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SOVEREIGN WEALTH FUNDS: A MODEL FOR CITIZENSHIP BY INVESTMENT PROGRAMMES IN THE ECCU

by

Mrs Beverley P Labadie and Mr Shernnel Thompson

RISK AND CAPITAL ADEQUACY: A PRELIMINARY EXAMINATION OF ECCU COMMERCIAL BANKS

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Sovereign Wealth Funds: A Model for Citizenship by Investment Programmes in the ECCU

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ABSTRACT

Several member states of the ECCU since the 1990s have engaged in the sale of citizenship to foreigners for substantial fees in aid of economic development for the region. Over the last decade these programmes have morphed into the now aptly named citizenship by investment programmes (CBI/CIP). These programmes have contributed large amounts of revenue in combination with substantial infrastructural investment in the countries concerned. The authors analyse the framework of existing sovereign wealth funds (SWF) and show that the architecture governing these funds is the most appropriate for not only managing but ensuring the sustainability of returns to the inflows from the CBI programmes in the ECCU. Additionally, the paper provides an analysis on projected returns to CBI revenue should it be managed within the construct of a SWF and proposes a time line and management framework for the development of a SWF for the ECCU.

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1.0 Introduction and Motivation

Subsequent to an increase in corporate sector investments over the last decade, sovereign wealth funds have been a popular subject in the debate on international investments. Sovereign wealth funds are state-owned investment funds developed with the purpose of investing surpluses or excess reserves. The growing interest in sovereign wealth funds emanated from the steady increase in the value of their total assets since the beginning of the recent global economic and financial crisis. Sovereign wealth funds' assets were estimated at US$5.4 trillion at the end of 2013, recording growth of $750b over the level in 2012. This improved performance is attributable to an increase in both the volume and value of these funds world-wide. These investments therefore yield substantial returns, which the governments may utilize for various purposes, including imminent liability.

The Eastern Caribbean Currency Union (ECCU) comprises of eight countries in a common financial arrangement governed by a Monetary Council. Recently there has been much discussion on the issue of economic citizenship programmes or citizenship by investment (CBI) programmes that have been undertaken by a few of the countries within the ECCU. Currently, there are programmes in Antigua and Barbuda, Dominica, Grenada and St. Kitts and Nevis. The Government of Saint Lucia instituted a committee to examine the possibility of adopting one of these programmes. The first draft of an initial report from that Committee was completed and circulated for comments and consultations from the public. The legislation for the programme was passed in the House and the programme will be officially launched in 2016. Available data indicate that the programme in St Kitts and Nevis is the most popular, as it provides visa-free access to at least 100 countries, worldwide. Additionally, these investment programmes constitute a significant proportion of non-tax revenue in three of the ECCU countries.

Though these funds are being used largely for infrastructural development, other nations and international institutions have cautioned against the prevalence of CBIs in

the ECCU region and their likely impact on economic growth and development. The discussions, however, have moved beyond the structure of these funds to their management and use. St Kitts and Nevis created the Sugar Industry Diversification Foundation, Antigua and Barbuda – the National Development Fund, Dominica - a consolidated fund and Grenada - a National Transformation Fund, each with its own structure. Saint Lucia will begin its Citizenship by Investment Programme in January 2016 and has legislated investment in the Saint Lucia National Economic Fund. Cognizant of the significance of the OECS economic union and the importance of the CBI programme to majority of the territories in the ECCU, how useful or efficient would the framework of sovereign wealth funds be to these countries or to the ECCU on a whole? Will the establishment of a sovereign wealth fund assist in the effective management of the inflows from the CBI programmes?

In this paper, the authors review the literature on sovereign wealth funds in an effort to investigate the framework of these funds and their applicability to the inflows from the CBI programmes in the ECCU. From the experiences of selected countries – Norway and Trinidad and Tobago, the authors assess the suitability of a sovereign wealth fund as a pooled investment for member territories and seek to present a proposal that will assist in strengthening the broad fiscal framework of the ECCU. Also, the writers examine the possibilities of using a sovereign wealth fund to effectively manage the revenue yields from the CBI programmes.

The remainder of the paper proceeds as follows: In section 2, existing research is used to reinforce the rationale for the establishment of a sovereign wealth fund. In the third section, a general overview of sovereign wealth funds globally will be presented. Section 4 analyses the investment framework of sovereign wealth funds. The fifth section looks at the Norway's Sovereign Wealth Fund – the largest in the world and the Heritage Investment Fund of the Republic of Trinidad and Tobago – an example in the Caribbean, with a view to develop a possible best-practice model for the ECCU. Section six studies the CBI case of St Kitts and Nevis in an effort to compare what obtains with the structure of a sovereign wealth fund. In section seven, the main

findings are advanced, along with a number of issues for consideration by policymakers of the region if a sovereign wealth fund were to be established. In addition, a governance structure and roadmap are proposed. The final section, eight, concludes by considering a few ideas and recommendations that would strengthen fiscal consolidation efforts in the region.

2.0   Literature Review

2.1   Definition and Types of Sovereign Wealth Funds

According to Steigum (2014) (International Monetary Fund, 2008), sovereign wealth funds (SWF) are "large pools of government-owned funds that are invested in whole or in part outside their home country." A SWF may be defined as a special purpose investment fund created and owned by a government to hold assets for long-term purposes (International Monetary Fund, 2008). They are generally formed when countries with a high variance in public revenues need to ensure steady cash flows and are mainly set up from surpluses on the fiscal accounts or balance of payments, foreign currency flows, privatization yields, public transfer payments or export receipts. SWFs are typically funded from reserves (Bernstein, et al., 2013) or other foreign currency sources including export revenue acquired by a developing or developed nation and have emerged as major global investors (Fei & Xu, 2011). Many SWFs are based on income from commodities, either taxed or owned by the government; but there are also non-commodity SWFs, which are funded by asset transfers from official foreign exchange reserves.

Sovereign wealth funds have been in existence for a long time (from as early as the 1800s) and are created for macroeconomic purposes (Steigum, 2014); the oldest on record being the Texas Permanent School Fund, which was established in 1854. SWFs can be considered similar to investment vehicles such as hedge funds and pension funds. SWFs are typically invested in highly liquid securities and maintain a very long investment horizon (Brtolotti, et al., 2009). In contrast to hedge and pension funds, SWFs are typically monitored in a more stringent way. There are a number of

classifications for SWF, including the savings funds, stabilization funds, pension reserves funds, reserve investment funds and strategic development funds. Also, the International Monetary Fund (2008) noted that SWFs may also be categorized by their main objectives: (i.) stabilization fund (ii.) savings fund (iii.) reserve investment corporations (iv.) development funds (v) contingent pension reserve funds.

In 2013, however, Al-Hassan et al cited four major types of SWFs, namely stabilization, savings, pension reserve and reserve investment. Though the literature may vary slightly in the categorization of these funds, there is a level of convergence in defining these types of funds. A stabilization fund or fiscal stabilization fund as it is sometimes referred to, has the primary objective of insulating the budget and the economy against commodity price fluctuations and exogenous shocks (Borst, 2015). That commodity may be oil or any other extracted natural resource.

Stabilization funds are similar to the reserve funds of the central banks in that they serve to restore fiscal stability in times of cyclical variability (Al-Hassan et al, 2013). Majority of the assets held by stabilization funds is highly liquid, in the form of sovereign fixed income. Savings funds, aim to convert non-renewable assets into a more diversified portfolio of assets and mitigate the effects of Dutch disease. They concentrate on investments with high risks, hence almost three quarters of their portfolio consists of equity and other high return instruments. Stabilization funds are different from saving funds in that they, by nature tend to have a shorter term investment horizon, are highly liquid and have generally low risk return profiles, while the saving funds are naturally longer term, have broader asset classes and a higher risk return profile.

Alternatively, sovereign wealth funds may aid in inter-temporal obligations such as pension reserve funds and economic development funds. Pension reserves typically start with conservative investment portfolios and are largely comprised of government debt. A very good example of a pension fund is the Government Pension Fund,

created by the Norwegian government in the 1960s and with additional oil revenues has grown to be the largest SWF globally, now known as the Norwegian Oil Fund.

Reserve investment corporations are established to increase the return on reserves, without compromising the assets in the fund. Examples of these are the China Investment Corporation, Korea Investment Corporation and the Government of Singapore Investment Corporation. These corporations typically seek large proportions of equity and other investments in order to negate the penalty of holding reserves. Contingent pension reserve funds provide for contingent unspecified pension liabilities on the government's balance sheet. Ireland's SWF was established in 2001 to defray the anticipated increase in cost of pensions from the year 2025, as a result of its aging population. Other examples of these SWFs are Australia Future Fund and New Zealand Superannuation Fund.

2.2 *Rationale for the Establishment of a Sovereign Wealth Fund*

Approximately 40 to 70 different sovereign wealth funds have been set-up by political entities globally. According to (International Monetary Fund, 2008), SWFs may serve a variety of roles and may be developed or designed for various purposes, often including stabilization and savings, reserve accumulation, economic growth and the funding of future social obligations such as pension and healthcare. SWFs play the role of managing inter-temporal equity, i.e. balancing the demands of the present with that of the expected future. Bernstein, Lerner, & Schoar (2013) provided three distinct roles of SWFs; (1) source of capital for future generations (2) fiscal stability and (3) a vehicle for government led strategic investments.

As SWFs became more globally diversified following the advice of the Sovereign Wealth Fund Institute, investments in emerging and developing nations were increased. Consequently, the savings of more advanced economies are likely to be channelled to useful investments in the developing nations and generally redistribute wealth and improve the global economy. The issue of reserve accumulation particularly among

developing nations has been a topic under discussion for a considerable period. Developing countries with flexible exchange rate regimes typically accumulate reserves in an effort to mitigate the volatility associated with those rates often due to trade shocks (Griffith-Jones & Ocampo, 2008). With the increase in oil prcies following the recent global financial crisis (2007/2008), petroleum-exporting countries would have seen an extraordinary rise in revenues, and thus the subsequent establishment of SWFs. Thus SWFs provide countries with the opportunity to invest official foreign reserves in higher-yielding assets (Borst, 2015). However, as time progresses countries, which have established SWFs may begin to record a decline in their foreign reserves.

2.3   Benefits of a Sovereign Wealth Fund

There are tremendous benefits to be had from creating SWFs and as (Dedu & Nitescu, 2014) pointed out these include protecting the national wealth and economic diversification especially for economies that depend on limited raw material exports. A sovereign wealth fund also serves as a contribution to a sustainable long term economic strategy. Additionally, SWFs aid central banks in sterilizing the surplus of liquidity, countering macroeconomic cycles and assist in sustaining key infrastructural projects.

In addition to the aforementioned benefits, Dedu & Nitescu (2014) noted that in comparison to other forms of asset management, SWFs are not only highly liquid, but attract long term investors who are less sensitive to market conditions and have a high risk appetite. Also, they are highly diversified in locating higher yields and attract little to no debt. If the fund is incorporated, its cost of capital is determined using the weighted average of the cost of debt and the cost of equity, and therefore with little or no cost of debt or cost of equity, SWFs may be able to accept lower returns on investments than listed companies – private or public. Considering that SWFs are not liable to any individual or institutions per se, they do not have to worry about paying returns or dividends to investors, who may threaten to pull off and as a consequence have more leverage in adopting longer term investment strategies (Jory et al, 2010).

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A SWF should be considered in the context of an overall sovereign balance sheet, as it aids in the mitigation of risks associated with exchange rates, monetary policy and fiscal policy (Al-Hassan, et al., 2013). SWFs assist in reducing the pro-cyclicality of fiscal policy, as withdrawal rates are clearly laid out, which are consistent with the purpose of the fund. Also, since SWFs do not borrow money and have the backing of central governments, it is not necessary to account for any default risk in their cost of capital (Jory et al, 2010). Consequently, SWFs have the ability to successfully compete with other funds by taking up investments with lower rates of return, which results in more valuable investments than those financed through debt or equity.

Generally, it is more likely that much needed funding in times of crisis will come from SWFs. Based on information on the most recent global economic and financial crisis, on the onset of the crisis, SWFs invested almost US$40 billion in the US financial sector; indicating that SWFs help cushion the negative impact of a crisis (Jory et al, 2000). SWFs are efficient in the redistribution of capital and credit from wealthy nations to needy underdeveloped countries and so a number of developing countries stand to benefit from the financial resources of sovereign funds for much needed infrastructural development.

Apart from the aforementioned benefits of SWFs, the countries which established the funds stand to benefit from the income diversification inherent in SWFs. These varied revenue flows facilitate low risks and mitigate the impact of commodity or asset price volatilities, allowing governments more space to invest the excess funds. When these funds are invested domestically, socioeconomic indicators like unemployment and poverty are minimized and economic activity remains robust. If investments are done overseas, the investing country contributes to global financial intermediation, which augurs well for advancement of technology and capacity building (Jory et al, 2010).

