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COLLECTIVE INVESTMENT SCHEMES AS ALTERNATIVES FOR SMALL INVESTORS IN THE ECCU

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ABSTRACT

Mutual funds are increasing in popularity globally as an avenue for small investors to enhance wealth and investment sophistication and as a means to deepen local securities markets. In the wake of challenges in the regional insurance sector, the development of collective investment schemes (CISs) is gaining greater attention. This paper examines the feasibility of CISs as an option for small investors in the ECCU. The analysis underscores the paradox of CISs, which, on one hand, may be beneficial to financial development, but conversely, may serve as substitutes for or displace traditional banking sector deposits. The paper attempts to shed further light on the region's financial deepening process by empirically examining the impact of interest rates and risk in the savings and investment decisions of ECCU households using a combination of cointegration approaches. The paper finds limited evidence of higher returns affecting the saving decisions of ECCU households. In encouraging the development of the sector therefore, the paper highlights the regulatory framework as a prerequisite for enhancing investor protection, mitigating potential risks and enhancing financial stability.

JEL CLASSIFICATION NUMBERS: C22, G11, G23, G28, G32

KEYWORDS: mutual funds, non-bank financial institutions, alternative investments, financial regulation, ARDL, structural breaks

Collective Investment Schemes as Alternatives for Small Investors in the ECCU

1.0 BACKGROUND

The ECCU financial system is at a critical juncture in its development. The recent global financial crisis has highlighted some of its vulnerability at a time when the region is seeking to deepen its integration process. The fallout from the insurance sector has caused widespread losses to investors and if not comprehensively addressed, may adversely impact investor confidence in the financial system. At the same time, regional investors are becoming more sophisticated seeking more advanced tools and new cross-border opportunities. These challenges and the need for enhancing economic output in the wake of the global financial crisis have provided greater impetus for creating a financial system which is more efficient and diversified, and placing greater focus on non-traditional financial institutions.

A key component of the Bank's vision for a Single Economic and Financial Space is the provision of the full spectrum of financial products and services which would cater to the needs of households and small investors. Although significant advances have been made in the development of money and capital markets in recent years, these markets have not developed the breadth, depth and sophistication that are necessary for facilitating economic growth. Market capitalisation remains low and there is still significant scope for mobilising household savings. In response to this shortcoming, greater attention is being placed on the mutual fund industry as a means of increasing the options for regional investors and for harnessing the growth-enhancing potential of the financial sector.

These recent events have highlighted the need for modernisation and regulation of the financial system, as it is now widely acknowledged that the banking system alone cannot support the multiple objectives of economic efficiency, investor sophistication and financial market development. Collective investment schemes[1] (more popularly unit trusts/mutual funds), have been considered a viable option for diversifying the financial sector, given their propensity to meet a myriad of financial objectives. CISs were originally designed to pool resources from

[1] Hereafter CIS's

several sources (usually small investors) and channel them to capital markets, thereby increasing returns.[2] These funds are seen as important tools for risk-pooling, maximising returns and diversification for investors lacking the necessary skills to assess investment risks. With their superior capacity to process information and to transact in large volumes, CISs are likely to lower the cost of intermediation and promote an investment culture among small investors. Despite the growing significance of CISs in financial reform among emerging countries, the mutual fund industry in the ECCU remains largely under-developed.[3]

In light of the above, the paper attempts to shed further light on the appropriate policies in the financial deepening process in the ECCU. To this end, the study investigates whether higher interest rates and/or financial deepening through the establishment of new financial instruments may induce ECCU households to shift savings to alternative and higher-yielding instruments. The paper's focus therefore will primarily be on analysing a savings function by estimating the long-run impact of nominal interest rate and other explanatory variables on ECCU households' savings decision. The paper proceeds as follows. Section two links the Bank's broader objectives with the establishment of collective investment schemes. The third section provides an overview of early mutual funds development, while the empirical model which addresses the industry's feasibility for the ECCU is considered in section 4. In this section, the ARDL approach as well as the Gregory Hansen technique are both explained and used for estimating cointegrating equations with and without endogenous structural breaks. Section 5 of the paper presents the empirical results while the final section concludes and presents some policy issues with respect to the development of Collective Investment Schemes in the ECCU.

2.0 ROLE OF CISs IN THE ECCU FINANCIAL SYSTEM

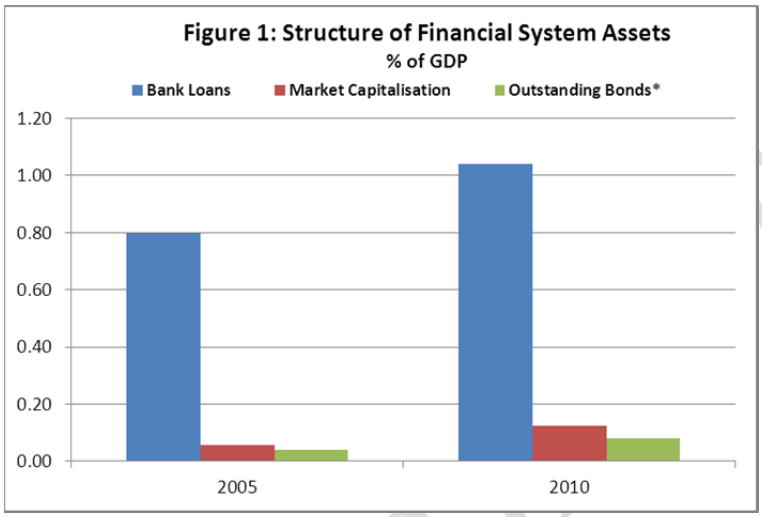
The global financial crisis and the prevalence of unregulated schemes in the ECCU and the wider Caribbean (Carvajal et al, 2009) continued to highlight potential weaknesses in the

