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External management reserve: overview and performance of major asset classes for the period 2000-2016

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EXTERNAL RESERVE MANAGEMENT: OVERVIEW AND PERFORMANCE OF MAJOR ASSET CLASSES FOR THE PERIOD 2000 – 2016

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1. INTRODUCTION

Reserve management is a process that ensures the availability and control of adequate official public sector foreign assets by the relevant authorities for meeting a defined range of objectives for a country or a union (IMF, 2013). It is therefore a part of the official public policies, and must be in line with achieving the national economic objectives. However, the size of the external reserves go a long way in determining the strategy used in its management.

To ensure that external reserves meet the above-stated objectives, as well as increase a country's resilience to shocks, there is the need for a sound management of external reserves, as weak or risky reserves management practices can have significant financial and reputational costs (IMF, 2013). Central banks therefore rely on an appropriate Strategic Asset Allocation (SAA) which involves currency composition, choice of investment instruments, duration of the reserves portfolio, degree of credit and market risk. In doing this, country's specific circumstances are required to ensure that assets are safeguarded, readily available and support market confidence.

Reserve management also requires the achievement of the following objectives:

i. Availability of adequate foreign exchange reserves to meet a defined range of objectives;
ii. Control in a prudent manner, liquidity, market, credit, operational and other risks; and
iii. Subject to liquidity and other constraints, generate reasonable risk-adjusted returns over the medium- to long-term on the invested funds.

The achievement of the above objectives entails the choice of appropriate asset classes. These include both short-term assets that will provide liquidity, as well as medium- to long-term assets that will yield returns, subject to other constraints. These asset classes include cash and near-cash; fixed income; gold; equities and derivatives. Most central bank reserve managers employ conservative investment strategies, which involve investing in mostly cash and near-cash assets, as well as fixed income instruments. Passive (indexation) and semi-active (enhanced-indexation) management strategies are also used to manage the reserves portfolio. However, a few central banks employ active management strategies across a wider range of asset classes.

A number of papers have been written on different aspects of external reserves management. These include a comprehensive paper by Nugee (2000) of the Center for Central Banking Studies of the Bank of England that discussed various aspect of external reserves management such as reasons for holding external reserves, ownership issues, selecting a benchmark, liquidity management, use of external managers, etc. Others include the degree of asset class diversification between central banks and sovereign wealth fund by Aizenman and Glick (2014); managing foreign exchange reserves during and after period of crisis by McCauley and Rigaudy (2016); importance of precautionary and mercantilist motives of holding external reserves by Aizenman and Lee (2007); the impact of a change in external reserves holding on investment, inflation and exchange rate (Abdullateef and Waheed (2010) and importance of risk management and its various aspects in managing central bank foreign reserves by the European Central Bank (2004). However, to the best of our knowledge, no paper compiled and discussed in detail the various asset classes available to external reserve managers.

The objective of this paper is to discuss in detail various asset classes available to both active and passive reserves managers and analyse the performance of the asset classes held mostly by central banks. The rest of the paper

is structured as follows: Section two reviewed literature on reserves management, including motives and what guides the decisions of the investment committee in determining asset classes. Section three analysed the various asset classes that reserves managers invest in, while section four evaluates the major central banks' asset classes' performance over the last fifteen years covering the period before and after the 2008 global financial crisis. Section five concludes the paper.

2. EXTERNAL RESERVES MANAGEMENT: THEORETICAL AND EMPIRICAL ISSUES

External reserves, also known as international reserves, foreign reserves or foreign exchange reserves, have been defined by the IMF (2009) as "those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in foreign exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing)". Manchev (2009) defines it to "include gold and/or other central bank's assets which come entirely within its control and are easy to trade on international financial markets". Thus, external reserves consist of liquid or easily marketable foreign currency assets, held in the form of convertible foreign currency claims of the monetary authorities on non-residents.

Central banks around the world have somewhat similar motives for holding and managing external reserves. What differentiates them, however, is the investment strategy or techniques of managing the assets. This is mainly dictated by a number of factors. For instance the larger or robust the level of reserves, the more diversified would be the portfolio. Human resource skills and expertise also determines whether a central bank would adopt a passive, semi-active or active strategy in managing external reserves assets.

