a weighted average of the three national indices. Rates of return and risk are derived from the bond indices and are used to evaluate the relative efficiency of the markets.

KEYWORDS: Bond markets, yield curves, bond indices, CARICOM.

JEL CLASSIFICATION NUMBERS: G20, O10, O54

*The authors of this paper gratefully acknowledge the generous financial and other material assistance given to them by the Caribbean Money Market Brokers (CMMB) Ltd. of Trinidad & Tobago. The usual caveat about responsibility for errors applies.

A revised version of this paper appears in *Social and Economic Studies*, 54(4): 166-201, 2005.

The main objective of this paper is to study the structure and functioning of the bond market in the CARICOM sub region, to compare it with those of more developed markets, and to make recommendations for improving its efficiency and effectiveness. Yield curves, and bond market indices derived from them, are constructed for Barbados and Jamaica. These are used, together with an existing bond index for Trinidad & Tobago¹, to calculate an index for the region as a whole². The indices are then used to evaluate and compare rates of return and risk, and to analyse the efficiency of the markets.

Information about the structure and functioning of the CARICOM bond market is obtained by conducting structured interviews with key players in this market as well as through study and analysis of existing documentation. The study of the more developed markets is based on a review and analysis of the theoretical literature on what constitutes an efficient and effective bond market, as well as documented literature of (mainly) the UK, US, Malaysian and Singaporean markets.

The motivation for this study is simple: there is strong theoretical and empirical support for the existence of a causal relationship between the development of securities markets and overall economic development (Patrick 1966, Sylla 1995). Bond markets in particular provide a forum for public and private sector agencies to obtain mid-term and long-term funding to be matched with entities interested in lending money such as pension funds, insurance companies, banks, mutual funds, and individuals. They can be viewed as a channel that mobilizes savings from sectors in the economy with surpluses into sectors of the economy in need of funds to finance capital investment projects.

Bond markets also serve as a means through which large capital inflows can be sterilized. In situations where a country's bond market is underdeveloped, central banks are left with only short-term securities to conduct its open market operations (Turner 2002, Mihaljek et al. 2002). Turner (2002) argues that relying almost totally on short-term securities has the potential of

¹ Estimated by the Caribbean Money Market Brokers (CMMB).

² The prospect of the birth of the CARICOM Single Market and Economy (CSME) and the FTAA, as well as the possible entry of CARICOM member states into the latter, is sufficient justification for the construction of these indices. With the resulting increase in liberalization, bond markets will have to play an even greater role given that privatization and, more generally, a greater involvement of the private sector will imply a larger demand for equity *and* non equity finance. The proposed bond indices will facilitate the evaluation of national as well as CARICOM-wide portfolios.

driving short-term interest rates up and tends as well to bias the flow of capital towards short-term investments. He also suggests that the presence of a well-developed bond market tends to reduce this bias towards short-term investment and provide the market with financial instruments with various maturities. This allows investors to better match their investment needs so that, for instance, short term investments could be funded through short-term bonds and so on. “If bond markets do not exist, for instance, firms may have to finance the acquisition of long-term assets by incurring short-term debt. As a result, their investment policies may be biased in favour of short-term projects and away from entrepreneurial ventures” (Turner 2002, page 2).

Well functioning bond markets tend to make the financial system more complete. They broaden the range of financial instruments that are available in the system and provide investors with risk management tools that allow them to better hedge their investments. Herring and Chatusripitak (2000, page IV) noted that the “...underdevelopment of capital markets (and by extension bond markets) limits risk-pooling and risk sharing opportunities for both households and firms”. Another benefit of a well functioning, well developed bond market is that it provides an alternative source of funding. There are basically three sources of funding for business enterprise: equity, bank loans, and bonds. In the CARICOM sub region, banks are the dominant source of finance for businesses. Schinasi and Smith (1998) believe that securities markets are better at distributing financial risks than the banking system. By providing an alternative source of funding, an effective bond market can increase the competitiveness and efficiency of the financial system. It also contributes to the enhancement of the stability of the financial system. A deep and liquid bond market would offer borrowers the flexibility to diversify their sources of funding and provide them with a good alternative source of raising long term capital for matching any long-term expenditure needs (Lian 2002).

The literature strongly suggests that bond markets can help in reducing the risk of financial crises. It is widely believed that the Asian Financial Crisis of 1997/98 may have been caused by the inability of the banking system to handle the demands of borrowers since it was unable to match long term borrowing with long-term sources of finance. “The over-dependence on bank lending and short-term capital inflows to finance long-term investments has often been cited as one of the main reasons for the Asian Financial Crisis in 1997” (Jin and Loh 2002, page 9). “The crisis may have been caused in part by over reliance on the banking system for short term, often foreign currency denominated funding” (Jiang et al. 2001, page 103). The bond market allows

lenders to invest in bonds of tenors that suit their degree of risk aversion, and borrowers can float bonds with tenors suited to the particular investment need at hand.

Domestic debt markets also help in facilitating monetary policy. “Monetary policy relies increasingly on indirect instruments of control. Prices in the long term bond market give valuable information about expectations of likely macroeconomic developments and about market reactions to monetary policy moves” (Turner 2002, page 3).

The presence of domestic bond markets may also help to reduce an economy’s exposure to foreign exchange risk. In the absence of well functioning debt markets, borrowers may be forced to seek funds abroad, often in foreign currency. In such cases, any debt incurred will most likely have to be repaid in the foreign currency in which the initial funds were borrowed. There is a strong possibility that such actions may eventually result in undue foreign exchange risk exposure, the so-called currency mismatch. “Financial fragility is inevitable if domestic investments are financed by foreign currency loans” (Jin and Loh 2002, page 2).

The rest of the paper proceeds as follows. In the following section, we outline the structure and operations of bond market in the CARICOM sub region based on a study of the markets in Trinidad and Tobago, the OECS grouping, Jamaica, and Barbados - all CARICOM member countries. Following this, we calculate yield curves and bond indices for Barbados and Jamaica, and a bond index for the CARICOM region as a whole. We use these and the existing Trinidad & Tobago index to evaluate the relative efficiency of the various markets. We then examine the more developed bond markets in the United States of America (US) and the United Kingdom (UK), as well as those of Singapore and Malaysia, and make recommendations for the deepening and widening of the CARICOM bond market. We then conclude the paper.

THE CARICOM BOND MARKET: SOME STYLIZED FACTS

Primary Market

The major issuers of bonds in the CARICOM countries surveyed are the governments and the state enterprises. Government and State Enterprises/Agency bonds account for 90% of the total

bonds in issue in Barbados³, and for more than 75% in Jamaica, the OECS countries and Trinidad and Tobago. The governments tend to issue bonds of certain tenors very infrequently, in particular long term bonds. As a result, a benchmark yield curve showing interest rates for bonds of various tenors has to be estimated using interpolation methods (since no continuous interest rate series exists for many medium to long-term bonds) in each of the four territories.

All the governments issue fixed-income securities for three main reasons:

- Open market operations (controlling liquidity);
- Financing long-term, large-scale, capital projects (e.g. building an airport);
- Debt management (to repay loans).

A variety of debt instruments is issued by the governments in each of these countries to meet the varying financial needs. These include:

- Treasury Bills;
- Eurobonds⁴;
- Government Bonds;
- State Enterprises/Government Agency Bonds.

In addition, the government of Barbados issues Savings Bonds, while the government of Jamaica, in addition to issuing Local Registered Stock⁵, also issues Investment Debentures⁶ and US Indexed Bonds.

The majority of bonds issued by corporations and governments in CARICOM countries are of the plain vanilla type. However, Investment Debentures and Eurobonds are callable, while Eurobonds may also have floating and/or step-up interest rates. Eurobonds with these special features are issued by the governments of the various CARICOM countries on behalf of an entity from outside the respective CARICOM country.

The most prevalent method used for the initial issue of government securities in the CARICOM markets is the auctioning process, while the technique that is predominantly used to issue

³ This information was obtained from the Operations Analyst at the Barbados Stock Exchange.

⁴ Bonds issued in US currency (to give the bonds international marketability) by CARICOM governments on behalf of the CARICOM governments.

⁵ Bonds issued by the government of Jamaica in local currency.

⁶ Investment Debentures are similar to Local Registered Stock but are callable.

corporate bonds into the primary markets is the underwriting process. With the exception of the OECS bond market, the Central Bank of the respective country is responsible for the initial issuance of the government securities and Investment Banks are primarily responsible for underwriting the corporate bonds.