[2] While mutual funds are usually targeted at households, they are also widely used by corporations and other institutional investors

[3] A few collective investment schemes have been developed in the ECCU. For example, the Bank of Nevis, was licensed in 2004, both as an offshore and a domestic fund. Dominica was the first country to establish a Unit Trust in July 1999 by setting up the Dominica UTC Growth and Income Fund.

financial system and have prompted regional policy-makers to seek genuine alternatives for enhancing the wealth and financial sophistication of regional investors. However, while the region has made significant strides in the development of its markets and it's Non-Bank Financial Institutions (NBFIs), to date, banks remain the dominant financial institutions in the region. The equity market is dominated by a few firms while liquidity in the secondary market remains well below those of CARICOM counterparts.

As part of this overall objective, the Bank in the late 1990s developed money and capital markets and institutions to support the region's overall development objectives. But while these reforms have been largely positive, the region has not witnessed the expected gains with respect to the participation of the small investors. In effect, financial intermediation in ECCU remains dominated by the banking system (see Figure 1), which is estimated to account for 85.0 per cent of total deposits. Relative to other emerging markets, there are few financial products which are available to residents of the ECCU. The proposed reform therefore has been driven by a number of concerns, among which, the need to enhance financial access to and sophistication of small investors, particularly with respect to their participation in securities markets; and reduce the cost of financial services and allow investors to manage risks by offering a wider range of investment products. Ultimately, mutual funds are expected to enhance growth by providing greater long-term resources to fund the region's development.



A mutual fund can be defined as an investment company that pools the assets of investors (usually with a common and pre-determined financial objective) and collectively invests those

assets in a range of financial instruments.[4] Undoubtedly, this can be done by individuals and institutions, but this usually requires both time and skill which some individuals may not have. As such, CISs effectively bridge this gap, thereby allowing small investors (and institutions) to delegate asset management to professionals at a lower cost than doing so individually.

Besides providing professional management and enhanced returns, these schemes provide a useful channel into regional securities markets which redound to the benefit of the entire financial system, by reducing the system's vulnerability to future shocks. In the absence of investment alternatives such as mutual funds, investors may resort to unregulated investments or excessive household liabilities.

3.0 OVERVIEW OF CISs

This section consolidates some of the relevant literature and current trends on collective investment schemes and financial deepening, highlighting the macroeconomic and policy issues related to this industry. The economic literature on savings and consumer behavior identifies a number of factors which may influence long-run savings and investment rates, ranging from economic, to social and demographic factors.

Numerous studies have tried to investigate the impact of financial deepening and liberalization on private savings in several developing countries, both from a single-country perspective or cross-country analysis (Becinvenga and Smith, 1991; Beck et al, 2000, Chowdhury, 2003). Data used for financial reform have varied depending on data availability as well as concept of financial reform, and so the results of these studies have been mixed. Some of these studies have found that financial deepening may raise the level of savings by widening the range of saving instruments and increasing the expected return through higher interest rates and reduced risks as deeper markets make financial assets more liquid. Conversely, some studies have argued that financial deepening may decrease savings by reducing liquidity constraints through improved access to consumer credit.

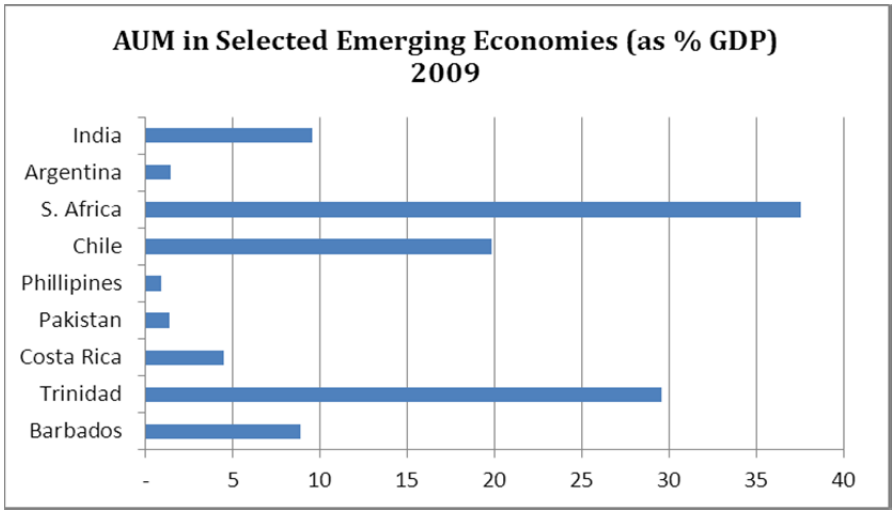
[4] Investors invest in these CIS by purchasing shares issued by the fund, which then uses the cash raised to invest in portfolios of stocks, bonds and other securities.