According to the International Monetary Fund (IMF, 2013) and Nugee (2000), countries hold external reserves in order to support a range of national objectives. These include, to:

3.0 ASSET CLASSES IN EXTERNAL RESERVES MANAGEMENT

An asset class is a group of investments that have similar features. Instruments included in a particular class are expected to exhibit similar risk-return characteristics. Major asset classes are bonds, equities, cash-equivalents, derivatives, commodities and real estate.
The asset classes in which most central banks invest are discussed below:

3.1 Cash & Near-cash

One of the objectives of reserves management is to maintain adequate liquidity to meet day-to-day official transactions

Country	External Reserves Level (Billion) as at end-June 2015	Reserves Management Objective	Reserves Management Features/Techniques	Asset Classes
Botswana	US$8 413	**Bank Managed** Safety, liquidity and return. **Pula Fund** Return is the highest objective	External reserves are divided into Liquidity Portfolio (short -term) and the Pula Fund (long-term). Use of External Asset Managers to enhance returns and gain skills	**Liquidity Portfolio:** Cash and short -term bonds **Pula Fund**. Long-term b onds and equities
Brazil	US$372 168	Safety, liquidity and profitability	Active management of external reserves under a detailed benchmark and guidelines Use of External Asset Managers to gain additional skills	Overnight deposits, money market and fixed income portfolios, Brazilian sovereign external debt,
China	US$3,693,840 00	Safety, liquidity and return under SAFE. Return is the major objective under China Investment Company (CIC), China's Sovereign Wealth Fund	The bulk of China's external reserves are managed by the State Administration of Foreign Exchange (SAFE). It is run as a subsidiary under the PBoC A portion of the external reserves under SAFE is outsourced to external asset managers Another portion of the reserves is managed by CIC, a semi-independent government firm in order to improve returns.	Cash, sovereign bonds, equities and alternative investments
India	US$330.501	Liquidity, safety and return	External reserves managed as money market portfolio (short -term) and bond market portfolio (long-term). A portion of external reserves is managed by External Asset Managers	Money market, sovereign bonds, and gold
Norway	US$62 537	Bank managed Safety, liquidity and return	Bank managed external reserves split into four sub -portfolios Liquidity; long-term (investment), immunization and Petroleum Fund buffer portfolios.	Cash, equities; bonds and other fixed income assets, financial derivatives

Source IMF (2013), Bloomberg (2015)

(payment to foreign missions, foreign exchange market intervention, etc) and other unforeseen needs. To achieve this objective, a portion of the reserves needs to be kept in cash or near-cash assets, being the most liquid in asset classes. Cash assets are currencies and coins at hand, bank balances, and negotiable (money) orders and cheques. Near-cash on the other hand, is anything that can be converted into cash in the short-term. They constitute low-risk investments that can be quickly liquidated into cash or cash-like assets at short notice, thus devoid of either covariance or liquidity risk (Duchin et al, 2014). Examples of near-cash assets are:

- treasury bills (t-bills): short-term obligations issued by the central government with a term less than one year in order to adjust the balance of the treasury.
- fixed term deposit (FTD): deposit with a bank for a specified period of time at a specified interest rate which can be withdrawn by the depositor upon maturity. The bank normally charges the depositor if the deposit is terminated prior to maturity.
- repurchase agreement (repo): a transaction whereby a party sells security with a commitment to buy back from the purchaser at a specified interest rate and maturity

While these assets have very low risk, their level of return is also low.

3.2 Bonds

Governments and corporations usually raise finance through borrowing. This borrowing is normally through bond issuance. The term bond implies that, the borrower has a binding obligation to pay back the amount borrowed on a specified time period. Therefore, a bond is an instrument through which an investor (bond holder) lends money to an entity (government or corporation). Bonds, generally known as fixed income assets, are financial claims with promised cash flows (coupons) of known fixed amount paid at fixed dates. The term fixed refers to both the nature of the payment, which is scheduled, as well as the amount paid. The US bond market is the largest in the world, and consist of six sectors. These are the treasury, agency, municipal, corporate, asset-backed securities and mortgage sectors (Fabozzi, 2013).