In Jamaica, the Local Registered Stock is issued into the primary market via the Dutch Auctioning System (which involves awarding the bonds to the highest bidder) while the other types of government bonds are issued into the primary market via the Open Purchase Process. With the Open Purchase Process, individuals are invited to purchase bonds during the sale period announced by the Central Bank. The bond issue has no stipulated size, so entities can purchase as many bonds as they want during the sale period. Sometimes the issue is closed before the end of the sale period. This usually occurs when the government believes that it has received enough money. Although the size of the bond issue is not given in the Open Purchase Process, the term, coupon rate, yield, and par value are provided.

In Trinidad & Tobago, two types of auctions are used to issue government fixed-income securities into the primary market: the single/uniform price auction⁷ (for government bonds) and the multiple/discriminatory price auction (for T-bills and Government notes). With the single price auction, the price bid by the last successful bidder is the price that all the bidders/buyers have to pay for the bonds, whilst the price paid by bidders/buyers in the multiple price auction is the actual price that they (the bidders/buyers) bid. It should be noted that restrictions are placed on the amount that a single bidder can purchase in an auction and that any resident of Trinidad & Tobago is welcome to participate in the primary market for government securities through government intermediaries.⁸ These intermediaries can purchase the government securities on behalf of the public or on their own account.

The OECS bond market is the only bond market where both corporate and government bonds are initially issued into the primary market through an auctioning system. Corporate securities are issued into the primary market using either a non-competitive fixed price auction, where the issuer sets the price of the issue, or a competitive auction, where the investors set the price of the issue. Government securities on the other hand are issued using one of three auction types: fixed

⁷ This is of recent vintage. Up to July 2004, Trinidad & Tobago government bonds were issued through a tendering process.

⁸ A group of financial institutions appointed by the Central Bank to act as counter parties.

price subscription, uniform/single price auction, and discriminatory/multiple price auction. Any resident of the OECS member countries may participate in the primary market for government securities through the medium of the Eastern Caribbean Stock Exchange (ECSE) licensed intermediaries⁹. These intermediaries can purchase the government securities on behalf of the public or on their own account¹⁰.

Barbados continues to be the only country in which investors need to tender¹¹ to be able to purchase government fixed-income securities on the Primary Market.

Secondary Market

The entire secondary market for debt securities in the CARICOM sub region is underdeveloped. A meagre amount of fixed-income securities is traded, and the little trading that does occur is mainly in government securities. The secondary market trading of fixed-income securities in Jamaica, Trinidad & Tobago, and the majority of such trading in Barbados¹², occurs on the over-the-counter (OTC) Market. The OECS bond market is the only one where there exists a formal and regularized exchange for bonds (the ECSE) where secondary market trading occurs. Still, very little trading activity occurs, notwithstanding the existence of this exchange and the accompanying quotations of securities market prices, a Central Depository for investors' accounts, Clearing Houses¹³ for settling trades and dealers/market makers. This is probably due to the thinness of the market together with the absence of factors such as participation by issuers, investors, and intermediaries (such as dealers and market makers who can take positions and manage their risks)¹⁴ and motivation for these actors to participate in the market. The major investors in all four markets are Pension Funds, Insurance Companies (including the National Insurance Board), Mutual Funds, and Trust Companies of Commercial Banks.

⁹ A group of financial institutions licensed by the ECSE. These intermediaries can purchase the government securities on behalf of the public or on their own account.

¹⁰ Information obtained from www.ecseonline.com/about_RGSM_FAQ.asp#q8 (the ECSE website).

¹¹ The investor wishing to purchase government bonds on the Primary Market needs to submit applications to the Central Bank, who in turn lets the investor know how many bonds he/she has been awarded.

¹² Barbados, however, has facilities at its Stock Exchange for the secondary trading of bonds. Notwithstanding this, most of the secondary market trading in Barbados occurs on the OTC Market.

¹³ A separate division or corporation through which all transactions are settled. The clearinghouse assures proper conduct of delivery procedures and the adequate financing of the trading (margining) protecting both parties from financial loss.

¹⁴ Harwood (2000).

In Trinidad and Tobago, a common practice by government debt securities investors, mainly Mutual Funds and Trust Companies of Commercial Banks, is the stripping of bonds. This process entails dividing the debt instrument into shorter term, zero-coupon bonds, to be sold at a discount. These stripped bonds can then be traded in the OTC Market.

The OTC market in the CARICOM sub region lacks an organized structure, rules governing the process of both debt issuance and secondary market trading, and a forceful regulatory body that enforces the rules and adjusts existing rules and/or recommends new rules when needed. The absence of these elements in the CARICOM bond market probably explains the lack of quotations of market prices of securities, a Central Depository for holding investors' accounts (for corporate bonds), Clearing Houses for settling trades (for corporate bonds), and dealers/market makers to ensure continuous trading of corporate bonds. This results in a lack of liquidity, price discovery and investor confidence in the market and the general practice by investors to hold debt securities until maturity.

YIELD CURVES, BOND INDICES AND MARKET EFFICIENCY IN THE CARICOM SUB-REGION

Estimation of Yield Curves

Yield Curves provide vital information about interest rates to investors, and may also be used to derive bond prices. The latter in turn may be used for the construction of bond indices, which are extremely useful tools in the analysis of portfolio choice. Authoritative benchmark yield curves currently do not exist in the CARICOM sub region. This is due principally to the non existence of data consequent to the non issue on an ongoing basis of bonds of varying tenors. Major market players estimate their own yield curves using interpolation methods, but even these are not normally available to the general public. In the absence of yield curves, there is no universally acceptable bond index for the separate jurisdictions and for the region as a whole. Market players therefore lack one of the most basic tools for the evaluation of competing portfolios.

In this section, an attempt is made to make up for this serious shortcoming: yield curves for Barbados and Jamaica are estimated¹⁵, then bond indices are estimated for each of the three jurisdictions and for the CARICOM region as a whole.

To construct the yield curves for Barbados and Jamaica, the gaps in the existing data¹⁶ were filled in the following three steps:

Step 1

We identified for each country the series with the least missing values and called these the foundation data series sets. Fortunately, for each country, there was at least one series with very few missing values. This was the 90-day Treasury Bill yield for Barbados (no missing data from January 2002 to April 2004) and the 180-day Treasury Bill yield for Jamaica (six missing data points for January 2000 to April 2004)

Linear interpolation methods were used to fill the gaps within the chosen data sets. Since the gaps were never more than two months, this was a reasonable procedure to follow.

Step 2

Where required, ARIMA models were used to forecast beyond the last available observation, to extend the foundation data set series to April 2004.

Step 3

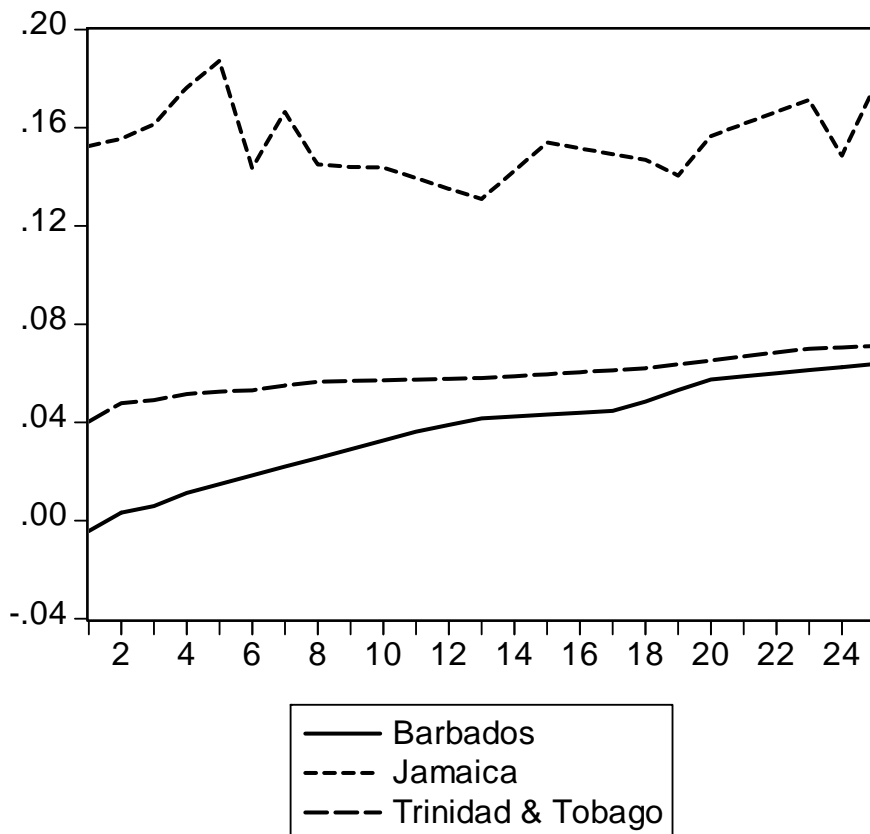
The yields of foundation data set, x_t , $t = 1, 2, \dots$, were compared to the yields of a bond of a different tenor, y_t , $t = 1, 2, \dots$, where the data for the latter were available. The spread, $s_t = x_t - y_t$, was calculated, and the mean and standard deviation of the spread, μ_s and σ_s respectively, were calculated. Assuming that the spread is normally distributed with mean μ_s and standard deviation σ_s , the missing values for bonds of different tenors are generated by adding randomly generated spreads to the yields of the foundation data set.

