

**WESTERN HEMISPHERE PAYMENTS AND SECURITIES SETTLEMENT FORUM
CENTER FOR LATIN AMERICAN MONETARY STUDIES
THE WORLD BANK**



**PAYMENTS AND SECURITIES CLEARING AND SETTLEMENT
SYSTEMS IN JAMAICA**

2016

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FOREWORD

Following a request from the Western Hemisphere Finance Ministers, the World Bank (WB) launched in January 1999 the Western Hemisphere Payments and Securities Settlement Initiative. The World Bank, in partnership with the Center for Latin American Monetary Studies (CEMLA), first led this initiative, which over the years has evolved into a permanent Forum as a result of the capacity already created throughout the region. The Western Hemisphere Payments and Securities Settlement Forum (WHF) represents a new set of organizational arrangements to give continuity to the efforts started under the initiative and was formally launched in June 2003.

The objective of the WHF is to describe and assess the payments systems of the Western Hemisphere with a view to identifying possible improvement measures in their safety, efficiency and integrity. To carry out this mandate an International Advisory Council (IAC) was established in March 1999, and is comprised of experts in the field from several institutions. In addition to representatives from the WB and CEMLA this Council includes members from the: Bank for International Settlements (BIS), Bank of Italy, Bank of Portugal, Bank of Spain, Council of Securities Regulators of the Americas (COSRA), European Central Bank, Board of Governors of the Federal Reserve System, Federal Reserve Bank of New York, Inter-American Development Bank, International Monetary Fund, International Organization of Securities Commissions (IOSCO), Securities Commission of Spain, Swiss National Bank and U.S. Securities Exchange Commission (SEC). CEMLA acts as Technical Secretariat of the Forum and plays a major role in making the process sustainable and capable of extension to all the countries in the region. Additionally, practitioners in payments and securities clearing and settlement in some countries of the region have participated in the studies under the Initiative, through CEMLA coordination, and this has contributed to the broadening of knowledge and the transfer of know-how within the region. The endeavors of the working groups will maintain the infrastructure created under the Initiative and provide a permanent forum for the countries in the region to discuss, coordinate, and continue the work in the area of payments systems in the Western Hemisphere. The Forum has undertaken a number of activities in order to respond to the Western Hemisphere Finance Ministers' request. These include: the preparation of public reports containing a systematic in-depth description of each country's payments clearing and settlement systems; the delivery of recommendations reports to country authorities on a confidential basis; the organization of IAC meetings to review country studies and provide input for future work; the organization of workshops focusing on issues of particular interest; the creation of a web-page to present the outputs of the Initiative and other information of interest in the payments system area; and the promotion of working groups to ensure a continuation of the project activity. To assure quality and effectiveness, the Initiative includes two important components. First, all studies are conducted with the active participation of country officials and the Project builds on the existing work being undertaken in the respective countries. Second, the Initiative draws on international and national expertise on the subject, through the IAC, to provide guidance, advice and alternatives to current practices.

ACKNOWLEDGEMENTS

The team from the *Bank of Jamaica* worked in close collaboration with the WHF Core Team to complete this Report. The members of the Core Team were: Raúl Morales and Yazmin Perez (CEMLA). A final peer review was also carried out by Maria Teresa Chimienti (World Bank), member of the WHF Core Team.

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1. LIST OF ABBREVIATIONS

ACH	Automated Clearinghouse
AML/CFT	Anti-money laundering and combating the financing of terrorism
APL	Automated Payments Limited
ATM	Automated Teller Machine
BoJ	Bank of Jamaica
CCCU	Caribbean Confederation of Credit Unions
CD	Certificate of Deposit
CIFTS	Customer Inquiry and Funds Transfer System
DTIs	Deposit-taking Institutions
DVP	Delivery-versus-Payment
EFT	Electronic Funds Transfer
ERPS	Electronic Retail Payment Services
ESDD	Electronic Securities Depository Department
FAFO	First Available First Out
FIA	Financial Institutions Act
FIFO	First in First Out
FINSAC	Financial Sector Adjustment Company
FISD	Financial Institution Surveillance Division
FOP	Free-of-Payment
FRD	Financial Regulations Division
FSC	Financial Services Commission
FSC	Financial Service Commission
FX	Foreign Exchange Market
GOJ	Government of Jamaica

GSDA	Government Securities Dematerialization
ICBS/CBAS	Central Bank Accounting System
ILF	Intraday Loan Facility
ISSP	Information System Security Policy
JamClear®-CSD	JamClear-Central Securities Depository
JamClear®-RTGS	JamClear Real-Time Gross Settlement System
JBA	Jamaica Banker's Association
JCCUL	Jamaica Co-operative Credit Union League
JCSD	Jamaica Central Securities Depository
JDIC	Jamaica Deposit Insurance Corporation
JDX	Jamaica Debt Exchange
JMD	Jamaican Dollar
JSE	Jamaica Stock Exchange
MOFP	Ministry of Finance and Planning
NACHA	National Automated Clearing House Association
NCUS	National Union of Co-operative Societies
NDX	National Debt Exchange
NGOs	Non-Governmental Organizations
NPC	National Payments Council
NPS	National Payments System
OMO	Open Market Operations
OTC	Over-the-Counter
PCSA	Payments Clearing and Settlement Act
PDMA	Public Debt Management Act
PO	Payment Origination
POCA	Proceeds of Crime Act

POS	Point of Sale
PSD	Payment System Department
QNET	Quality Network Co-operative
RTGS	Real Time Gross Settlement System
SIPS	Systemically Important/Important Payment Systems
STP	Straight Through Processing
TRN	Tax Registration Number
TTC	Transaction Type Code
WOCCU	World Council of Credit Unions

2. INTRODUCTION

Payment and settlement systems play a crucial role in the economic activity by providing mechanisms for economic agents to settle their obligations and transactions that take place in markets. For central banks, payment and settlement systems are determinants of an effective implementation of open market operations and liquidity provision to the financial sector. As a result, payment and settlement systems are key in fostering financial stability and conducting monetary policy.

Jamaica has a well-developed payment and settlement system that was enhanced by major Payment System reform initiated by the Bank of Jamaica in 2005. The enhanced environment is supported by an enabling legal framework that includes the enactment of the Payments Clearing and Settlement Act, 2010 (PCSA) and the Government Securities Dematerialization Act (GSDA), which was repealed in 2012 and replaced by the Public Debt Management Act (PDMA), and the implementation in 2013 of the Guidelines for Electronic Retail Payment Services (Guidelines). Other significant efforts occur on a continuous basis in collaboration with the Bank of Jamaica and the National Payments Council.

This Report begins with an overview of the recent macroeconomic-financial situation and a brief description of the Jamaican financial sector. It goes on to describe the institutional aspects underpinning the National Payments System (NPS) that embraces all systemically important and prominently important payments, clearing and securities settlement systems and arrangements. This is followed by a description of the recent trends in the way that non-bank entities have access and use of payment instruments, including cash, cheques, electronic transfers, cards and other payment media. In addition, a detailed description of the interbank clearing and settlement system, starting with the large-value payment systems, the Real Time Gross Settlement System operated by the Bank of Jamaica, known as JamClear®-RTGS, retail payment systems and cross-border payments are also reported.

The report concludes with a detailed description of securities trading, clearing and settlement systems, showing the different types of assets traded in the securities and foreign exchange market. Included is the settlement and clearing rules and procedures employed by financial market infrastructures, as well as how the Bank of Jamaica uses the settlement systems as a monetary policy transmission mechanism.

3. ECONOMIC AND FINANCIAL MARKET OVERVIEW

3.1. Economic overview

Between 2009 and 2014, Jamaica was affected by the global economic turmoil that impacted the national economy and the economy of its trade partners. Currently, Jamaican economy is specializing in services and mining production. In addition, the country continues to derive most of its growth from tourism and remittances. Agriculture, forestry and fishing activities, as well as tourism services showed the greatest resilience with both industries recording net growth over 2008 - 2011. Indeed, tourism in Jamaica proved to be far more resilient than in the rest of the Caribbean.

Table 1. Macroeconomic Indicators of the Jamaican economy

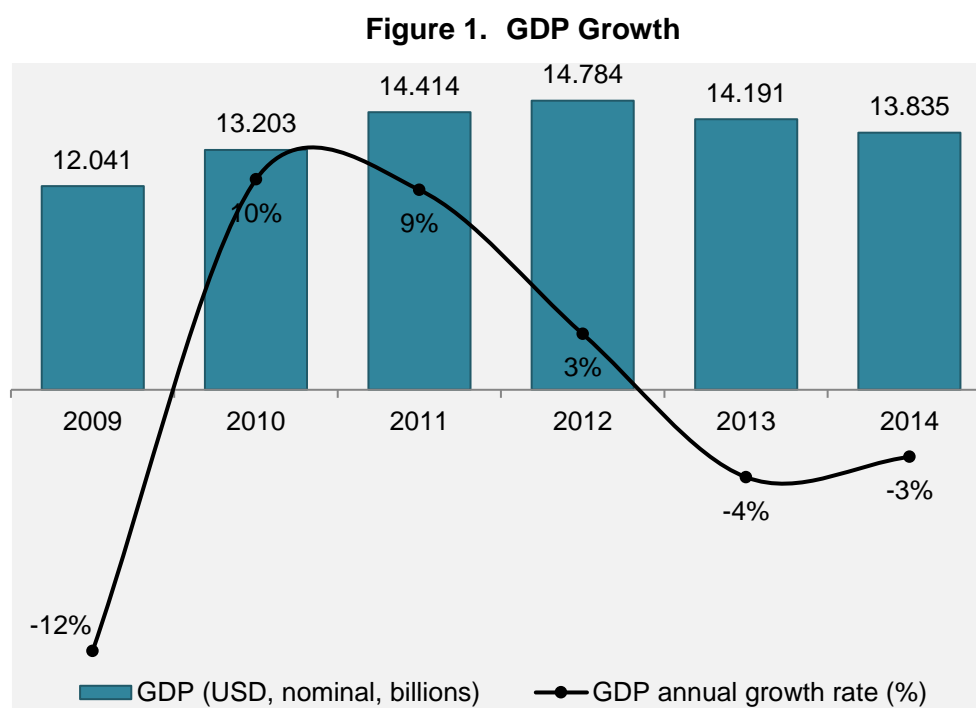
Indicator	2009	2010	2011	2012	2013	2014
Population (thousands)	2686.105	2695.543	2704.133	2711.476	2,717.862	2,723.246
Population growth (%)	0.35	0.35	0.32	0.27	0.24	0.20
GDP (USD, nominal, billion)	12.041	13.203	14.414	14.784	14.191	13.835
GDP annual growth rate (%)	-12	10	9	3	-4	-3
Consumer Price Index (%)	10.2	11.7	6.0	8.0	9.7	6.4
Rate of Unemployment (%)	11.36	12.38	12.74	13.93	15.25	13.74
Total debt consolidated (USD)	16029.3	18313.7	19040.9	18330.5	17759.7	17747.1
Total debt (% of GDP)	131.6	133.9	131.8	135.6	133.3	130.3
Exports of goods (% of GDP)	11.52	10.08	11.26	11.72	10.96	10.05
Imports of goods (% of GDP)	37.16	34.83	39.78	38.20	37.88	35.26
Current Account Deficit (% of GDP)	9.3	7.1	13.2	9.3	9.3	8.3
Exchange rate per USD (average)	88.5	87.4	86.1	89.0	100.8	111.2

Source: Bank of Jamaica, Statin

Over the period 2009 - 2014 (Figure 1), GDP exhibited a downward trend, showing its greatest decline by 12 per cent (in nominal terms) in 2009. This significant decline was attributed to a weak external and domestic demand as well as the influence of the heightened uncertainty of economic prospects. The reduction in external demand was as a result of the global recession impacting exports, while the weak domestic demand resulted from reductions in real income, remittance inflows, a tightening of credit conditions and an increase in domestic unemployment, which together influenced consumption and investment spending. Other factors impacting growth over the period included the signing of a Standby Agreement with the International Monetary Fund (IMF), the implementation of

debt exchange initiatives, the Jamaica Debt Exchange¹ (JDX) in 2010 and the National Debt Exchange (NDX) in 2013, coupled with the residual effects of the global recession. There was however growth of 9.09 per cent in 2011 (3.17 percentage points in real terms) which was influenced by improved international economic conditions as well as gradual improvements in domestic demand throughout that year. An upturn in remittance inflows along with increases in real wages also impacted growth in the economy.

In 2014, Jamaica's GDP contracted by 2.50 per cent, this was influenced mainly by the domestic demand. Domestic demand declined due to a lower consumer confidence, in the context of a reduction in real wages. As for the agricultural production severe drought conditions affected the production level. Finally, a depreciation of the domestic currency is reflected on the GDP annual variation (expressed in Jamaican dollar (JMD) the annual growth rate is 0.5 per cent).



Note: Current GDP in USD billions in left axis and nominal GDP annual growth (%) in right axis
Source: Bank of Jamaica

Concerning prices evolution in the economy, there was significant price movement over the five-year period with inflation moving from 10.2 per cent in 2009 to 6.4 per cent in 2014 (Table 1). The highest rate of inflation was reported to be 11.7 per cent in 2010 which was influenced by a number of fiscal measures that increased tax rates and transportation costs. Both domestic and international weather-related shocks and the appreciation of the domestic currency also impacted the prices of domestic food products, leading to increased levels of inflation. The lowest rate of inflation was experienced in 2011 of 6.0 per cent. This was reported to be influenced by the moderating impact of excess supply on agricultural prices along with the relative stability of the exchange rate as well as low

¹ A debt exchange is a process by which the government exchanges one type of debt for another. In this case, the debt exchange entails a lengthening of the maturity period of the debt instruments by three to five years on average and reducing the average interest rate by 1.7 percentage points from nine and a half per cent to 7.8 per cent per annum.

domestic demand. There were however increases in the rate by 2.0 percentage points in 2012, attributed to the implementation of new tax measures as well as a shortage in agricultural supplies due to the impact of drought conditions. Inflation further increased in 2013 to 9.7 per cent influenced by the depreciation of the domestic currency and an increase in crude oil prices.

3.2. Financial Overview

3.2.1. Financial Sector Development

Since the meltdown in the financial system in the early 1990s, there have been significant developments in the financial sector. Its soundness can be credited largely to the implementation of micro-macroprudential policies necessary to reduce systemic risk. Prior to the financial system meltdown, the financial sector grew rapidly. This was attributed partly to the increased number of financial institutions, especially in banking entities and insurance companies (from 67 in 1989 to 105 in 1995) with the major increases being among building societies and merchant banks. The growth in the GDP of the financial sector rose from 9% in 1987 to 50% in 1994 with an average growth of 17% per year.²

Rapid development in the sector since the meltdown of the early 1990s has seen a more stable financial system. The key laws governing the sector include the Bank of Jamaica Act, The Banking Act, the Financial Institutions Act (FIA) and the Building Societies Act. Additionally, the regulatory framework comprises several best practices and guidelines that are observed by regulated entities.

The early 1990s saw a change in regulatory vision, moving from direct control towards a more supervisory stand point. In 1991, control over the borrowing, dealing and surrendering of foreign exchange began to diminish. Controls on capital investment (direct and portfolio) by non-residents also became less rigid and previous restrictions to commercial banks in meeting the domestic currency requirements of customers (as a means of preventing illegal outflow) were also gradually liberalized and then eliminated.³

In an effort to rationalize the treatment of BoJ losses and regulate the management of foreign exchange, the amended Bank of Jamaica Act was enacted in 1992. The Act also provided statutory recognition to the department of Bank Inspection and implemented measures for the conduct of more effective monetary policy. The Financial Institutions Act of 1992 along with the Banking Act (1992) introduced stricter measures in terms of banking license, minimum levels of capital, more prudential controls, provisioning for loan losses, the strengthening supervision and regulation, and mechanisms for identifying and sanctioning the liable. The Financial Institutions Act (1992) also regulated the operation of merchant banks and other near banks that held deposits for the public. Not all the institutional counterparts adhered to the legislative transformation. The regulation of insurance for instance did not undergo strengthening equivalent to those of bank regulation. Specifically, deposit insurance was not a part of these efforts to secure the integrity of the financial sector.⁴

Over the period 1994-1996, major players in the financial sector began seeking assistance with meeting their obligations. Analysis from international agencies showed that insolvency

² (Finsac: <http://finsac.com/news/speeches/GladstoneBonnick.htm#INTRODUCTION>)

³ (Finsac: <http://finsac.com/news/speeches/GladstoneBonnick.htm#INTRODUCTION>)

⁴ *ibid*

issues originated from a mismatch of assets and liabilities within the financial sector. Ensuing reports outlined the macroeconomic conditionality that would be attached to a financial package which would support the rehabilitation of the financial sector as well as an outline of an intervention and reform program that would encompass accelerated legislation which would provide the authorities with the requisite power and flexibility of action.