Notwithstanding, the benefits of an efficient financial system are clear. Levine (1997) outlined some of the key functions performed by the financial system, including enhancing the mobilisation of savings, allocation of resources and portfolio diversification among others. Through its intermediation role, a comprehensive financial system can allocate funding and resources to their best uses in an economy. However, in order to reap these benefits, a financial system requires efficient functioning of its three main components: an appropriate regulatory, payment and settlement infrastructure; a broad range of financial services; and well-developed financial markets.

Viewed from the wider context of financial development, Levine notes that a more developed financial system is more likely to lead to economic growth in several ways. By affecting the rate of savings, a more developed system can provide increased savings by allowing savers with a better risk-return trade-off. Secondly, by altering capital accumulation, the developed system provides a more efficient exchange of resources between savers and firms, who in turn would be able to increase production (Levine, 1997). From the specific perspective of financial instruments, CISs are likely to lower the cost of intermediation and benefit both investors and issuers given their professional management and ability to engender economies of scale (Roldos, 2004). Ultimately, they should also result in enhanced competition and may encourage commercial banks to be more proactive, thereby enhancing allocative efficiency.

In recent years, mutual funds have been an influential form of raising savings in both emerging and developed markets, and are considered a successful innovation in the financial intermediation process (see Figure 2). At year-end 2012, global mutual fund assets were valued at US$26.8 trillion, with the United States accounting for 49.0 per cent of this total (Investment Company Institute, 2012). Ownership of mutual funds by households has grown significantly, with an estimated 44.0 per cent of U.S households owning fund shares, up from 6 per cent in 1980. This included many different types of people across various age, income groups and with a range of financial goals.

Figure 2: Assets under Management in Selected Emerging Economies



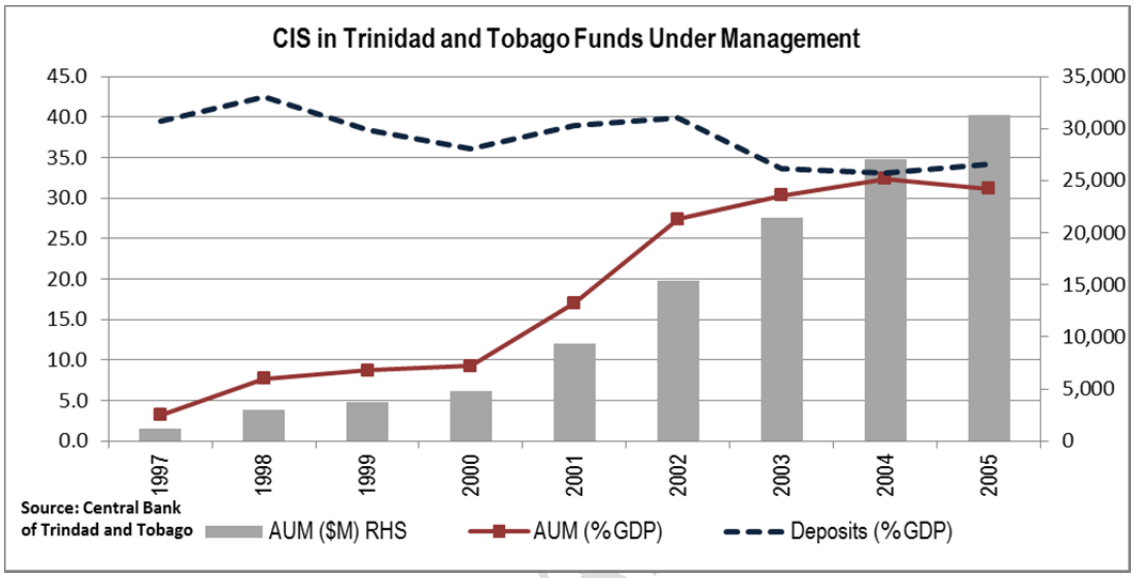
Although often seen as an investment option for small investors, mutual funds are vastly different from banks and other traditional forms of saving. One of the distinguishing features of these schemes relative to other financial institutions, such as banks, is the high level of operational transparency that it offers to households (Kyminsky et al, 2003). Mutual funds invest in marketable instruments which follow a mark to-market valuation for their assets (which is usually done on a daily basis), with the investment risk being borne mainly by investors. Given the greater risk exposure of capital markets, the efficient management of a mutual fund is essential for protecting the interest of the small investor, who may have little knowledge about the dynamics of these markets.

In the case of developing economies, Ong and Sy (2004) note that mutual funds have been instrumental in increasing the financial sophistication of the general population and contributed to the development of local securities markets. The rapid growth of mutual funds can be attributed to financial globalization, and aging populations. This has led many small investors, including retired persons to invest in financial instruments that are both liquid and promise high long-term returns.

The development of mutual funds in the Caribbean has also made some important advances. Assets under management of the mutual fund industry in Trinidad and Tobago for instance,

have increased steadily overtime (Figure 3). In some countries, growth of funds in non-bank financial institutions such as mutual funds have risen faster than the growth of deposits in commercial banks (IMF, 2008), which suggest the significant potential of this industry.