¹⁵ The authors were able to obtain a yield curve for Trinidad & Tobago (estimated by the CMMB), but for no other jurisdiction. Data for the OECS countries were woefully inadequate and the authors accordingly decided against estimating a yield curve for this grouping.

¹⁶ Primary data for this exercise are drawn, in the case of Barbados, from the Central Bank of Barbados' Annual Statistical Digest and, in the case of Jamaica, the Bank of Jamaica's Statistical Digest.

The estimated yield curves at March 30, 2004, for the three jurisdictions are shown in Figure 1 below:

Figure 1
Yield Curves at March 30, 2004



The shape of the Jamaica curve appears to be counter intuitive since in some cases bonds of higher tenor are associated with lower yields. But this is not unusual for an unsophisticated, information-starved market, as well as a market where the primary concern may be the protection of principal and yield is only secondary. Some analysts also explain this phenomenon on the basis of the market segmentation hypothesis¹⁷. The spread between the yields, especially between Jamaica and her two CARICOM partners, is also very noticeable. This may be reflective of the varying foreign currency risks associated with investment in the different jurisdictions of the CARICOM sub-region. The Jamaican dollar is relatively more volatile and, in recent times, has been depreciating against the other currencies of the region. A higher premium is therefore required to attract foreign investment there in order to take advantage of

¹⁷ According to this hypothesis, investors pay attention only to bonds of a given tenor and are not influenced by yields on bonds outside of this range.

what appears to be a splendid arbitrage opportunity. On the other hand, the Barbadian dollar is one of the most stable currencies in the world.

National Bond Indices

We calculate two kinds of bond indices: a price index and a total returns index. The price index is calculated as:

$$BPI_{j,t} = BPI_{j,t-1} \frac{\sum_{i=1}^n P_{j,it} Q_{j,it-1}}{\sum_{i=1}^n P_{j,it-1} Q_{j,it-1}}$$

where

$BPI_{j,t}$ = Price Index of country j at time t

$BPI_{j,0} = 100$

$P_{j,it}$ = clean price (in US dollars) of i^{th} bond at time t

$Q_{j,it}$ = size of issue of i^{th} bond at time t

The total returns index is calculated as:

$$BTRI_{j,t} = BTRI_{j,t-1} \frac{\sum_{i=1}^n (P_{j,it} + A_{j,it} + G_{j,it}) Q_{j,it-1}}{\sum_{i=1}^n (P_{j,it-1} + A_{j,it-1}) Q_{j,it-1}}$$

$BTRI_{j,t}$ = Total Return Index (bonds) at time t, country j

$BTRI_{j,0} = 100$

$A_{j,it}$ = accrued interest to settlement date t, country j

$G_{j,it}$ = value of any coupon payment received from i^{th} bond for normal settlement at time t or since time (t-1)

$Q_{j,it}$ = size of issue of i^{th} bond at time t

The total returns index is the preferred bond index of the European Union. See Brown (2002).

The instruments included are fixed rate government securities from Barbados, Jamaica and Trinidad, ranging in maturity from 1 to 30 years. The indices therefore do not measure movement in Corporate Bonds. Each bond chosen has at least one year remaining to maturity (reviewed on a monthly basis). In addition, to be selected, a bond has to satisfy a minimum liquidity constraint. For Barbados this means that the issue size had to be at least B\$40 million, for Jamaica J\$750 million and for Trinidad & Tobago at least TT\$100 million. The base period for each country is March 2002.

CARICOM Composite Bond Index

The CARICOM wide Bond Price Index is calculated as follows:

$$BPI_t = \sum_{j=1}^3 W_{j,t} BPI_{j,t}$$

and the CARICOM wide total returns index is calculated as:

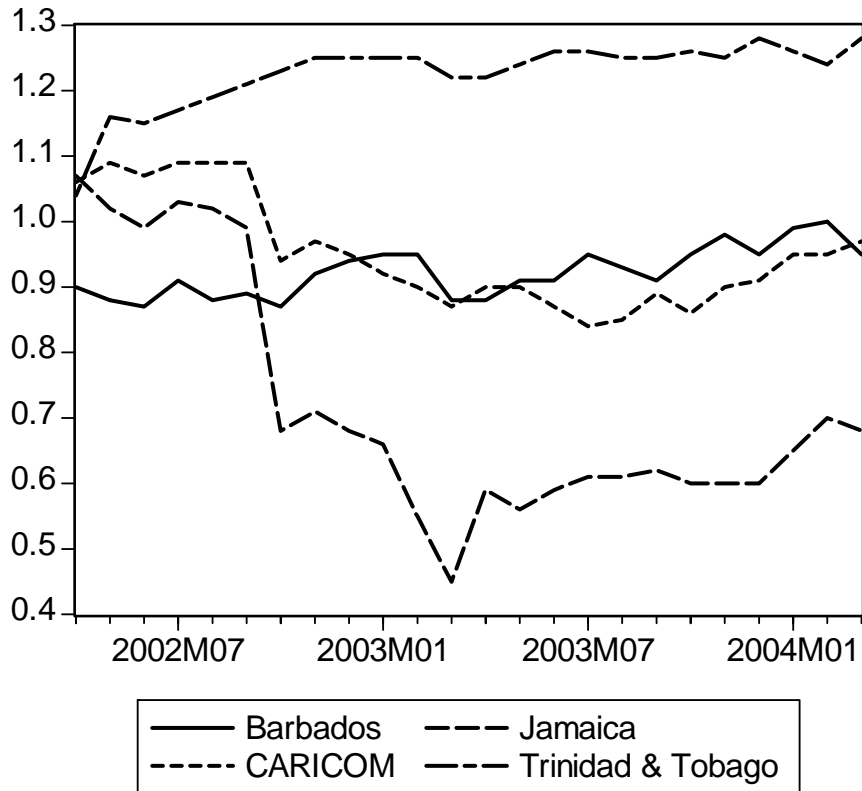
$$BTRI_t = \sum_{j=1}^3 W_{j,t} BTRI_{j,t}$$

where BPI and BTRI are calculated as in the preceding section. The weights, $W_{j,t}$, for each country's contribution to the index, is the relative market value share (in US dollars) of that country's bond market.

The time path of the bond price indices of the 3 countries, as well as the CARICOM index, is shown in Figure 2 below:

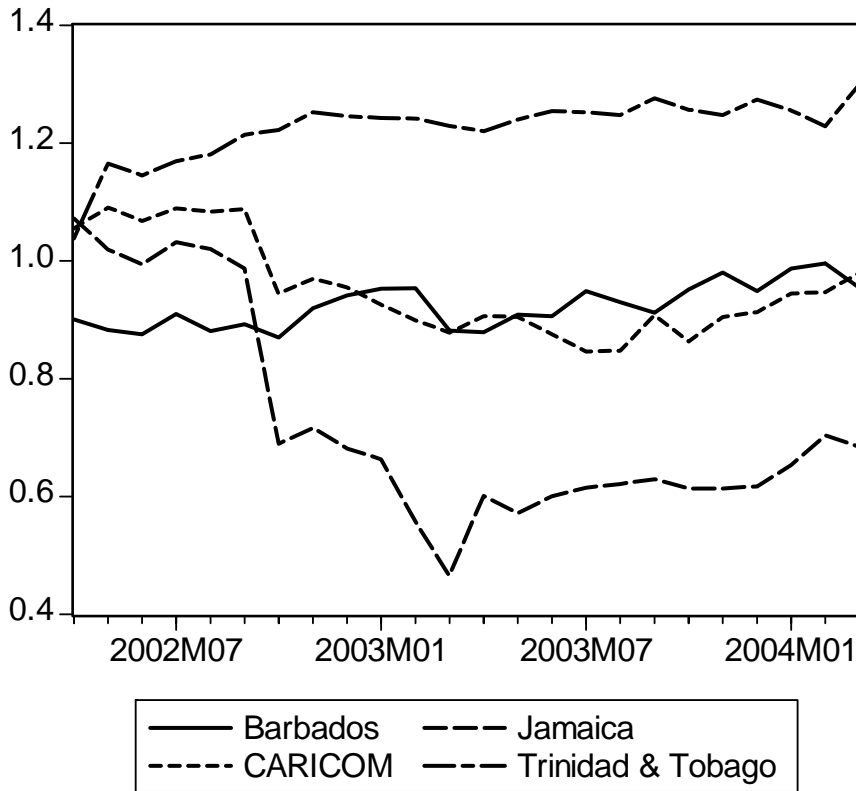
Figure 2

Time path of Bond Price Indices of Barbados, Jamaica, Trinidad & Tobago and CARICOM