In 1997 the Financial Sector Adjustment Company (FINSAC) was set up as a comprehensive approach to resolving the issues being experienced by the troubled institutions within the sector. FINSAC was mandated to assess whether institutions would be provided with re-capitalization support based on an agreed rehabilitation plan or whether acquisition or closure would be undertaken where rehabilitation did not seem a feasible option. They were also given the task of strengthening the regulatory and supervisory framework of the sector as well as complete the divestment of assets acquired in the process of liquidating entities. FINSAC also recovered capital support through the sale of investments in assisted institutions.

By 2005, the financial system registered a considerable strengthening of supervision within the sector. However, the country needed further strengthening of the framework for security dealers, the enhancement of the oversight of conglomerates and the development and constant testing of crisis management systems, as well as an overhaul the National Payments System and the introduction of a central securities depository for fixed-income securities.

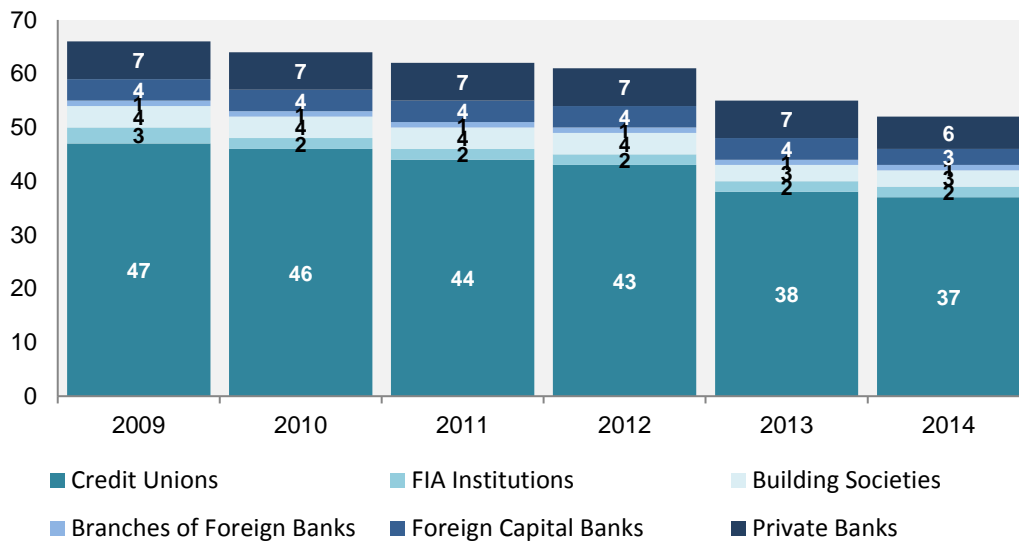
3.2.2. Financial Sector Structure

The BoJ is the sole supervisor of banks and other deposit taking institutions while the Financial Services Commission (FSC), which became operational in 2002, is mandated to supervise non-bank financial institutions. Credit Unions on the other hand are supervised by the Jamaica Co-operative Credit Union League (JCCUL). The Jamaica Deposit Insurance Corporation (JDIC), incorporated in August 1998 provides insurance against the risk of loss of deposits held in insured financial institutions.

Currently the Jamaica's financial system is a combination of both deposit taking institutions (including commercial banks, credit unions, building societies and FIA institutions)⁵, as well as non-deposit-taking institutions (including insurance companies, development banks and securities dealers. There are 6 commercial banks, 3 foreign capital banks, 1 branch of foreign banks, 37 credit unions, 3 building societies, 2 FIA Institutions (Figure 2). There are also a large number of life insurance companies (7), general insurance companies (10), securities dealers (46) foreign exchange cambios (63), remittance and money transfer companies (8) as well as bill payment agencies.⁶

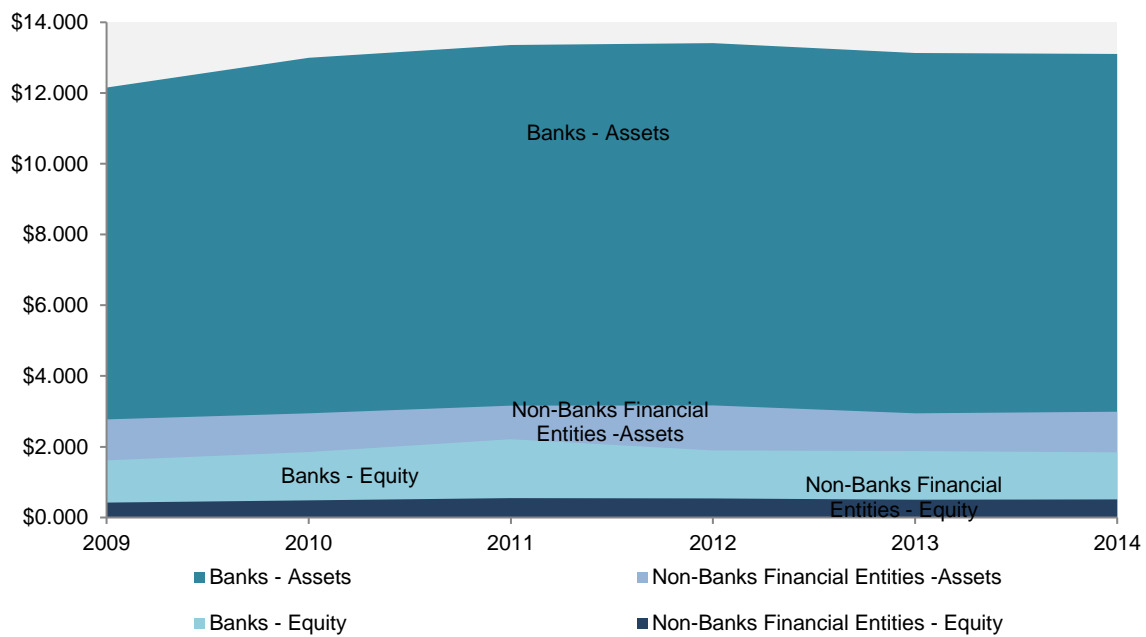
⁵ FIA institutions are license under the Financial Institution Act

Figure 2. Financial System Composition



Source: Bank of Jamaica

Figure 3. Financial System - Assets and Equity



Note: In USD billions.
Source: Bank of Jamaica

The consolidation of the Jamaica’s financial system has occurred together with the process of strengthening of the micro-macroprudential policies underpinning a resilient and sound functioning of this economic sector. Within this context, deposits and other main

variables such as loans and assets at Jamaica's financial entities have shown a positive trend (see Figure 3). In fact, since 2009 there is an upward trend in both deposits held by banks and by non-banks financial entities. Concerning loans, supply by non-banks entities, (specifically FIA institution) showed growth in 2014 of 1.8 per cent. As for the banking sector, the annual average growth for credit between 2009-2014, is 2.2%, reflecting the recovery the domestic economy has shown in recent years. In the same vein, by 2014 loans represented 61.4% of GDP.

Stability of the Jamaica's financial system after the international crisis has been reflected in sound and robust growth of equity (Figure 3). In 2014 private banks' registered an average annual growth rate from 2009-2014 of 4%. This increase in equity of private banks supported effectively the increase in financial assets.

Table 2. Main Financial Sector Indicators

	2009	2010	2011	2012	2013	2014	Variation % 2013-2014
Deposits							
Banks	7.709	8.554	8.930	9.271	8.847	8.441	-4.6%
<i>Private banks</i>	3.985	4.413	4.620	4.793	4.582	4.567	-0.3%
<i>Foreign Capital Banks</i>	3.639	4.004	4.197	4.387	4.165	3.781	-9.2%
<i>Branches of Foreign Banks</i>	0.085	0.136	0.113	0.091	0.101	0.094	-7.4%
Non-Banks Financial Entities	1.865	2.004	2.078	2.091	1.983	1.992	0.4%
<i>Building Societies</i>	1.229	1.349	1.406	1.416	1.329	1.327	-0.1%
<i>FIA institutions</i>	0.145	0.097	0.076	0.085	0.104	0.122	16.3%
<i>Credit Unions</i>	0.491	0.557	0.596	0.591	0.550	0.543	-1.3%
Loans							
Banks	5.527	5.656	5.927	6.403	6.571	6.128	-6.7%
<i>Private banks</i>	2.861	2.926	3.072	3.313	3.403	3.321	-2.4%
<i>Foreign Capital Banks</i>	2.653	2.706	2.831	3.061	3.131	2.784	-11.1%
<i>Branches of Foreign Banks</i>	0.012	0.025	0.024	0.029	0.036	0.022	-38.6%
Non-Banks Financial Entities	1.465	1.548	1.608	1.619	1.482	1.508	1.8%
<i>Building Societies</i>	0.944	1.016	1.032	1.033	0.915	0.934	2.1%
<i>FIA institutions</i>	0.108	0.084	0.080	0.061	0.067	0.081	21.0%
<i>Credit Unions</i>	0.413	0.448	0.497	0.525	0.500	0.493	-1.4%
Assets							
Banks	12.158	13.001	13.356	13.411	13.135	13.103	-0.2%
<i>Private banks</i>	6.318	6.748	6.939	6.971	6.832	7.111	4.1%
<i>Foreign Capital Banks</i>	5.662	6.070	6.192	6.245	6.133	5.852	-4.6%
<i>Branches of Foreign Banks</i>	0.178	0.182	0.224	0.196	0.170	0.140	-18.0%
Non-Banks Financial Entities	2.776	2.950	3.158	3.169	2.946	2.994	1.6%
<i>Building Societies</i>	1.778	1.960	2.142	2.171	1.988	2.008	1.0%
<i>FIA institutions</i>	0.368	0.282	0.246	0.230	0.238	0.270	13.5%

	2009	2010	2011	2012	2013	2014	Variation % 2013-2014
<i>Credit Unions</i>	0.630	0.708	0.771	0.768	0.720	0.717	-0.5%
Equity							
Banks	1.619	1.855	2.213	1.892	1.877	1.842	-1.9%
<i>Private banks</i>	0.852	0.979	1.162	1.001	0.987	1.022	3.5%
<i>Foreign Capital Banks</i>	0.731	0.836	1.008	0.853	0.854	0.786	-8.0%
<i>Branches of Foreign Banks</i>	0.036	0.039	0.043	0.038	0.036	0.034	-6.2%
Non-Banks Financial Entities	0.425	0.482	0.548	0.543	0.504	0.516	2.3%
<i>Building Societies</i>	0.262	0.309	0.359	0.360	0.324	0.331	2.2%
<i>FIA institutions</i>	0.057	0.054	0.055	0.050	0.051	0.053	4.4%
<i>Credit Unions</i>	0.106	0.119	0.134	0.133	0.130	0.133	1.9%

Note: In USD billions.

Source: Bank of Jamaica

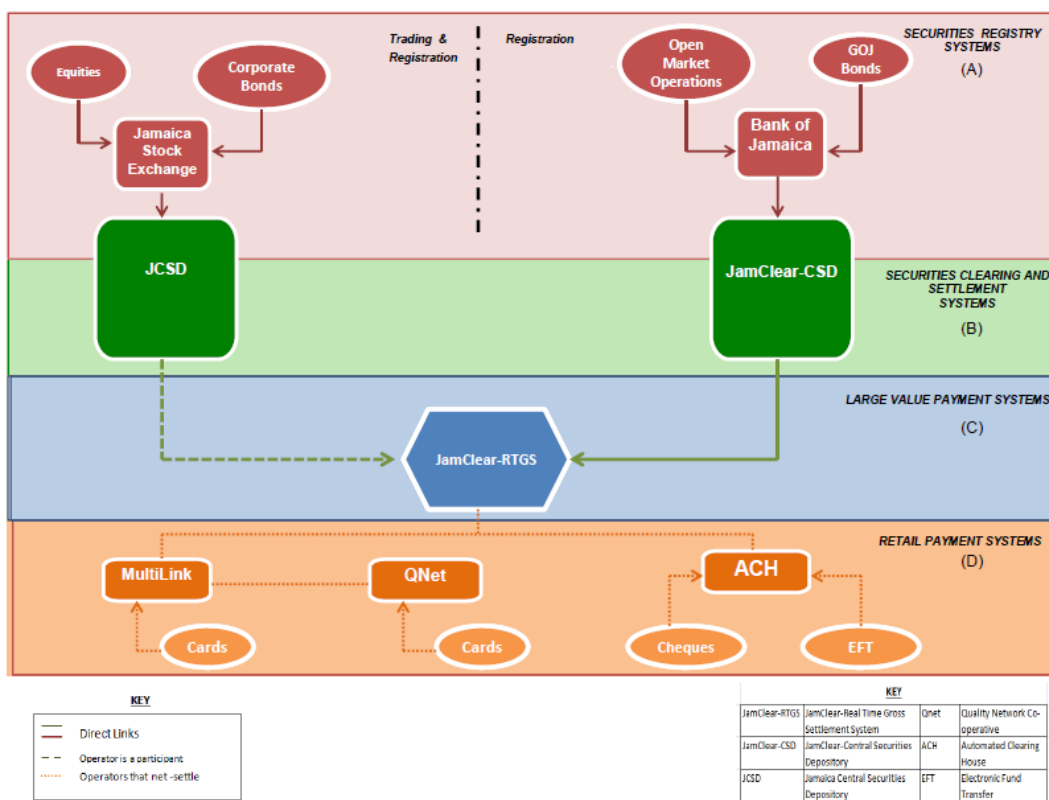
4. INSTITUTIONAL ASPECTS

4.1. Institutional Framework

The National Payment System of Jamaica comprises all payments and securities settlement arrangements that enable the funds to be transferred across financial system, its participants, financial entities, government, businesses and individuals.

The map of the NPS is shown in Figure 4, which visualizes the various systems, arrangements, interconnections and interdependencies of the national financial market infrastructure.

Figure 4. Map of the National Payment System of Jamaica



In the section A of the map are depicted the systems and arrangements for the registry and trading of financial assets, of which the JamClear-CSD that is administered by the Bank of Jamaica serves as the platform for transactions of government securities (GOJ bonds) and the open market operations (BoJ instruments). Other financial assets, mainly equities and corporate bonds that are traded in the capital market are served through the Jamaica Stock Exchange (JSE).

The clearing and settlement of financial assets via the NPS (section B), embraces two infrastructures that participating institutions use to settle the government securities, and other financial assets that are contracted in the respective markets. The JamClear-CSD is the settlement system for domestic issued securities owned and operated by the BoJ. The JCSD, owned and operated by the Jamaica Stock Exchange is the platform to clear

equities and corporate bonds. Currently, there is no arrangement in the NPS to process other transactions such as currencies and financial derivatives.

At the heart of the NPS, in section C, the JamClear®-RTGS, the large-value payments system, performs its pivotal role for the national financial markets infrastructure by providing the settlement for time critical and large value fund transactions. In addition, the JamClear®-RTGS settles interbank market transactions, financial asset clearing and settlement systems, and also batch payments coming from the clearing of retail payment systems. The JamClear®-RTGS is administered by the Bank of Jamaica.