2.4 Major Weaknesses of a Sovereign Wealth Fund

Given the sheer size of sovereign wealth funds, these investment vehicles can and have become systemically important in global financial sector development. Jory et al (2010) warns that while SWFs have grown significantly over the years on an international level, concerns about their political risks have remained elevated, due largely to issues with transparency and disclosure. While countries like Norway and Singapore continue to practice good accountability and full disclosure, a number of large global SWFs have reneged on their promise to provide yearly reports and details on their investments. This type of behaviour brings to the fore the issue of continuous monitoring of these funds.

Despite their sometimes complex nature, SWFs may have limitations, not only of lack of transparency, but also of political interference. It is difficult and maybe near impossible to totally eliminate political involvement in SWFs given that they are owned by governments, both democratic and non-democratic. Funds may be influenced by the political mandate through representatives on its board or management committee. This inevitably leads to corruption in the form of nepotism, which may hinder the recruiting and retaining of scarce, highly demanded, skilled managers, who are paramount to the sustainability of any fund.

While institutions may be set up to own and manage SWFs, the policy framework generally reflects the objectives set by the state and may be biased towards identified priorities, which could compromise the achievement of optimal returns. Also, the nature and structure of these funds may promote a level of protectionism, where countries are likely to carefully select investors, who may not be the best candidates, for particular investments (Johnson, 2007).

3.0 An Overview of Sovereign Wealth Funds

In 2015, the total market size for SWF was in excess of $7,000 billion. Approximately 59.5 per cent of these funds related to oil and gas, while the remaining 40.5 per cent

consisted of other – mainly non-commodity funds. In the decade leading up to 2015, the market size of sovereign wealth funds more than doubled mainly as a result of positive developments in the Asian market (Sovereign Wealth Fund Institute, 2015). Higher oil prices have been a significant factor in the accelerated pace of asset growth of oil based funds over the last 10 years. The Asian market makes up 39.1 per cent of global SWFs, followed by the Middle East and Europe, which consist of 37.1 per cent and 16.7 per cent, respectively.

Fig 1: SWFs - Investment Objectives

budgetary support 5%

Others 12%

local investment 6%

to curtail reliance on single source 34%

Improve Investor confidence 8%

address future pension shortfall 9%

invest for future generations 13%

attractive financial returns 13%
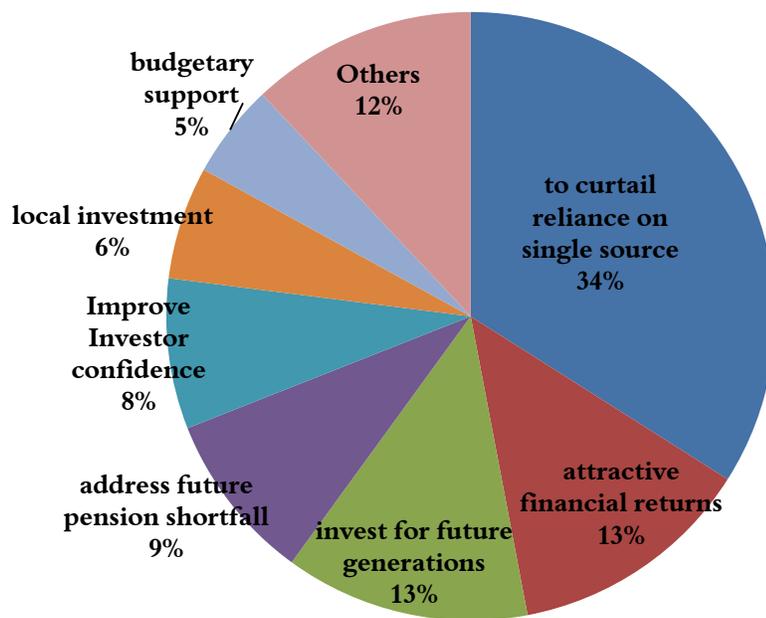
Source: Thunderbird International Business Review (Nov/Dec 2010)

As seen in figure 1, SWFs exists for a number of reasons, the most frequent being to assist the country in diversifying its source of income. Inter alia are the governments' need for gaining attractive returns on investments, achieving sustainability by investing for future generations and like in the case of the Norwegian Pension Fund, to make

provision for an expected gap in future pension payments. Most of the SWFs which were established between 2007 and 2008, i.e following the recent financial crisis, aimed at restoring investor confidence. They were involved in purchasing shares in financial institutions and reforming local banks in an effort to develop financial safety nets for reforming these banks. Majority of existing SWFs (40 per cent) are funded through excess revenue from oil.

Al-Hassan et al (2013) indicate that SWFs are expected to have a sound legal framework which promotes institutional and governance arrangements for its effective management. SWFs may have two approaches to management: the investment company model and the manager model. In the investment company model, the government creates an investment company that owns and manages the assets of the fund. According to Al-Hassan et al (2013) the investment company model is employed when the investment strategy is expected to be more concentrated, with active ownership in companies. In this model, the company has the autonomy to incur debt and also to oversee assets belonging to other parties. With the manager model, the legal owner which is generally the government (through the Ministry of Finance) provides a mandate to an asset manager. The asset manager may be the central bank, a separate fund management entity or external (private) fund managers. These arrangements should match the objectives of the fund and the nature of the investments being undertaken; therefore a structure is needed, commensurate with the risks and complexities of the investment strategy.

Jory et al (2010) stated that close to one quarter of SWFs globally is managed by the Ministry of Finance, while another quarter is managed by a management company set up by the governments. Central banks manage about 16 per cent of SWFs and 10 per cent is run by local government. While about 22 per cent of SWFs is governed by investment companies, these companies are still supervised and controlled by the governments. Close to 40 per cent of the assets of SWFs is allocated to fixed income securities and the second highest category of asset allocation is common stock in listed companies, which make up just over 20 per cent of the investment portfolio. The

preference for fixed income securities is based on the premise of constant guaranteed inflows, except in a case where the borrower is experiencing financial difficulties.

4.0 Analysis of the Investment Framework of a Sovereign Wealth Fund

Sovereign wealth funds by design tend to set their strategies for the long haul. Their strategies may be based on domestic assets, foreign assets, alternative asset classes such as hedge funds and derivatives, and may include infrastructure or very liquid assets. SWF policies are centred largely on safeguarding wealth for future generations, while seeking longer term returns with large pools of capital. Thus, SWFs have emerged as major investors in corporate and real resources on a global level. In setting investment policies and guidelines, SWFs must align their strategies with that of changes and anticipated changes in the international macroeconomic environment and global capital markets.

The global financial crisis has shown SWFs that the diversification of portfolios is not enough to withstand the rapid changes to asset valuations and assets which are seemingly uncorrelated (Masih, 2014). They have learnt that though assets and returns may be uncorrelated, a correlation may exist through macroeconomic or financial variables (Kunzel, et al., 2011). Hence, the search for excess returns (risk adjusted basis) or alpha[1] has become more costly to acquire. As a consequence, SWFs have more and more resorted to in-house management of funds when compared with the management styles, which existed prior to the financial crisis.

The strategies of SWFs can be affected by more than just economic variables and market changes. Research has shown that the strategies may be impacted by; (1) political involvement (2) the size of acquisitions (3) price to earnings ratios and levels and (4) the use of external money managers.

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[1] Alpha may be defined as the performance of a fund on a risk adjusted basis. It is one of five technical risk ratios which aid in determining the risk-reward profile of a fund.

Political involvement

Political involvement within an SWF means that representatives of government or politicians are responsible or may have significant input into the management and selection of investments made by the SWF. Empirical investigations into the investment decisions of SWFs have shown that political involvement influences mainly the likelihood of the SWF to invest in its own territory (Bernstein, Lerner, & Schoar, 2013). That desire by the politicians to invest heavily in domestic assets is likely to increase the probability of deviations from the funds' long term return maximization track.

By adjusting the location of investments, political involvement influences the strategic investment objectives of the fund. It was found that political representatives are more likely to over pay for investments by selecting those assets with higher price to earnings ratios[2]. This selection of high priced assets and industries is applicable to both domestic and foreign assets and industries. Moreover, when applied to domestic assets, the selection of higher priced assets is even greater. These results suggest that political representatives may have prior information about the nature of domestic assets and industries and their likely returns.

Political involvement is not limited solely to the choice of assets but also to the nature of the strategy being utilised. Political involvement can also occur if a SWF decides to sell or purchase an asset. The most recent example of this practice was the sale of $400m in Walmart stock by the Norwegian Pension Fund after the fund determined that Walmart sold products that were produced using child labour. Following the sale, the ambassador of the USA to Norway claimed that the sale of the assets had ethical implications for the company and the value of its shares.

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[2] Price to earnings ratio is defined as each dollar paid for each dollar of returns. The higher the ratio, the greater the price paid for the asset.

Investment strategies also suffer from concerns surrounding scalability. Strategies which may have been easily applicable to medium sized or moderate sized firms are not easily scaled up to SWFs which are significantly larger. This issue of scalability affects the funds ability to generate attractive returns. Size becomes another important factor in the execution of investment strategies. The accumulation of large blocks of stock can affect market prices and some firms have begun developing methods of stock acquisition which may limit the impact on market prices. To deal with this issue of scalability, the Government Investment Corporation of Singapore has developed subsidiaries which can make smaller investments. These smaller investments limit not only the effect of market prices, but are suitable for cost reduction strategies where one firm may execute a strategy which can be easily replicated in the other subsidiaries. Should this strategy fail, the cost of failure is limited to the firm which executed the strategy.

Strategic Asset Allocation (SAA)

Governments seeking to optimise returns to their national wealth are provided with investment vehicles such as sovereign wealth funds. In the ECCU, additional returns can be achieved through the call accounts of Eastern Caribbean Central Bank and their investment management units. However as (Kern, 2007) indicated in an analytical note, the real returns to central bank portfolios over the past six decades have been low – around 1.0 per cent, when compared with the returns of a diversified portfolio of stocks and bonds – of around 6.0 per cent.

The strategic asset allocation of a SWF is affected by its investment horizon, funding sources and other balance sheet characteristics (Kunzel, et al., 2011). Investment horizons are related to an investors' ability or a funds' ability to take additional risk (increase the probability of losses). Assets such as equities tend to be less volatile on long horizons when compared with other short-term instruments. Consequently, investors, asset managers and funds are able to gain higher levels of equity premium over longer horizons and on a more consistent basis. Conversely, illiquid assets also

affect a portfolio's allocation. Due to the planning associated with exiting a portfolio of illiquid assets, only SWFs with extremely long investment horizons are able to benefit from these asset classes.

The ability of the source of funds to affect a SWF depends on the type of SWF (Kunzel, et al., 2011). Funds such as stabilization funds (e.g. Trinidad's Heritage and Stabilization Fund) may be adversely affected by commodity prices if the source of funds is that natural resource. Therefore in developing a portfolio, SWFs which depend on real assets for funding would need to take oil price risks, business cycles and even geopolitical factors into consideration. On the other hand, if the SWF is financed by fiscal surpluses or programmes, it is likely to be affected by the dynamics of a government's budget.

Differences are however, not limited to the type of asset but also the type of fund. Stabilization funds and Stabilization/Savings funds often have a portfolio which is a comfortable mix of fixed income assets and cash. Pension reserve funds are even more varied, incorporating alternative assets and equities along with fixed income and cash, while reserve investment funds often use fixed income and equities to generate returns. These allocations are dependent on both the investment objective of the fund and the balance sheets' liabilities and other contingencies.

5.0   The Experiences of Selected Sovereign Wealth Funds

5.1   *The Norwegian Experience*

The Norway Government Pension Fund Global came into being in 1998, drawing from the petroleum fund, which started in 1990. It is the world's largest sovereign wealth fund and is forecasted to be worth US$1 trillion by 2020. The fund receives about $1 billion weekly from taxes and profits from the oil and gas industry and owns over 2.0 per cent of all listed companies in Europe and approximately 1.0 per cent of the world's shares.[3] The fund was established for long-run budget stability, premised by

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[3] Price, M; BBC World News, 12 September 2013

concerns of an ageing population and falling output of petroleum. All budget surpluses are channelled into the fund annually, but there are no stringent rules regarding its replenishment, which allows for greater flexibility for asset management (Carner et al).

The statutory structure of the fund was revamped in 2005 through an act of Parliament and the complementary regulations were revised from time to time, the Ministry of Finance remained ultimately responsible for the fund (Richardson, 2011). The goals of Norway's fund objectives are expressed by the government and the Ministry of Finance dictates the type of investment that can be undertaken and generally the diversity of its portfolio. The government's budget policy generally guides the fund's mandate. The Ministry of Finance gives direction for the portfolio mix through a bench-mark portfolio, which is used to evaluate the performance of the Fund. The government also seeks to have a say in the investment behaviour of the companies in which the fund invests. Investments by the Fund must be external and guided by investors' social responsibility.

The Norway fund, which is managed by Norway's central bank (Norges Bank) has a strategic asset allocation which is mixed between equities, fixed income and real estate investments (60.0 per cent, 35.0 to 40.0 per cent and up to 5.0 per cent, respectively). The funds are invested globally outside of Norway and have risk factors which are expected to provide sufficient returns. Investment is done in international equity, fixed income and real estate markets in approximately 70 countries. Funds have not been invested domestically to ensure that the local economy does not overheat.