The total returns index for the three countries, and for CARICOM as a whole, is shown in Figure 3 below:

Figure 3
Total Returns Bond Indices for Barbados, Jamaica, Trinidad & Tobago and CARICOM



Bond Market Efficiency

A particular market is deemed to display weak form efficiency if bond prices follow a random walk process:

$$\ln p_t = \alpha + \ln p_{t-1} + u_t$$

where p_t is the bond price at time t , α is a constant (drift) term and $\{u_t\}$ is a white noise process. Alternatively stated, the market is weak form efficient if $\ln (p_t/p_{t-1})$, which is nothing other than the rate of return, is a white noise process. The well known Box-Ljung Q statistic may be used to test this assumption. We determine that there is no evidence of weak form inefficiency in all the bond markets, including the “CARICOM” market. The results of the Box-Ljung tests, on which this conclusion is based, are shown in Table 1 below:

Table 1
Box-Ljung Tests for White noise of Bond (Total returns) Indices

p-values:

| Barbados | Jamaica | Trinidad & Tobago | CARICOM |
|------------------|------------------|-------------------|------------------|
| $Q_4 = 0.897$ | $Q_4 = 0.910$ | $Q_4 = 0.940$ | $Q_4 = 0.491$ |
| $Q_8 = 0.724$ | $Q_8 = 0.124$ | $Q_8 = 0.964$ | $Q_8 = 0.579$ |
| $Q_{12} = 0.664$ | $Q_{12} = 0.231$ | $Q_{12} = 0.988$ | $Q_{12} = 0.362$ |

Bond Portfolio Analysis

Table 2 and Figure 4 below show the monthly rates of return (in percentages) on bonds based on the Total returns index.

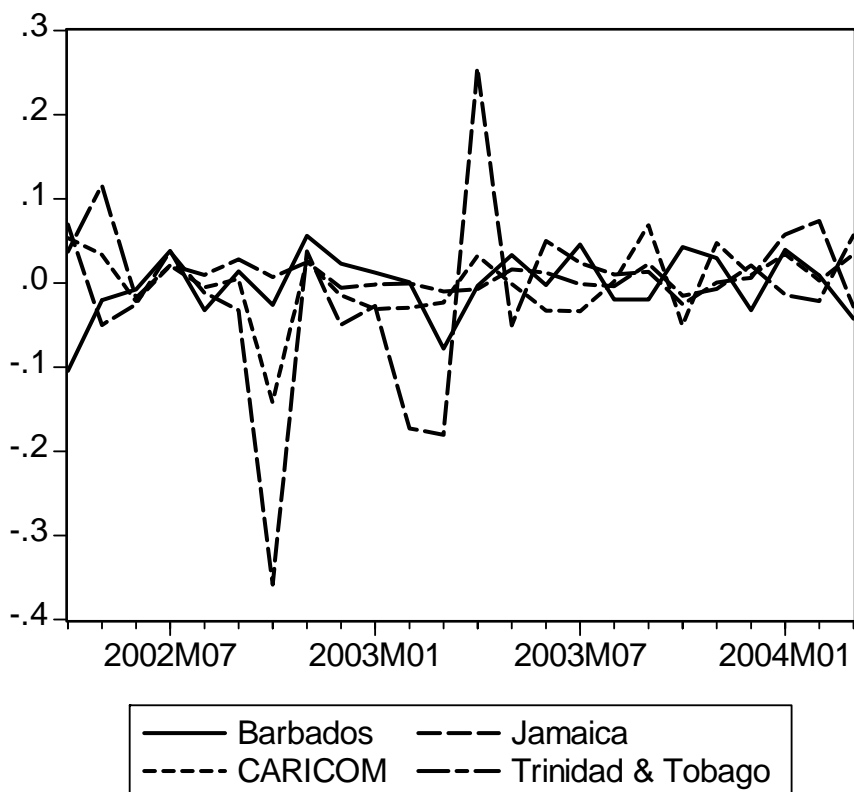
Table 2
Monthly rates of Return on Bond Total Returns Index (%)

| Date | Barbados | Jamaica | Trinidad | CARICOM |
|------------------|-----------------|----------------|-----------------|----------------|
| 30-Apr-02 | -10.470 | 6.938 | 3.733 | 5.341 |
| 31-May-02 | -2.027 | -5.028 | 11.556 | 3.337 |
| 30-Jun-02 | -0.789 | -2.513 | -1.751 | -2.163 |
| 31-Jul-02 | 3.825 | 3.719 | 2.105 | 2.014 |
| 31-Aug-02 | -3.251 | -1.146 | 0.949 | -0.543 |
| 30-Sep-02 | 1.364 | -3.288 | 2.789 | 0.449 |
| 31-Oct-02 | -2.602 | -35.831 | 0.676 | -14.150 |
| 30-Nov-02 | 5.588 | 3.750 | 2.450 | 2.620 |
| 31-Dec-02 | 2.301 | -4.971 | -0.582 | -1.513 |
| 31-Jan-03 | 1.208 | -2.734 | -0.220 | -3.106 |
| 28-Feb-03 | 0.078 | -17.297 | -0.071 | -2.969 |
| 31-Mar-03 | -7.791 | -18.039 | -1.029 | -2.339 |
| 30-Apr-03 | -0.318 | 25.537 | -0.738 | 3.170 |
| 31-May-03 | 3.310 | -5.051 | 1.607 | -0.155 |
| 30-Jun-03 | -0.262 | 4.990 | 1.188 | -3.323 |
| 31-Jul-03 | 4.569 | 2.346 | -0.181 | -3.373 |
| 31-Aug-03 | -1.986 | 0.989 | -0.383 | 0.162 |
| 30-Sep-03 | -1.973 | 1.302 | 2.273 | 6.850 |
| 31-Oct-03 | 4.247 | -2.583 | -1.548 | -5.039 |
| 30-Nov-03 | 2.969 | 0.042 | -0.722 | 4.722 |
| 31-Dec-03 | -3.243 | 0.598 | 2.076 | 0.890 |
| 31-Jan-04 | 3.935 | 5.744 | -1.455 | 3.389 |
| 29-Feb-04 | 0.865 | 7.363 | -2.154 | 0.275 |
| 31-Mar-04 | -4.255 | -2.805 | 5.637 | 3.404 |
| Mean | -0.196 | -1.582 | 1.092 | -0.085 |
| Std. Dev. | 3.943 | 11.155 | 2.949 | 4.277 |

p-value difference in means = 0.5434

p-value difference in variances = 0

Figure 4
Monthly Rates of Return on Bond Total Returns Index



Rates vary widely from month to month, especially in the case of Jamaica, showing greater opportunities for successful speculative gains (and losses) in that country. There is no significant difference in the mean rate of return of all portfolios but very significant differences in the variances (riskiness). On the average, the Trinidad & Tobago market offers the safest and best returns.

BOND MARKETS IN MORE DEVELOPED FINANCIAL SYSTEMS

Certain desirable characteristics of a properly functioning, developed bond market are identified in the literature. These include:

- An infrastructure that supports organized, efficient and effective operations of both the primary and secondary bond markets;
- The existence of
 - a proper regulatory framework;
 - credit rating agencies;
 - effective settling and clearing facilities;
 - a well functioning banking system;
 - an efficient 'REPO' market;
 - active market makers (dealers);

- a well defined benchmark yield curve.

The presence of these elements contributes significantly to the proper functioning of bond markets, which become characterized by liquidity, price discovery, depth, (existence of a variety of instruments) and transparency. See Hakansson (1999), IDB (1995), Turner (2002), Hite and Warga (1997), Ederington and Goh (1998), Mihaljek et al. (2002), Carrington (2003), and Lian (2002).

In this section, we look at the bond markets in the advanced capitalist economies of the United States and the United Kingdom, and those of two front runner emerging economies, Singapore and Malaysia. We consider, in particular, the extent to which the bond markets in these jurisdictions possess the characteristics mentioned.