Figure 3: CIS in Trinidad and Tobago: Funds Under Management



In identifying the key factors that determine mutual fund success, a number of authors (*Klapper et al, 2003; Khorana et al, 2009*) have noted that there is a strong relationship between per capita GDP and mutual fund development. In general, the studies have found that mutual funds are more advanced in countries with better developed and more stable capital markets.[5] In developing countries, lower interest rates have also been a critical factor.

With respect to interest rates, the evidence in the region and in emerging countries remains unclear the extent to which interest rates can affect private savings. Earlier studies (see *Baumol, 1952; Tobin, 1956; Bennett, 1996; Ogaki et al, 1996*) have observed that interest rates may be a necessary but not sufficient condition in inducing savers to shift savings to instruments with higher returns. Bennett, studying a number of CARICOM countries, noted that the primary determinant of savings was not the interest rate, but rather the ability to save.

[5] This may be a reflection of investor confidence in the market, market liquidity and a greater supply of investable securities.

Others noted that the choice in investment assets depended on the degree of liquidity and the transactions cost for less liquid assets.[6]

Related to the issue of interest rates and the growth of this sector, some of the emerging literature has linked a decline in traditional deposit-taking business in favour of investment management such as mutual funds. Gallo et al (1996) note for instance, that low interest rates have prompted a portfolio shift in household savings from traditional bank deposits to mutual funds. They noted that such fear of potential disintermediation on the part of banks may have pushed them into mutual funds business.

With respect to determinants of mutual fund development, the literature reveals mixed findings. Some of the literature attribute the success of the sector to the characteristic features of mutual funds (such as distribution channels, reputation of the management company, communication) while there is a wide literature which finds that country characteristics better explain fund performance. In seeking to explain the success of mutual funds, Khorana et al (2005), note that a dominant banking sector can discourage the mutual funds industry, particularly if banks consider mutual funds as a strong substitute for traditional deposit-taking activities. The demand-side factors focus on the characteristics of potential investors, related to wealth, investment sophistication and education. Indeed, given the high degree of disclosure and transparency of the mutual fund industry, relative to opaque methods such as deposits, it is expected that more sophisticated populations would adopt this innovation more quickly than other investment forms.

The history of the mutual fund industry in other emerging markets has been characterised by sluggish development due mainly to a lack of public interest in the early years (see Figure 3). In emerging Asia for instance, while most CISs were established as early as the 1950s, most did not begin to grow until the mid-1990s (Hapitan, 2008).[7] Despite a weak start, the industry grew by more than 20 per cent in 2003-04 for many East Asian countries. In Malaysia, the

[6] For example, opening a savings account would require less time and money than setting up a brokerage service account.

[7] Given the lack of data and the heterogeneous nature of these funds, it was difficult to identify a common benchmark index to review performance.

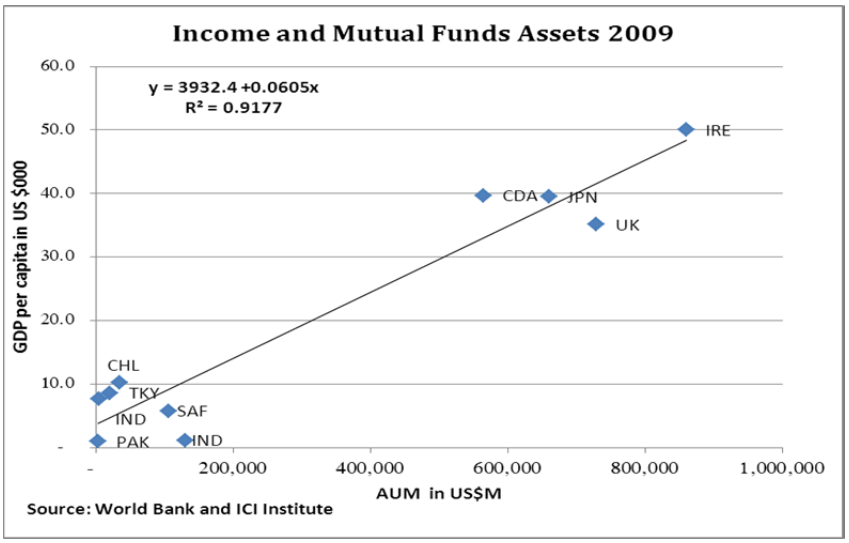
Securities Act was passed in 1960, but the first funds were not established until the late 1960s. The Malaysian Government actively encouraged and sponsored the establishment of new funds in the initial years, with active marketing and distribution in 1990s via bank branch networks. In the case of the Philippines, the industry remained dormant from early 1960s until early 1990s as a result of interest rate ceilings, which discouraged the development of capital markets. Ghosh notes however, that by end 2004, East Asia accounted for 10 per cent of global net asset value of mutual funds (Ghosh, 2006).

An assessment of early mutual fund development in Trinidad and Tobago revealed that the first scheme witnessed minimal growth in its financial base, however this gradually increased, such that its growth rate surpassed that of deposits in the banking system. Swan-Daniel and Sergeant (1997) noted that the UTC was relatively successful in changing the composition of domestic savings away from bank deposits towards other types of instruments and resulted in increased competition among institutions. The next section will outline an empirical framework that would help to assess the viability of the industry in the ECCU.