The retail payment systems are displayed in section D of Figure 4 and it embraces two different systems and one payments arrangement. The Automated Clearing House (ACH) is owned by commercial banks clearing transactions against their account and those transactions made on behalf of other payment services providers with indirect access to the ACH. Cheques and electronic funds transfer (EFT) are the instruments mainly processed in this system. As for the Multilink, this is the system that processes domestic payment card transactions. Within the retail payments landscape, there is an arrangement among Multilink and a company owned by the Jamaica Co-operative Credit Union League (JCCUL), Quality Network Co-operative (QNET), to process payment cards' transactions for credit unions customers. The clearing of QNET transactions occur through Multilink and final settlement of net positions is provided by JamClear®-RTGS.

According to the Bank of Jamaica Payment Systems Risk Policy, the JamClear®-RTGS, the JamClear-CSD and the Automated Clearing House (ACH) are systemically important payment systems (SIPS), and in observance of the Payment System Oversight Policy, the Bank monitors on a permanent basis the functioning and risk management of such systems. The remaining pillars of the NPS are considered prominently important payment systems, or non-SIPS.

4.2. Legal Framework for the NPS

As noted in chapter 3, Jamaica's financial sector comprises deposit taking and non-deposit taking financial institutions. The financial sector is governed by the following key legislations:

1. Bank of Jamaica Act
2. Banking Act
3. Financial Institutions Act
4. Building Societies Act
5. BoJ (Building Societies) Regulations
6. Deposit Insurance Act
7. Payment Clearing and Settlement Act
8. Financial Services Commission Act
9. Securities Act
10. Insurance Act
11. Pensions (Superannuation Funds and Retirement Schemes) Act
12. Cooperative Societies Act

In 2010, the legal framework for the National Payment System (NPS) was strengthened and harmonized as per international standards as part of the NPS reform strategy. The reform strategy allowed the development of an adequate legal framework to facilitate a safe and efficient functioning of the NPS, which resulted in the enactment of the Payment Clearing and Settlement Act (PCSA), ensuring the enabling framework were in place. The

PCSA provides the overall legal basis for netting, finality and irrevocability of payments as well as provides the BoJ with statutory powers of oversight over the payment and settlement systems in Jamaica. Other relevant responsibilities for the Bank of Jamaica that the PCSA grants is to ensure that participants operate in continuous compliance with the rules and regulations that underpin the various payment systems with the ultimate objective of engendering and maintaining public confidence in the payment systems and the payment instruments that are routed through the systems.

Within the continuous process of strengthening the NPS, and in order to facilitate the structured introduction of innovative electronic retail payment services and by extension enhancing financial inclusion, the Bank of Jamaica developed the Guidelines for Electronic Retail Payment Services (the ERPS Guidelines) in 2012, based on international standards⁷. The policy objectives of the ERPS Guidelines are the following:

1. Promoting safety and efficiency;
2. Ensuring affordability;
3. Ease of access to payment instruments and services;
4. Promoting availability of an efficient infrastructure to process electronic payment instruments; and
5. Promoting availability of a socially optimal mix of payment instruments.

The ERPS Guidelines encompass the operating parameters within which banks and non-bank retail payment service providers will be authorized to offer electronic retail payment services in keeping with the highest levels of safety and efficiency. The ERPS Guidelines provides for two (2) options under which authorization may be granted by the Bank of Jamaica, in order to ensure the application of a consistent regulatory framework that will guide banks and non-banks in the development and delivery of electronic retail payment services.

Within the enabling framework developed in 2012 as part of the NPS reform strategy, and to facilitate the dematerialization of the existing government securities and the continued issue of electronic securities, the Government Securities Dematerialization Act (GSDA) was also enacted. This Act provided the basis for appointing the BoJ as the official registrar of all domestic issues of GOJ Securities. The Bank's responsibility as Registrar for electronic issues of GOJ Securities has been assigned to the Electronic Securities Depository Department (ESDD). The GSDA provided the statutory basis for the immobilization and dematerialization of Government of Jamaica (GOJ) and BoJ securities, and enables their trading and settlement in scripless form through electronic book-entry.

The GSDA was repealed by the Public Debt Management Act (PDMA) in 2012 the BoJ maintains the role as the official registrar of all domestic issues of GOJ Securities. Additionally, this legislation provides the BoJ with the responsibility for the overall management of public debt bonds.

⁷ Guidelines for developing a comprehensive retail payments strategy. World Bank, 2012.

4.3. The Role of Public Authorities

4.3.1. The role of the Bank of Jamaica

The Bank of Jamaica was established by the Bank of Jamaica Act (1960) with a mission to formulate and implement monetary and regulatory policies in an effort to safeguard the value of the domestic currency. The Bank of Jamaica is also charged with the responsibility of ensuring the soundness and development of the financial system. The principal objectives of the BoJ outlined under section (5) of the BoJ Act (1960) include:

- Issuing and redemption of notes and coins.
- Keeping and administering the reserves of Jamaica.
- Influencing the volume and conditions of supply of credit so as to promote the fullest expansion in production, trade and employment, consistent with the maintenance of monetary stability in Jamaica and the external value of the currency.
- Acting as banker to the Government.

The Primary⁸ and Secondary⁹ Legislative Acts establishes the supervisory authority of the BoJ which provides the legal and policy considerations for the licensing and supervision of financial institutions.

4.3.1.1. General Responsibilities

4.3.1.1.1. Issuing of Notes and Coins

Section 14 of the BoJ Act gives the central bank the sole right and authority to issue notes and coins. Section 19 of the Act outlines the functions of the central bank in relation to currency. These include:

- Arranging for the printing of notes and minting of coins for domestic circulation
- Issuing, re - issuing and redemption of domestic notes and coins
- Arranging for the safe custody of unissued stocks of notes and coins and the preparation, safe custody and destruction of plates and paper for the printing of notes and dies for the minting of coins.

The criteria under which these notes and coins issued by the BoJ are considered legal tender is outlined under section 15 of the Act.

⁸ The Bank of Jamaica Act, 1960 (amended 1992, 1994, 1995, 2001, 2002, 2004, 2005); The Banking Act, 1992 (amended 1997, 2002, 2004)

The Financial Institutions Act, 1992 (amended 1997, 2002, 2004); The Building Societies Act, 1897 (amended 1995, 2002, 2004)

⁹ The Bank of Jamaica (Building Societies) Regulations, 1995 (amended 2005); The Building Societies (Licenses) Regulations, 1995; The Banking (Establishment of Branches) Regulations, 1996; The Banking (Amalgamation and Transfers) Regulations, 1996; The Banking (License Fees) Regulations, 2003; The Financial Institutions (Establishment of Branches) Regulations, 1996; The Financial Institutions (Amalgamation and Transfers) Regulations, 1996; The Financial Institutions (License Fees) Regulations, 2003; The Banking (Capital Adequacy) Regulations, 2004; The Financial Institutions (Capital Adequacy) Regulations, 2004

4.3.1.1.2. Monetary policy

The conduct of monetary policy is aimed at regulating the growth of money and credit parallel to the resources expected to finance economic activity and generate employment. This is achieved without undermining the conditions of price stability.

The monetary policy framework and strategy employed is aimed at using monetary targets to achieve the desired objective of price stability. The components of the policy framework are:

- The definition of the objective of monetary policy - for the BoJ this is price stability.
- Setting Operating Targets - the operational targets are the monetary base and interest rates.
- Setting Intermediate Targets - the intermediate targets for the BoJ are the Exchange Rate and money supply.
- Manipulation of Monetary policy instruments - the primary instrument of the BoJ are Open Market Operations.

4.3.1.1.3. Management of the Monetary Base

The two main operational tools used in the management of the monetary base are open market operations (OMOs) and reserve requirements. These are used to influence financial activities of the institutions over which the BoJ has supervisory responsibilities and ultimately others that are outside the purview of the BoJ. Reserve Requirements is the only direct policy tool within the operational framework of the Bank. Under section 14 of the Banking Act (1992), subject to section 28 of the BoJ Act (1960), all banks are required to maintain a cash reserve in the form of a deposit with the BoJ on the average no less than 5 per cent of its prescribed liabilities. Reserves requirements therefore define a limit on the amount of credit that a financial institution can extend.

The Bank also controls liquidity through its intervention (direct sales/purchases) in the foreign exchange market by intervening in the market when necessary. The bank utilizes its monetary policy tools to influence the flow of foreign currency and any pressures emanating in the foreign exchange market.

4.3.1.1.4. Acting as Banker to the Government

The Bank of Jamaica acts as the banker to the Government of Jamaica. As such this includes the maintaining the accounts of the Central Government and the subsidiary accounts of some public sector agencies. As an agent of the Government, the Bank processes the settlement of GOJ securities and also operates an auction for certain GOJ securities. The BoJ also acts as a banker to commercial banks for a clearing house, which provides for the clearance and settlement of transactions between banks.

4.3.1.2. Payment and Securities Settlement Systems Oversight

The payment system oversight function was established by BoJ in 2003. All payments systems, instruments and channels fall under the purview of the Bank of Jamaica. The roles and responsibilities of the payments system overseer which rest in the Payment System Department (PSD) were directly linked to the primary objective of ensuring efficient, safe and smooth operations within the payments system.

The primary laws for the PSD to carry out the oversight of NPS in Jamaica are the Bank of Jamaica Act, 2002 (BoJ Act) and the Payment Clearing and Settlement Act (PCSA), 2010. In particular, the Section 27 of the BoJ Act (as amended by section 30 of the PCSA) empowers the central bank to exercise oversight power over the national payments system, including securities settlement systems, for the purpose of preventing and controlling the systemic risk. The BoJ Act mandates the PSD to oversee all payment systems, securities settlement systems, payment instruments, services and arrangements.

Oversight of payment system is centralized in the PSD that has two units, policy and development and compliance and monitoring unit. The PSD ensures that the stakeholders have proper documented operating procedures which govern their treatment of the payment systems, instruments and arrangements in which they partake. In keeping with its supervisory role the Department also conducts reviews and assessments of operating procedures in an effort to mitigate and resolve challenges encountered by Institutions. On an ongoing basis, the Bank ensures that these operating procedures are being adhered to and risk management mechanism are in place to engender the smooth running of the system while promoting safety and efficiency of the systems and protection for end-users

The PCSA allows the BoJ to issue public interest opinions for inducing change for the overall enhancement of any component of the NPS, as well as the prevision and mitigation of systemic risk. Therefore, all system operators must ensure that mechanisms to manage and control systemic risk are in place. The Bank of Jamaica may issue directives to the system operators or to participants in a designated system in extreme situations where the BoJ judges that systemic risk is being inadequately controlled.

4.3.1.3. Operation of Payment and Securities Settlement Systems

The BoJ is responsible for the operation of the JamClear®-RTGS, which is the large-value payments system and the central role for final settlement of transactions by NPS participants. Transactions are processed in the JamClear®-RTGS for direct participants or indirectly on behalf of their clients or other payment service providers. The operation of JamClear®-RTGS is therefore crucial for the smooth functioning of the Jamaican financial system. This is in keeping with the Bank's mandate to ensure the soundness and development of the financial system. Likewise, the BoJ is responsible for the management of the NPS participants' deposit accounts.

In the Money Market, the Bank of Jamaica also plays a critical role with the JamClear-CSD that serves as the central securities depository and the electronic government securities and BoJ trading system.

By means of the operation of the JamClear®-RTGS and the JamClear-CSD, the Bank of Jamaica contributes significantly to the continuous modernization of the NPS, implementing and renovating electronic and automated features in both systems.

4.3.1.4. Financial Supervision

Initially, supervisory functions were performed by the Ministry of Finance. In 1973, the BoJ through the Bank Inspection Department (now the Financial Institution Surveillance Division (FISD)) assumed responsibility for examination of all commercial banks. The Protection of Depositors Act (PDA) (1966) added the responsibility for the supervision of near bank deposit-taking institutions (merchant banks and trust companies). The Financial Institutions Act (FIA) (1992) repealed the PDA and provided the basis for deepening the scope of BoJ supervision of merchant banks and trust companies and introducing more stringent requirements for these licensees among other things. A revision of the Banking Act enhanced the supervisory scope for commercial banks. Changes included the

enhanced minimum capital adequacy standards, the expansion of graduated sanction powers, and tightening of the provisioning requirements for non-performing assets. The supervision of Building Societies came under the purview of the BoJ in 1994. These along with credit unions (under the Co-operatives Society Act (1999)) were designated as 'specified financial institutions' and allowed the BoJ to obtain information on the operations of credit unions. The Credit Reporting Act was passed in 2010 and the Credit Reporting Regulations were approved by Parliament in 2011. The BoJ, through the FISD, is the designated supervising authority under the Credit Reporting Act and is responsible for reviewing and recommending applications for license to the Minister of Finance and maintaining general supervisory oversight of the credit reporting framework.

The FISD functions to promote soundness, integrity and stability in the banking system. It also establishes the appropriate policy and operational framework to satisfy the statutory and prudential responsibilities of the BoJ with regard to the supervision of commercial banks and specified financial institutions. The Division provides leadership in the formulation of an appropriate mix of, regulations, guidelines and standards of best practices to safeguard financial soundness. The principal functions of the FISD include:

1. Assessing and recommending applications for licences.
2. Conducting annual on-site examinations of each licensee in conjunction with continuous off-site monitoring.
3. Assessing the fitness and propriety of senior management, directors and significant shareholders.
4. Implementing and/or recommending on supervisory enforcement actions in accordance with statutes and policy.
5. Continuously reviewing the governing statutes and recommending amendments, as necessary.
6. Participating in Jamaica's AML/CFT work programme as a member of the national AML/CFT steering committee (in conjunction with the Legal Department)

4.3.1.5. Other Functions

4.3.1.5.1. Regulation of Money Transfer and Remittance Agents and Agencies

2004 saw the regulation of the operations of Money Transfer and Remittance Agents and Agencies in fulfilment of international obligations to combat money laundering and the financing of terrorism, as mandated by the Proceeds of Crime Act (POCA). Entities that fall under this legislation are regulated by the Bank of Jamaica subsequent to approval by the Minister of Finance. The BoJ also has supervisory and licensing authority over Cambios (foreign exchange traders) and Bureaux de Change, ensuring compliance with the BoJ Operating Directions and adherence to the POCA.

4.3.1.6. Cooperation with Other Institutions

The Bank of Jamaica is responsible for fostering cooperation among NPS stakeholders, other public authorities involved in payment activities or in the clearing and settlement of securities, in addition to modernizing and enhancing existing rules, procedures, arrangements, instruments and services. This is achieved through the National Payments Council (NPC) that was established as an advisory body to the BoJ in the exercise of its payment system oversight function.

The PCSA dictates that the NPC be chaired by the BoJ vested with the authority to issue guidelines and directions to the NPC. The PCSA also provides definition on the scope, representation, and organization of the NPC.

The composite of the NPC, as defined in the PCSA, is broad, which is in line with the international best practices, to involve all relevant stakeholders in the cooperative efforts. Furthermore, the regulation affords flexibility to the BoJ to determine the scope of representation of those entities. This provision of the law can be seen as particularly relevant regarding the evolution of the retail payments market and the potential entry of new payment service providers such as non-deposit taking institution. Such new providers of payment services need to be fairly represented in the NPC.

While there is no explicit provision in the law regarding cooperative agreement between the Bank of Jamaica and other authorities, the Bank of Jamaica and Financial Services Commission (FSC) have established a consultative structure in order to share views about policy objectives formulated by national and international authorities and to communicate their own policy aims. In addition, to the facilitation of cooperation in the oversight of securities settlement activities, a Memorandum of Understanding (MoU) was drafted between the regulators; BoJ, FSC and the Jamaica Stock Exchange. This collaboration is based on principles of cooperation on equal terms and mutual acknowledgment of national jurisdictions, for coordinated supervision and oversight. This regulatory committee deliberates systems changes and coordinates oversight measures to be taken.