The United States and the United Kingdom

The markets for debt securities in the United States of America (US) and the United Kingdom (UK) are arguably the most developed in the world. They are characterized by an infrastructure that supports organized, efficient and effective operations of both the primary and secondary bond markets, the existence of a proper regulatory framework, credit rating agencies, effective settling and clearing facilities, a well functioning banking system, an efficient REPO market, active market makers (dealers) and well defined benchmark yield curves.

Infrastructure

Both the US and the UK bond markets have electronically automated trading facilities that permit open and anonymous trading, and promote liquidity and competition among market players, leading to wider trading activity. In the UK, the channel through which such trading predominantly occurs is the London Stock Exchange. This electronically automated exchange is one of the world's major centers for the issuing and listing of bonds and in fact it services one of the world's largest audiences of bond investors. It is well known for its speed, reliable listing process, and centrality in terms of bond issues. The initial issuance of bonds into the primary market and the listing of bonds on the exchange are parallel processes that happen simultaneously.

To issue bonds on the London Stock Exchange (LSE), government or corporate¹⁸, the issuer, on the advice of a lead manager¹⁹, firstly chooses the size, structure, and timing of the bond issue. Legal advisers then provide and verify all the information required for both the issuer's listing document and the supporting documentation. Next, the documents (including the information memorandum and the listing particulars) are prepared and presented to the United Kingdom Listing Authority (UKLA) and the Exchange for approval. After this, the UKLA and the Exchange grant permission for listing and admission on the Stock Exchange. An official announcement of the bond issue is then made by the lead manager inviting the syndicate (a group of investment banks that markets, sells, and usually underwrites the issue) to participate in placing the bonds with investors. The issuer and its advisers then sign and execute all the documents and, shortly after this, the issuer receives the proceeds of the bond issue.

The initial issuance of UK government debt securities (gilts) is done by the Bank of England on behalf of the UK government using mainly two methods: the French auction²⁰ and tap stocks²¹.

Fixed-income securities in the United States are traded on formalized stock exchanges as well as on an electronically operated OTC market. The bulk of corporate bond trading occurs in the latter (Hong and Warga 1998). The largest centralized secondary bond market of any US Exchange is at the New York Stock Exchange. This fixed income market is centered on a fully automated trading and information system called the Automated Bond System (ABS)²². The ABS is an order-driven system that stores, anonymously displays, and matches on a price/time basis priced orders. Additionally, the system automatically submits locked-in compared trades with calculated accrued interest for clearing, and provides market vendors with the most recent (real time) quotations and trade prices.

¹⁸ See the LSE website: [http://www.londonstockexchange.com/en-gb/global/H/Search?query="bonds"](http://www.londonstockexchange.com/en-gb/global/H/Search?query=)

¹⁹ An independent market expert, normally a financial institution such as an investment bank, appointed by the Exchange. This entity is responsible for managing the entire issue process.

²⁰ In a French Auction, all successful bidders are allotted shares at the price they bid.

²¹ The Bank of England, performing its role as the government broker, retains part of the new bond issue announced and supplies it to the market at a later date. This method is frequently used by the Bank as a means of controlling and managing liquidity in the market, and is known as selling "on tap".

²² Information obtained from the following websites: www.bondmarkets.com/story.asp?id=103, www.nyse.com/marketinfo/p1020656068262.html?displayPage=%2Fmarketinfo%2F1022743347444.html

The US OTC market is quote driven²³ and does not require the convergence of buyers and sellers, because dealers (securities firms) facilitate the active trading of bonds (they perform the market making function) by purchasing bonds from investors interested in selling and then reselling the bonds to investors interested in buying. In the OTC market, dealers use highly sophisticated, electronic-information, communications and processing networks, such as the Trade Reporting and Compliance Engine (TRACE), to buy and sell securities among themselves and to investors. TRACE is the vehicle developed by the National Association of Securities Dealers (NASD) to facilitate the mandatory reporting of OTC secondary market transactions in eligible fixed income securities. All brokers/dealers who are NASD member firms are obligated to report transactions in corporate bonds to TRACE under an SEC approved set of rules²⁴.

Bonds in the US are issued into the primary market through regularly scheduled public auctions (in the case of US Treasury securities) or through a tendering process to underwriters (usually investment bankers) who then sell the bonds on the issuer's behalf to investors.²⁵ The bonds issued by the US Treasury are usually distributed to "Primary Dealers" (a group of investment firms and banks) who are obliged to bid at every auction and to make continuous markets in Treasury securities. These "Primary Dealers", with the assistance of brokers (who act as intermediaries on trades), then make bids and offers in the secondary market.

Clearance and settling facilities

Both the UK and the US have automated clearance systems that are supported by depositories. The systems used by each country are well known for operating smoothly and facilitating the effective functioning of the respective markets. Paperless securities are used in each country, which assists in the efficient processing of transactions.

In the UK, two main systems are used for monitoring and validating the transfer (clearing) of bonds listed in London's primary and secondary markets. They are Euroclear and Clearstream²⁶.

²³ A 'quote driven' market is one where prices are determined from quotations made by market makers or dealers rather than by traditional interaction of demand and supply.

²⁴ Information obtained from: www.nasd.com/mkt_sys/trace_info.asp and Warga (2004).

²⁵ Information obtained from: www.investinginbonds.com/info/bondbk3.htm

²⁶ See the following website: -

<http://www.londonstockexchange.com/engb/products/membershiptrading/tradingproducts/Bonds/Issuance+Process/bondsissuancepartiesinvolved.htm?&MSHiC=1252&L=10&W=euroclear%20and%20clearstream+&Pre=%3CFONT+STYLE%3D%22color%3A+%23000000%3B+background%2Dcolor%3A+%23FFFF00%22%3E&Post=%3CFONT%3E>

Another system, RepoClear, is a centralized clearing facility for the European repurchase agreement market²⁷, allowing members to replace their existing bank-to-bank bilateral REPO relationships with multilateral netting through the London Clearing House. It should be noted that bond issuers pay an admission fee (this is based on the size of the issue) to list bonds on the Exchange as well as a vetting fee (to the UKLA) for all listing applications. Unlike some other exchanges, the London Stock Exchange does not charge annual fees for listing bonds, making listing longer-term bonds particularly cost-effective on this exchange.

In the US, the Fixed Income Clearing Corporation (FICC) provides clearance, settlement and information services for corporate and municipal bonds, government and mortgage-backed securities, over-the-counter credit derivatives and emerging market debt trades. The FICC is a subsidiary of the Depository Trust and Clearing Corporation (DTCC)²⁸ and is divided into the Government Securities Division and the Mortgage-Backed Securities Division.

The Government Securities Division is responsible for clearing, netting, settling and managing the risk arising from original auction purchases of Treasury securities, and secondary trading of Treasury and Government Agency securities for its member firms (who are brokers, dealers, banks and other financial institutions). The Mortgage-Backed Securities Division operates two primary business units: Clearing Services (which include trade comparison, confirmation, netting and risk management) and Electronic Pool Notification (EPN) services (which allow customers to transmit/retrieve mortgage-backed securities and pool information in real-time using standardized message formats).

Benchmark yield curves

Well defined yield curves are available on both the UK and US bond markets. Both markets have a wide variety of bonds (international and domestic) with tenors varying from money market debt (commercial paper, maturing within a year) through to long-term bonds. This variety in tenors of debt securities, particularly government securities, facilitates the construction of each country's benchmark yield curve. In both countries, a published announcement is made before the issuance of the government securities, and the results of these auctions are published.

²⁷ RepoClear currently clears cash trades in gilt-edged securities. See LSE's Notice N28/02 dated Aug. 2, 2002, on the LSE's website and the website <http://www.derivativesstrategy.com/magazine/archive/1999/1099exch.asp>.

²⁸ This information was obtained from the New York Stock Exchange's website.

This helps to ensure that the public perceives some degree of transparency in the yield curve (World Bank and IMF, 2001), which is very important if the yield curve is to be used as the benchmark for interest rates of capital and money market instruments.

Credit Rating Agencies

Reputable Credit Rating Agencies (Standard & Poors, Moody's and Fitch) service both the US and the UK market. This feature is essential for the effective functioning of a developed corporate bond market. These credit ratings assist the investors in gauging the credit worthiness of securities and thus facilitate the effective operation of bond markets by indirectly contributing to the transparency and liquidity of the market (Turner 2002).