4.0 METHODOLOGICAL FRAMEWORK

Of the various factors identified in the literature, the level of income has been cited as instrumental in mutual fund uptake. This is highlighted in Figure 3, which illustrates that from a selected group of countries, those with high per capita incomes such as Ireland and Canada had the highest value of mutual fund investment when compared to other economies at lower income levels. Notwithstanding these trends, it is noted that even economies with lower than average per capita incomes such as India and South Africa had higher than expected mutual fund demand when compared to similar economies at their respective levels.

Figure 4: Income and Mutual Funds Assets (2009)



In considering the potential impact of mutual funds on the ECCU financial sector, the paper utilises mainly two estimation techniques to estimate a model and to check for robustness, namely the autoregressive distributed lag (ARDL) modelling approach and the Gregory and Hansen procedure. It does this by first examining the impact of interest rates on household deposits as well as the responsiveness of households to financial deepening by estimating whether new financial markets may have offset traditional forms of savings. After twelve years of financial institutional development in the ECCU, with the Eastern Caribbean Securities Exchange (2001) and the Regional Government Securities Market (RGSM) in 2002, it may be possible to analyse the evidence of how financial deepening may have impacted households' deposits.

The theoretical and empirical findings in the literature are viewed as a useful starting point for the analysis. Most of these examinations on the effects of financial deepening and reform on savings have linked the variables of financial reform to traditional savings specifications, which generally include those relating to the life cycle hypothesis, fiscal policy, macroeconomic and financial sector variables. Given limited data, the paper was not able to fully exploit many of these variables. The data set used for the empirical analysis consists of quarterly observations from 1993:4 to 2012:3 for real GDP (ly), weighted average deposit rate ($wadr$), inflation (inf) and household credit ($lcred$). In addition, the impact of institutional

development is captured by a dummy variable (D03), which takes the value of zero prior to the development of the ECCU financial markets (2001/02) and one in the subsequent period. The dummy explores whether there has been a decline in households' propensity to save due to the establishment of these new financial institutions.[8]

Co-integration without Structural Break

Since the focus is to determine the link between financial deepening and household savings, an appropriate technique is the adoption of cointegration analysis. Therefore, the ARDL framework, popularized by Pesaran et al (2001) is used in the study to determine both the effect of interest rates and institutional development on household's deposits in the banking system. The ARDL framework has some well-known benefits which makes it useful for analysing this underlying relationship. These benefits include allowing for different orders of integration and its superior small sample properties. The ARDL framework is generally represented as follows:

$$\Delta Y_t = \alpha_i + \sum_{i=0}^{p} \beta_1 \Delta Y_{t-1-i} + \sum_{i=0}^{p} \beta_2 \Delta DET_{t-1-i} + \delta_1 Y_{t-1} + \delta_2 DET_{t-1} + \varepsilon_t \quad (1)$$

Where β_1 and β_2 represent the short-run dynamic parameters, while δ_i represent the long-run relationship, and ε_t is an error term with the usual properties. The null hypothesis is $H_0: \delta_1 = \delta_2 = 0$ which would indicate that a long-run relationship does not exist. The lag structure was set at (2) data, but was later refined under the general to specific approach to dynamic econometric modelling, popularized by Hendry (1986). The calculated F-statistic is then assessed against critical values tabulated by Pesaran et al (2001). If the calculated F-statistic lies outside of the critical region tabulated by Pesaran et al (2001), then the variables are presumed to be co-integrated. Diagnostic and stability tests are then conducted to assess the fit of the ARDL model.

In order to test the interest rate and risk effect on households' bank deposits and investment decisions, the following relationship is examined for the ECCU:

[8] It may be useful to develop a more rigorous measure of financial deepening. Most writers have used a composite measure from several dimensions of financial reform. However, the study focuses on the impact of specific financial deepening measures rather than broad-based financial reform.

$$\Delta ls_t = +\alpha_1 ls_{t-1} + \alpha_2 ly_{t-1} + \alpha_3 wadr_{t-1} + \alpha_4 lcrd_{t-1} + \alpha_5 inf_{t-1} \sum_{i=0}^{p} \delta_{1i}\, ls_{t-i} + \sum_{i=0}^{p} \delta_{2i} \Delta\, ly_{t-i} + \sum_{i=0}^{p} \delta_{3i}\, \Delta wadr_{t-i} + \sum_{i=0}^{p} \delta_{4i}\, \Delta lcred_{t-i} + \sum_{i=0}^{p} \delta_{5i} \Delta\, inf_{t-i} + \delta_6 d03 + \varepsilon_{t,}$$