It should be noted that not all bonds have fixed coupons. Floating-rate bonds have coupon which fluctuates based on a reference rate. Zero-coupon bonds pay no coupon at all. Also, step-up notes have coupon that increases overtime.

3.2.2 Features of Bonds

Bonds have some specific features. These include:

i. Issuer: this is the entity that borrows the money.
ii. Principal: this is the total amount borrowed. Technically, it is referred to as the maturity-value or face-value of the bond that the issuer borrows, and must be repaid to the lender.
iii. Coupon: this is the annual interest rate the issuer pays to the subscribers of the bond during its life, and is expressed as a percentage of the principal. While most US bonds pay coupons semi-annually, bonds issued in the Eurobond market pay coupons annually (Fabozzi, F. J. and Mann, S.V, 2005).
iv. Maturity: this is the end period of the bond, when the issuer must return the principal to the investors. This indicates the expected life of the bond, and the number of periods the holder receives coupon payment.
v. Indenture: this is the contract document that stipulates all the terms of the bond.

3.2.3 Types of Bonds

Bonds are usually identified based on the type of the issuer. They include:

i. Treasury Securities: issued by sovereign governments. These include the United States (US) notes and bonds; Japanese Government Bonds (JGBs); German Bonds and United Kingdom (UK) Gilts, among others. The treasury market is the most liquid securities market. That is, there is always enough volume of securities and buyers/sellers to absorb any order. This liquidity is as a result of the total value of bonds outstanding and the large number of market participants.
ii. Federal Agency Securities: These are fixed income securities issued by agencies established by a central government. Some agency bonds are explicitly guaranteed by the full faith and credit of the central government. Some have implicit guarantee of the government while some have no government guarantee.
iii. Corporate Bonds. These are Bonds issued by corporations.
iv. Municipal Securities are bonds issued by states and local governments.
v. Supranational bonds: A supranational is an entity created by sovereign governments to promote economic development. Examples include the World Bank, African Development Bank, European Investment Bank, Islamic Development Bank, etc.

Corporate and municipal bonds have default risk. Credit rating (by rating agencies) usually provides an indication of the likelihood of default. However, supranational, sovereign and sovereign-guaranteed bonds are generally considered to be risk-free and have lower volatility. These qualities underscore the reason

why most central banks invest part of their reserves in supranational, sovereign and sovereign-guaranteed bonds. These bonds are considered safe and provide a level of return that is relatively consistent with the investment objectives-safety, liquidity and return- of central banks. Funds in excess of working capital and liquidity needs are normally invested in this asset class.

3.3 Equities (shares)

This class of asset represents the capital contributed by shareholders of a company. The term equity is derived from the fact that shareholders have equity stake in the company they invest in.

Equity-holders automatically bear the risk of the company; when a company performs well, they share good dividends. Apart from little or no dividend payouts, bad performance by a company could also lead to reduction in shareholders wealth. This reduction is in the form of a fall in the value/price of the company's shares.

As a result of the riskiness of equities, most central banks do not invest in equities as part of their reserves management activities.

3.4 Derivatives

Derivatives fall under four broad categories. These are futures, forwards, options and swaps. Futures, forwards and option are securities whose value is derived from and depends on the value of some underlying assets. A swap on the other hand is an agreement between two parties to exchange a series of cash flows in the future (Cuthbertson and Nitzsche, 2008).

Derivatives are mostly used for either hedging by investors in order to manage risk or for speculation to make profit.

Due to the conservative nature of most central bank they only engage in derivatives for hedging.

3.4.1 Forwards

A forward is an instrument whose contract is negotiated directly between two parties (buyer and seller) for a specific amount and delivery date, otherwise known as an over-the-counter (OTC) contract. In a forward contract, the buyer acquires a legal right to buy an asset at a specific future time, for a specific amount at a price fixed today.

3.4.2 Futures

Futures contract is similar to a forward contract, the major difference being that it is standardized and traded on an exchange. A major advantage of futures over forwards is the fact that counterparty risk is mitigated because the exchange acts as a clearing house for the transaction.