4.3.2. Other Authorities

4.3.2.1. The Financial Service Commission (FSC)

The FSC has responsibility for the regulation of the non-deposit taking financial institution sector. The FSC directs the administration of the securities and insurance laws. In so doing the FSC oversees the registration, solvency of the entities and individuals conducting business in the securities and insurance industries. The FSC is mandated to supervise, investigate and sanction entities falling under its jurisdiction. The main focus of the FSC is with regard to solvency, quality of internal controls, risk management and corporate governance within regulated institutions. In addition, the FSC also has the responsibility to administer the private pension schemes, in Jamaica. The FSC regulates and supervises the non-deposit taking financial sector pursuant to several Acts and Regulations:

1. The Financial Services Commission Act (FSCA) outlines the duties and responsibilities of the FSC as they pertain to all financial institutions that provide service to the public in the fields of insurance, securities and pensions (prescribed financial institutions);
2. The Insurance Act prescribes provisions for the regulation of insurance business in Jamaica;
3. The Securities Act provides the requirements for the licensing, regulation and supervision of entities dealing in securities; and
4. The Pensions (Superannuation Funds and Retirement Schemes) Act provides the requirements for the licensing, regulation and supervision of private pension funds.

The FSC also handles customer complaints and provides the public with important financial information. Through its Complaints Department, any grievances consumers may

have with the practices of the insurance, securities, or private pensions industries may be examined.

The FSC is tasked with both prudential regulation and market conduct supervision, to allow for supervision that is both effective and efficient, the FSC is committed to developing its risk-based supervisory approach.

The FSC issues guidelines that serve as a medium to outline the standards, requirements, procedures, sound principles to be observed by regulated entities. With the guidelines, the FSC has been able to adopt and apply international best practices (such as those outlined by IOSCO, IAIS, IOPS and FATF) to market operations.

Other methods employed to monitor and supervise the three industries, include;

1. Register and approve all securities, insurance products and pensions plans;
2. Examine company records at least annually to ensure compliance with regulations;
3. Investigate complaints from aggrieved persons including investors; and
4. Co-ordinate public education programmes and industry workshops to discuss, introduce, or highlight regulatory requirements and matters.

In general, the FSC employs a number of mechanisms to monitor and mitigate risks. These mechanisms include:

- 1) A thorough review of all contracts, in cooperating legal opinion and advice;
- 2) Staff sensitization and training in all relevant laws, procedures and policies;
- 3) Enforcement of all procedures and policies;
- 4) Comprehensive review and audit of laws; and
- 5) Updating laws and policies to ensure that the FSC continues to be relevant as the markets evolve.

Regarding *the Securities Industry*; The Securities (Conduct of Business) Regulations, 1999 outlines the responsibilities for the securities industry and establishes the ethical standards to be observed by all securities dealers and investment advisors, licensed under the Securities Act.

The FSC assesses financial risks of securities dealers through the use of timely and periodic financial reports which are submitted by the institutions as stipulated by regulation. In addition, a review is undertaken of the stability of the dealers' earnings, funds under management, liquidity management and their impact on solvency of the institution. Interest rate sensitivity and the securities maturity profiles are also reviewed for Licensees. Licensees are required to develop and monitor liquidity risk and institute the relevant management programs required.

The main tools used to assess operational risks are on site and off site examinations as well as reviews of Periodic and Specific Reports. These examinations focus on the dealer's controls, procedures, governance structures, system capabilities, competence and resources, settlement and compliance responsibilities. Targeted Examinations are also conducted which is usually triggered by either investor complaints or the discovery of regulatory misconduct during routine desk based reviews.

Some of the major areas assessed during these examinations are:

- compliance with the Securities Act and its attendant regulations including Conduct of Business and licensing and registration,
- dealer's accounts and audit functions requirements

- compliance with the Anti-Money Laundering Policies and Procedures and guidelines.

The FSC also has a cooperate arrangement with the Ministry of Finance and Planning (MOFP) and the Jamaica Deposit Insurance Corporation (JDIC). The FSC, BoJ, JDIC and the MOFP are members of the FRC; these institutions also comprise the proposed Financial System Stability Oversight Committee which is charged with the maintenance of financial stability on a national level.

4.3.2.2. The Ministry of Finance and Planning

The Ministry of Finance & Planning (MOFP) was established under the Jamaican Constitution of 1962. The MOFP has overall responsibility for developing the Government's fiscal and economic policy framework; collecting and allocating public revenues.

MOFP Operational Responsibilities are:

1. The Preparation and Management of the Budget
2. Financial Regulation & Anti-Corruption
3. Public Service Establishment Oversight
4. Management of the Public Debt
5. Public Sector Financial Management
6. The Collection of Revenues

MOFP Strategic Objectives are:

1. Enabling sound Monetary and Fiscal Policies
2. To reduce and maintain the national debt at sustainable levels
3. To create an efficient simple and equitable tax system
4. To ensure effective regulation of financial institutions
5. To prevent and manage enforcement of financial crimes and international terrorism
6. Rationalize remuneration and maintain a stable industrial relations climate in the Public Sector
7. Improved public financial management towards a higher level of transparency and compliance
8. To create a more efficient, effective and responsive service oriented Ministry

The mandate of the MOFP includes developing the regulatory framework for the effective supervision of the country's financial sector including deposit taking and non-deposit taking financial institutions. One of the core functions of the MOFP is to develop appropriate policies to facilitate prudence, discipline and integrity in the financial industry. In carrying out its mandate, the MOFP collaborates with the following institutions, the Bank of Jamaica, Financial Services Commission, Jamaica Deposit Insurance Corporation (JDIC) and Financial Investigations Division.

The JDIC has responsibility for Depositor Protection as well as to contribute to the financial system confidence and stability. The JDIC manages a Deposit Insurance fund and makes recommendations to the Minister of Finance in respect of a policyholder which appears to be in financial distress. It provides financial assistance to restructure or resolve a failed policyholder. The JDIC acts as a receiver, liquidator, or judicial manager of any Policyholder its holding company or subsidiary which becomes insolvent upon the approval of the Minister of Finance.

4.3.2.3. The Financial Regulations Division (FRD) of the Ministry of Finance

The Financial Regulations Division (FRD) of the Ministry of Finance is responsible for the development of the regulatory framework for the country's financial sector. Its core function is to develop the appropriate policies to facilitate prudence, discipline and integrity in the financial industry. The FRD is tasked with constantly examining financial sector issues as it relates to the ways in which legislation can be enhanced to achieve international standards. Their objectives include:

1. Research issues relating to financial sector regulation and development and keep up-to-date with emerging international financial and economic trends;
2. Ensure that all Acts regulating providers of financial services effectively address the developments in the financial sector;
3. Evaluate and give recommendations on the economic or policy implications of proposals submitted by various NGOs, government agencies and financial institutions
4. Facilitate the development of policy to regulate the Pensions Industry;
5. Coordinate with other agencies to ensure that combating financing of terrorism and Anti-Money laundering issues are addressed;
6. Work with supervisory authorities to deal with matters relating to the development and performance of the financial sector; and
7. Ensure that all notices, orders and publications pertaining to the financial sector are prepared and gazetted. [This includes exemptions from the Moneylending Act and the preparation of unclaimed bank balances].

The Financial Investigations Division of the Ministry was established in 2002. The Division has evolved with time and the objectives now focus on the need to deter the use of Jamaica's economy for money laundering and other financial crimes, thereby contributing to a stable financial sector and an investor friendly environment. Section (3) of the Financial Investigation Division Act (2010), confers on the division the responsibility to:

1. Investigate all categories of financial crime.
2. Collect Information and maintain intelligence databases on financial crimes.
3. Maintain an arm's length relationship with law enforcement agencies and other authorities of Jamaica and of foreign States, regional and international associations or organization, with which it is required to share information.
4. Exercise its function with due regard for the rights of citizens.

4.4. Role of Private Sector Institutions

4.4.1. The Jamaica Bankers Association

The Jamaica Banker's Association (JBA) was established as a non-profit organization that represents commercial and merchant banks in Jamaica.

The JBA membership includes all commercial banks operating in the sector with extension to Trust Companies, Finance Houses and other Banking Institutions. The main goal is to partner with its members to create and maintain a profitable environment in which their services are valued by their customers. The JBA in collaboration with policy makers influence the regulations and laws which affect the banking industry, and keep its members informed about how developments may affect their businesses. The JBA also perform the following functions:

1. Promotes the interests of the Banking industry locally and internationally
2. Provides a forum for its members to agree on issues of common interest
3. Offers training opportunities for persons employed in the banking industry

4. Assists in the development of codes for the standard of conduct of local banking
5. Conducts research and makes recommendations on the requests of Government or private organizations
6. Improves and develops security protocols and policies for the Banking Industry

4.4.2. Jamaica Stock Exchange

The Jamaica Stock Exchange (JSE) was established in 1968. The JSE is governed by a Board of Directors composed by the Governor of the Bank of Jamaica, a representative of the Ministry of Finance, and other shareholders representing members.

The JSE's principal mandate is to promote the orderly and transparent operation of the stock exchange and equities market to mobilize capital to facilitate the growth and development of companies, by developing, applying and enforcing the rules designed to ensure public confidence in the stock market and its broker members, as well as providing facilities for stock market transactions.

Through the JSE, only broker-members are authorized to trade both as agents and as principals. In the latter capacity, certain restrictions apply to transactions between a broker and his own client.

4.4.3. The Jamaica Co - operative Credit Union League

The Jamaica Co-operative Credit Union League Limited (JCCUL) has been in operation since 1943 and is the trade association for the Credit Unions of Jamaica. The League also has oversight responsibility for the JCCUL Group, which is comprised of four subsidiary organizations. The JCCUL is also responsible for the:

1. Jamaica Credit Union Pension Fund
2. Collating data and information that is sent to Government Agencies such as STATIN, PIOJ, BoJ, JDIC, Department of Co-operatives and Friendly Societies, etc.,
3. Lobbying on behalf of/for members
4. Co-operative branding
5. Providing business support to Credit Unions
6. Market Research
7. Sale of credit union stationery

The affiliates of JCCUL include:

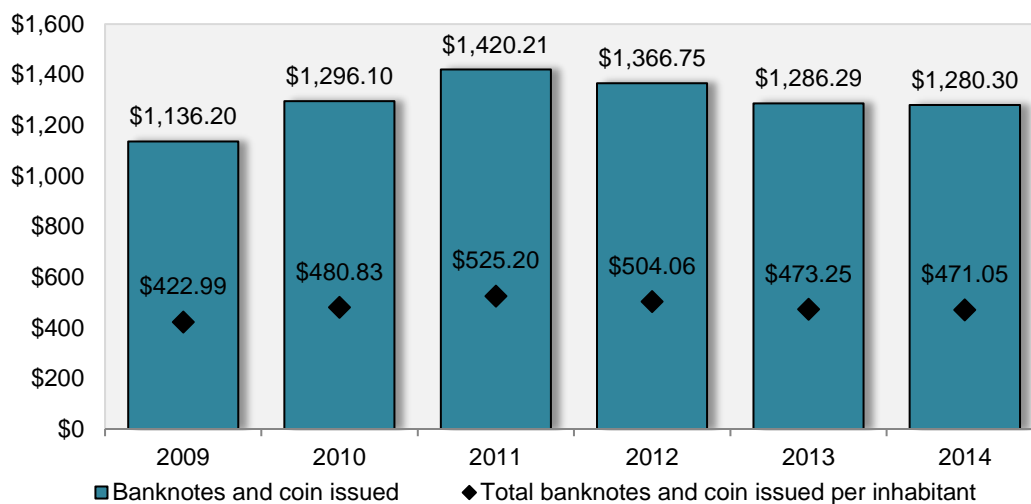
1. National Union of Co-operative Societies (NUCS) -Umbrella Organization for financial and non-financial co-operatives in Jamaica.
2. Caribbean Confederation of Credit Unions (CCCU)
3. World Council of Credit Unions (WOCCU)

5. PAYMENT MEDIA USED BY NON-BANKS

5.1. Cash

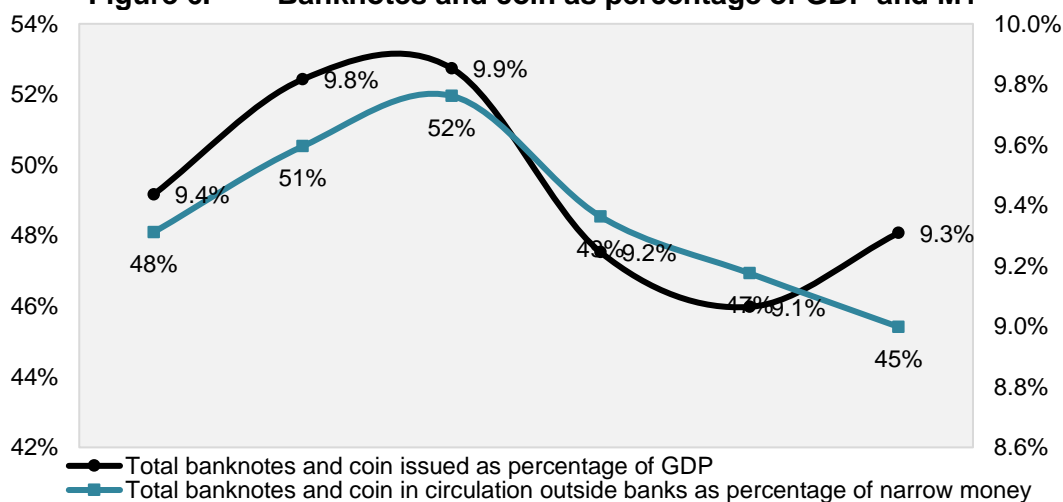
Under the Bank of Jamaica Act, the Central Bank has sole authority to issue currency (notes and coins) used in Jamaica. The BoJ is responsible for ruling on the characteristics of banknotes and coins, as well as their production and supply. The monetary unit in circulation is the Jamaican Dollar (JMD), being the only currency of legal tender in Jamaica. The banknotes are issued in denominations of \$50, \$100, \$500, \$1000 and \$5000, while coins are minted in \$20, \$10, \$5, \$1, \$0.25, \$0.10 and \$0.01.

Figure 5. Total banknotes and coins issued



Note: In USD million
Source: Bank of Jamaica

Figure 6. Banknotes and coin as percentage of GDP and M1



Source: Bank of Jamaica

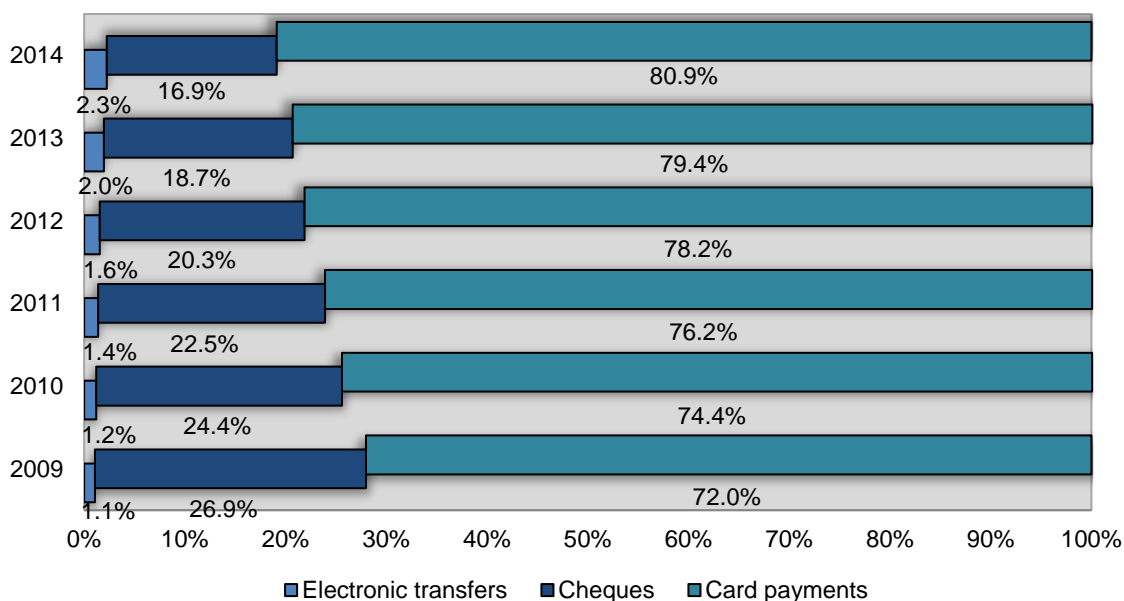
Cash is the main payment means utilized in Jamaica. Households mostly use cash for their everyday and low value payment requirements. In fact, the cash/narrow money ratio (45% in 2014) remains high, illustrating the dominance of cash payments.