Cointegration with Structural Breaks

It is generally acknowledged that the standard unit root tests, such as the augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests have low power against the alternative hypothesis of mean reversion in small samples. This issue is particularly noted when there are structural changes in the underlying series. The inability to capture some of these breaks can sometimes result in misleading tests and incorrect inferences. Given the possibility of structural breaks, additional testing was conducted using alternative procedures that can accommodate potential structural breaks. In addition to the traditional unit root tests, the paper uses the Innovational Outlier (IO) model, which allows for more gradual changes in the trend and mean of a series as well as the Gregory and Hansen cointegration tests. Since household savings' decisions can be affected by certain policies and institutional developments, the cointegration relationships may have a structural break.[9] Several studies have been developed using different methodologies for endogenously determining a break date (eg Zivot and Andrews, 1992; Clemente et al, 1998; Lumsdaine and Papell, 1998). In order to account for such possibilities in household deposits over the estimation period, the Zivot and Andrews (1992) and Clemente et al unit root tests are utilised to test for the presence of structural breaks with unknown timing in the individual series of household savings. The Zivot and Andrews procedure uses three equations, which detect the presence of any possible mean break, slope break and simultaneous break in mean and the slope as follows:

$$\Delta y_t = c + \alpha y_{t-1} + \beta t + \gamma DU_t + \sum_{j=1}^{k} d_j\, \Delta y_{t-j} + \varepsilon_t \qquad \text{(Model A)}$$

[9] A number of events may influence the examination of structural change in household savings. For example, during the time period there was a reduction in minimum savings deposit rate in 2002, the introduction of the ECSE and RGSM (2001/2002), September 11 attacks and the global financial and economic crisis of 2007-08.

$$\Delta y_t = c + \alpha y_{t-1} + \beta t + \theta DT_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + \varepsilon_t \qquad \text{(Model B)}$$

$$\Delta y_t = c + \alpha y_{t-1} + \beta t + \theta DU_t + \gamma DT_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + \varepsilon_t \qquad \text{(Model C)}$$

As a means of verification, the standard ARDL approach is contrasted with Gregory and Hansen (1996) sequential breaking test procedure to examine the effects of a break on the long-term relationship. The Gregory- Hansen test is developed within the framework of the Engle-Granger residual-based cointegration analysis and is often considered an extension of the endogenous break univariate tests of Zivot and Andrews (1992). The null hypothesis of no-cointegration is tested against the alternative of cointegration with a break in the cointegrating relationship. There are three types of structural breaks in the Gregory-Hansen procedure: 1) the *C* level shift model (a shift in intercept) 2) the *C/T* level shift with trend model and 3) the C/S regime shift model which allows a shift in both. These models are as follows:

$$\text{C: } y_{1t} = \mu_1 + \mu_2.\phi_{t\tau} + \alpha^T.y_{2t} + e_t \qquad t=1, 2\ldots\ldots,n$$

$$\text{C/T: } y_{1t} = \mu_1 + \mu_2.\phi_{t\tau} + \beta t + \alpha^T.y_{2t} + e_t \qquad t=1, 2,\ldots\ldots,n$$

$$\textit{C/S: } y_{1t} = \mu_1 + \mu_2.\phi_{t\tau} + \alpha^T.y_{2t}\phi_{t\tau} + e_t \qquad t=1, 2,\ldots\ldots n$$

5.0 RESULTS

The standard Augmented Dickey-Fuller (ADF) unit root tests were conducted to check the order of integration of the variables. The results of the unit root tests are presented in Appendix I. Based on the results of these conventional tests, the null hypothesis of non-stationarity cannot be rejected for all level data. Accordingly, the ARDL single equation approach by Pesaran et al (1999, 2001) is applied to test the long-term relationship among the identified variables. The F-statistics for the bounds testing approach to co-integration are shown in Table 2. The results of the test show that the calculated F-statistic is greater than

that tabulated by Peseran et al (2001) at the 1 per cent level of significance, indicating that a long-run relationship among the respective variables exists for the model.

Table 1: Bounds Test Results

Computed F-statistic = 8.40***		
	Lower-Bound Critical Value	Upper Bound Critical Value
Critical Values (%)		
10	2.262	3.367
5	2.649	3.805
1	3.516	4.781

*** denotes rejection of null hypothesis at 1% level of significance

The results from the ARDL estimates are identified in table 3 and are based on the general to specific technique, with the estimates in the equation being a combination of short and long-run effects. The results reveal that in the long-run, nominal interest rate on deposits and credit are statistically insignificant while real GDP and inflation have a significant long-run effect on household savings (see Table 2).

In terms of the short-run dynamics, the results reveal that changes in real GDP, interest rates, household credit and inflation are seen to have significant short-term effects, but these are only statistically significant for some lags. Similar to the long-run effects, lagged income growth has a significant positive effect, whereas change in bank deposit interest rates, which was not significant in the long-term, appear to be incorrectly signed (negative) but significant for ECCU household savings in the short-run. As expected, current growth in household credit is found to have a negative effect in the short-run suggesting that increases in household credit lead to a fall in household savings. The coefficient associated with ECM_{t-1} which measure the speed of adjustment back to the long-run equilibrium value is correctly signed (negative) and is statistically significant at the 5 per cent level, which provides further evidence between the long-run relation between household savings and its determinants.