Regulatory System

In the US, the rules and regulations included in the Securities Exchange Act 1934 guide the secondary trading activities on the NYSE and the OTC Market. An Independent Regulatory body (a group that is functionally separated from the Exchange's trading business) enforces these rules in the case of the NYSE and, in the case of the OTC Market, the NASD enforces these rules. The Securities and Exchange Commission (SEC) is also responsible for enforcing the rules and regulations included in the Securities and Exchange Act. This self-regulatory function provided by NASD and the NYSE's Independent Regulatory body allows the NYSE as well as the OTC Market to have sufficient proximity to the marketplace to assure the market sensitivity that is considered fundamental to effective regulation of the ever-changing capital markets. In the UK, the trading and initial issuance activities on the exchange is regulated by the UKLA on the basis of rules and regulations set in the UKLA's Rule Book. It should be noted that the regulations governing the trading channels in these countries also stipulate that the corporate issuers adhere to internationally recognized accounting standards. Such adherence improves the functioning of financial markets (IADB 1995).

Other desirable characteristics

Both the UK and US bond markets are characterized by the existence of *market makers* (dealers), an efficient *REPO market*, as well as a well functioning *banking system*, which all encourage secondary trade of bonds and ensure liquidity in the bond markets. A deep and liquid REPO market provides market players with a means of financing positions, and enables them to take

long/short positions such as buying one bond and selling another to take advantage of yield curve arbitrage opportunities (Lian 2002). Such arbitrage activity absorbs excess liquidity in the market, and therefore improves the effectiveness of bond markets (Turner 2002). The banking system should be structured in such a way so as to prevent banks from impeding the debt securities markets by strategically setting loan and deposit rates.

Singapore and Malaysia

Singapore and Malaysia have both made conscious and deliberate efforts to transform their capital markets by developing bond markets having features similar to the developed countries. This has met with success (Lian 2002). In particular, the Singapore Government Securities have since 2001 been included in the JP Morgan's World Government bond index, as well as in the Lehman Brothers' Global Aggregate Index.

Singapore

In 1997, the Monetary Authority of Singapore (MAS) began developing the bond market. Its main focus was on improving the liquidity of the market, the market's physical infrastructure and the development of the talent pool.

Market "deepening" was addressed through the following measures:

1. The issuing of 10 and 15 year bonds to ensure that there were sufficient issues of bonds of relatively long maturities (this extended the yield curve so that not only short and medium term securities were included, but also longer-term securities);
2. Regularizing the pattern of bond issuance²⁹;
3. Increasing the average size of issues and removing small illiquid issues.

The number of issuers in the market was increased by the following measures:

1. The government encouraged its statutory boards to use the bond market to source its funding needs;
2. Foreign entities were allowed to float Singapore dollar denominated bonds in Singapore.

A REPO facility was established to support primary dealers. In addition, a pool of securities was provided from which primary dealers could borrow to cover short positions arising from market making activities. Primary dealers are required to provide two-way quotes on Singapore

²⁹ A calendar of issuance was established with dates on which securities of various tenors would be issued one year in advance.

Government Securities. It is also compulsory that they underwrite Singapore Government Securities issued through primary auctions.

The physical infrastructure for trading corporate bonds was improved in 1998 when the Central Depository instituted an electronic Delivery versus Payment (DvP) system. This was basically a clearing system for Singapore dollar denominated non-government debt.

Malaysia

The Malaysian Central Bank, Bank Negara Malaysia (BNM), issues Malaysian Government Bonds (MGS). MGS are issued by tender through appointed Principal Dealers. The government recognized the importance of a liquid and viable secondary market for MGS and instituted several regulatory and operational reforms to achieve this. It developed a private debt securities market aimed to meet the financing needs of the economy. Its objectives are to provide an alternative to bank borrowings and complement the government securities market as well as the equities market.

Tendering in Malaysia is done through the Fully Automated System for Tendering (FAST). FAST is an automated tendering system whereby the invitations to tender, the submission of bids and the processing of tenders for scripless securities³⁰ and short-term private debt securities are conducted electronically. The process reduces errors and delays arising from manual handling of tenders. Under this system, BNM acts as the facility agent for both the government and its own issues (Harun, 2002).

The Malaysian bond market also benefits from the use of “The Bond Information and Dissemination System (BIDS)”. This is basically an electronic database of Malaysian debt securities. BIDS provides information on the terms of issue, real-time prices, details of trades done and relevant news on the various government and private bonds. Financial institutions are obliged to report details of trades done, including price and volume. Rating agencies, on the other hand, are required to update the issuer’s ratings in the BIDS corporate homepage (Harun, 2002).

³⁰ Securities in a data entry form without a paper certificate (also called paperless securities).

The Malaysian bond market uses a DvP clearing system, which was instituted in July 1999. The current DvP system is called the Real-Time and Gross Settlement System (RENTAS). Under it, securities transactions will only be effected when securities and funds are available in both the seller's and the buyer's accounts (Harun, 2002).

As part of continuing efforts to promote an active secondary market, as well as to promote a more dynamic and performance-based dealer system, several other measures have been introduced. A system of Principal Dealers was introduced in 1989. Principal Dealers are appointed by BNM to bid for primary issues of specified securities, and trade and make markets for these securities. The Principal Dealer system has undergone several reviews aimed at developing more dynamic and performance-oriented market-makers. They provide two-way quotations in the money market auctions, quote for selected benchmark securities and maintain a minimum trading volume for selected papers. Principal Dealers have also been entrusted with improving the secondary trading of the market, especially the government securities market, to build the benchmark yield curve (Harun, 2002).

A credit rating agency, Rating Agency Malaysia Berhad (RAM), was incorporated in November 1990. All Principal Dealers must be rated. A National Bond Market Committee (NBMC) was established in June 1999 to provide the overall policy direction and rationalize the regulatory framework for the orderly development of the market (Harun 2002). Most importantly, the BNM publishes the auction calendar for the issuance of MGS on an annual basis. This improves the transparency of the issuance process and assists the market players. Implementation of transparent and highly active two-way prices for the benchmark securities using the Benchmark Screen under the BIDS system, and closer monitoring of the market activities and Principal Dealers' performance were also implemented (Harun, 2002).

RECOMMENDATIONS

It is clear that, compared with the markets of the US and the UK, and even with those of Singapore and Malaysia, the bond market of the CARICOM sub-region is woefully underdeveloped. This is particularly true of the market for corporate bonds, both primary and, especially secondary. The primary market for government debt securities possesses a lot of the characteristics present in the developed primary market for government bonds in the more advanced countries (the use of an auctioning system to initially issue government securities, the

publishing of auction results, the pre-announcement of issue dates, the existence of market makers, the existence of a REPO market and the stripping of bonds in Trinidad & Tobago). But it is marked by an insufficient number of medium and long-term bonds, resulting in the non-existence of a benchmark yield curve and bond indices for the various jurisdictions. Activity within it is also extremely limited.

As a result of these findings, as well as those from other empirical research conducted on emerging bond markets, it is safe to suggest that the CARICOM bond market should follow a step-by-step implementation process, similar to the path taken by Singapore and Malaysia. The rest of this section is dedicated to describing and justifying the steps that CARICOM bond markets should take in order to become more vibrant.

Benchmark Yield Curve

The benchmark yield curve is simply a graph of government bond yields for various maturities. The main purpose of this graph is to facilitate the pricing of corporate debt securities, since the yields on government bonds serve as the benchmarks for corporate debt securities. The pricing of corporate debt securities is often expressed in terms of the yield spread over either the relevant government bonds (same currency, same maturity) or possibly over (or under) an inter-bank borrowing rate (Ieng and Lai 2002).

All the CARICOM jurisdictions have incomplete benchmark yield curves. This is due to the lack of activity across the full spectrum of maturities. In a highly active bond market, where there is trading across many maturities, a yield curve can be developed using interest rates from several tenors. This is a much more reliable approach to the construction of yield curves than the interpolation methods currently used. The governments of each the jurisdiction should therefore try to issue more medium to long-term bonds so that there could be more bonds of varying maturities to populate the benchmark yield curve. In the meanwhile, however, it is strongly recommended that the various jurisdictions make use of the yield curves used in this paper, and update them using the methodology outlined above.

Credit Rating Agencies

Credit Rating Agencies play a significant role (for both issuers and investors) in the market for fixed-income securities. These agencies are responsible for assessing the credit risk of fixed-income securities issuers (corporations and governments) by reviewing information from a variety of sources regarding the issuer, the market in which the issuer operates, the overall economy, and the nature of the security. This credit risk assessment is then represented by the credit rating issued by the agency. Bonds with higher credit ratings usually offer lower rates of return than those with lower credit ratings, since they are considered lower risk investments. The specific rating provided by each agency (e.g. AAA or Aaa) varies from agency to agency but all ratings can be grouped into one of three categories (say, investment grade, speculative grade, and default). Credit ratings are expected to affect the market in two ways: they should reduce the issuer's dependence on bank guarantees and thus the cost of issuing debt, and they should expand the market for corporate bonds (Konigson and Nystrand 2000). The existence of credit rating agencies would also allow many institutional and contractual investors to be free to invest in corporate bonds other than those secured by bank guarantees, and would encourage the diversification of portfolios and the higher returns that come from diversified portfolios, since portfolios would include different grades of bonds. Furthermore, credit ratings are thought to improve the risk-reward structure in the bond market, by distinguishing among companies with different risk profiles. The result is likely to be a much wider range of interest spreads.