In spite of the above, since 2011 the total banknotes and coins issued decreased (Figure 5). The same tendency was observed for the amount of cash per capita (10.3% of decrease from 2011 to 2014) and for cash in circulation outside banks as percentage of M1 (Figure 6).

5.2. Non-Cash Payments

In addition to cash, Jamaicans have a variety of cashless payment options. The evolution of electronic payments instruments vis-a-vis paper-based instruments has been promising in the recent years. Since 2009, card payments (comprised by debit and credit cards) and electronic credit transfers constitute more than three quarters of use of payment means in terms of volume. In that sense, as can be observed in Figure 7, it should be noted; that electronic transfers (credit transfers and direct debits) show an increase meanwhile the use of cheque shows a steady decline which can be interpreted as a change in the payment habits of Jamaicans.

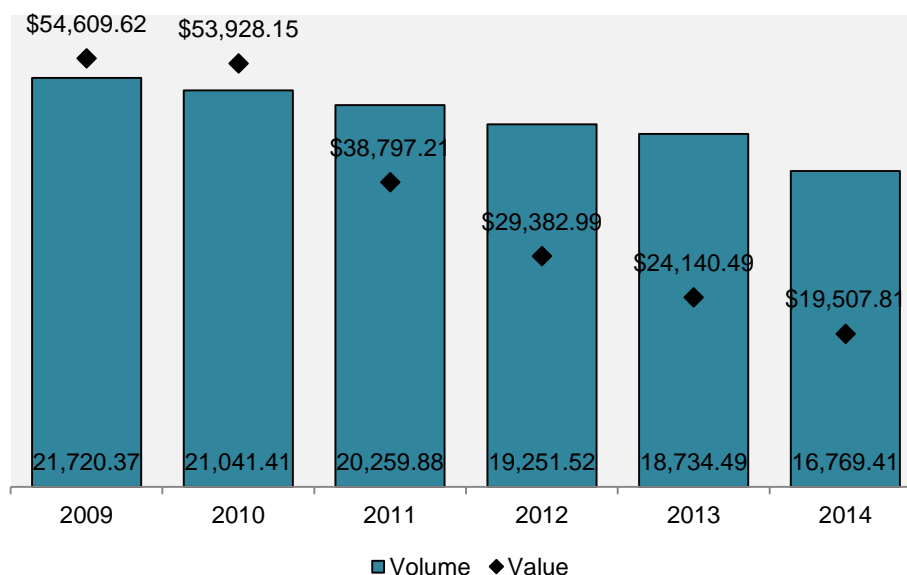
Figure 7. Use of payment instruments by non-banks
(Relative importance of payment instruments, in number of transactions)



Source: Bank of Jamaica

5.2.1. Cheques

In 2014, cheques remained as the second most utilized payment instrument in Jamaica after cash, both in terms of volume (17% of all transactions) and value of transaction (71% of all transactions). While this shows that cheques are one of the most frequently used payment means in Jamaica, it is noteworthy that compared to other cashless payment instruments, cheques are the only instrument showing a downward trend. From 2009 to 2014 the volume of transaction decreased by 23 percent. In terms of volume per capita, in 2009 there were 8.1 transactions carried out with cheques per inhabitant, in 2014 6.2 cheques per inhabitant.

Figure 8. Evolution of the volume and value of cheques

Note: Thousands cheques in left axis and value paid in USD thousands
 Source: Bank of Jamaica

The Bank of Jamaica in 2011 implemented a value threshold on transactions processed through the ACH. The objective was to minimize the net settlement risk posed to the Bank by the ACH operations and maintaining the viability of the ACH by reducing the size of the daily net settlement balance. As part of the strategy to reduce settlement risk and increase payment system efficiency, the Bank, implemented the ACH value threshold on a phased basis, aimed at eliminating 80% of values and 20% of transaction volumes greater than or equal to J\$1mn to alternate means of payments such as JamClear®-RTGS.

5.2.2. Electronic Transfers

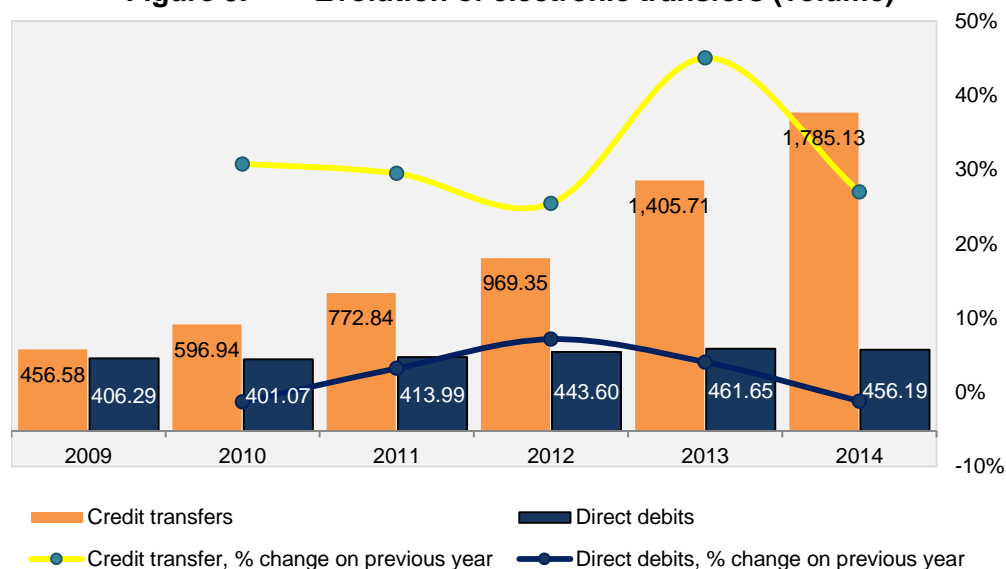
Electronic credit transfers in Jamaica is comprised of direct payroll deposits, and regular government transfer payments, as well as any funds transfer initiated electronically by an economic agent (payer) to fulfil her/his obligations with another agent (payee). In 2014, electronic credit transfers had positive growth in both volume and value. Approximately 2.2 million electronic transfers were settled in that year, representing a total of USD 1,385.8 million. The use of non-paper based credits has been increasing substantially over the past years as seen in Figures 9 and 10.

Compared to 2013 the value of credit transfers increased in 2014 by 22%, representing 5% of all the cashless transactions and 93% of the electronic transfers. From 2009 to 2014 the volume of credit transfers increased by 291 percent, resulting in a higher participation in the composition of all cashless transactions, from 0.6% in 2009 to 1.8% in 2014. To date 1 of 2 persons in Jamaica makes a credit transfer per year.

Concerning direct debits (electronic and automated debit transfer), this payment instrument also showed an upward trend however on a smaller scale when compared to credit transfers. By 2014, direct debit transactions amounted for 456,000 operations compared to 406,000 carried out in 2009; this represented an increase of 12% in terms of

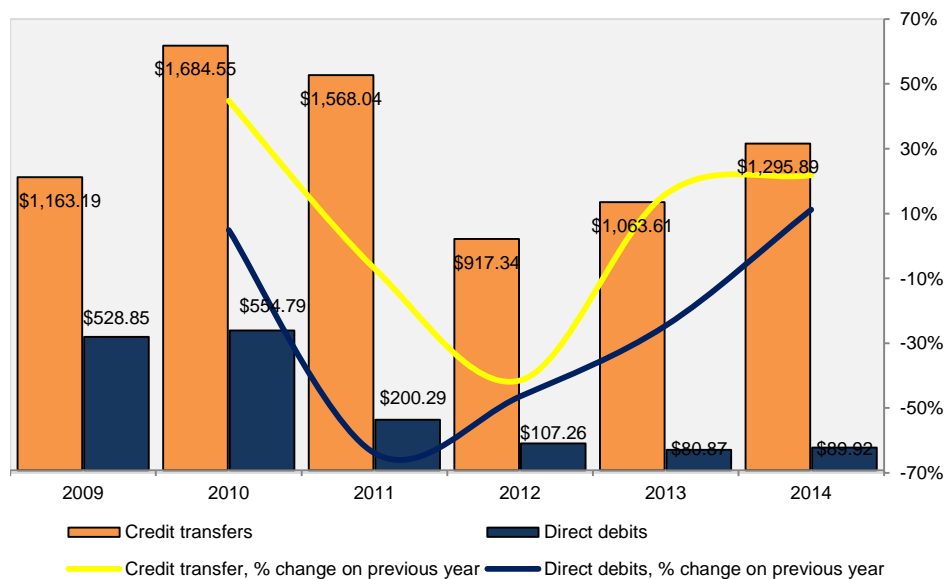
volume. The value of direct debits in 2014 reached 89.92 thousand USD, which represents a change in trend since 2010.

Figure 9. Evolution of electronic transfers (volume)



Note: In thousands.
Source: Bank of Jamaica

Figure 10. Evolution of electronic transfers (value)



Note: Value paid in USD millions
Source: Bank of Jamaica

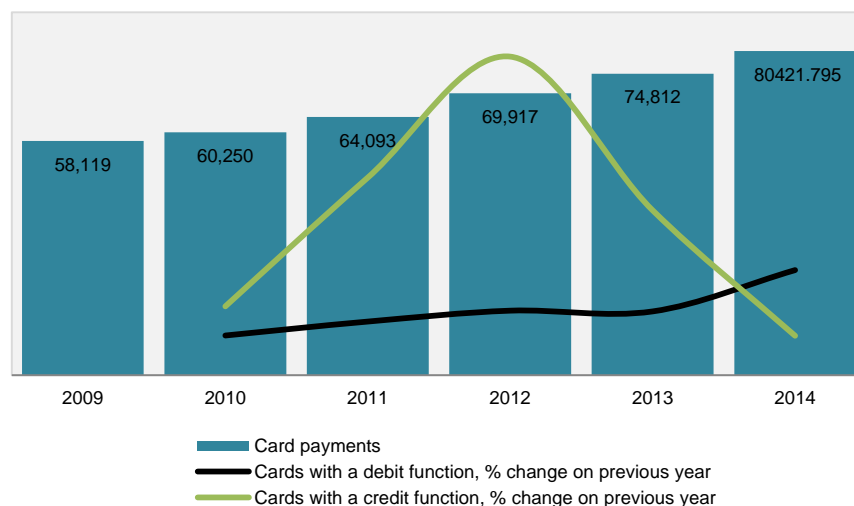
5.2.3. Payment Cards

Payment cards are widely accepted in Jamaica. This instrument has been key in changing the recent trends in cash and cheque usage. Since the last decade payments with debit and credit cards are the most important cashless payment instrument (see Figure 7).

Currently, the networks of ATMs and POS have a broad geographical coverage, allowing the increased use of payment cards.

In 2009, there were 0.73 payment cards per person; this ratio moved to 1.12 in 2014, representing an annual average increase of 9.1%.

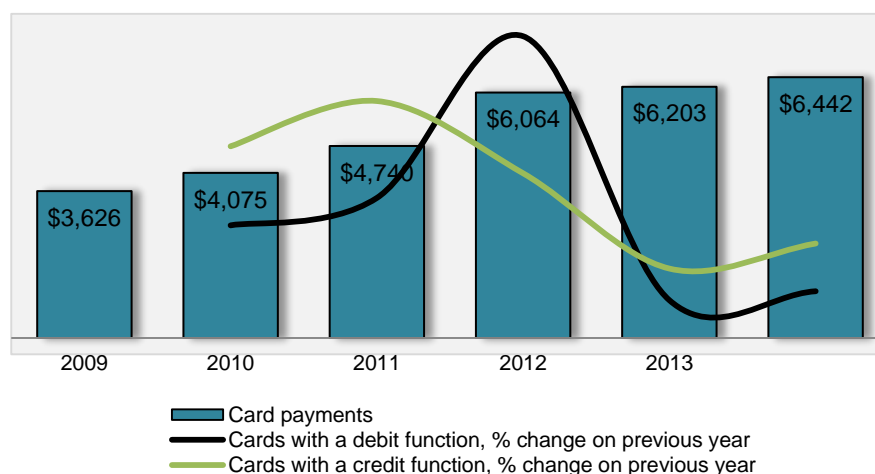
Figure 11. Evolution of payment cards transactions (volume)



Note: Thousands of payments.
Source: Bank of Jamaica

Regarding the volume of transactions conducted with payment cards, in 2014, 79% of the 80 thousand transactions were performed with a debit card. Parallel to the growth of credit cards issued (which is lower than the growth of debit cards) the proportion of credit cards/payment cards transaction has been increasing (see Figure 11).

Figure 12. Evolution of payment cards transactions (value)



Note: In USD millions, left axis and Total card payments % change on previous year in right axis
Source: Bank of Jamaica

Regarding the value of the payment cards transaction, in 2014 each credit card carried out payments for 7,613USD; likewise debit cards are used mainly for medium-value payments,

with a year total of 1,697USD. In general, the amount of transactions made both with debit and credit cards, has maintained positive growth rates since 2009. As can be observed on figures 11 and 12, the positive trend of payment card transaction reasserts the above mention, this non-cash retail instrument is the most common in Jamaica.

6. INTERBANK CLEARING AND SETTLEMENT SYSTEMS

6.1. General Overview

In 2003 the BoJ embarked on a process of comprehensive reform of the local payment and settlement systems, to enhance the safety and efficiency of these systems focusing on: (1) the implementation of the JamClear®-RTGS that replaced the Customer Inquiry and Funds Transfer System (CIFTS); (2) the establishment of a National Payments Council (NPC) comprised of representatives from all the major stakeholders including financial regulators, financial institutions, the Ministry of Finance, with the BoJ playing a leadership and facilitating role; (3) the development of legislation and the implementation of an appropriate legal framework for payment systems; (4) the development of the payment system oversight function in the Central Bank.

The Bank of Jamaica launched the National Payments System Reform Programme in 2005. The decision to reform the National Payments System (NPS) was taken immediately after identifying major weaknesses in the payments system infrastructure of Jamaica. The NPC was also established in 2005 to oversee the National Payments System Reform.

The reform programme was aimed at ensuring the stability of the financial system and improve the safety and efficiency of the national payments system. The modern clearing settlement infrastructure comprises of JamClear system: JamClear®-RTGS and JamClear®-CSD which were implemented in 2009. With the introduction of JamClear®-RTGS, commercial banks, primary dealers and other financial institutions were able to transfer funds between themselves, for own account or on behalf of clients, in real time on a safe and secure basis.

6.2. JamClear®-RTGS

The JamClear®-RTGS is the real time gross settlement system of large value and time critical transactions owned and operated by the BoJ. It is seamlessly integrated with JamClear-CSD and other related linkages, altogether SWIFT-based platforms.

Its primary purpose is to provide a settlement mechanism in which both processing and final settlement of participant payment instructions take place continuously throughout the day. In JamClear®-RTGS, the settlement of funds occurs on a transaction by transaction basis. The transactions are checked for funds availability and settled individually, continuously in real time across BoJ settlement accounts, provided the sending participant has sufficient covering balance or credit. JamClear®-RTGS provides continuous intraday finality for individual payments.

The JamClear®-RTGS application consists of two (2) functional modules; the JamClear®-RTGS and Payment Origination (PO). The PO system allows participant institutions to enter, control and view JamClear®-RTGS payments and import Net Settlement generated by clearinghouse institutions. The JamClear®-RTGS and PO are closely integrated however are independent of each other.

The primary purpose of JamClear®-RTGS is to provide a settlement mechanism in which both processing and final settlement of participant payment instructions take place continuously throughout the day. This ensures finality and irrevocability of payments and in so doing allows for the immediate reuse of funds by receiving participants. JamClear®-RTGS is also provides a medium through which the BoJ provides intraday liquidity to eligible system participants on a collateralised basis.

Through JamClear®-RTGS settlement risk is significantly minimized by ensuring that transfers between participants can only occur where funds are available in accounts held at the BoJ. If a participant has insufficient funds at any time during the day, the transfer will not take place. The JamClear®-RTGS also shows the exact position of all financial institutions during the day, providing an essential management and oversight tool.