Table 2: ARDL Model Using General to Specific Technique

$$\Delta lsav = \underset{(-1.07)}{-0.37} - \underset{(-2.46)^{**}}{0.06}lsav_{t-1} + \underset{(1.67)^{*}}{0.09}ly_{t-1} - \underset{(-161)^{*}}{0.003}inf_{t-1} - \underset{(-4.73)^{***}}{0.48}\Delta lsav_{t-2} - \underset{(-2.77)^{***}}{0.02}\Delta wadr_{t-2}$$

$$- \underset{(2.09)^{**}}{0.33}\Delta ly_t + \underset{(2.81)^{***}}{0.46}\Delta ly_{t-1} + \underset{((2.49)^{**}}{0.37}\Delta ly_{t-2} - \underset{(-2.32)^{**}}{0.23}\Delta lcred_t + \underset{(2.02)^{**}}{0.01}d03$$

R^2 = 0. 582	R^2 adj = 0.499	F = 0.00	DW = 2.09	NORM = 0.580 (0.748)
LM =0.088[0.895]	RESET =1.997[0.163]		ARCH 0.164[0.687]	

Notes: *, ** and *** show significance at 10%, 5% and 1% levels respectively. F-statistic for the diagnostics tests are shown and the associated p-value in brackets

The dummy variable (D03), which seeks to determine the responsiveness of savings from the introduction of new financial instruments in the ECCU, was positive and significant. While this may not be considered a useful proxy, the relatively low level of household participation in regional financial markets confirms households' relatively low appetite for investment risk during the introduction of new financial instruments. Accordingly, there is limited empirical evidence to date to suggest that new financial instruments would displace banking sector deposits.

The findings appear to be comparable with a number of studies which have tried to explain saving behaviour in developing countries. The coefficient of the real GDP variable is positive and statistically significant, as expected while the coefficient of the interest rate variable is statistically insignificant in the long-run. The results from previous studies have shown that the effect of interest rate on many forms of savings have been mixed (for example Giovannini, 1985). Even for those studies that have revealed a significant link, the elasticity has been estimated to be very weak (Fry and Balassa, 1989). The insignificant role of real interest rate may be attributed to credit constraints, continued confidence in the banking system, the relative stability in deposit rates or inertia on the part of depositors.

The regression specification fits relatively well, and passes the diagnostic tests against serial correlation, autoregressive conditional heteroskedacticity and functional specification tests.

The structural stability of the model is examined using the cumulative sum (CUSUM) and CUSUM of squares tests on the recursive residuals. The plots of these statistics fall within the 5 per cent critical bounds, suggesting that the estimated model is stable (Appendix II).

While the traditional unit root tests show that all but one of the variables have unit roots (Appendix I), the Zivot-Andrews and the Clemente, Montanes and Reyes tests show that household savings is stationary in the presence of a structural break. The results of these tests are presented in Table 1 show that the null of unit root for household savings is rejected at the 5 per cent level. This contradicts the results obtained from the more traditional unit root tests without structural breaks. Simultaneously, the tests also identify endogenously the point of the most significant structural break in the series. According to the table, the break point in Model A (mean break) seems to coincide at 2004q3.

Table 3: Innovational Outlier Structural Break Unit Root Tests

	Innovational Outlier Structural Break Tests					
	Zivot-Andrews			**Innovational Outlier (CMR)**		
Variable	Minimum t*	Breakpoint	Results	Minimum t*	Breakpoint	Results
LSAV (A)	-3.39	2004Q3	I(0)	-2.532	2002Q3	I(0)
LSAV(B)	-2.189	2007Q2	I(0)			
LSAV C)	-1.807	2007Q2	I(0)			
*Critical values for ZA model for 1% and 5% are -5.43 and -4.80						
*Critical values for Clemente et al model for 5% are -4.27						

To examine the possibility of structural changes in the cointegrating relationship, the three model types as advocated by Gregory and Hansen are also examined. The results of the Gregory and Hansen procedure are presented in Table 4. All three models support that cointegration among the variables is present at varying levels of significance with a breaks in latter half of 2002 and 2004q2. In general, these results suggest that there is a long-run relationship between the variables despite the possibility of structural changes.

Table 4: Gregory and Hansen Cointegration Tests with Structural Breaks

Gregory and Hansen Cointegration Tests with Structural Breaks					
	Zt	TB	10% critical	5% critical	1% critical
C	-5.55	2002q2	-5.31	-5.56	-6.05
C/T	-6.73	2002q3	-6.17	-6.41	-6.92
C/S	-7.52	2004q2	-6.58	-6.84	-7.31

Generally, the results of the ARDL household saving equation partially support the predictions of the life cycle hypothesis given the positive impact of income growth. However, the findings may reveal a contradiction in the precautionary savings motive from the point of view of inflation, as an increase in inflation appears to reduce household savings. Additional work in terms of understanding demographic trends may also be crucial in exploring ECCU households' investment and saving behaviour.[10] Generally, while the study suggests that interest rates have not been a factor in the savings and investment decision of small investors, it also suggests that these investors have been slow to embrace new forms of investments, as these have not unduly displaced bank deposits from the development of these new investment instruments.

6.0 CONCLUSION AND POLICY DISCUSSION

This paper has attempted to contextualise some factors which may help determine the viability of mutual fund development in the ECCU, by seeking to stimulate debate on the important considerations for the establishment of CISs in the region. The need for establishing institutional investors such as mutual funds in the region is apparent, both as a means of encouraging citizens to improve their financial fortunes but also as a means further developing regional financial markets.