On average, the fund generated an annual return of approximately 5.49 per cent between 1998 and 2013 and 5.9 per cent (3.9 per cent after costs) between 1998 and the second quarter of 2015. The fund's total annualized return following the 2007/2008 financial crisis was approximately 25.6 per cent – reversing its prior years' position of minus 23.3 per cent. It has offices in Oslo, England and New York and is managed by external managers who are remunerated using a performance-based approach. Due to transparency and openness with information from the Norway fund,

its performance can be readily assessed. With regard to disclosure, the Norwegian Fund has been characterized as the global hallmark (Dedu and Nitescu, 2014). Quarterly and annual reports are published on the Fund's website.

5.2   The Trinidad and Tobago Experience

The insights shared by Judith Gold[4] during an interview with the Trinidad and Tobago Guardian on the CBI inflows and the potential impact on the economy highlight the need to provide a stable platform from which to grow future resource endowments. Sovereign wealth funds provide opportunities for such endowments. This clear approach to withdrawals and management can be seen in the Heritage and Stabilization Fund (HSF) in the Republic of Trinidad and Tobago. The HSF is managed by the Central Bank of Trinidad and Tobago under a mandate provided by the Ministry of Finance (Williams, 2007).

The fund uses excess revenue from petroleum operations to cushion the impact on or sustain public expenditure capacity during periods of revenue downturn caused by a fall in prices of crude oil or natural gas (The Republic of Trinidad and Tobago, 2007). Additionally, it provides a 'heritage' for future generations of the country. The HSF is governed by the HSF Act which provides for corporate governance, a savings rule and a withdrawal rule. The savings rule of the fund is established at 60.0 per cent of excess energy revenues (actual minus budgeted revenues). Withdrawals from the fund can only be permitted on the basis of the following conditions[5]:

1. If actual tax revenues in a fiscal year are at least 10.0 per cent below the budgeted revenues.
2. Withdrawal may be up to 60.0 per cent of the short-fall but not greater than 25.0 per cent of the HSF.
3. Withdrawals are not permitted if the total capital of the HSF is at its lower limit of US$1.0 billion.

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[4] Head of IMF mission to St Kitts and Nevis –October 2014
[5] (Williams, 2007)

Conversely, the HSF:

1. Cannot finance capital expenditure or provide collateral for government borrowing
2. Cannot invest in assets which have a direct correlation with oil and gas revenues
3. Must invest the funds with a medium to long-term horizon

The asset allocation of the fund is unlike that of the Norwegian oil fund. In Trinidad, 65.0 per cent of the fund is weighted towards US fixed income instruments (with 25.0 per cent allocated to short-duration instruments), 17.5 per cent is allocated to core US domestic equity and 17.5 per cent to non-US core international equity. In effect, the fund is designed to preserve capital while maintaining a steady rate of return. Like other SWFs, the HSF is exposed to credit risk, interest rate risk and currency risk (Trinidad and Tobago Heritage and Stabilisation Fund , 2014).

6.0 The Case of St Kitts and Nevis and the SIDF

The citizenship by investment programmes in the ECCU have been attracting international attention over the past few years. Most recently, an economist with the International Monetary Fund pointed to the development surrounding the CBI in St Kitts and Nevis (Wilson, 2014) (Xu, et al., 2015). While the inflows from the CBI have been contributing significantly to growth in St Kitts and Nevis, the call was for prudent management of these funds, to avoid the pitfalls of overheating of the economy and its inherent risk of Dutch Disease (Wilson, 2014) (Xu, et al., 2015). Dutch Disease occurs in principle when a country receives windfall from a sector – particularly a natural resource driven sector – and then misallocates resources away from other drivers of the economy, e.g. manufacturing.

Concentration of funds away from other drivers of economic growth has the potential to lead to Dutch Disease or a similar scenario, and though it may be extreme to think that way for a country like St Kitts and Nevis, it is necessary to exercise caution in the management of the CBI funds (Wilson, 2014). In this light, adopting an already

successful framework may be just what is needed at this point. In addition to concerns of Dutch Disease, the CBI has drawn attention – albeit unwanted – from first world countries such as the United States of America and Canada, which claim that citizens of sanctioned countries may take advantage of the special privileges provided by their new passport to evade taxes or conduct terrorist activities.

Chart 2: Tax and Non-Tax Revenue in St Kitts and Nevis
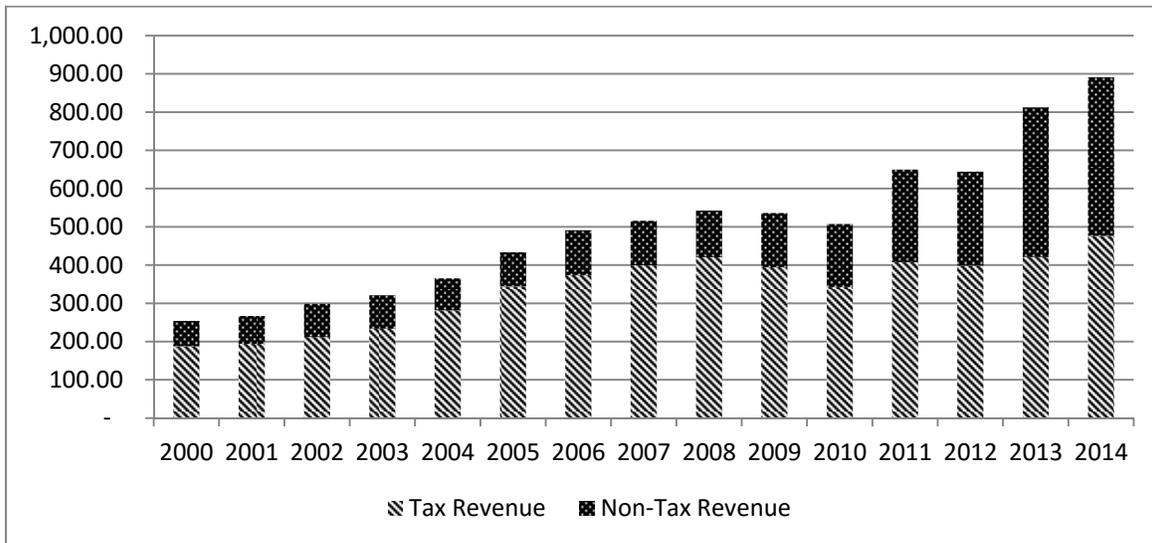
The CBI inflows have led over the last few years to large intakes of non-tax-revenue (chart 1). In 2014, the yield recorded from non-tax revenue was $414.7m, an increase of $297.3m over the amount collected in 2006. Inflows from the CBI initiative have slowed over the years as the country continues to face increased competition from similar programmes in the ECCU and globally. Additionally, the initiative also faces increased scrutiny from the advanced economies. Purchases of citizenship can be done through either a residential investment or a contribution to the St Kitts and Nevis Sugar Industry Diversification Foundation (SIDF).

The SIDF was established in 2006 as a trust company in an effort to assist the Government of St Kitts and Nevis with the transition of the economy from the sugar industry to a more diversified economy (St Kitts and Nevis Sugar Industry Diversification Foundation, n.d.). According to the trust company's website, the

foundation continues to provide grants, loans, budgetary support, debt forgiveness or assistance to individuals or institutions (St Kitts and Nevis Sugar Industry Diversification Foundation, n.d.). Like a SWF, the SIDF is managed by an executive board, which in that case consists of three members. Given the concentration of the investments of the SIDF in local assets, its resemblance is closer to that of a development fund than a SWF.

The SIDF receives its funding from individuals who qualify for a passport under the CBI programme and would have received an estimated $232.9m in contributions from the initiative (St Kitts and Nevis Sugar Industry Diversification Foundation , 2011). A large portion of the SIDF's portfolio seems to be concentrated in investments in financial institutions (58.2 per cent), while the remainder in sovereign assets (42.8 per cent) (St Kitts and Nevis Sugar Industry Diversification Foundation , 2011). In its first six years (2006 to 2011), the SIDF disbursed approximately $174.2m to, inter alia, the government sector, the tourism industry, construction, agriculture and entrepreneurial investments.

7.0   Main Findings and Issues for Consideration

Considering the significance of SWFs in global finance and their role in redistribution of investment and credit, countries with excess income or reserves should not just give consideration to the establishment of a SWF, but should get on board and take action. Majority of SWFs belongs to countries with large oil reserves or with large and growing merchandize trade surpluses. It is very costly to keep reserves and as the recent fluctuation in international oil prices have shown, price volatility in the non-renewable resources is likely to adversely impact the revenues of the exporting countries. As emerging economies realize larger trade surpluses, the need for investing these resources becomes more pressing. Also, holding foreign reserves increases exchange rate risks and the returns on traditional government bonds have lowered over the years; hence the need for more viable, non-traditional alternatives.

The research has shown that countries which have over the years established SWFs have yielded much better returns on their investments than their non-SWF counterparts.

SWFs generally exist to assist in ensuring that the global financial system is healthy and the free movement of investments and capital is sustained. Additionally, SWFs seek to ensure compliance with regulations in the investing country, while at the same time undertaking investments based primarily on assessment of the level of risk and return involved. While a SWF is a very viable option for countries which meet the criteria for its establishment the proper foundation needs to be in place for its success. A comprehensive and transparent structure of governance to ensure proper accountability in management, monitoring and control is salient to the existence of a SWF. Since the IWG strives to ensure that SWFs are efficiently developed and effectively managed, any process of establishment for a SWF should take into consideration the guidelines proposed by that organization (appendix 4) and select those applicable to both the investing nation and the potential recipient of the proposed investments.

Except for the case of Norway and Singapore, most of the big players on the global front, are not forth-coming their annual statements and as a result, their asset base, investment structure and value are not known. This challenge of disclosure makes it difficult for countries that are seeking best practices to find all the necessary information for making logical comparisons. However the advent of transparency and accountability indices has pushed more SWFs into the direction of greater openness. Also, many funds are hesitant to disclose their objectives, which should generally be linked to the overall fiscal policy of the government. Considering that the vast majority of SWFs is owned by the state, decision making in these entities may be driven by politics rather than good business rational, hindering the transparency of the funds.

Despite the short comings and challenges of SWFs, they have increased in number and popularity over the recent decades and served well, particularly following the recent

economic and global crisis. It is incumbent on the owners to put the structural framework – both legal and managerial, in place to ensure that the SWF is effectively operated and supervised and as much as possible avoid the pitfalls of inadequate planning and management. It must be borne in mind that, inter alia, the consensus of a wide range of stakeholders, representing a cross-section of the populace transcending political boundaries is paramount for the success of a SWF.

7.1 What should a CBI - SWF in the ECCU look like?

Taking into consideration the positive impacts of SWFs on a country's economy and given that the actuarial reports for a number of social security systems in the ECCU highlight the challenges that demography is likely to pose on the existence of these pension schemes, a SWF for the ECCU may be a useful and viable undertaking. In this light, it becomes necessary to develop a framework for a SWF, which uses CBI flows as its source of funding for investments. Furthermore, it is important to create a roadmap for the establishment of a SWF and an asset allocation framework for its successful operation.

Governance and Associated legislation

The International Working Group of Sovereign Wealth Funds (IWG) was set up to give support and guidance to SWFs, given the emphasis of their relevance in recent difficult financial times in the international economy. To encourage best practice, the organization designed the generally accepted principles and practices (GAPP) based on intense research into the governance structures of existing funds and surveys of these institutions. In this light, it is important to take on board the recommendations of the IWG for the proper set-up of SWFs and sound investment decisions. The three main pillars of any SWF are the legal framework on which it is built or developed, its institutional framework and the framework of its investment portfolio and management of risk. Following the enactment of the appropriate legislation, identifying the main objectives and ensuring that they harmonize with the main macro-economic policies, proper governance is imperative.