6.2.1. Rules and Participants

Regulation and procedures of JamClear®-RTGS can be found in the following documents, i) JamClear®-RTGS Participant Rules; ii) JamClear®-RTGS User Guides; iii) JamClear Access Policy; iv) Payment Clearing and Settlement Act; and v) Payment System Oversight Policy. The body in charge of issuing the regulatory framework is Bank of Jamaica.

According to the JamClear®-RTGS Participant Rules document, access to these system services is restricted to entities satisfying the stated requirements to operate an account at the BoJ as well as the ability of participants to qualify in the following categories:

- a. Settlement account and credit services;
- b. Settlement account only;
- c. Agency access to facilitate funds transfers to participants;
- d. Indirect access through customer accounts.

Participation in JamClear®-RTGS is open to those institutions duly approved by the BoJ and who have agreed to:

1. Comply with published Rules and applicable Procedures;
2. Supply documentation required by the BoJ;
3. Pay membership, transaction and/or other fees that may be set the BoJ;
4. Be in full compliance with the requirements as defined in the PCSA;
5. Maintain and comply with the Information System Security Policy (ISSP), that adequately protects the confidentiality, availability and integrity of all information both within the Payments System and their own organisation;
6. Compliance with the BoJ's Payment Systems Communication Network Connection Agreement;
7. Obtain a SWIFT BIC to uniquely identify each participant in the system. Where a participant is not a SWIFT member, they must obtain and hold a Non-Connected BIC;
8. Comply with all rules and procedures for the use and maintenance of the e-Tokens necessary for gaining access to the Payments System.

The BoJ is the owner and operator of JamClear®-RTGS and has full responsibility and control of the day-to-day business operations of the Settlement Accounts, and the day-to-day management of all routine daily activities. In addition, the BoJ is also responsible for: i) providing detailed user guide and operational procedures; and ii) invoking contingency arrangements for the Payments System.

Participants that generate transactions in the system are as follows:

1. Bank of Jamaica
2. Government of Jamaica
3. Commercial Banks and Merchant Banks
4. Building Societies
5. Primary Dealers

6. Jamaica Central Securities Depository (JCSD) for settlement of equity net positions for JSE participants.
7. Clearing Houses (ACH and MultiLink)

There are three types of membership categories available to participants: full, restricted members and indirect members. In 2014, there were 25 members in the JamClear®-RTGS, two (2) indirect members, three (3) restricted member and twenty (20) full members

6.2.1.1. Full Members

Full Members have direct access and permission to undertake financial transactions with other members; in addition, these participants have access to intraday liquidity facilities and any other credit services provided by the BoJ. Full members include: i) Bank of Jamaica; ii) Commercial Banks and Merchants Banks; iii) Primary Dealers; iv) Jamaica Central Securities Depository for settlement of equity net positions for JSE participants. Restricted members, included i) Building Societies; ii) Cambios; iii) Money Service Providers, and other entity as designated by BoJ.

Regarding the obligations and responsibility of the Full Members, the JamClear®-RTGS Participants Rules specifies the following criteria and conditions:

1. Maintain a settlement account at the BoJ;
2. Ensure their obligations to other participants are met by the Final Cut off of JamClear®-RTGS;
3. Ensure that intraday liquidity received from the Bank is returned before Final Cut-off in JamClear®-RTGS;
4. Maintain a Business Continuity plan, according to the guidelines provided by the BoJ;
 - a. Resume processing of payments within 30 minutes of an in-house system problem;
 - b. Resume processing of payments within 1 hour in the event of a major problem requiring the use of their off-site contingency;
 - c. Transfer processing within 1 hour to a nominated agent who will facilitate payment processing on their behalf in the event that they are not able to re-join the Payment System within the time specified above;
5. Inform the JamClear®-RTGS Operator in the event that their system is likely to be unavailable for more than 10 minutes.

6.2.1.2. Restricted Members

Restricted Members have direct access to JamClear®-RTGS and authorization to undertake financial transactions with other members; however, these participants do not have access to credit or intraday liquidity facilities. Regarding the obligations and lines of responsibility of the Restricted Members, the JamClear®-RTGS Participants Rules specifies the following criteria and conditions:

1. Compliance with the published rules and applicable procedures;
2. Maintain and comply with the Information Systems Security Policy (ISSP), approved by the BoJ, that adequately protects the confidentiality, availability and integrity of all information both within the Payments System and within their own organisation;

3. Sign and comply with the BoJ's Payment Systems Communication Network Connection Agreement;
4. Comply with all rules and procedures for the use and maintenance of e- Tokens necessary for gaining access to the Payment System;
5. Ensure their obligations to other participants are met by the Final Cut-off of the JamClear®-RTGS;
6. Maintain a Business Continuity plan, according to the guidelines provided by the BoJ, that confirms they can:
 - i. Resume processing within 30 minutes of an in-house system problem;
 - ii. Resume processing within 1 hour in the event of a major problem requiring the use of their off-site contingency; and
 - iii. Transfer processing within 1 hour to a nominated agent who will facilitate payment processing on their behalf in the event that they are not able to re-join the Payment System within the time specified above.
7. Inform the JamClear®-RTGS Operator in the event that their system is likely to be unavailable for more than 10 minutes.

6.2.1.3. Indirect Members

Indirect Members are i) Agency/Clearing Houses; ii) Secondary Dealers and iii) Customers of deposit taking financial institutions. In the case of Agency/Clearing Houses, they are able to submit Multilateral Net Settlement files through Payment Origination for settlement on members' accounts. The transactions of Secondary Dealers at JamClear-CSD are settled on the account of a Commercial Bank in the system, operating as the settlement agent of the secondary dealer. Regarding Customers of deposit taking financial institutions, they have indirect access to JamClear®-RTGS by instructing their bank to make payments on their behalf to beneficiaries who are customers of a JamClear®-RTGS member.

As at December 2014 there were 25 participants, two (2) of which are indirect members (ACH and MultiLink). Regarding the obligations and lines of responsibility of the Indirect Member, the JamClear®-RTGS Participants Rules specifies the following criteria and conditions:

1. Maintain a settlement agent agreement with a Commercial Bank on whose account they will settle securities transactions;
2. Ensure their obligations to other participants are met by the Final Cut-off of JamClear®-RTGS;
3. Maintain a Business Continuity plan, approved by the BoJ, that confirms they can:
 - i. Resume processing within 60 minutes of an in-house system problem;
 - ii. Resume processing within 4 hours in the event of a major problem requiring the use of their off-site contingency; and
 - iii. Transfer processing within 4 hours to a nominated agent who will facilitate payment processing on their behalf in the event that they are not able to re-join the Payment System within the time specified above.
4. Inform the JamClear®-RTGS Operator whenever their system is likely to be unavailable for more than one hour.

6.2.2. Type of Transactions

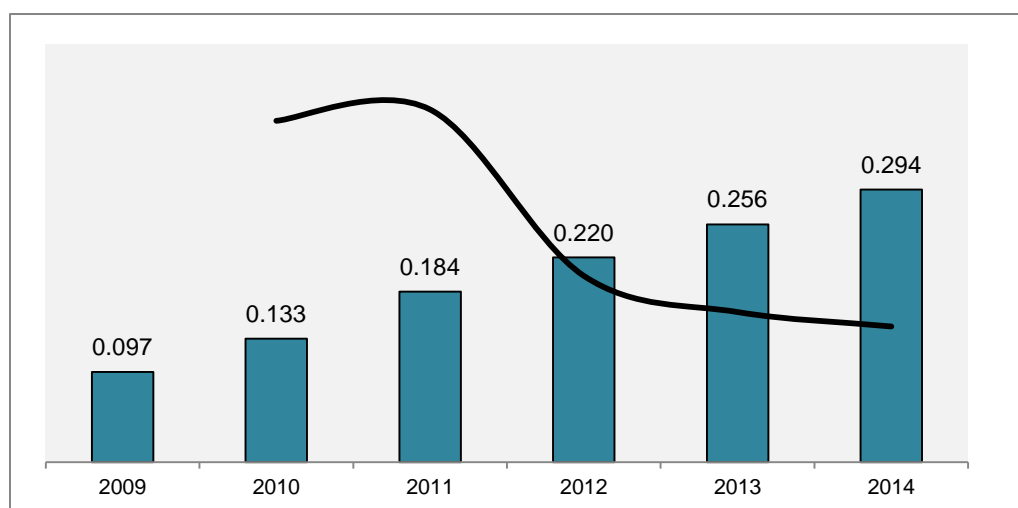
The JamClear®-RTGS Participants Rules specifies that the payments allowed in this Payment System must be on a gross on gross basis. As it relates to the currency of payments, only payment instructions in Jamaican Dollars between participants settling over Settlement Accounts at the Bank may be utilized in the JamClear®-RTGS¹⁰.

All payment instructions must comply with the applicable standard SWIFT format rules as set out in the SWIFT User Documentation for: i) Single Customer Payment Instruction; ii) Single Bank to Bank Payment Instruction; Multiple Customer Payments. Likewise, payment instructions must have a value date of the current day or up to five (5) business days in the future, or as set from time to time by the BoJ.

It is a requirement that intraday loans from the BoJ must use the Collateral Accounts in JamClear®- RTGS. In order to achieve effective management of intra-day liquidity, the system enable the BoJ to provide intra-day liquidity against participant collateral agreed in RTGS system rules. In order to use the Intraday Loan Facility (ILF) the BoJ will have to set a balance in the Participant Collateral account (amount collateralized according to BoJ rules). The BoJ will enter an ILF to debit the participant Collateral account and Credit the participant ILF account. This ILF will be automatically returned at Final cut off. JamClear®-RTGS supports banking operations according to various SWIFT formats.

Figure 13 shows the evolution and the continued growth of transfers in JamClear®-RTGS (volume) from 2009 to 2014.

**Figure 13. Evolution of transfers - JamClear RTGS
(volume)**



Source: Bank of Jamaica

6.2.3. System Operation

JamClear®-RTGS consists of two functional modules, JamClear®-RTGS and PO. In JamClear®-RTGS, payment instructions (transfers) are tested for funds availability and are settled individually, continuously in real time, across settlement accounts in the BoJ, providing the sending participant has sufficient covering balance or credit in its account.

¹⁰ In the case of participants settling GOJ US Bond transactions, JamClear-RTGS operates in US Dollars.

The PO system allows participant institutions to enter, control and view JamClear®-RTGS payments and import Net Settlement files generated by clearing house institutions.

The JamClear®-RTGS System provides inter-institution payment services for the BoJ and the participants. In providing these services, the JamClear®-RTGS system performs the following general functions:

1. Message Handling
2. Payment Processing
3. Liquidity Management
4. Queue monitoring and control
5. Reporting
6. Complete monitoring of account balances for both the Central Bank and Participants

The JamClear®-RTGS System supports the following operations:

1. Inter-Participant transfers
2. Clearing house settlement
3. Other BoJ transactions affecting Participant accounts.

JamClear®-RTGS operates on all normal banking days; that is, any day other than Saturdays, Sundays, public holidays and any other days as notified by the BoJ. The operating schedule starts at 07:30 and ends at 17:15, with the initial Cut-off at 16:20 and the final Cut-off at 17:05. The operating schedule may differ, in exceptional circumstances, such as a natural disaster affecting the entire Payment System, or as advised by the BoJ. In such an event, participants will ensure that there is no penalty or loss of interest to any party where transactions normally carried out on the affected day have not been processed.

6.2.3.1. Payment Entry and Processing

All payment instructions are originated by the paying bank and may be entered directly into the system by the Participant's operations officers, or directly by the Participant's back office system.

6.2.3.1.1. Direct Payment Entry

Payment instructions can be entered directly into the system by Participant bank officers. Access to the JamClear®-RTGS system is gained by using a standard Internet Browser, such as Microsoft Internet Explorer or Firefox. Once the user is logged into the JamClear®-RTGS system they will be provided with a formatted screen that will capture all the necessary details of the transaction. All such entries must be made in JamClear®-RTGS by an authorised officer, and must be verified by a separate officer. Once entered, the payment instruction will be submitted for settlement.

6.2.3.1.2. Straight Through Processing

With Straight through Processing (STP) Participants can access the JamClear®-RTGS system directly from their back office systems. The Participant's back office system must be capable of sending SWIFT standard messages.

6.2.4. Settlement Procedures

All payments that affect Participants' settlement accounts, are processed in JamClear®-RTGS. The source of these transactions may be:

- Payments originated by Participants via STP Gateway, or manually entered in JamClear®-RTGS Payment Origination Module (PO).
- Payments originated by BoJ to debit or credit a Participant account.
- Payments cleared between JamClear®-RTGS and other systems which interface with JamClear®-RTGS (JamClear-CSD, ICBS, ACH, MULTILINK and JCSD)

Each of these transactions will have a Transaction Type Code (TTC). At end of each day, all RTGS transactions are posted to the Central Bank Accounting System (ICBS/CBAS). At start of day, all ICBS overnight transactions that affect participant accounts are posted to JamClear®-RTGS. TTCs will be used to recognise any particular processing of these transactions in ICBS system. ICBS will contain a mapping table between TTC and General Ledger (GL) accounts to be able to apply the appropriate accounting entries.

6.2.5. Risk Management Framework

The JamClear®-RTGS provides a secure mechanism by which large value or time critical payments can be made between participants in real time. The JamClear®-RTGS has risk management controls that facilitate safe and efficient payments. The risk management control mechanisms are:

6.2.5.1. Authentication and validation

The authentication and validation process for JamClear system are the same. There is a centralized e-Tokens and management system within BoJ that enforces security controls using e-Tokens to access the JamClear system. e-Tokens have a unique password for the participants to gain access to the system. The e-Token is also linked to specific IP addresses with controls across the entire infrastructure. An e-Token is needed in order to establish the secure connection with the National Payment Systems. Each participant is responsible for managing their e-Tokens at the respective institutions.

6.2.5.2. Real-Time Irrevocable Settlement

To mitigate credit risk, once a payment has been made from Bank A to Bank B it is irrevocable. If such a transfer was able to be unwound the receiving bank would have to manage the risk that the funds transferred could be recovered by the sending bank. Modern practice does not consider this acceptable, and the JamClear®-RTGS does not provide any method of unwinding such transactions. There is, of course, a legal implication, and the BoJ is in the process of ensuring that the necessary legislation is developed to support irrevocability. Therefore, once received, funds can be considered unencumbered, and can be immediately passed to the beneficiary.

6.2.5.3. Centrally Located Queuing Facility

When payment instructions are received by the JamClear®-RTGS system they enter a payment queue to wait for sufficient funds to be available in the Participant's settlement account. Available funds in the settlement account are applied to each payment instruction in the order governed by user-entered priority and by FIFO (First-In First-Out) sequential processing within the tiered priorities. The Participant has full control over the payment queue up until the instruction has settled.

6.2.5.4. Automatic Gridlock Resolution

In the JamClear®-RTGS system, gridlock can occur when two or more settlement accounts have pending debits affecting one another's positions. The JamClear®-RTGS automatically performs gridlock checking and resolution at specified periods during the processing cycle. When a gridlock situation is detected, the settlement function provides

algorithms for automatically resolving the gridlock without compromising the settlement account positions.

6.2.5.5. Interactive Monitoring and Management

Participants in the JamClear®-RTGS system have access to real-time monitors of settlement account activity information and their current positions. The monitors allow each participant to manage their liquidity in the most efficient manner. The JamClear®-RTGS Monitoring and Control provides complete online access to settlement account balance information, including opening balance, account activity, and current balance. Inquiry facilities include access to payment instructions, and the details of queued and cancelled payments. Management tools are provided to allow Participants to intervene and reprioritise, or revoke payments.

6.2.6. Pricing

The pricing strategy proposed for the BoJ is a two-part pricing where the fixed price component is set to recover part of the initial investment by the central bank, while the variable price component seeks to recover all ongoing costs. Limiting the recovery of the initial investment will fulfil the central bank's goal of developing the financial sector for the benefit of all and recognizing its contribution to the public good. The BoJ will waive all transactions fees in the year of implementation.