3.4.3 Options

An option involves selling a contract by an option-writer to another party (option-holder). The contract gives right to the option holder to buy (call)/sell (put) an asset from/to the option-writer at a future date for a fixed price. The option-holder does not have to exercise this right and for this privilege, he pays a price – the premium to the option-write. If the option-holder decides to exercise the right, the option-writer is obliged to accept.

The major difference between forward/futures and option is that while in the former, the buyer/seller must buy/sell, in the latter; he has the option not to buy/sell. He therefore has the option to just walk away without exercising his right to buy or sell the asset. However, he loses the premium – the price he pays to get the option.

3.4.4 Swaps

A swap is an over the counter (OTC) contract that involves the exchange of cash flows between two parties at a series of specified future dates. Generally, swap is customized to meet parties' specific needs. They are primarily used to hedge against interest rate and exchange rate risks (Cuthbertson and Nitzsche, 2008). As such, reserves managers usually undertake interest-rate and currency swaps. Currency swap involves the exchange of different currencies at initiation of the transaction.

Sometimes, depending on the needs of the parties, only the interest payments are exchanged. That is, at initiation of the contract, no cash exchange takes place between the parties. Consequently, at end of the contract, there will be no cash exchange as well.

In interest-rate swap, one party pays a fixed rate while the other party pays a floating rate. Both payments are made in the same currency; this is the main difference with the type of currency swap in which there is no exchange of principal amounts.

4.0 RESERVES ASSETS PERFORMANCE

Central banks, and especially those from emerging and developing economies usually invest in or hold most of their foreign assets in short-term instruments (cash, fixed term deposits, certificate of deposits and treasury bills) as well as fixed income assets (sovereign, agency and supra-national bonds). This allows them to meet their liquidity requirements at short notice as well as earn income without indulging in unnecessary risks. This paper therefore focuses on the review of these two asset classes due to their importance to central banks.

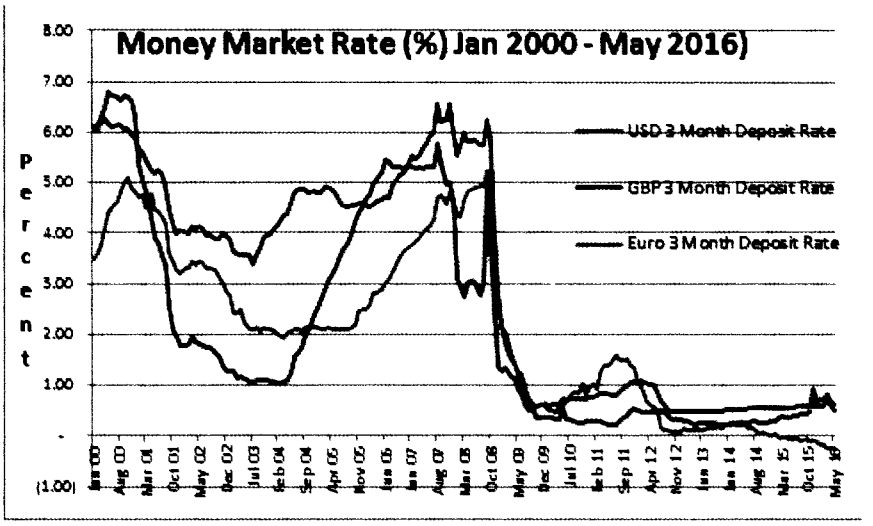
Over the last fifteen years, the performance of these major segments of external reserves assets have changed tremendously, highlighting the challenges of managing external reserves among central banks. As a result of which many central banks have sought for other

alternative asset classes in order to improve earnings, while staying within risk appetite, as public sector investors. However, given that central banks use indices to measure the performance of their portfolios, this paper will use the major bond and Treasury bills (T-bills) indices as proxies to measure the performance of these asset classes.