Box 1: Proposed Governance Structure for a SWF for the ECCU

Governing bodies	Supervisory bodies

External bodies

Parliament → Auditor General

MoF → External audit

Internal bodies

Executive board → Internal audit

CEO → Compliance unit

Managers

Source: IMF Working Paper 13/231
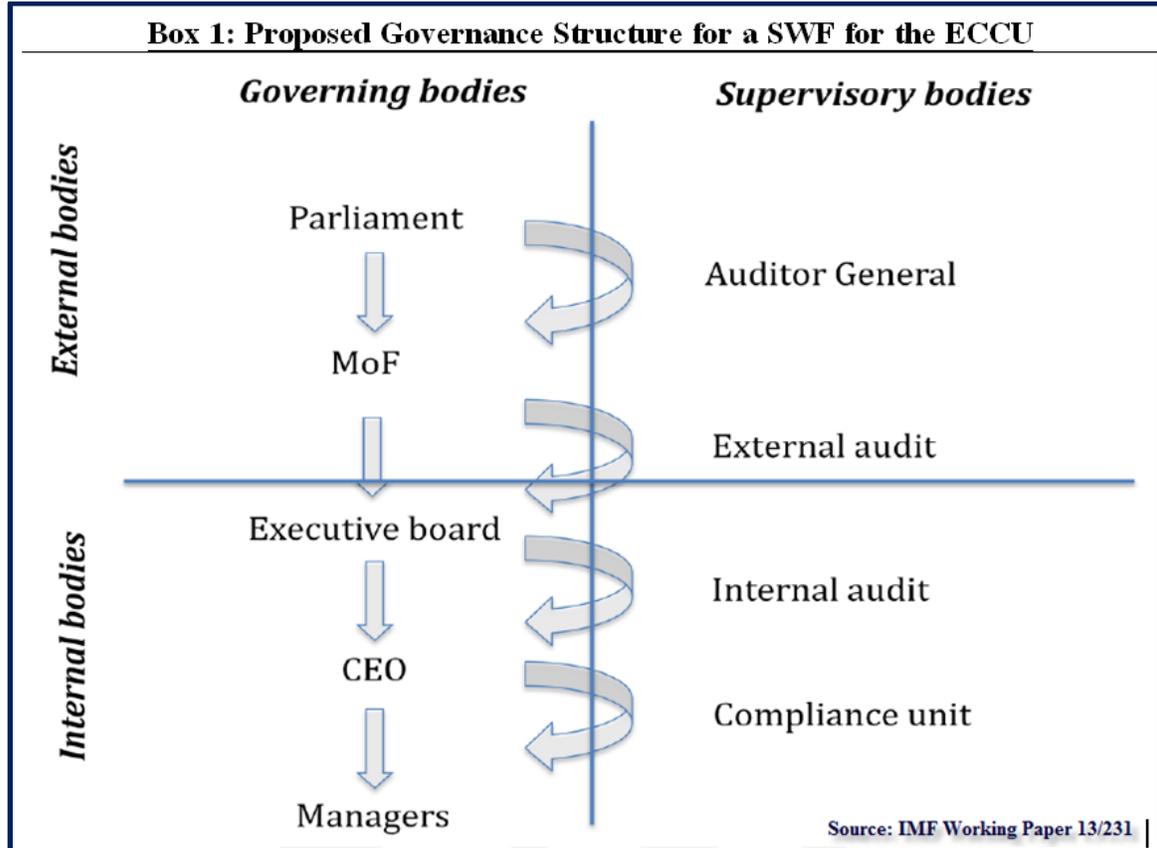
Since the ECCU consists of eight territories, the governance structure will have to include representatives from each country. The main function of Parliament (Box 1) in each territory will be to approve the legislation, hence ensuring that the basis for existence and operation is legal. While the owner of the fund will be the governments, an investment company should be incorporated to act as owner and manager of the SWF. The Executive board, at the top of the management hierarchy, will be responsible for the internal guidelines of the organization and will appoint the CEO. The CEO will oversee all the managers, giving them guidance and instruction on the goals set by the Executive Board.

On the supervisory side, the internal auditing, although accountable to the Executive Board, will assist the board in overseeing the fund's management to ensure that it operates in line with all regulations and procedures. External audits will ensure that

the fund is adequately supervised and that the control mechanisms are up and running efficiently. In most of the ECCU countries, the Public Accounts Committee (PAC) is charged with the responsibilities of examining public audits and question policy makers – ministers, permanent secretaries and other ministry officials. These audits may be conducted, reviewed or commissioned by the Auditor General. In this light, the Auditor General is well poised to commission, conduct or review audits of the SWFs; present these to the PAC when necessary and ensure that reports on the activities of the fund submitted to Parliament are accurate and timely.

Table 4: Roadmap to Establishment of ECCU Sovereign Wealth Fund

Activity	Responsibility	Time Frame
Legislation – SWF Regulation	Attorney(s) General, ECCB LSD, OECS Must be passed by Parliament in all countries	12-24 months
Determination of Model – Manger Model or Investment Company Model	Parliament, Ministers of Finance (Monetary Council), other stakeholders including Central Bank and OECS	9 – 18 months
Establishment of Governance Structure	Parliament, Ministries of Finance, Central Bank, OECS, other	6 - 9 months
Appointment of Executive Board	Cabinets with guidance from OECS and Central Bank	3 - 6 months
CEO[6]	Recruitment Agency appointed and monitored by Executive Board	3-6 months
Managers	Recruitment Agency with input from CEO	3-6 months
Establishment of Compliance Unit – with requisite operational autonomy and manned by adequately qualified and trained personnel	CEO and Managers with assistance and guidance from Executive Board	4-5 months
Appointment of Auditors	Management Team with input from OECS and ECCB	3-5 months

<div align="right">Source: Authors' Estimates</div>

Source of SWF funding

To develop a SWF in the ECCU, member governments actively involved in economic citizenship programmes can provide a percentage of excess revenue to the fund on a

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[6] See Appendix 3: Example of Internal Organizational Chart

quarterly/annual basis. For example, the Federation of St Kitts and Nevis received $414.7m in non-tax revenue for 2014 of which $296.1m was attributed to the CBI. The budgeted amount for the CBI in 2014 was estimated at $100.0m. Presumably, the government of St Kitts and Nevis can allocate a portion of the excess $196.1m to a SWF for investment purposes. A conservative allocation of 15.0 to 20.0 per cent can provide $29.4m to $39.2m to the fund.

The Government of Saint Lucia projects average collections of approximately $70m per annum from its Citizenship by Investment Programme. An allocation of 15 to 20 per cent will contribute approximately $10.5m annually to a SWF. The Government of Antigua and Barbuda and Grenada have seen annual inflows of over $100m from the economic citizenship programme, while the government of Dominica budgeted on average $75m per fiscal year for the last 2 years. The conservative 15 to 20 per cent allocation towards an ECCU wide SWF could range from about $15m to $38m per annum on average from each country with a CBI programme.

Another strategy that could be adopted is one used by the SWF in Ireland, which is supported by the Government, through an allocation of 1.0 per cent of GNP per annum. The ECCU can decide to combine the allocations from the CBI, with a 1.0 per cent (or a percentage agreed on) of GDP from the countries without the CBI so that they too could be included in the SWF. Anguilla, Montserrat and St Vincent and the Grenadines will together contribute approximately $20m yearly. These funds can yield favourable returns if invested using a 50/30/20 split in fixed income, equity and cash as simulated next for St Kitts and Nevis.

Simulated Scenario for Asset Allocation

Typical asset allocations amongst sovereign wealth funds follow an active asset management. That is, a strategy where assets are shifted into and out of the portfolio due to changes in valuation. Based on the literature examined, it can be surmised that a SWF portfolio will be structured to hold fixed income investments, equities,

alternative investments and some cash. Further, an optimal withdrawal rate ought to be devised in the event that the fund is used as a balancing tool for the fiscal budget. Chart 4 demonstrates how the funds would have grown had the government of St Kitts and Nevis applied a similar structure to their CBI flows. The figure was constructed assuming a transfer of 20.0 per cent of total CBI funds collected to the SWF. The funds are then allocated between fixed income instruments, equities and cash at 50.0 per cent, 20.0 per cent and 30.0 per cent respectively (Chart 3). The historical returns of these instruments were then applied against the simulated allocation[7].

Chart 3: Proposed Portfolio Allocation for SWF
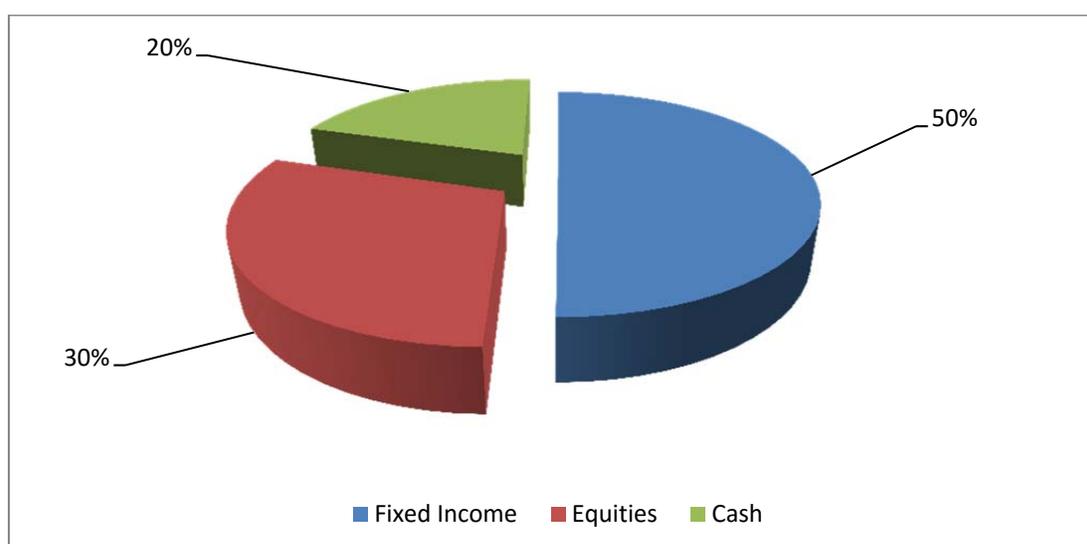
From the 50/20/30 allocation described above, the monthly budget deficit of St Kitts and Nevis, in addition to a 4.0 per cent withdrawal of other funds was deducted. Chart 4 illustrates that between 2006 and 2015 the Federation of St Kitts and Nevis could have accumulated between $100m and $500m in cash, fixed income securities and equity instruments. Note that the strategy does not include alternative investments in areas such as real estate, or associated ventures which are likely to generate additional return and cash.

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[7] The historical returns of the three month T-Bill rate and the Standard and Poor's 500 were used as proxies for fixed income and equity instruments. A minimal rate of 0.25 per cent was applied to holdings of cash over the period 2006 to 2015.

Chart 4: Portfolio Returns in a Simulated Sovereign Wealth Fund
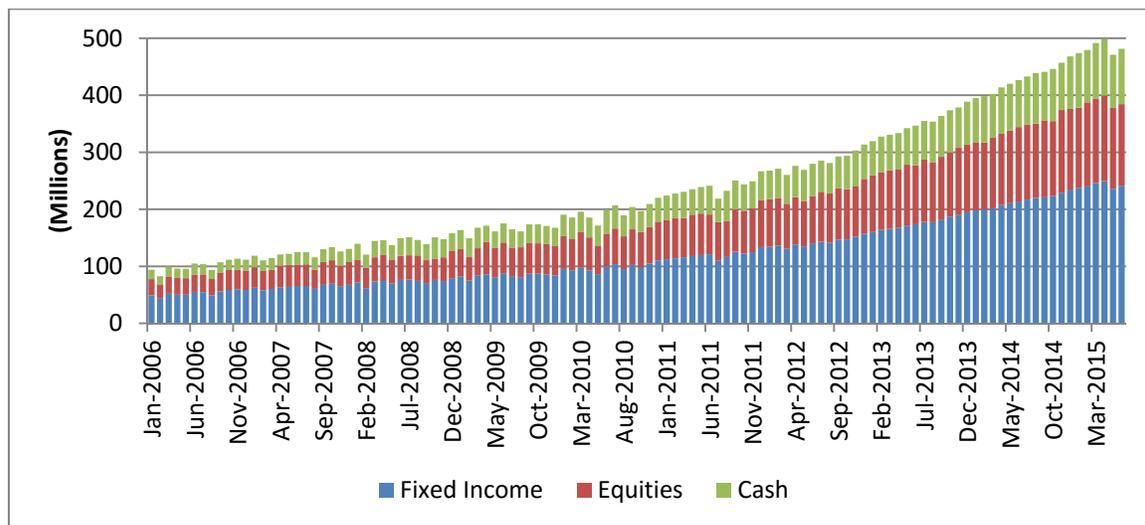
Use of funds

The returns associated with SWFs are used for a variety of purposes and often reflect the initial purpose for which the fund was constructed. SWFs are designed to provide an additional cash flow stream to governments when it is absolutely necessary. Often these flows are used as fiscal balancing tools and may offset budget deficits or increase transfers and subsidies to specific social groups or productive sectors. Evidence of these or similar activities was noted with the SIDF in St Kitts and Nevis. The SIDF has been used to provide grant funding to entrepreneurs in the country, as well as to develop infrastructure.

In Dominica, the funds from the CBI have been used for both public and private sector projects in sectors that the country deemed as developmental priority. These include renovation of schools, hospitals and other public buildings, enhancement of information technology infrastructure and further development of the tourism industry and the agricultural sector. Similar situations obtain for Grenada and Antigua and Barbuda, where infrastructural development has been a major priority for funds from the CBI. The proposal presented for the new CBI for Saint Lucia also includes investment in domestic infrastructure.

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Using the experiences from countries outside the region and what currently obtains in the ECCU countries with a CBI programme, an ECCU SWF can be a useful tool for developing important sectors within the region, proportionate to a country's contribution to the SWF. Further, the fund may be utilized as a fiscal tool, under specific guidelines, in times of economic malaise. Since a SWF is countercyclical in nature, the fund may be used to off-set macroeconomic volatility in the fiscal balances of a country. Countries may draw from the funds to offset fiscal deficits and reduce the impact of an external shock. The region is susceptible to natural disasters, particularly with the adverse impacts of global warming. A buffer immediately following an unfortunate weather occurrence augurs well for impact mitigation and recovery.