The fixed price will be applied as a monthly fee and will be reviewed annually prior to the new financial year and may be adjusted if requirements change or the number of participants changes. The variable price component will be implemented as a charge per transaction within the system. Charges will vary depending on transactions, and the cost of a CSD transaction will recognise that these generally trigger a JamClear®-RTGS transaction. Transaction cost will recognise the real value to participants of both the reduction of risk within the system, and the benefit received by value being received immediately the transaction is confirmed on the accounts of the BoJ.

The JamClear®-RTGS Participants Rules itemizes that:

- i. The participants acknowledge that the BoJ has the right to set fees and other charges as set out in the JamClear Fee Schedule.
- ii. The BoJ agrees to apply the same fee structure to all participants using the same services within the Payment System.
- iii. The participants acknowledge that the BoJ may recover ongoing and variable costs where feasible by volume based charges to Participants.
- iv. The participants agree that the BoJ may periodically review its fees and charges, following consultation with, and taking due account of the views of the participants.
- v. The BoJ reserves the right to charge participants on a cost recovery basis for any additional services rendered to participants.

6.3. Retail Payment Systems

The retail payment systems are comprised of two systems, the Automated Clearing House which undertakes the clearing of paper-based and electronic transactions of participating institutions on behalf of their clients, and a card payment clearinghouse, *Multilink* which processes domestic payment card transactions. Within the retail payments landscape, there is also a payment switch called Quality Network Co-operative (QNET) owned by the Jamaica Co-operative Credit Union League (JCCUL) which processes transactions

through Multilink resulting in final settlement of net positions being provided by JamClear®-RTGS. There is also a payment arrangement between Multilink and QNET, to process payment card transactions for Credit Union customers.

6.3.1. Automated Clearing House (ACH)

The Automated Clearing House is owned by the commercial banks and is managed through Automated Payments Limited (APL). J.E.T.S. Limited holds the management contract to operate the ACH on behalf of APL. The Jamaica Clearing Bankers Association was established as the oversight body to implement the rules and By-laws and ensure adherence to the rules governing the operations of the clearing house.

The ACH was established to facilitate the electronic clearing of payment items among commercial banks operating in Jamaica on behalf of their customers. Settlement takes place on the books of the Central Bank. The processing time for cheques for all Banks was reduced and synchronized with a three-day recourse period. As a result, bank customers receive 'good' funds within three (3) business days of a cheque deposit instead of the previous five (5) to seven (7) days associated with the manual clearing process.

New instruments and clearing processes which may eliminate physical presentation and speed up clearing and settlement including digital imaging, using cheques as the source of information to create an electronic payment at point of sale or point of deposit and electronic payment products are being considered for future developments.

6.3.1.1. Rules and Participants

The PSCA is the legal framework that guides the ACH in Jamaica. The ACH is a closed group clearing house, which is only open to Jamaican Commercial Banks. The Jamaica Clearing Bank Association Charter and ACH Member Participation Agreement are the two legal documents which govern the ACH's processing of cheques and electronic items.

6.3.1.2. Types of items

The ACH currently processes cheques, direct debits and direct deposits. The ACH is aimed at serving a three phased approach: The goal of the ACH is to facilitate the following processes: Cheque Clearing, Electronic Origination and Cheque Truncation. The JCBA adopted the strategy of the National Automated Clearing House Association (NACHA) standard which is the international best practice for ACH. The BoJ and Commercial Banks comprise the membership of the ACH. The ACH Cheque processing phase was implemented in October 2002 and the second phase ACH Electronic Items was implemented in October 2006.

6.3.1.3. Settlement Procedures

The Collecting Bank processes items through their own proof systems and produces an electronic file. This file is electronically exchanged through the ACH switch and transmitted to the Drawing Bank. The Drawing Bank is then able to insert the clearing file directly into their host accounting system. This process greatly enhances efficiency of time and effort in favor of the Drawing Bank of having to redo the processing of the original item.

The clearing and settlement process includes the following;

- ACH participants submit files for clearing and settlement by the scheduled processing windows
- ACH Operator performs the Settlement Distribution Process to produce a Net Settlement File
- ACH Operator submits a Net Settlement File to JamClear®-RTGS for Financial Settlement

- Central Bank review and authorize the ACH Net Settlement File.

6.3.1.4. Risk Management Framework

The Central Bank maintains oversight of the Automated Clearing House. The risks are managed in the ACH using the following mechanisms.

Financial Risk: The ACH Settlement process operates through the BoJ's JamClear®-RTGS thus requiring fully funded daily exchanges. All ACH money exchanges are authorized only by the BoJ.

Operational Risk: System Failures are attended to by maintaining backup systems with service level agreements. Delays to Processing Schedules are resolved with the involvement of the BoJ.

Legal Risk: All parties sign a Participation Agreement that requires compliance with specific terms for payment authorizations, processing schedules and technical standards.

6.3.1.5. Pricing

The pricing policy is based on operational cost recovery, with provisions for systems maintenance. The goal is to achieve the least cost per transaction. ACH Fees are charged to Commercial Banks based on a single fixed fee per transaction item type processed. All major costs for the ACH Network are paid for by the ACH Company (APL) thereby centralizing costs with the aim of providing a single fixed fee per unit item processed. This mechanism ensures that the ACH is an equally accessible server to all participants - large and small. The common transaction fee also does not interfere with end consumer marketing efforts.

6.3.2. Multilink

Multilink is a major achievement in the Jamaican financial services industry. Multilink saw the introduction of a service platform for debit card payment instruments that delivered non-cash retail banking services to/between financial institutions within the domestic market. JETS Limited, an Electronic Banking Service company, was registered on December 4, 1995 with its primary objective being to reduce costs and increase efficiency for member institutions engaged in the retail payment space, and to provide shared platform services in the form of a joint venture among several of Jamaica's leading financial institutions. The main functions of the company are to;

- a) Maintain Participant Agreements
- b) Establish and maintain Technical Standards
- c) Operation of Network Processing Systems
- d) Daily Financial Settlement - MultiLink Network
- e) Development of new Share Platform Services

6.3.2.1. Rules and Participants

The participants are regulated Deposit Taking Financial Institutions and the operations are governed by;

- a) JETS Network Rules and Regulations
- b) JETS Operating Regulations
- c) JETS Technical Standards
- d) ISO 8583 Message Format

e) Other Standards and Guides

Multilink provides service to licensee members that constitute as clearing participant that are non-shareholder, including one (1) commercial banks and one (1) merchant bank.

6.3.2.2. Type of Transactions

MultiLink, is used by all member institutions. JETS utilises a shared electronic transaction switching network that allows withdrawals at cash dispensers (ABM), electronic funds transfer (EFT) services, facilitates payments by providing debit, Point of Sale (POS) services, and effects settlement between members. The POS network, debit cards used for withdrawing cash or making payments in an EFT/POS environment are fully interoperable among J.E.T.S members.

Each member is required to secure its net daily settlement obligations by pledging marketable securities to JETS. Settlement takes place on a net basis on the business day following transaction date. The interdependencies and interconnections of the system includes;

- Net Settlement Processing
- Central Bank: Participant Funding
- MultiLink Operator (Technology and Operations) Vendors

6.3.2.3. System Operation

MultiLink is a Real Time 24/7 debit card network that processes domestic issued debit cards only. Settlement occurs once daily on a net basis at 1:00 P.M. in JamClear®-RTGS. MultiLink authenticates and validates data by using the following processes:

- Sending: A Customer initiates PIN authenticated debit card transaction at a Member terminal (ABM/POS)
- Processing: A Terminal owner create message with encrypted PIN that is passed to the MultiLink network for routing to the Card Issuer
- Receiving: A Card Issuer validates the card and PIN, then decides if funds are available and returns either an Approve or Decline response through the network to the originating Terminal.

Rules of Operation supported by contractual agreements include; Daily system monitoring; Daily Network Reconciliation; and Daily Adjustments and corrections in conjunction with support instruments used to monitor the operation system.

6.3.2.4. Settlement Procedures

Regarding the Multilink Settlement process, ISO 8573 Messages are exchanged through the network by participants and the results of the net settlement process are posted to the JamClear®-RTGS system for financial exchange by 1 PM each business day.

- a) The stages of clearing and settlement processes are Daily Settlement Cut-Off by 9:30PM
- b) Net Settlement Calculation - A net settlement calculation is completed for the prior day's work trade/transactions
- c) JamClear®-RTGS Net Settlement Posting - The results of the net settlement process are posted to the JamClear®-RTGS system for financial exchange by 1 PM each business day.

The Settlement Security Funds are held by the Network to coverage a three (3) day Gross Issuer Exposure.

6.3.2.5. Risk Control Management

Concerning financial risks, resulting from MultiLink it should be noted that the settlement process occurs through the BoJ's JamClear®-RTGS. All financial transactions are reviewed and authorized by the operator J.E.T.S. Ltd. Settlement Exposures are covered by a Settlement Security provided by each Card Issuer, sufficient to cover possible peak risks.

The operational risk is also managed by J.E.T.S. Ltd. In general, system failures are attended to by maintaining continuous monitoring, contingency backup systems along with service level agreements. Delays in processing schedules are resolved through collaboration with the BoJ.

Legal risks are mitigated and managed in keeping with the Settlement Agreement that requires compliance by all participants with specific terms for payment authorizations, processing schedules, technical standards.

6.3.2.6. Pricing

Pricing policy is based on operational cost recovery with provisions for systems maintenance and future developments. The goal is to achieve least cost per transaction. MultiLink Switch and Interchange Fees are charged to the Card Issuer based on a single fixed amount per item processed. Switch fees are charged monthly while Interchanges are paid on a daily basis.

All major costs for the MultiLink Network are paid for by JETS Ltd thereby centralizing costs with the aim of providing a single fixed fee per unit item processed. This mechanism ensures that the MultiLink Network is an equally accessible service to all participants.

6.3.3. Quality Network Co-operative (QNET)

In 2005, managers of credit unions in Jamaica endorsed a new domestic debit card system introduced by the Jamaica Co-operative Credit Union League (JCCUL). The Quality Network Co-operative (QNET), or the IT Platform, provided the credit unions with a first-world system to enhance its overall operations. Q-NET is interconnected with Multilink.

6.3.3.1. Types of Transactions

QNET manages a switch on behalf of the Jamaica Co-operative Credit Union League Limited. The following types of transactions are processed:

1. Encashment at ABM machines
2. Balance enquiry
3. Deposits
4. Loan repayment
5. Point of sale transactions

The switch also acts as the processor for transactions for the JCCUL mobile wallet. In that regard it facilitates the following transactions:

1. Mobile phone top-up
2. Balance enquiry
3. Transfer from shares account to the mobile wallet account
4. People to people transfers

5. Business to business transfers (MVault)
6. Purchases at merchants
7. Bill payment
8. Bulk Transfer
9. Remittances (Not yet turned on)

6.3.3.2. System Operation

Credit Unions and other financial institutions are connected to information systems at QNET via a secure MetroNet Connection.

1. The transaction switch has connections to Issuer and Acquirer systems as well as ATMs, JETS and Mozido.
2. Electronic messages are sent by the acquirer to the transaction switch.
3. The transaction switch validates message format, PIN, PAN, expiry date, account type, status, and limits.
4. Electronic messages are sent to host banking system.
5. The host banking system validates message format, PAN, expiry date, account type, status, and limits and debits cardholder account.
6. The host banking system sends an electronic response to the transaction switch.
7. The transaction switch validates and interprets the response message and responds to acquirer.
8. The response allows the acquirer to complete or reject the transaction.
9. At end of day (EOD) the transaction switch generates detailed and summary settlement reports based on cut-off / settlement periods, with net position for each issuer and acquirer.
10. Reports are used for settlement with the General Ledger (GL) system.

6.3.3.3. Settlement Procedures

QNET employs a four (4) step settlement procedure:

1. Report Generation – the transaction switch generates daily detailed summary settlement reports
2. Validation and Reconciliation – summary settlement reports are checked and validated against reports from other acquirers to ensure that there are no discrepancies
3. Adjustment –reports are adjusted for any exceptions and required adjustments are approved
4. The General Ledger files and reports are prepared, checked and approved for dispatch to the accounts department

At the Jamaica Co-operative Credit Union League, employs a three (3) step procedure:

1. The accounts department debits or credits the relevant clearing accounts of the issuer/acquirer institutions
2. The relevant institutions are advised via a settlement report of their position pertaining to that date, for reconciliation in those institutions to be undertaken.
3. The institution either pays the net debit amount or the net credit is paid to the institution of credit to their withdrawable account.

6.3.3.4. Risk Control Procedures

QNET is a subsidiary of the JCCUL Group, governed by the Group Enterprise Risk Management Policy. The Group ERM program focuses on the management of all risks within the Group. These include strategic, operational, financial, compliance, legal and

reputational risks. The main risks to QNET are operational in nature and include IT security (Database, Network, and cybercrime attacks), data accumulation for the settlement process and business continuity. Established controls are in place to address these operational risks associated with internal processes, people, technology and systems. These controls include:

1. Policies & Procedures - covering IT Security Policies – Logical & physical Security Policy, Acceptable Use Policy, Internet Use Policy, Email & Communication Policy, Incident Response; Standard Configuration, Audit/review, Data Privacy, Device Management & Control, Monitoring, User awareness, education and training.
2. Information & Network Security Tools – Data Loss prevention software, Network Behaviour Analysis, Intrusion detection systems, Firewalls, System Log Monitoring, Network Access Control, Email & Web Security, Anti-Malware systems, Encryption, Vulnerability Scanning/Penetration Testing, Patch management and Fraud Prevention Software.
3. Business Continuity Plan two (2) back up sites with real time replication and simulations exercises done on an annual basis.
4. Settlement procedures for QNET, and
5. Service level agreements with JCCUL.

Legal risks are covered by contracts that are held by JCCUL with QNET, the credit unions, financial institutions and any other third parties, which also speak to the settlement agreements between the parties.

6.3.3.5. Pricing

In the case of the debit card transactions the prices charged is dependent on whether the transactions are proprietary i.e. within the Credit Union System or they require the use of the Multi-link network. The pricing policy is driven by the need to ensure that the network pays for itself i.e. transaction prices cover operating costs. In the case of Multilink transactions, a fee is charged by the operators of Multilink to cover its costs and the costs of the acquirer.

The mobile wallet concept is new and emerging in Jamaica resulting in the pricing system being a work in progress. This policy seeks to ensure that prices are lower than that which is charged by the existing settlement system.

7. SECURITIES SETTLEMENT SYSTEMS

The business of capital markets, including trading of securities, was introduced to the Jamaican financial sector in 1992. Securities dealers began to offer clients attractive yields on bonds and promissory notes from debt issuers. The transparency and yield to clients as well as the speed and low costs associated with the issuing of bonds and notes - as oppose to negotiating loans, experienced by the debt issuers were the main drivers in the growth of the market. This efficiency carried over into Government issues of debt with the introduction of Primary Dealers. Through Primary Dealers, investors were able to access Government issues of debt at more attractive rates and the BoJ was able to execute monetary policy more effectively than previously.

Increases in the number of holders of various types of debt instruments resulted in the creation of a secondary market for debt securities and the Jamaica Securities Dealers Association (JSDA) in 2002. This secondary market allowed individual and institutional investors the flexibility to trade investments for cash and provided an essential underpinning for the Jamaican economy as it provided liquidity, which is an integral component to any advanced financial system.

7.1. Trading

7.1.1. Government Securities

7.1.1.1. Primary Market (GOJ)

The type of bonds issued by the government includes treasury bills; benchmark investment notes; investment notes that are inflation protected by alignment to the Consumer Price Index; debentures; stocks; land bonds, equity investment bonds, national development bonds, national savings bonds and other bonds; promissory notes; and such other documents or writings as are commonly known as securities or designated, by the Minister by order, as securities.

The Ministry of Finance started the issuance of Government securities in 1963 with the enactment of the Debentures Local Act. The Public Debt Management Act repealed the Loan Act, and several enactments related to the raising of loans by the government. The PDMA provides the legal basis supporting the issuance of Government Securities specifically section 3 and section 14.