4.1 Short-term Instruments

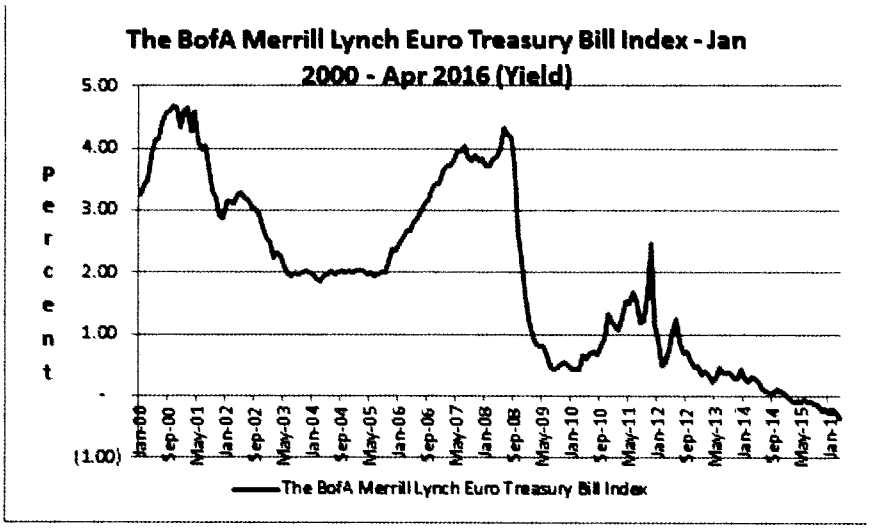
As stated earlier, this class of asset includes money market instruments ranging from overnight deposits to one year treasury bills. Central banks maintain these asset classes in order to meet their short-term requirements. Before the global financial crisis of 2008, a 3-month deposits rates in most advanced economies were above or close to five percent. For instance, US$ 3-month deposit rates averaged 6.51 percent in 2000, while GBP and Euro 3-month deposit rates averaged 6.10 and 4.13 percent, respectively.

There was however a drop in money market rates in these major economies, with the USD rate falling the most. The main reason for the fall in money market rates was the collapse of the internet bubble (popularly known as the dot.com bubble) which took place between 1999 and 2001. Between 1997 and 2000, stock markets in the industrialized world experienced rapid growth in equity value in the internet sector and related fields. When the bubble collapsed between 1999 and 2001, some companies shutdown while others experienced sharp decline in share value and earnings. The September 2011 attack on the World Trade Center in New York exacerbated the situation in the equity market. Consequently, the United States (US) economy entered a recession. In response, the US embarked on easy fiscal and monetary policies in order to ease credit creation and boost aggregate demand, with the reduction in interest rate at the front burner (Snyder, 2011).



Source Bloomberg (2016)

However, the expansionary monetary and fiscal policies of low interest rates and tax cuts for middle and upper incomes led to increased inflationary pressures. To rein-in inflation, the US Federal Reserve Bank increased interest rates rapidly: from one percent in May 2004 to 5.25 percent in June 2006. Consequently, money market and other market rates also rose, and continued until the end of 2007. With the on-set of the sub-prime default that culminated in the global financial crisis of 2008, rates plummeted below single digits in May 2009 for the USD 3-month deposits, and in July 2009 for the GBP and Euro rates, and are yet to move to single digit. This was due to a number of policy measures by central banks in both developed and developing economies aimed at boosting growth through the reduction of policy rates to near zero.