It is important to note that seventy-five per cent of the ECCU territories consistently register fiscal balance deficits and more than fifty per cent record annual external deficits. Consequently, saving and investing funds have become a challenge for these countries. Since SWFs are mainly funded by surpluses, it may be prudent to implement a SWF for the ECCU on a phased level. It would begin with St Kitts and Nevis, since the Federation has been realizing surpluses and its CBI programme is very successful. The second phase would gradually incorporate the remaining countries with the CBI programmes, as their fiscal situations turn around. In the final stage, the non-CBI countries will be taken on board. Also, the fund could start with short term investments to satisfy government liquidity needs and gradually develop into a full-fledged SWF for long term purposes.

8.0   Conclusions and Recommendations

Based on the foregoing analyses, some very useful deductions can be postulated. Foremost is that there are a number of benefits to be derived from establishing a SWF for the ECCU. Given the region's vulnerability to natural disasters and other external shocks, which ultimately impact fiscal operations and growth objectives, a SWF would serve as a significant buffer in these critical times. The history of the region has shown

that annually, at least one of the territories is adversely affected by an exogenous shock, with consequent fiscal and growth setbacks. The region's policy makers need to be a bit more proactive and put additional measures in place, which allow for immediate response and also to mitigate the negative impact of these occurrences. A sovereign wealth fund, according to the literature, has proven to be a very appropriate medium for this level of fiscal consolidation.

Since SWFs vary based mainly on their stated objectives, management and investment strategy, it is therefore important that those are clearly defined from the onset. The important issues have to be addressed prior to the establishment of a fund. What is the purpose of the fund? Who will manage it and how will the investment strategy be determined? Additionally, it is imperative that the management framework for the SWF be enshrined and clearly stated in the legislation. Hence, before the establishment of a SWF, the proper legislation must be developed and passed by Parliament to ensure that the financial statements are published and that the assets' size and portfolios are known. An appropriate body, responsible for compliance should be appointed to monitor the funds' activities to ensure that the managers of these SWFs adhere to the regulations. Making the relevant information on a SWF available to the public is likely to reduce the level of resistance towards that fund and combat the current challenge of non-disclosure.

The main stakeholders should be involved in the discussions about the SWF so that best practice can be used in the setting up, management and continuous monitoring of these funds. Due to their nature, political interference may not be eliminated but governments should avoid using these funds as a tool for geopolitical advancement. The International Working Group of SWFs advocates the use of the generally accepted principles and practices (GAPP) of SWFs in understanding the objectives, general management and operative functions of a SWF (Appendix 3). Although adopting the GAPP principles is voluntary, careful consideration should be given to their implementation when operationalizing a SWF.

SWFs have a track record of being used for fiscal consolidation and stability, which can augur well for the state of the region at this juncture. The regional focus continues to be on, inter alia; fiscal reform programmes that are expected to translate into more effective debt management and contribute to overall economic growth. A SWF fuelled largely by the excess flows from the citizenship by investment programmes, may be extremely useful in insulating the economy when the inflows from the CBI are not forthcoming. As the region has been warned by experts, there will come a time when due to competition, changes in the global economy or otherwise, the CBI programmes may not be able to yield the anticipated flows for budgetary support. The region needs to prepare and not be caught unaware as serious fiscal imbalances are likely. Establishing a regional SWF is a very proactive step towards a sustainable long term economic strategy.

Appendices
Appendix 1 - Table 1: Sovereign Wealth Funds in Selected Countries

Country	Size of Fund (billions)	Year Established	Origin	Linaburg-Maduell Transparency Index	Main Components
Norway (Government Pension Fund Global)	$882.0	1990	Oil	10	Fixed Income, Equity, Real Estate Investments
UAE 1.Abu Dhabi Investment Authority	$773.0	1976	Oil	6	Fixed Income, Equity, Real Estate, Other Infrastructure Investments
2.Investment Corporation of Dubai	$175.2	2006	Non-com	5	
3.Abu Dhabi Investment Council	$90	2007	Oil	n/a	
Saudi Arabia (SAMA Foreign Holdings)	$757.2	n/a	Oil	4	Fixed Income, Equity, Alternative Investments
China 1.China Investment Corporation	$652.7	2007	Non-com	8	Fixed Income, Equity, Infrastructure Investments
2.SAFE Investment Company	$547	1997	Non-com	4	
3.Hong Kong Monetary Authority Investment Portfolio	$400.2	1993	Non-com	8	
4.National Social Security Fund	$236	2000	Non-com	5	
Kuwait (Kuwait Investment Authority)	$548.0	1953	Oil	6	Fixed Income, Equity Investments
Singapore 1.Govt of Singapore Investment Corp	$320.0	1981	Non-com	6	Fixed Income, Equity Investments
2.Temasek Holdings	$177	1974	Non-com	10	
Australia (Australian Future Fund	$95	2006	Non-com	10	
Russia (National Welfare Fund)	$79.9	2008	Oil	5	
Iran (National Development Fund)	$62	2011	Oil & Gas	5	
Canada (Alberta's Heritage Fund)	$17.5	1976	Oil	9	
USA 1.Texas Permanent University Fund	$17.2	1876	Oil & Gas	n/a	
2.Permanent Wyoming Mineral Trust Fund	$5.6	1974	Minerals	9	
Chile (Social Economic Stabilization Fund)	$15.2	2007	Copper	10	
Trinidad and Tobago (Heritage and Stabilization Fund)	$5.5	2000	Oil	8	Fixed Income, Equity Investment
Brazil Sovereign Fund	$5.3	2008	Non-com	9	

Sources: Sovereign Wealth Fund Institute; (Non-com – Non-commodity)

Appendix 2: SWF Transparency Index

Linaburg-Maduell Transparency Index

The Linaburg-Maduell Transparency Index was developed at the Sovereign Wealth Fund Institute by Carl Linaburg and Michael Maduell.

The Linaburg-Maduell transparency index is a method of rating transparency in respect to sovereign wealth funds. Pertaining to government-owned investment vehicles, where there have been concerns of unethical agendas, calls have been made to the larger "opaque" or non-transparent funds to show their intentions.

This index of rating transparency was developed in 2008 and has since been used worldwide, by sovereign wealth funds in their official annual reports and statements, as the global standard benchmark.

This index is based off ten essential principles that depict sovereign wealth fund transparency to the public. **The following principles each add one point of transparency to the index rating.** The index is an ongoing project of the Sovereign Wealth Fund Institute. The minimum rating a fund can receive is a 1, however, the Sovereign Wealth Fund Institute recommends a minimum rating of 8 in order to claim adequate transparency. Transparency ratings may change as funds release additional information. There are different levels of depth in regards to each principle, judgment of these principles is left to the discretion of the Sovereign Wealth Fund Institute.

Point	Principles of the Linaburg-Maduell Transparency Index
+1	Fund provides history including reason for creation, origins of wealth, and government ownership structure
+1	Fund provides up-to-date independently audited annual reports
+1	Fund provides ownership percentage of company holdings, and geographic locations of holdings
+1	Fund provides total portfolio market value, returns, and management compensation
+1	Fund provides guidelines in reference to ethical standards, investment policies, and enforcer of guidelines
+1	Fund provides clear strategies and objectives
+1	If applicable, the fund clearly identifies subsidiaries and contact information
+1	If applicable, the fund identifies external managers
+1	Fund manages its own web site
+1	Fund provides main office location address and contact information such as telephone and fax

Appendix 3: Sample Internal Organizational Chart

Source: IMF
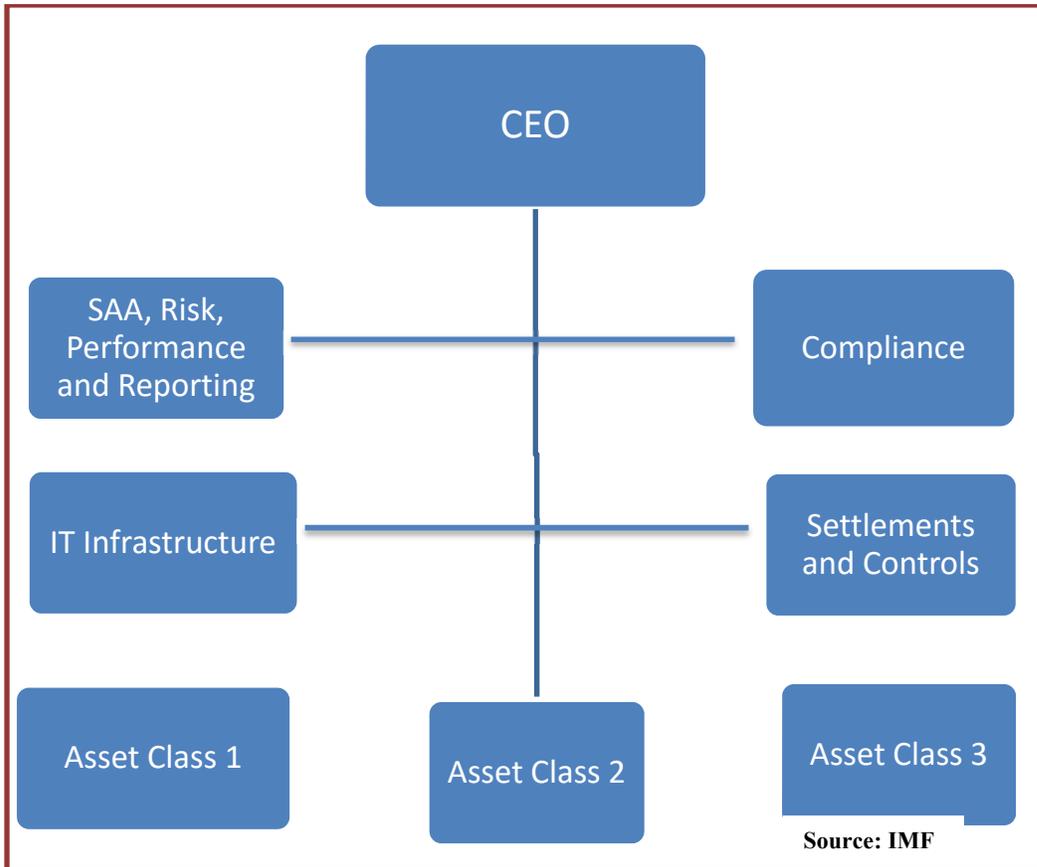
Appendix 4: Generally Accepted Principles and Practices (GAPP) – Santiago Principles

GAPP 1. Principle: The legal framework for the SWF should be sound and support its effective operation and the achievement of its stated objective(s).

> GAPP 1.1. Subprinciple - The legal framework for the SWF should ensure legal soundness of the SWF and its transactions.
>
> GAPP 1.2. Subprinciple - The key features of the SWF's legal basis and structure, as well as the legal relationship between the SWF and other state bodies, should be publicly disclosed.

GAPP 2. Principle: The policy purpose of the SWF should be clearly defined and publicly disclosed.

GAPP 3. Principle: Where the SWF's activities have significant direct domestic macroeconomic implications, those activities should be closely coordinated with the domestic fiscal and monetary authorities, so as to ensure consistency with the overall macroeconomic policies.

GAPP 4. Principle: There should be clear and publicly disclosed policies, rules, procedures, or arrangements in relation to the SWF's general approach to funding, withdrawal, and spending operations.

> GAPP 4.1. Subprinciple - The source of SWF funding should be publicly disclosed.
>
> GAPP 4.2. Subprinciple - The general approach to withdrawals from the SWF and spending on behalf of the government should be publicly disclosed.

GAPP 5. Principle: The relevant statistical data pertaining to the SWF should be reported on a timely basis to the owner, or as otherwise required, for inclusion where appropriate in macroeconomic data sets.

GAPP 6. Principle: The governance framework for the SWF should be sound and establish a clear and effective division of roles and responsibilities in order to facilitate accountability and operational independence in the management of the SWF to pursue its objectives.

GAPP 7. Principle: The owner should set the objectives of the SWF, appoint the members of its governing body(ies) in accordance with clearly defined procedures, and exercise oversight over the SWF's operations.

GAPP 8. Principle: The governing body(ies) should act in the best interests of the SWF, and have a clear mandate and adequate authority and competency to carry out its functions.

GAPP 9. Principle: The operational management of the SWF should implement the SWF's strategies in an independent manner and in accordance with clearly defined responsibilities.

GAPP 10. Principle: The accountability framework for the SWF's operations should be clearly defined in the relevant legislation, charter, other constitutive documents, or management agreement.

GAPP 11. Principle: An annual report and accompanying financial statements on the SWF's operations and performance should be prepared in a timely fashion and in accordance with recognized international or national accounting standards in a consistent manner.

GAPP 12. Principle: The SWF's operations and financial statements should be audited annually in accordance with recognized international or national auditing standards in a consistent manner.

GAPP 13. Principle: Professional and ethical standards should be clearly defined and made known to the members of the SWF's governing body(ies), management, and staff.