Institutional market players in the CARICOM sub region are of the view that, in addition to providing benefits to issuers and investors, and contrary to the Efficient Market Hypothesis³¹, credit ratings affect bond yields, and indirectly affect bond prices in the CARICOM debt securities market. This appears to be confirmed by a study carried out by the Caribbean Money Market Brokers Ltd (2003). According to this study, there is a significant post rating price drift after the announcement of a rating action in the CARICOM Eurobond universe. This price-drift appears to be the result of:

- The lack of active trading that militates against the price discovery process;
- The lack of wide participation that is due to the small sizes of debt issues;

³¹ The Efficient Market Hypothesis states that rating actions would not have an effect on bond yields after the fact because all information in the market is impounded into the prices of marketable securities such as bond and, as a result, it would be impossible to derive superior risk adjusted returns after transaction costs by trading on public information.

- The fact that a large number of bonds is held by local investors, who adopt mostly buy-and-hold strategies.

This post rating price drift in CARICOM debt securities suggests that credit rating agencies facilitate the efficient pricing of debt securities in the CARICOM secondary bond market (the credit ratings would ensure that all information about the debt securities in the market would be impounded into the prices of these debt securities).

Institutional players who were interviewed were of the view that a *regional* credit rating agency, catering to the specific features of Caribbean capital markets, would be more suitable than one of the more internationally accepted agencies (like Standard & Poor's). Capital markets in other regions of the world (India and Malaysia are but two examples) have followed a similar line of reasoning in setting up indigenous credit rating agencies. Those questioned believe that the existence of such an agency in the CARICOM sub region would contribute to increasing the amount of market participants, increasing the efficiency and effectiveness of the market operations, so leading to an expansion of the corporate bond market. A regional credit rating agency, rather than a global credit rating agency, appeared more feasible for the CARICOM sub region at this moment in its development because it would provide credit ratings that compare the assessed issuer with all the debt issuing entities across the Caribbean region instead of with all the debt issuing entities in the world.

This view is espoused by CariCRIS³², a spanking new credit rating agency based in Trinidad & Tobago. They believe, in particular, that global scale ratings for Caribbean countries' corporate debt securities would tend to bunch them at the lower end of the scale. Additionally the coverage by global scale ratings of debt-issuing entities is not extensive, meaning that it does not place the same amount of attention that a regional credit rating agency will place on locally and regionally contextual issues.

CariCRIS offers both regional and national scale credit ratings to borrowers across the Caribbean, including sovereigns, manufacturers, retailers, and financial institutions such as banks and insurance companies. The jurisdictions to be served include: Bahamas, Barbados, Belize, Costa Rica, Dominican Republic, Guyana, Haiti, Jamaica, Panama, Suriname, Trinidad and

³² See <http://www.caricris.com/caricra/general/regional.aspx>

Tobago and the OECS countries. The ratings provided by this agency should allow the bond markets, specifically the corporate bond markets in the Caribbean region, to enjoy the benefits associated with credit rating agencies. But its eventual success, and the success of any regional rating agency like CariCRIS, would of course depend on its credibility among market players, actual and potential. This will be established only with the passage of time.

Primary Market Infrastructure

The primary market is the market in which new issues of debt securities are sold to initial investors. Of the four CARICOM jurisdictions surveyed, Barbados is the only one in which the auctioning system is not used for the initial issue of government debt securities. The auctioning system is the most common mechanism used by developed countries to issue government debt securities because it opens the bidding process to a wider base of investors and thus encourages competition. As a result, governments are able to attain greater revenues (Schinasi and Todd 1998). Barbados should therefore consider the immediate establishment of an auctioning system like the one used by the Government of Trinidad and Tobago for the initial issuance of government debt securities.

The mechanism used to issue corporate debt securities into the primary market in all four CARICOM markets (the use of underwriter services) can result in the improper pricing of new bond issues because of the intense competition present in this system (Schinasi and Todd 1998). This may have adverse effects on the availability or cost of investment banking services, since it can reduce the incentives to investment banks of participating in underwriting securities.

A technique that can be employed in the CARICOM territories to counteract this problem is called the 'fixed-price re-offer' method of bringing securities to market. With this technique, banks in the syndicate have a contractual obligation not to sell for less than an agreed-upon price during a specified period, and the price in the grey market is generally supported by a continuous bid (at the re-offer price) by the lead manager of the issue. Although this procedure introduces an element of collusive behaviour into primary securities markets, which can have an adverse effect on the issue price from the investors' perspective, the fact that it ensures the proper pricing of new bond issues as well as discourages too much competition that could lead to the under-provision of investment banking services, makes it the only form of market manipulation that is condoned by the US Securities and Exchange Commission (Schinasi & Todd 1998).

Secondary Market Infrastructure

Although a large number of debt securities is listed on the stock exchanges in developed bond markets like those of the US and the UK, the most common platform for trading fixed-income securities in these markets is the OTC market. This market is the most popular medium for trading debt securities because it uses dealership trading,³³ which improves the liquidity/marketability of these instruments that are by nature quite diverse³⁴ and thus hardly traded.

In the four CARICOM jurisdictions, the OTC market is where most or, in some cases all, of the trading in fixed-income securities occurs. The OTC markets in each of these territories are however unsupervised, and lack a number of features that would contribute to a better functioning secondary market. They lack, in particular, an automated quotation system, the facility for dealers/ market makers to short sell³⁵ so that they can come into the market and the regulation of OTC securities, issuers, and intermediaries.

The analysis of the US OTC market emphasizes the significance of automated quotation systems in the proper functioning of the OTC market. These systems give dealers easy access to information, such as trading data³⁶, that the dealers typically use to negotiate deals, and thus promote transparency within the secondary market. The implementation of such a system in the CARICOM sub region would allow dealers to have constant access to current trading information³⁷ and would encourage transparency and more trading since dealers would have easy and convenient access to the trading data offered by all the dealers in the market.

Studies have shown that market makers/dealers encourage liquidity in the secondary market for debt securities (Konigson and Nystrand 2000). These dealers maintain an inventory of debt

³³ This refers to the buying of bonds by dealers from investors willing to sell and then holding these bonds in stock until an interested investor is willing to buy. These dealers act as both intermediaries and market makers since their buying and selling guarantee a market for the bonds and bring buyers and sellers together.

³⁴ Debt securities of the same type (e.g. plain vanilla) from one company can have different maturities, coupon rates, credit risk, and yields. In other words, debt securities unlike stocks are quite heterogeneous.

³⁵ Short selling debt securities refers to the process of dealers/market makers selling securities that they do not own in expectation of a fall in the price of these securities. A short sale must eventually be covered by a purchase of the securities sold.

³⁶ Trading data includes information like the indicative prices, who posted these prices, and the minimum volume for which these prices are valid.

³⁷ As a result the information asymmetry associated with type of data would be reduced.

securities for which they are to 'make market'. Although this activity of making market encourages liquidity, it is extremely risky (in terms of counter-party risk³⁸), especially in illiquid markets like the CARICOM corporate bond markets. Given the current state of both the government and corporate bond markets in the CARICOM sub region, these bond markets could counter this problem by using derivatives as well as the profits from government bonds trading activities to hedge against such risks (Del Valle 2003).

Both the Trinidad & Tobago and the OECS markets have a group of government intermediaries/dealers whose job it is to ensure that there is an active market for government securities. These intermediaries should consider extending their services to the corporate bond markets so that they can be the official group of debt securities dealers in each respective country, and therefore implement the counter measure suggested by Del Valle (2003). This mechanism would however only work in the CARICOM countries with strong and active government debt securities markets.

Another resolution to the counter-party risk problem is for the development of a regional bond market³⁹, where there would be one regional OTC Market, a regional group of dealers etc. This would reduce the counter-party risk since there would be more profits from trading government bonds to use to hedge⁴⁰ against this risk. Another resolution to this problem, according to Batten & Szilagyi (2002), is for a multilateral rather than a bilateral system of checking and settling bonds to be put in place⁴¹. This would result in a central checking and settlement organization functioning as the counter-party in each transaction and thus bilateral credit and counter-party risk could be reduced.

The clearing and settlement system is another essential element that contributes to secondary market liquidity. An effective clearing and settlement system increases transactions since, with the reduction of counter-party risk (provided by the system), participants feel more assured that

³⁸ The risk that the other party in an agreement will default.