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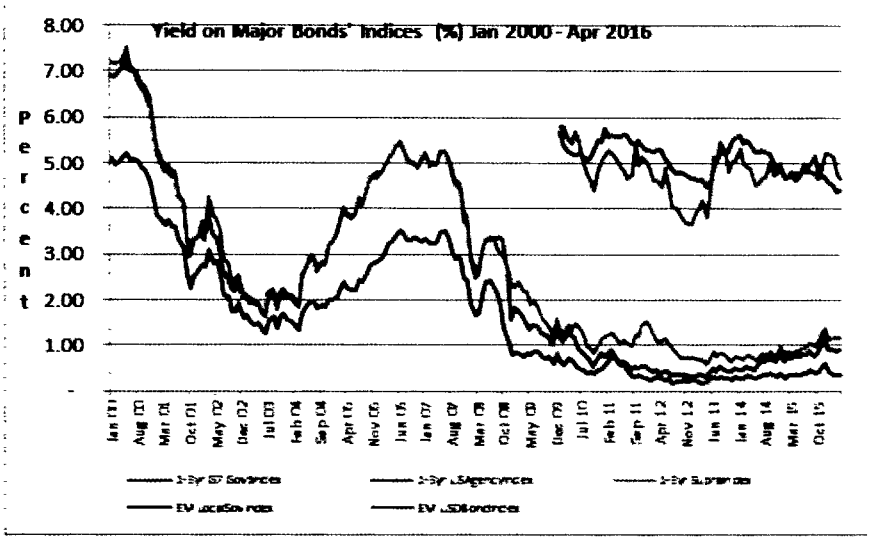
Treasury bills (T-bills) also exhibited similar trend. Since the beginning of 2015, money market rates in the Euro area (including T-bills) have gone into negative territory. This is due to policy measures introduced by the European Central Bank (ECB) in mid-2014, aimed at taming disinflationary pressures and boosting growth. These include the ECB moving its deposit rate into negative territory, purchase of covered bonds and expanding its asset purchase programme to include government bonds and asset-backed securities (Bech and Malkhozov, 2016). In spite of this low interest rate regimes in developed money market economies, central banks have to hold these assets due to the absence of reliable alternatives that could meet their liquidity requirements in the emerging market economies.

4.2 Fixed Income Assets

In addition to money market instruments, central banks also hold fixed income assets in the form of government, supra-national and government-backed bonds in order to earn extra income above what money market instruments could offer. These are usually medium- and long-term securities that governments issue to finance their activities. An analysis of these bonds' indices shows that before the financial crisis of 2008, these bonds used to offer up to seven percent in terms of yields. But, given that they are also financial instruments, they behave in somewhat similar pattern as the money market instruments. Prior to the financial crisis, sovereign 1–3 year (G-7 excluding Italy) bonds, 1-3 year US Agency bonds and 1-3 year Supra-national bonds yield between 5-7 percent. The yields declined as a result of the dot.com bubble burst, and then recovered and peaked around 2007, before the 2008 financial crisis set-in. During the crisis, central banks embarked on unconventional monetary policy, while governments injected liquidity through fiscal stimulus plans aimed at boosting economic growth and propping-up inflation. The implementation of near zero interest rates in addition to asset purchase programmes by various advanced and emerging market economies led to an all-time low yield for financial assets. Bond yields crashed below single digit in most advanced economies, posing serious challenges to external reserve management among central banks.



Source Bloomberg (2016)

In an attempt to increase income and preserve the value of their portfolio, reserves managers looked for relatively low-risk, higher yielding assets in emerging market (EM) economies. As such, emerging market bonds started gaining prominence among central bankers because of their higher yield and rising credit quality. In addition, developed market bonds seem to be losing their riskless status because of heightened risk due to increased government debts. Emerging market bonds now constitute an important asset class in central banks' foreign reserve portfolio. They include both local and US Dollar, and are issued by both governments and corporate organizations. China, Brazil and India dominate the emerging market bond issues, accounting for 50 percent of outstanding market capitalization of EM local currency debt at end-2013 (Klingebiel, 2014).

Conclusion

Central banks around the globe have as one of their core mandate the management of external assets in order to protect the domestic value of their various currencies. These external assets are held in safe and liquid foreign instruments in order to meet the objectives of liquidity, safety and return. Given the conservative nature of central banks, they invest mostly in safe government treasuries to earn returns, as well as money market instruments to

meet their liquidity objectives. Over the years, the yields on these assets fluctuate depending on the global macroeconomic conditions. Central banks modify the assets in their portfolio to suit the changing circumstances in the global financial markets, as well as to meet their objectives.

In conclusion, the paper noted the emergence of emerging market debt as a major asset class in reserves management. We recommend further studies by central banks to identify other assets that could be included to further diversify the reserves. This is important, given the decline in EM yield, low yield environment in the US and UK, and the negative interest regime in the Euro area.

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