GAPP 14. Principle: Dealing with third parties for the purpose of the SWF's operational management should be based on economic and financial grounds, and follow clear rules and procedures.

GAPP 15. Principle: SWF operations and activities in host countries should be conducted in compliance with all applicable regulatory and disclosure requirements of the countries in which they operate.

GAPP 16. Principle: The governance framework and objectives, as well as the manner in which the SWF's management is operationally independent from the owner, should be publicly disclosed.

GAPP 17. Principle: Relevant financial information regarding the SWF should be publicly disclosed to demonstrate its economic and financial orientation, so as to contribute to stability in international financial markets and enhance trust in recipient countries.

GAPP 18. Principle: The SWF's investment policy should be clear and consistent with its defined objectives, risk tolerance, and investment strategy, as set by the owner or the governing body(ies), and be based on sound portfolio management principles.

> GAPP 18.1. Subprinciple - The investment policy should guide the SWF's financial risk exposures and the possible use of leverage.
>
> GAPP 18.2. Subprinciple - The investment policy should address the extent to which internal and/or external investment managers are used, the range of their activities and authority, and the process by which they are selected and their performance monitored.

GAPP 18.3. Subprinciple - A description of the investment policy of the SWF should be publicly disclosed.

GAPP 19. Principle: The SWF's investment decisions should aim to maximize risk-adjusted financial returns in a manner consistent with its investment policy, and based on economic and financial grounds.

GAPP 19.1. Subprinciple

If investment decisions are subject to other than economic and financial considerations, these should be clearly set out in the investment policy and be publicly disclosed.

GAPP 19.2. Subprinciple.

The management of an SWF's assets should be consistent with what is generally accepted as sound asset management principles.

GAPP 20. Principle: The SWF should not seek or take advantage of privileged information or inappropriate influence by the broader government in competing with private entities.

GAPP 21. Principle: SWFs view shareholder ownership rights as a fundamental element of their equity investments' value. If an SWF chooses to exercise its ownership rights, it should do so in a manner that is consistent with its investment policy and protects the financial value of its investments. The SWF should publicly disclose its general approach to voting securities of listed entities, including the key factors guiding its exercise of ownership rights.

GAPP 22. Principle: The SWF should have a framework that identifies, assesses, and manages the risks of its operations.

GAPP 22.1. Subprinciple

The risk management framework should include reliable information and timely reporting systems, which should enable the adequate monitoring and management of relevant risks within acceptable parameters and levels, control and incentive mechanisms, codes of conduct, business continuity planning, and an independent audit function.

GAPP 22.2. Subprinciple

The general approach to the SWF's risk management framework should be publicly disclosed.

GAPP 23. Principle: The assets and investment performance (absolute and relative to benchmarks, if any) of the SWF should be measured and reported to the owner according to clearly defined principles or standards.

GAPP 24. Principle: A process of regular review of the implementation of the GAPP should be engaged in by or on behalf of the SWF.

Source: http://www.iw-swf.org/pubs

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Risk and Capital Adequacy: A preliminary examination of ECCU Commercial Banks

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Abstract

Following the global financial crisis, the ECCU was subjected to its own dose of the economic malaise which affected advanced economies. As a result, several commercial banks within the economic union were threatened and interventions became necessary. Questions as to the risky behaviour of these commercial banks were raised. Consequently, the ECCU through the implementation of new regulation sought to increase bank capital. This article is a preliminary examination of the relationship between excess capital adequacy ratios and commercial bank risk in the Eastern Caribbean Currency Union. The paper uses data from 1996 to 2015 for indigenous banks and incorporates a panel fixed effects approach in determining this behaviour.

JEL classification: G21, G32, E58

Keywords: Risk, Capital Adequacy Ratios, Banks, ECCB

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I.0   Introduction

Assessing commercial banking behaviour vis à vis the banks' capital structure and changes in capital levels is not a new idea. The literature has shown that bank capital has an essential role to play in the creation of liquidity, credit, the enhancement of stability, and determining the banks' clientele (Diamond and Rajan 2000). Given this and the potential risks to bank capital, the Basel Committee on Banking Regulation and Supervisory Practices in 1988 adopted a risk-based capital standard[9]. The standards effectively made commercial banks' capital requirements "sensitive to the risk held in a bank's portfolio of assets and off balance sheet activities (Jacques and Nigro 1997)." The 1988 capital standards also specify the risk weights which are applicable to bank assets and provide definitions for what regulators have come to know as tier 1 and tier 2 capital. Further, the Basel I standards consider only credit risk and provide *rough* distinctions for different types of bank assets. These standards have since evolved to match the evolution of the financial system and the complexities in the banking industry (Tanda 2015). The implementation of Basel and its various classifications has not been smooth and many territories have not fully adopted all of these regulatory requirements.

The evolution of any financial system brings with it increased potential sources of systemic risk. These risks along with exogenous shocks can in the right combination present challenges. Most recently, the ECCU has faced several challenges mainly on account of exogenous shocks to the broad financial system. The first was the 9/11 terror attacks which although affecting the region in a limited way, rewrote the approach to foreign policy and access to financing in some instances. Secondly, the region continues to face on regular basis hurricanes and other natural disasters. Thirdly and perhaps most preeminent of the shocks was the global financial crisis, which was precipitated by the run on Northern Rock. The global financial crisis was followed by monetary policy in industrialised economies which was at the time highly experimental (quantitative easing).

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[9] Although, the ECCU currently uses the Basel I as established in 1988, the central bank is seeking to implement the Basel II framework within the region.

The macro-economy of the region was affected by these exogenous shocks, and consequently, commercial banks with exposures closely aligned to foreign markets (especially through tourism) saw an unwinding of credit over the past few years. The result has been a downturn in the ECCU financial cycle as the stock of credit extended declined significantly. A financial accelerator effect ensued as the downturn in credit coincided with contractions in GDP (Bernanke, Gertler and Gilchrist 1994)[10]. This decline in credit also coincided with increased deposits, reduction in risk exposures through write-downs and paradoxically limited loan extensions.

As commercial banks in the ECCU continued to face both exogenous and endogenous pressure s, the ECCB responded through interventions in several commercial banks. These interventions were meant to stabilise an already fragile financial system. Additionally, new policies, such as the Banking Act 2015, were drafted to mitigate risks within the banking sector. The adequacy of capital for banks was a key issue, and as such, the ECCB sought to increase the levels of capital required. This recapitalisation process plans to make existing banks stronger (through increased capital). In addition to this the new Banking Act will: (1) improve regulatory oversight by the ECCB and (2) enhance corporate governance standards within the economic union.

A bank's capital structure affects several of its functions including: (a) its liquidity creation function and (b) its credit creation functions as well as (c) its overall stability as a lending institution. The global financial crisis has shown that recapitalisation can impact both the real sector and the banking sector with associated feedback effects. Banks in response to increased regulatory oversight, especially following financial crises, are likely to adjust their risk taking behaviour in the face of increased capital requirements.

Within the ECCU several commercial banks recorded decreases in their capital adequacy ratios below the prudential minimum of eight (8.0) per cent while most have maintained levels

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[10] The credit cycle was defined by the Hodrick-Prescott filter application to the ratio of credit to GDP in the ECCU. A lambda of 400,000 was applied to this data set consistent with the methodology of (Anundsen, et al., 2014). Quarterly GDP was estimated using the method established by (Chow & An-loh, 1971) in EVIEWS.

considerably above that minimum (excess capital). In addition to changes in the capital requirements, adjustments were also made to risk-weights of assets in investment portfolios. Thus, some instruments due to their susceptibility to shocks and/or default have been reweighted to reflect these enhanced risks. What then can we gain from this? One of the core questions for ECCU policy makers is the likely behaviour to be adopted by commercial banks in an environment where monetary policy is limited, populations are smaller, and government plays a significant role in the affairs of the economy. From a macro-prudential perspective policy makers are able to distinguish the forest from the trees, instead of missing both the forest and trees as was evident in the global financial crisis of 2007/2008.

This paper contributes to the literature by examining the relationship between risk and excess capital within commercial banks. It applies these measures to commercial banks within the Eastern Caribbean Currency Union (a monetary union) and shows that there is a positive and significant relationship between these two variables. Moreover, by building the model slowly, the author reveals additional variables which may influence risk in the absence of a model containing excess capital. Further, the author aims to illuminate the regulatory landscape by providing the policy makers at the ECCB with a preliminary examination of the risky behaviour exhibited by commercial banks via changes in their excess capital. The research is intended to inform the decisions which are taken regarding supervision of commercial banks in the ECCU and expand the literature in the area. The rest of this paper is organised as follows: Section 2.0 will provide readers with an overview of the literature; Section 3.0 will evaluate the data and methodology used in the analysis; Section 4.0 contains the results and analysis of the methodology and data; and Section 5.0 concludes the piece.

2.0   Literature Review

The minimum capital requirements as implemented under the Basel Capital Accord (currently at Basel III) have evolved since 1988. The capital requirements were implemented as a uniformed approach to capital adequacy calculations thereby strengthening financial stability (Alkadamani 2015). Myers (1984) and Diamond and Rajan (2000) expounded a great deal on bank capital theory, while Shrieves and Dahl (1992) provided a novel approach to evaluating

the relationship between capital and risk. The theory of capital structure suggests that as a precaution to raising equity capital on short notice banks may opt to retain earnings (Myers 1984). Additionally, Diamond and Rajan (2000) and Gambacorta and Mistrulli (2004) found that a bank's capital structure can affect liquidity, credit creation and stability, and determine the bank's clientele. For example, lending is influenced by a bank's capital accumulation through the business cycle (Gambacorta and Mistrulli 2004). Hence, adequately capitalized banks are in a better position to absorb output shocks since fewer adjustments are necessary during economic downturns. Additionally, the authors conclude that there is a negative relationship between excess capital and GDP. Thus, well capitalized banks are less responsive to output shocks since their profits are less sensitive to the business cycle through changes in their portfolio (ex-ante) (Kwan and Eisenbeis, 1997) as cited by (Gambacorta and Mistrulli 2004). Conversely, well capitalized banks may opt to reduce loan growth following an increase in capital (Bridges, et al. 2014).

Additional inspection of the literature revealed that banks hold capital for a variety of reasons such as: tax obligations, the probability of financial distress, the acquisition of debt, creditors, shareholders, and the nature of information collected on depositors during transactions (Berge, Herring and Szego 1995). This capital is generally balanced against assets and is designed to provide a "reasonable margin of protection against losses" (Cooke 1949). In the early 1990s, US banks began to hold capital in excess of regulatory minimums (Berger, et al. 2008). This high retention of capital may have been associated with the retention of earnings, strategies towards acquisition and economic capital (Myers 1984) as cited by (Berger, et al. 2008).

Berger et. al, (2008) argues that banks may aim for higher capital ratios during recessions to mitigate insolvency risk. This can lead to a restriction in the extension of credit and potentially exacerbate the recession (financial accelerator effect). Conversely, a bank may aim for lower capital ratios during recessions to maintain lending relationships, but increasing the probability of default. Alternatively, larger institutions may actively target high capital ratios as an opportunistic approach to market conditions. Berger et. al, (2008) concludes that banks actively manage their capital ratios using share repurchases.

Low capital ratios or undercapitalisation can be indicative of institutions which are engaging in unsound practices and may warrant further investigation. In the case of undercapitalisation within a banking system, overall capital is augmented through government intervention. There has been some arguments, however, that due to the high costs associated with holding capital, managers may hold less bank capital than is required by regulation (Cooke 1949) (Rime 2001). Equally, higher capital ratios have additional implications for policy. Banks tend to increase capital ratios during recessions to mitigate insolvency risk (Berger, et al., 2008). This shift in capital ratios leads to a restriction in credit which can then exacerbate the recession.

Banks with lower capital adequacy ratios are therefore expected to be poor stewards of borrowed funds and so will attract fewer deposits than well capitalised institutions (Ghosh and Das, Market Discipline, Capital Adequacy and Bank Behaviour 2005). Thus, when a bank selects its preferred level of capital, the more its capital increases, the greater its attractiveness vis à vis deposits relative to competing banks (Diamond and Rajan 2000) (Ghosh and Das, Market Discipline, Capital Adequacy and Bank Behaviour 2005).

The changes within the capital structure of commercial banks are also important. Ghosh, et al. (2004) conducted empirical tests on state-owned commercial banks in India and examined bank specific variables such as the risk adjusted capital asset ratio (CAR). Bank capital ratios in this regard may be adjusted through one of three mechanisms, namely "an increase in capital, a reduction in the risky asset profile and/or a decline in total assets (Ghosh, et al., 2004)." The aforementioned variables are themselves affected by a range of factors. Further, these adjustments to the structure of a banks' capital may be applied to adequately capitalised and undercapitalised commercial banks. And, in the absence of regulation or a regulatory body, risk taking becomes self-constrained (managerial risk-aversion) and capital is balanced against assets (Ghosh, Nachane and Ray, Behaviour of Bank Capital: Issues and Evidence from India 2004).