The empirical work has examined the relationship between interest rates and financial deepening in the ECCU by applying the ARDL and the Gregory and Hansen cointegration techniques on quarterly time series data during the period 1993 to 2012. This is then used to

[10] For instance, evidence from the U.S. shows that changing demographics play an important role in determining how the demand for mutual funds evolves over time.

evaluate the arguments underlying the financial deepening hypothesis for the ECCU. Consistent with some of the literature on developing countries, the empirical findings indicate that interest rates are not significant in affecting household savings decisions in the long-run, which imply that new investment instruments such as mutual funds may require substantial marketing to attract small investors. In addition, the insignificance of the financial deepening proxy demonstrates that in contrast to some jurisdictions where bank deposits were adversely affected by the introduction of new instruments, this may not be a critical factor in the ECCU in light of the region's recent experience. However, it also submits that financial deepening alone may be unlikely to augment household savings and therefore growth. The empirical work has suggested that real GDP growth is a key factor in savings and investment decisions of small savers in the ECCU in both the short-un and long-run and therefore may be critical in the potential uptake of collective investment schemes. Accordingly, in enhancing household investment and in the successful process of financial deepening, offering higher rates may prove inadequate to attract small savers to the new investment vehicles. Rather, maintaining high growth rates must be an important part of the policy for boosting investment and mutual fund success.

Notwithstanding these issues identified with respect to feasibility, it is important to note that the development and success of this industry requires a robust and conducive regulatory framework. The Securities Act (2001) and Securities Regulations provide the framework for the establishment and regulation of collective investments schemes in the ECCU. While the framework is suitable for the development of the industry, it is necessary that investors are sufficiently protected to ensure the success of the industry and to garner their participation. The regulation will ensure that the interests of small investors are served and will instil investor confidence in the early years of the industry's development. A key challenge may be in establishing an appropriate balance between investor protection and development of the industry. In addition, in small markets such as those of the region, it is critical that the regulation facilitate investment vehicles to operate across the eight jurisdictions within the ambit of the ECCU Single Financial Space. This is vital in attracting a critical mass of investors which would facilitate the industry's success.

The exact relationship between financial institutional development, savings and growth will critically depend on several factors, including the funds' ability to help investors in achieving their personal financial objectives, their liquidity policies, the risks involved and the response of individuals to their risk and return characteristics. For instance, it is noted that the success of mutual funds in the U.S. is attributed to their success in assisting households prepare for retirement. Empirical and anecdotal evidence suggests that regional savers are relatively risk-averse and are unlikely to be influenced by higher interest rates, with many opting to maintain savings in bank deposits. This may however change with initiatives for financial education, greater marketing, ease with which investors can access funds and increasing fund success.

Given the sector's possible threat to commercial banks' deposit base, the industry may require a strong business case (such as provision of tax incentives, investor protection) for the industry to develop. For instance in Barbados, the mutual fund sector has grown rapidly in recent years as a result of tax incentives.[11] In addition to incentives, there may be a case to consider non-traditional distributors such as credit unions in an effort to encourage participation of small savers who may currently be outside the scope of commercial banks.

While regulation is critical in the development of the industry, the regulatory architecture alone may not eliminate all of the inherent risks which come with such investments. In the final analysis, the viability of a collective investment scheme would be also contingent on both demand and supply-side factors. On the demand-side, success may be determined in large part by investors' sophistication, their investment objectives and risk appetite. Supply-side factors will depend importantly on the investment manager's ability to market its product, to pick profitable investments and its ability to attract both small and institutional investors.

[11] Investments in mutual funds and credit unions that are held for at least five years attract a tax credit

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Appendix I

ADF Unit Root Tests

	Level		1st Difference	
Variable	Constant	Const and Trend	Constant	Const and Trend
Household Deposits	-1.98	-0.39	-6.55	-7.23
	0.30	0.99	0.00	0.00
Real GDP	-1.34	-2.09	-2.21	-6.09
	0.61	0.54	0.21	0.00
Inflation Rate	-4.87	-9.52	-19.23	-19.12
	0.00	0.00	0.00	0.00
Deposit Rate	-1.12	-2.37	-6.09	-6.15
	0.70	0.39	0.00	0.00
Household Credit	-0.74	-1.44	-3.94	-4.34
	0.83	0.84	0.00	0.00

Appendix II

Long-Run Estimates					
Regressor	**Constant**	**wadr**	**inf**	**ly**	**d03**
Coefficient	-0.367	0.003	-0.003	0.097	0.012
t-statistic	(-1.078)	(0.716)	(-1.613)*	(1.668)*	2.022**

Short-Run Estimates							
Δly_t	Δly_{t-1}	$\Delta lcred_t$	Δly_{t-2}	Δls_{t-2}	$\Delta wadr_{t-2}$	Δinf_{t-2}	ecm_{t-1}
0.334	0.464	-0.228	0.375	-0.476	-0.018	-0.004	-0.059
(2.094)**	(2.807)***	(-2.319)**	(2.494)**	(-4.732)***	(-2.767)***	(-3.491)***	(-2.458)**

Note: ***, ** and * denote significance at 1%, 5% and 10% levels

The Plots of CUSUM and CUSUM of Squares Statistics