³⁹ A regional primary and secondary OTC bond market may be a very feasible idea for the CARICOM sub region especially in relation to the CARICOM Single Market Economy concept.

⁴⁰ Any technique designed to reduce or eliminate financial risk (the risk that the cash flow of an issuer will not be adequate to meet its financial obligations)

⁴¹ A multilateral system refers to a checking and settling system that has at least three entities involved in the checking and settling process (the dealers, the investors and a clearing house).

they would get paid when they sell their bonds and that they would receive the bonds for which they paid (Reinstein 2002). All efficient clearing and settlement have three main elements:

- A short settlement period;
- A central securities depository;
- The DvP system.

Reinstein (2002) argues that, with shorter settlement periods, the risk of counter-party insolvency (default risk) decreases, so the transactions become safer. In all four of the CARICOM jurisdictions, government trades are settled in no more than three days. However with the implementation of dematerialized securities (corporate and government bonds) in Barbados and Jamaica and dematerialized corporate bonds Trinidad and Tobago this average time could be reduced to one day.

The DvP settlement of bonds ensures that both the bonds and the payment are transferred simultaneously within the system (Reinstein, 2002). As a result the risk of delivering the bonds and not receiving the money, and vice-versa, is reduced. An automatic link between the clearing and settlement system and the payment system provides a better guarantee of the delivery versus payment settlement of bonds.

An element present in all advanced clearing and settlement systems is a Central Securities Depository. Central Securities Depositories physically concentrate assets in one place, and therefore contribute to reducing costs and minimizing errors and failures associated with settling and clearing transactions. As a result, markets with these depositories enjoy greater benefits as well as an overall increase in the effectiveness and speed of bond trading operations. It should be noted that the existence of dematerialized bonds⁴² contributes to the speed and effectiveness of this system, since it encourages the use of an electronic system in the Central Securities Depository. Currently the OECS is the only territory with a Central Securities Depository for both government and corporate dematerialized bonds. Trinidad and Tobago, Barbados, and Jamaica should consider implementing one for both their government and corporate securities.

Another feature that would contribute to a better functioning secondary market is the regulation of OTC securities, issuers, and intermediaries. This is dealt with separately below.

⁴² Bonds in electronic rather than paper form.

Regulatory Framework

The main reasons for regulating debt securities markets include

- The protection of investors;
- The reduction of systemic risk⁴³;
- The assurance of fair, efficient and transparent markets.

The most effective way to regulate OTC-traded securities and intermediaries is through a self-regulatory mechanism (Konigson and Nystrand 2000). The four CARICOM bond jurisdictions all have an independent body (the Securities and Exchange Commissions in each respective country) to supervise and enforce the rules and legislation governing the securities and intermediaries, but these bodies do not actively enforce nor make needed revisions/adjustments to the rules and regulations so that they can effectively govern current market practices. CARICOM territories should consider reviving the existing regulatory bodies, as well as taking steps to encourage the formation of a dealers' association to assist the current regulatory bodies in enforcing, overseeing, and fine-tuning rules and legislations. This group should work in collaboration with the relevant Securities and Exchange Commissions to assure the market sensitivity that is considered fundamental to effective regulation of the ever-changing capital markets.

Although the function of the regulations governing the debt securities market is to address the issues outlined above, the regulations themselves should not hinder liquidity, marketability or growth in the market (vis-à-vis the types and tenors of securities offered). The regulations should also be amended regularly to allow for appropriate, effective, and efficient 'policing' of changes (additions and/or removals of features/elements) in the bond markets. An example of this is the need for a rule in the CARICOM bond markets demanding that issuers' credit risk be assessed by the new credit rating agency for each type of debt security offered.

The regulations currently governing CARICOM bond markets do not effectively cover the existing OTC secondary market trading. This is mainly due to the absence of an organized and formal market. With the implementation of each of the features suggested in this paper, rules and laws should be put in place to ensure the proper functioning of the market. For example,

⁴³ This refers to the risk that the financial markets as a whole will cease to operate or will operate inefficiently.

with the introduction of dealers, a rule could be established requiring that entities interested in becoming dealers should have a minimum base capital amount, register with the Securities and Exchange Commission and probably use the information system for dealers. To ensure that the regulations are 'up-to-date' with current market operations, the CARICOM bond markets should have both the current regulatory bodies revived so that they all have departments committed to attentively monitoring trading activities as well as employ an independent body (e.g. a dealers' association) that is actively involved in the market operations to monitor as well as recommend adjustments to regulations. It should be noted that these new regulatory bodies would be sub-reporting bodies and should therefore report to the existing regulatory bodies. Additionally the existing regulatory bodies in the CARICOM sub region should be given power to fine and/or imprison participants (investors, issuers and dealers) if they are found guilty of failing to conform to the regulations/legislations.

Finally the regulations in the CARICOM bond markets should force all issuers, especially the corporate issuers, to prepare their financial reports in accordance with internationally recognized accounting standards like the Generally Accepted Accounting Principles (GAAP) or Financial Reporting Standards (FRS) or Statement of Standard Accounting Practices (SSAP) that provide guidance on accounting treatments of different types of debts, their values to be recorded at cost or market value, the amortization of premiums or discounts and the sale of debt securities. The regulations should also force issuers to conform to the International Accounting Standards (IAS) for guidance on the disclosure and presentation of debt instruments, as well as ensure that there is full and complete disclosure of all information about the issuing company's operations.

Money Market

The money market is the market for short-term debt instruments such as negotiable certificates of deposit, treasury bills, commercial paper, and bankers' acceptances. Active and well-functioning money markets are a prerequisite for an effective corporate bond market because it provides a price for liquidity (Ieng and Lai 2002). The price of liquidity usually anchors the short-end of yield curves, and thus acts as a benchmark for pricing other fixed-income securities that differ with respect to liquidity, credit quality, and maturity.

An underdeveloped money market can also impact negatively on the long-term bond market, since the instruments (e.g. repurchase agreements and security lending and borrowing) in these

markets can allow dealers to short-position or long-position in a very flexible way, thus giving liquidity to the long-term bond market.

The money markets in the CARICOM territories surveyed should issue more instruments with varying maturities (e.g. in addition to the 90day and 180 day treasury bills the governments could also offer 30day, 60day, 210day and 1year treasury bills).

Investors

Markets grow from participation by issuers, investors, and intermediaries (dealers and market makers). Investors would only take part in the debt securities market if they are confident that they are involved in a relatively safe investment venture from which they could derive some financial benefits. The investors in bond markets are primarily institutional investors such as insurance companies, mutual funds, or pension funds. Private individuals may also invest in bond markets for steady income, but this group of investors usually constitutes a small portion of the investor base. Investors should be diversified and composed of institutions, such as pension funds, insurance companies, mutual funds, and other financial institutions interested in different credit risk and economic sectors, and not so large that they dwarf and dominate the market but large enough to take positions and risks (Harwood 2000). They need to see economic benefits, such as higher returns to compensate for longer-term investments, and instrument structures or maturities that better match their liabilities than other products. They also need to be willing to be in the market (be willing to take risks) and also be capable of being in the market (through their skills and conforming to regulations). The diversity, size, and capability of the investors will determine how fast and large the market can grow.

Currently the CARICOM bond market investor base comprises of pension funds, insurance companies (including national insurance boards), mutual funds and trust companies of commercial banks. These investors however do not have much confidence in the current state of the CARICOM bond markets, but they are nonetheless capable and willing to be actively involved in a more advanced debt securities market. The implementation of these recommendations should encourage greater investor participation in the market.

Banking Sector

Banks have significant market power in debt securities markets and may be able to impede debt securities markets growth and/or existence by strategically setting loan and deposit rates. They may also discourage firms, or make it quite costly for them, to raise funds in securities markets (Ieng and Lai 2002). As a result, the CARICOM authorities should ensure that there is stringent banking sector supervision as well as any restructuring of the banking sector needed to ensure that the banking sector is not protected from bond market competition by, for instance, any preferential tax or regulatory treatment. This is crucial for ensuring that the banking sector is truly market driven and will facilitate bond market development.

CONCLUSION

Few will deny the intrinsic link between the development of capital markets and economic development. Bond markets provide important sources of medium-term to long-term finance that are an essential ingredient in the financing of organizations, both public and private. There are therefore advantages to developing the nascent bond market of the CARICOM sub-region. This must be deliberately and purposefully done, as happened in Malaysia and Singapore, two leading emerging economies. In this paper, certain recommendations have been made to take the region along this path. We also calculated bond indices for the individual jurisdictions as well as for the region as a whole. The markets of the various jurisdictions all function efficiently and the Trinidad & Tobago market offers the safest and best returns.

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