Adjustments to capital may also affect asset portfolios and lead to reduced lending in an effort to achieve higher levels of capital, given the implementation of new capital requirements

(Bank for International Settlements 1999). Moreover, changes to capital requirements can affect the profitability of financial institutions Bank for International Settlements (1999) since increasing the levels of capital lead to higher funding costs.

Finally, the relationship between bank capital and risk has also been evaluated from a static panel approach. A study by Moussa (2015) evaluating a panel of 18 banks in Tunisia found that there was a negative relationship between capital and bank risk. This result is indicative of risk aversion in commercial banks and incentives to raise capital in Tunisia. Positive relationships were highlighted between risk and total loans and advances while negative relationships were recorded between risk and return on assets and capital.

Commercial banks in the ECCU have been operated and supervised under the Basel I framework of 1988. This structure's central focus has been on credit risk with associated country transfer risks. The schema also allows for supervisory authorities to include other types of risk. Within the context of empirical research, the definition of risk has been obscure and even more difficult to determine amongst banks whose stocks may not be publicly or even frequently traded (Shrieves and Dahl 1992). Some studies such as (Moussa, 2015) have sought to create risk profiles for commercial banks. Moussa (2015) determined risk to be a combination of a standard deviation of return on assets, expectation of return on assets and a ratio of equity to total assets (standardized z score). Conversely, Shrieves & Dahl (1992) developed a composite index of weighted financial instruments which was then divided by total assets (risk weighted assets).

Rime (2001) in a similar vein as Shrieves & Dahl (1992) and Jacques & Nigro (1997) used the ratio of risk weighted assets to total assets to capture the timeliness and risk taking of commercial banks. As Heid, Porath and Stolz (2004) suggests, 'risk-weighted assets' is a variable which can be easily adjusted by the commercial bank it may not be the correct measure. Avery and Berger as cited in Heid, et al. (2004) noted that the measure of risk exhibited by risk weighted assets under the Basel I regime may be weakly correlated with the economic risk of the asset. Moreover, although this approach is easily garnered from the data, it creates issues associated with endogeneity thereby rendering a panel regression approach

potentially spurious. Further, the issue of riskiness encompasses not only on-balance sheet items but off-balance sheet exposure since banks may adjust their risk profile as changes occur in these areas (Ghosh, Nachane and Ray, 2004). Measures of this 'balance sheet' approach to risk outlined by Ghosh, et al. (2004) were the ratio of loans to total assets, the ratio of investments to total assets, and a ratio of off-balance sheet exposure to total assets.

However, risk may not be limited to ratios associated with investments or loans. Research by (Rahman, et al., 2015) indicates that bank credit risk and overall risk is positively related to bank size and profitability while liquidity is found to be statistically significant for credit risk in commercial banks but not overall risk. Bischel and Blum (2004) using the standardized z score approach and building on Black-Scholes (1973) and Merton (1974) modelled risk by using the value of limited liabilities compounded annually at the risk free rate and factored into the Black-Scholes option pricing formula along with the market value of equity (call option approach). The authors' results suggest a positive correlation between levels of capital and risk in commercial banks.

Although the literature points to varied approaches to measuring risk, the factors affecting the variable remain relatively certain. Kochubey and Kowlczyk (2014) evaluate the relationship between liquidity, capital and risk. Defining liquidity as the ratio of liquid assets to total assets, Kochubey and Kowlczyk (2014) reveal that adjustments to liquidity are likely to have a negative impact on risk and capital alterations. Ergo, having greater amounts of liquid assets on a bank's balance sheet may lead to *safe* portfolios.

From the literature reviewed, we see the approaches which can be used for evaluating ECCU banks. Thus, this piece will make use of the measure set by Moussa (2015) and Bischel and Blum (2004) which uses a standardized Z score or the number of standard deviations that a bank is away from its default point[11]. By using this technique, the endogeneity associated with other variables such as risk-weighted assets is reduced significantly. In addition to this, risk will comprise of on-balance sheet line items only.

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[11] The $|z|$ is also called the 'distance to default. The value is related to the default probability of a bank in the ECCU. The higher the probability of default, the higher the value of 'z'

3.0 Data and Methodology

3.1 The Data

In this section the sources of data for variables included within the regression model along with a preliminary examination of the data will be undertaken. The empirical analysis contained in this paper is based on a panel of sixteen (16) commercial banks in the ECCU (14 indigenous banks and 2 foreign branch banks). This quarterly data was compiled over the period March 1996 to June 2015. Within the ECCU, all 14 indigenous banks are required to maintain adequate levels of capital. Foreign branch banks on the other hand typically maintain a pooled capital arrangement with their global headquarters. Further, foreign branch banks which are included in the test are locally incorporated and maintain and report bank capital.

Using a scatter-plot diagram the author shows the relationship between the size of commercial banks in the ECCU and the nature of their business (figure 1). Of the 16 banks included within the paper and as at the end of the sample period (June 2015) only two have a business mix that is concentrated towards investments while the other 14 banks maintain a portfolio structured towards loans and advances. The larger of these two institutions is also the largest commercial bank within the sample set with an estimated size of $3.6b XCD and 82.7 per cent of its portfolio concentrated in investments while the smaller has an asset base of $268.1m XCD and 75.0 per cent of its portfolio concentrated away from loans and advances. The remaining 14 banks within the sample set have developed a business mix concentrated in loans and advances. This mix ranges from 46.7 per cent to an upper limit of 83.6 per cent. The smallest of these 14 banks has an asset base of $140.7m XCD while the largest maintains an asset base of approximately, $2.1b XCD.

Figure1: Commercial Banking in the ECCU (June 2015)
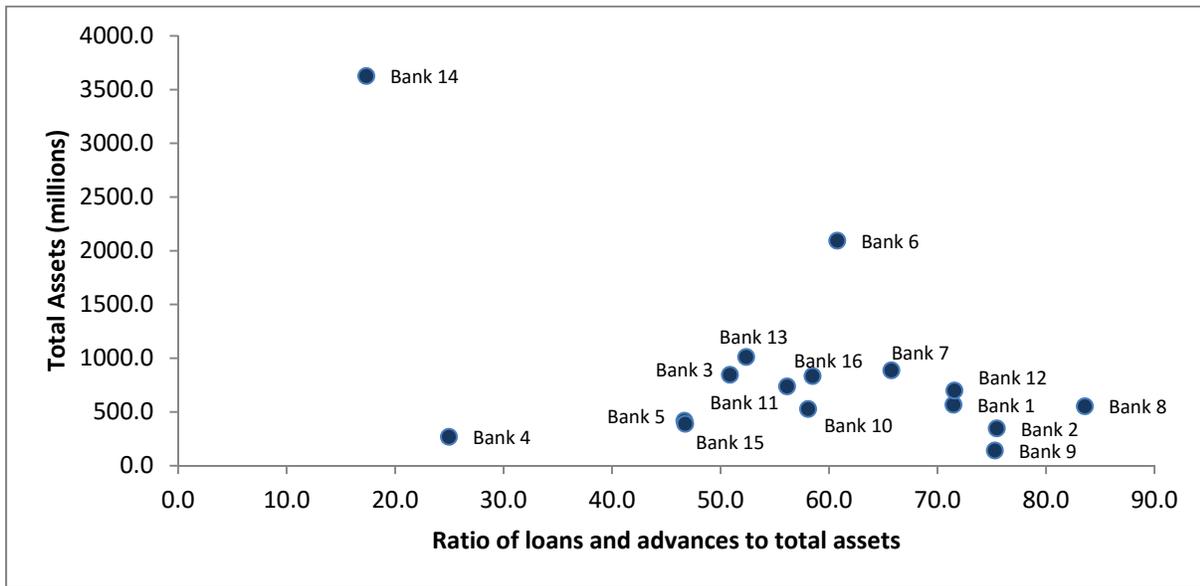
The cost of funds – defined by the weighted average deposit rate – in the ECCU was estimated at 2.3 per cent at 30 June 2015. This interest rate is expected to decline further given that the minimum savings deposit rate in the ECCU was reduced to 2.0 per cent from 3.0 per cent in May 2015. An examination of the cost of funds for commercial banks in this sample shows that banks with higher levels of deposits (close to or above $1.0b XCD), the cost of funds are approximately 2.4 per cent (figure 2). There are outliers to this exercise of course. Bank 13 with deposits over $800.0m XCD has the lowest estimated cost of funds within the ECCU, 1.2 per cent, while bank 15 which has one of the lowest deposit holdings at $225.0m has a high weighted average deposit rate of 4.4 per cent.

Figure 2: Cost of Funds amongst ECCU Commercial Banks
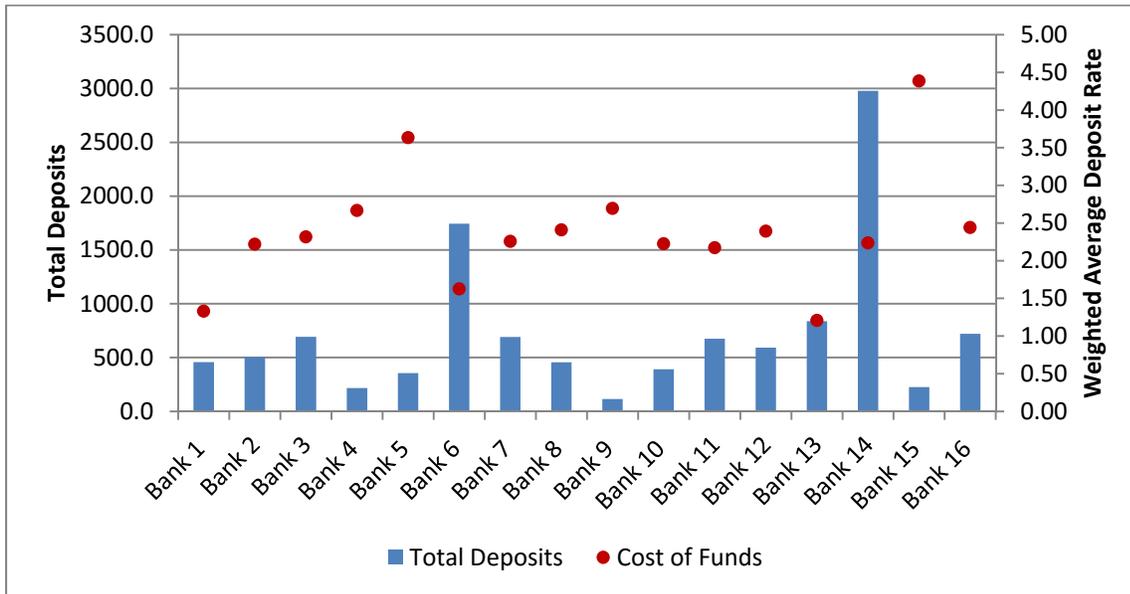
Source 2: Eastern Caribbean Central Bank

Another key to our research is the measure of risk for each commercial bank in the ECCU. Risky behaviour is thought to exhibit itself through the ratio of risk weighted assets to total assets. Thus the change in this ratio is highlighted as an increase or corresponding decrease in risk. Despite the importance of this variable, its inclusion into the system is expected to increase the correlation between variables, given its relationship to the Capital Adequacy Ratio. Thus, the author derives a standardized Z score for measuring risk defined as;

Eq 1.

$$Z = \frac{(XSCAR + \mu ROA)}{(\sigma ROA)}$$

Where *Z* is equivalent to *Risk*, *ROA* is defined as the return on assets and μ and σ are the mean and standard deviation respectively.

A simple plot of the standardized *Z* score (risk) and excess CAR provides us with some information on bank behaviour from the sample set. We see that banks with higher levels of excess CAR are likely to assume a higher *Z* score. Further, banks which have accumulated

excess CAR above a threshold of 15.0 per cent receive a higher risk score on average than banks which fall below that threshold. The exception to this has been Bank 15, which received a lower risk score although having a high excess CAR.

Figure 3: Excess CAR and Risk
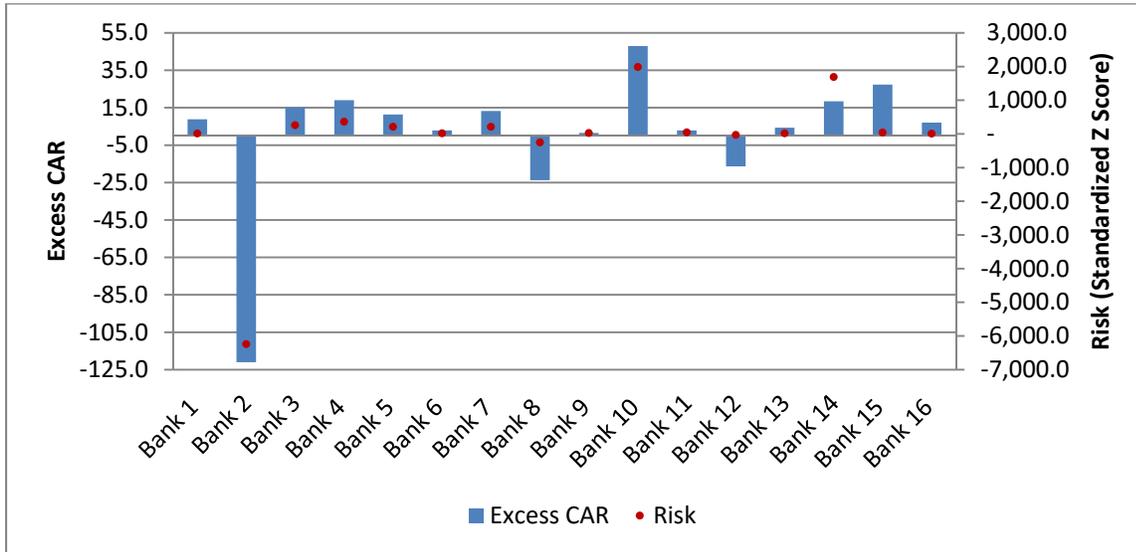
Source 3: Eastern Caribbean Central Bank

3.2   The Model

The model being used in this study estimates the relationship between risk and excess CAR amongst commercial banks. The model is defined initially in its panel regression form and makes use of fixed effects in its estimation.[12]

Eq 2. $Y_{it} = X\beta_{it}^1 + C_i + \varepsilon_{it}$

To examine the relationship between risk and excess CAR we build a model based on the specifications described by Shrieves & Dahl (1992) and Rime (2001), and Moussa (2015). These models provide an indication as to the relationship between the variables of interest to the author.

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[12] Following a Hausman specification test, the model will be estimated using either fixed or random effects.

We assume a basic linear relationship such that:

Eq 3.

$$Risk = f(stewardship, profitability, liquidity, business\ mix, excess\ CAR, Size, GDP)$$

where the variable *Risk* is the standardized Z score. The author assumes that in estimating risk, several factors will be considered. The first is a managerial element, defined by the variable *stewardship* and interpreted as the ratio of operating expenses to gross income. The second element is bank profitability as given by the return on assets (the ratio of net income to total assets). Thirdly, the commercial bank may engage in riskier activity given its liquidity levels, defined as the ratio of cash to total assets. Fourth, a distinction between banks whose core focus is the provision of loans and those whose core focus may be investments and other undertakings is made. This distinction is achieved through the use of the ratio of total loans and advances to total assets and is illustrated above (figure 1). The fifth factor considered in this equation is the level of excess CAR.

The use of excess CAR is a key tenet of this article as it assumes that commercial banks are likely to respond to not only the prudential minimum held but adjust risk based on the excess capital held. This *excess* is defined as the actual CAR less the CAR prudential minimum (8.0 per cent). The cost of funds held (deposits) are also considered in this estimation. Following on from this, the author considers two variables closely related to size, which are total assets and total deposits. Finally, macroeconomic considerations are added. These are reflected in the quarterly interpolation of real GDP. Table 1 shows the descriptive statistics of several variables used in the study along with the total number of observations used in the study. Table 2 below provides additional information on the expected signs associated with each of these variables.

Table 1: Summary Statistics

	Mean	Median	Std. Dev.	Observations
Risk	212.28	81.12	979.69	1149
Operating Expenses to Gross Income	45.94	39.25	122.88	1150
Cash to Total Assets	1.23	1.10	0.66	1150
Total Loans and Advances to Total Assets	58.24	61.15	14.79	1150
Excess CAR	10.99	8.99	16.76	1150
Deposits to Total Assets	79.35	80.64	9.67	1150
Total Assets	$549,175.00	$406,735.00	$514,385.90	1150
Real GDP	425.18	444.36	250.61	1248

Source 4: Eastern Caribbean Central Bank, Author's Estimates

Table 2: Regression Variables and Definitions

Determinants of Risk in ECCU Commercial Banks		
Variable	**Expected Sign**	**Interpretation**
Bank specific variables		
Stewardship (Operating Expenses over Gross income)	+	This variable reflects management's ability to minimize expenses relative to gross income.
Profitability (ROA)	+	The variable return on assets is used as a measure of overall bank profitability.
Liquidity	+	Liquidity is defined as the ratio of cash to total assets of each commercial bank.
Business Mix	+/-	This variable is defined as the ratio of loans and advances to total assets. The bank may engage in either mostly lending services or investment services.
Excess CAR	+/-	Prudential minimum[13] (CAR) less Actual CAR.
Size		
Total Assets	+/-	The change in total assets of each commercial bank.
Deposits	+	Total deposits of each commercial bank as a share of total assets
Macroeconomic characteristics		
Real GDP[14] (the percentage change in Quarterly Real GDP)	+	Quarterly real GDP was interpolated using the method established by (Chow & Lin, 1971)

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[13] The prudential minimum as determined by the Eastern Caribbean Central Bank under an enhanced Basel I regime is currently 8.0 per cent.

[14] Quarterly GDP was estimated using the method established by (Chow & Lin, 1971) in EVIEWS. The data was interpolated using seasonal indicators including stay-over arrivals, US quarterly GDP and manufacturing as references for quarterly macroeconomic performance in ECCU territories.

Our measurement of risk (standardized Z score) provides the model with some degree of endogeneity. Using this measure places excess capital on both the right hand and left hand sides of the equation. The expectation is that the Z-score should be highly correlated and significantly related to the right hand side variable excess CAR. A review of the literature above suggests that this problem persisted, given the use of risk-weighted assets to total assets as a measure of risk along with the use of total assets and total qualifying capital (includes total assets).

The approach to estimations of the panel data makes use of a fixed effects model. Within a fixed effects model if individual effects are considered fixed or different across individuals, then there must be some strict multicollinearity between the effects and other time invariant variables (Hsiao, 2003). The fixed effects model is appropriate when focusing on a specific set of organizations and revealing the behaviour among these institutions (Baltagi, 2005). Additionally, the fixed effects results are estimated over intervals at the sacrifice of degrees of freedom.

Alternatively, a random effects model may be completed if there are too many parameters in the fixed effects model which can lead to a loss of degrees of freedom. The random effects model is most appropriate when drawing N individuals randomly from a large population. This approach is intended to verify the consistency and stability of the coefficients. Following on from the arguments the author refers to Hausman (1978) to determine the effects to be incorporated into the study (panel fixed or panel random effects model)[15]. The selection of a panel fixed effects model matches closely the approach taken by Moussa (2015).

4.0   Results and Analysis

The paper employs a panel fixed effect model across 16 commercial banks in the ECCU. The results of the panel fixed effects regression analysis are found in the table 3. To determine the most appropriate responses to the variable *risk*, the model is developed slowly using two variables at a time. Evaluating the variables used in the exercise we see that the variable

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[15] Some authors have recommended a theoretical justification for the use of a fixed or random effects model. Though a compelling alternative, Hausman (1978) ought to be used in this determination.

business mix maintains a negative relationship in the first four models and a positive relationship in model five. Additionally, in model 4, the variable is significant at the 10 per cent level of significance. The variables *liquidity* and *deposits* were then added and evaluated. The variable *liquidity* maintains a negative relationship throughout the tests but is only significant in the fourth variation of the model. Conversely, the variables *deposits* maintain a negative and significant relationship in models two, three and four – losing its significance in the fifth model.

The variables *total assets* and *real GDP* were included and the results indicate both a negative and no significant relationship in the case of both variables. *Stewardship, profitability and excess CAR* were estimated in the final round of testing. The results of the variable *stewardship* indicate a negative and insignificant relationship with the author's measure of *risk*, while the variable profitability shifts between a positive relationship and negative relationship in the fourth and fifth phases of testing. *Excess CAR* which was included last was revealed to have a positive and significant relationship with the dependent variable *risk,* while all other variables in the model became insignificant and/or changed signs.

Over the five phases of testing conducted, the overall fit of the model remains low – ranging from 0.11 to 0.23. This fit is expected, given the nature of the data and the variables in use. Further, the F-statistic produces mixed results, beginning initially at 9.91, dipping to 11.32 and increasing to 15.29 in the final phase. The results of the estimates suggest that an alternative measure for *risk* may be used to determine the relationship with *excess CAR*. Further, the variables used in the model for the most part exhibit some relationship with the estimate of *risk* losing that relationship as more variables are added but maintaining their sign. This suggests that though their significance may have been low in the outer phases of development, there is an opportunity for further evaluation of these relationships without the presence of the variable *excess CAR*.

Table 3: Models and Results

Independent Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
Constant	472.130	[2.629]***	3052.226	[9.129]***	3362.457	[8.363]	3226.495	[7.451]***	340.895	[0.655]
Business Mix	-4.316	[-1.441]	-3.661	[-1.242]	-5.074	[-1.582]	-5.788	[-1.774]*	1.327	[0.410]
Liquidity			-89.035	[-1.371]	-97.771	[-1.696]*	-82.549	[-1.406]	-76.177	[-1.346]
Deposits			-31.551	[-8.792]***	-33.206	[-8.548]***	-32.846	[-8.212]***	-4.015	[-0.812]
Total Assets					0.000	[-0.828]	-5.330	[-0.383]	0.000	[1.299]
Real GDP					-0.052	[-0.145]	-0.080	[-0.230]	-0.326	[-0.924]
Stewardship							-0.288	[-1.236]	-0.245	[-1.093]
Profitability							128.475	[1.891]*	-15.649	[0.232]
Excess CAR									25.780	[9.304]***
Summary Statistics										
R-Squared	0.124		0.184		0.185		0.190		0.248	
Adjusted R-Square	0.111		0.170		0.170		0.173		0.232	
Durbin Watson	1.647		1.772		1.779		1.793		1.937	
F-statistic	9.911		13.232		12.064		11.323		15.292	

*** Indicates significance at a level of 0.01
** Indicates significance at a level of 0.05
* Indicates significance at a level of 0.10

These results suggest that although significance may have been lost in the final stage of the model, that variables such as *deposits, business mix* and *profitability* play an important role in determining risk within ECCU commercial banks. Interestingly, the macroeconomic environment was not a significant variable and so it is likely that managers – within the context of this variable system – adjust their portfolios based on credit extended and the level of profits and deposits held by their bank. It may be posited that in risk taking, commercial banks consider the interplay between three major factors. *Deposits* as used in the model have an inverse relationship with the level of risk in each bank. It is likely that the statistical relationship evolves due to a reduction in interest expenses (paid on deposits) which then increases overall profitability and return on assets. Thus, the value of risk increases due to a rise in the variables *ROA*.

The variable *business mix* also influences the risks taken by commercial banks in the ECCU. In our analysis institutions which exhibit a tendency to maintain a lower ratio of loans and advances to total assets have a higher risk profile. This is partly indicative of the risk-weighting used for commercial banks under the Basel regime along with developments in commercial bank portfolios. Where the variable *profitability* was included in the construct of models, we see a positive relationship emanating. Intuitively, this is correct since increasing returns in a sector are likely to attract more funds and lead to riskier behaviour as banks link increased profits to future cash flows.

5.0   Conclusion

Within the context of commercial banking literature and crafting an understanding of commercial banking behaviour, capital and risk were determined to have significant relationships. Other variables were often added to these studies to assist in defining this relationship and as such the results were often mixed. In the same manner, this piece attempts to craft an understanding of commercial banking behaviour in the ECCU. More specifically, the author examines the relationship between risk and excess capital in addition to several other variables deemed pertinent in determining risk. In this instance, *risk* was determined using a *standardized Z score*. Variables were added to account for changes in liquidity, the

economic environment, and management of commercial banks, the banks' size and the level of deposits it held. The paper then applied a fixed effects model in order to make this determination.

The results do match somewhat the results seen in several pieces including Moussa (2015) and Ghosh, et al. (2004). To closely evaluate the changes in risk, supervisors may need to evaluate more closely the changes to loan and investment portfolios. Further, the results suggest that there is a significant relationship between excess capital held by commercial banks and risk (as measured by the standardized Z score); however, all other variables although exhibiting positive and negative relationships were less significant (above the 10.0 per cent level). The model also provides several questions. Are there variables which may exist (on or off the balance sheet) which have a more significant relationship than the ones contained within this study? Are the commercial banks sufficiently heterogeneous in their banking activities to produce differentiated behaviour which can be easily analysed?

The research paper provides some guidance to policy. The significance the variables related to bank profitability, business mix and deposits all point to potential enhancements for regulatory policy. The model stipulates that decreases in deposits relative to total assets are likely to increase risky behaviour. The connection between deposits and risk is likely through increased profitability, thus, banks are more open to risk taking activities as their services become more profitable. Further, commercial banks which may have a high investment to loan ratio are more likely to engage in more risky activities than banks which are focused primarily on loans and advances.

In early 2015, the ECCB produced the Revised Banking Act which was meant to address several areas such as corporate governance and bank capital requirements. More specifically, the Act required banks to increase their paid-up capital from $5.0m to $20.0m over a designated period of time. The result of this would be an increase in the CARs of commercial banks and consequently, excess CARs for those institutions over and above the prudential minimum of 8.0 per cent. From the results above, we can infer that an increase in CAR is

likely to influence risk associated with commercial banks in the ECCU. This change in risk may manifest itself in the structure of risk weighted portfolios held by commercial banks or to a lesser extent loans and advances.

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