7.1.1.2. Secondary Market

The purchase of Government of Jamaica (GOJ) securities on the secondary market is primarily by commercial banks and primary dealers, and is used to assist these institutions when faced with Jamaica Dollar liquidity constraints. The transaction is always initiated by the institution that is in need of liquidity and the BoJ prices the instrument at current market rates. GOJ securities held by the Central Bank may be sold as part of the Bank's monetary policy operations. The decision to sell securities is taken by the Operating Targets Committee.¹¹

¹¹(JSDA: http://www.jamaicasecuritiesdealers.com/dynaweb.dti?dynasection=library&dynapage=who_are_security_dealers)

7.1.2. Jamaica Stock Exchange (JSE)

The Jamaica Stock Exchange itself, began operations in February 1969 with one of its roles being to promote the development of a vibrant capital market and to ensure orderly trading in listed securities that is stocks, shares or bonds that are traded on a stock exchange. The first official trade on the Jamaica Stock Exchange took place on Monday, February 3, 1969.

In 2009, the JSE launched the Junior Market aimed at encouraging and promoting investment in Jamaica's entrepreneurship, employment and economic development. The Junior Market allows investors to put capital into legitimate small and medium sized entities (SMEs) whose shares may be traded on a special JSE platform. The JSE's online trading platform was launched in May 2015. It allows investors to buy and sell securities listed on the JSE via an online platform. The types of securities traded on the JSE platform are ordinary shares, preference shares and corporate bonds issued by listed companies.

There is no legal basis for which JSE can issue security, however, the companies are the ones that is authorized/ restricted to issue shares and debentures under the 'Companies Act' Part two.

In 2014, there were three new listings on both the Junior Market and the Main Market. The total amount raised on both markets was JA\$1.3 billion; \$535.61 million on the Main Market and \$817.84 on the Junior Market. While the total amount raised on all market was US\$12.4 million in 2014.

7.2. JamClear - CSD

JamClear®-CSD was implemented in May 2009, replacing the paper-based issue of Government of Jamaica and Bank of Jamaica fixed income securities. With the introduction of JamClear®-CSD, all new issues of BoJ and GOJ securities are dematerialized to eliminate the need for paper certificates, thereby mitigating the risks associated with the trading, clearing and settlement of paper-based securities. The electronic system provides the authentic record of ownership of BoJ and GOJ securities. It brings significant efficiencies to the processes for issue, management and redemption to the domestic fixed-income securities market. JamClear®-CSD reduces settlement risk and improves the liquidity and efficiency of the secondary markets, with potential savings on public debt service.

JamClear®-CSD is seamlessly integrated with JamClear®-RTGS to allow for Delivery versus Payment (DVP) settlement. JamClear®-CSD has a 'hot link' to the tax database of the Government in order to validate investor information before a client can be registered in the system. This is to ensure every client is uniquely identified and to satisfy the government requirements that all persons doing business with Government must have a tax registration number (TRN).

The system allows the registration of the following types of issues:

1. Issues of interest bearing securities
2. Issues of discount securities,
3. Issue of coupon bearing securities

The system records and processes the following operations:

1. Allocation and settlement of auction results on the primary market;

2. Allocation and settlement of private placements;
3. Sale-purchase operations;
4. Repo, reverse repo agreements;
5. Registration and execution of pledge;
6. Transfer of securities which do not imply fund transfers;

And, event-driven operations:

1. Partial/optional/total redemption of maturing government securities;
2. Interest/coupon payment.

The JamClear®-CSD system offers a wide range of depository functions and settlement through the JamClear®-RTGS system using DvP Model 1 and Model 2, more specifically, the JamClear®-CSD manages securities operations, including:

1. The registration and settlement of auction results from the primary market;
2. Sales and purchases;
3. Exchange of custodian;
4. Registration, cancellation, and execution of pledges;
5. Registration, management, and execution of repurchase and reverse repurchase agreements;
6. Payment of interest and coupons, registration and payment of partial and full security redemptions.

7.2.1. Rules and Participants

According to the CSD Participant Rules document, settlement arrangements for the purchase of securities are routed through primary dealers and commercial banks. These institutions will be allowed to hold Settlement Accounts in the JamClear®-RTGS. The objective of providing settlement accounts is to ensure Delivery versus Payment in securities transactions and to promote settlement among participants in a safe and efficient manner.

The following terms will apply to settlement accounts:

1. Settlement Account holders will use these accounts for the purpose of settling approved securities transactions with the central bank and other participants;
2. Each account must be pre-funded before settlement will be effected. If the account is not funded payment will not be made and any transaction pending for that account will be cancelled at the end of the day;
3. Holders of Settlement Accounts will be required to manage their liquidity efficiently and will be responsible for arranging for any surplus funds exceeding the agreed minimum balance to be transferred from their Settlement Account;
4. No other rights or status are conferred upon Settlement Account holders;
5. The provision of a Settlement Account is at the Central Bank's sole discretion.

7.2.2. Clearing and Settlement Procedures

7.2.2.1. Settlement Procedure

All JamClear®-CSD messages and files are based on the SWIFT class 5 message format for securities (ISO 15022). Participants initiate transactions in the JamClear®-CSD by submitting securities transaction messages using a standard Internet based browser terminal or Webstation. The JamClear®-CSD is designed to provide full securities management functionality (auctioning, registration, clearing, reporting) in a non-SWIFT

environment. The Workstation module in JamClear®-CSD allow participants to enter SWIFT messages via the Webstation interface and also receive and view confirmations.

The CSD has facilities to enter the details of new issues, to amend details and to remove matured issues from the system while retaining a history of changes made to static data and the transactions performed on those securities. The issue data is entered manually in advance of the auction, using information supplied by the issuer in the issue prospectus or any other documents. Based on the issue master data introduced, the Participants will enter their bids in the system. Once the bidding process is finished (cut-off date/time exceeded) the JamClear®-CSD will apply the awarding algorithm on the total amount to be issued versus the existent valid bids. The auction results are subsequently processed in JamClear®-CSD. The payments plan is automatically introduced into the system at the initial placement. Subsequently the JamClear®-CSD users may access the plan and view the present, past and future payment data, and Authorised operators may modify them. Any changes to the issue data during its lifetime is logged and details of changes retained, including the identity of the operator(s) involved.

7.2.2.1.1. Sale and Purchase Operations

The sale or purchase of BoJ and GOJ securities is done Over the Counter (OTC). Participants use the matching function in the JamClear®-CSD to register their sale or purchase transactions. The cash leg is settled through the JamClear®-RTGS using DvP model 1 where sufficient funds are available. All transactions are processed on an individual (gross) basis in the system.

Messages sent by participants (MT543 for the seller and MT541 for the buyer of securities) are received, checked and validated. Messages with errors are rejected and a notification (MT548) is sent to each Participant.

Messages accepted are held as order to buy or sell in queue 'WFM - Waiting for Matching'. Orders held in queue are continuously checked with the aim to carry out the matching. Matching criteria includes: message type, buyer, settler, instrument, number of securities, and value for settlement. If no matching occurs by the cut off time of the DvP service, the order is cancelled and a notification is sent to the sender of the message (MT548).

7.2.2.1.2. Repurchase Agreements

A repurchase agreement (repo) is a contract to sell and subsequently repurchase securities at a specified date and price also known as repo purchase, or a buyback agreement. It is composed of two DvP operations linked together usually called:

1. First Leg - the Sale operation, and
2. Second Leg - the Repurchase operation.

Repo operations can be Intra-day (the second leg is the same day as first leg) and Long Term (the second leg is at a future date).

7.2.2.1.3. BoJ Intraday Repo facility

Intraday Repo provides settlement of second leg on the same day of the first leg; Second leg settlement is started as part of the DvP Service cut-off (closing) procedure. In JamClear®-CSD, only one message is needed to create an Intraday Repo with Central Bank operation (MT543). This message is sent by the participant bank, which is the seller of securities in the first leg of the repurchase agreement (beneficiary of loaned funds). This intraday repo with Central Bank is allowed only on the eligible securities selected by the Central Bank. Intraday Repo with the Central Bank is allowed only for securities

denominated in local currency (JMD). In the case where there are not enough securities in the account of the Participant bank for the settlement of the first leg, the Intraday Repo with Central Bank operation is automatically cancelled. The steps for a REPO are:

- Participant sends a message to CSD to request an intraday REPO. A participant can send more than one message during the day. Optionally in the message the return time can be specified. Where not specified, the pay-back leg of the intraday repo will be returned at the DvP Service cut-off set in CSD.
- CSD will send a message to RTGS and RTGS will credit the participant settlement account with the REPO amount.
- Presently when the REPO has to be returned, the CSD sends a message to RTGS. The REPO amount will be debited from the participant settlement account.

7.2.2.1.4. Pledge Management

The JamClear®-CSD system provides pledge management, registration and execution on the basis of messages received from participants. Pledging of GOJ and BoJ securities means that the securities are banned from being traded freely on the secondary market. In the case of default, the pledgee (the creditor) can resort to pledge execution, i.e. to sell securities to cover the funds credited. The system records all pledges for JamClear®-CSD Participants taking into consideration the minimum data necessary to identify each pledge. Any multiple of the minimum tradable amount of a security may be pledged, up to the full extent of the holding.

7.2.2.1.5. Messages

Messages sent by participants are received, checked and validated. Messages with errors are rejected and a notification (SWIFT MT558) is sent to the message sender. Messages accepted are held as a pledge order in the queue WFM - 'Waiting For Matching'. The matching criteria includes: message type, pledger, pledgee, instruments, number of securities, contract number and contract value. If no matching occurs by the cut off time of the Free of Payment (FOP) service, the order is cancelled and a notification is sent to the sender of the message (SWIFT MT558).

These are Transfer of Portfolio transactions where the securities are moved from one account to the other without any transfer of money in JamClear®-RTGS. Also, sales of securities between accounts of the same Participant will be performed using Free of Payment messages.

7.2.2.1.6. Auction/Offer Module of JamClear®-CSD

The depository facilitates the initial offer or re-opening of existing offers by the issuers of securities (BoJ or GOJ) as required. This is done through the auction module of JamClear®-CSD. Each bond issued is uniquely identified by an ISIN compliant number generated by the issuer. Offer types are:

1. Discount auction
2. Interest or coupon auctions
3. Fixed rate auctions
4. Fixed rate open auctions
5. Private Placements

All auctions/offers are settled through the JamClear®-RTGS system on a gross basis (DvP). Where allocations are not settled by the end of the auction settlement date they will

be automatically cancelled by the system. JamClear®-CSD automatically performs coupon/interest and redemption processing as required.

The JamClear®-CSD is an electronic registry (of holders of debt and money market instruments) that manages the life cycle of both BoJ and GOJ fixed income securities. The CSD, coupled with the JamClear®-RTGS ensures that payments for and transfer of all securities traded or purchased with a cash-leg are executed simultaneously, guaranteeing delivery versus payment (DvP).

The integration of the JamClear®-RTGS and JamClear®-CSD allows the efficient management of interest and redemption payments, and maintains a comprehensive record of pledges and repo transactions against securities registered in JamClear®-CSD.

7.2.2.2. Risk Management Framework

The JamClear®-CSD Risk management is secured by the following:

1. Applying delivery versus payment (DVP) principle;
2. Setting trading ceilings managed by the JamClear®-CSD for the Participants lacking a settlement account with JamClear®-RTGS;
3. Clearly defined operating rules subscribed to by all participants;
4. System monitoring by relevant authorities.

The DVP principle is applied in processing messages which require fund transfers, that is, the delivery of securities takes place only if the funds transfer can take place. The model used is DvP model 1 meaning that both the fund transfer and securities transfer are performed on a gross basis.

Settlement Agents: Settlement agents are Commercial Banks only. Non settling participants who do not have a JamClear®-RTGS account must appoint a settlement agent prior to receiving access to the depository. Only Commercial Banks and Primary Dealers have settlement accounts in the JamClear®-RTGS. For the Participants who do not have a settlement account, the settlement of securities transactions is performed on the account of the Participant's commercial bank. Participants in this situation are referred to as Non-Settling Participants. A Non-Settling Participant can have only one Settlement Agent settling its payment obligations. Settlement of securities operations cannot exceed the limit of a Trading Ceiling imparted to JamClear®-CSD by the settlement agent.

JamClear®-CSD manages Trading Ceiling Accounts for currencies defined in the JamClear®-RTGS. The initial limit on a trading ceiling is brought over from one day to the next, if not changed by the Settlement Agent. During the day, the settlement agent can change this limit, but cannot cause it to go below the current outstanding obligations. After end of day the limit can be adjusted to the new agreed limit.

When setting up a new limit, the settlement agent confirms that funds are available and commits to accept settlement instructions on its account for securities operations performed by the Non-Settling Participant up to the trading ceiling agreed. For each Trading Ceiling the JamClear®-CSD maintains three values:

1. the Initial Value set by the settlement agent;
2. the Available Value, which is the availability limit for trading;
3. the Reserved Value, which contains the value reserved for buying transactions initiated but not yet settled.

Reserved and Available Values are continuously updated during the operating day for each DvP operation (Sale/Purchase, Repo and Pledge execution). In order to ensure effective risk control and timely remedial measures, the system is subject to monitoring throughout the operating day. Thus, the system provides all information necessary for carrying out the day's operations to the relevant authorities.

In addition, in order to enhance securities liquidity management, the accounting space has implemented both First in First out (FIFO) and First Available First Out (FAFO) queue management for insufficient securities queue. The switching between these queues can be done on request. A "Queue Policy Service" is defined for performing the switch from FIFO to FAFO queue policy. Pricing policy

At the beginning of the year participants are given a fee schedule. Fees are charged monthly based on transactions processed.

7.3. Jamaica Central Securities Depository

The Jamaica Central Securities Depository Limited (JCSD) is a subsidiary of the Jamaica Stock Exchange and was established in 1998. The JCSD provides depository, custody, and settlement services for securities traded electronically on the stock market as well as registrar, capital distribution and transfer agent services.

7.3.1. Rules and Participants

A JCSD Participant must (1) be a broker or dealer trading or dealing in Securities; (2) be in good standing under the laws pursuant to which it is incorporated, established and regulated, (3) provide evidence of its financial stability and internal controls (4) satisfactorily meet requirements set out for the protection of the JCSD and the other participants.

The JCSD Rules and the JCSD Participant Agreement comprises characterization for the participants that are able to participate in the system that can be summarized as follows:

- Brokers - These participants are approved JSE Member Dealers. They are able to trade listed securities and therefore these Securities will be settled in the JCSD. They can create accounts and view client details as well as reports.
- Institutional Investors - These participants are able to create accounts and view their client details. They also have the ability to view reports.

All transactions processed on an investor's account are channelled through the participant to which their account is linked.

7.3.2. Clearing and Settlement Process

7.3.2.1. Settlement Procedures

The settlement of funds is processed in JamClear®-RTGS. Brokers trade on the JSE on behalf of their clients. At the end of the trade day a net position is calculated for each broker, either owing or being owed, to be settled three days later. The JCSD acts as Central Counterparty (CCP) in this transaction and on settlement day brokers who are net buyers transfer funds from their account to the JCSD's settlement account. When the JCSD's account is fully funded it funds are transferred to the brokers who are net sellers, clearing its account. The JCSD then effects final transfer of Securities traded in its own system moving Securities gross from seller to buyer.

7.3.2.2. Securities Lending

The following transactions are conducted for Equities - Buys, Sells, transfers (Inter/Intra/ESOP), pledges, Private placement, Stock splits, Bonuses, Dividend payments and Rights issues.

7.3.2.3. Procedures for Handling Failures

The Jamaica Central Securities Depository (JCSD) risk management procedures for handling failures resulting from risks includes:

Legal risk: The participant agrees and signs to a JCSD agreement each year which sets out the terms and conditions for being a participant.

Financial risk: Each broker is required to set up a line of credit (LOC) with a commercial bank of their choice. The participant will confirm to the JCSD how the LOC can be activated.

Operational risk: The JCSD also employs a “four eye principle” when processing transactions. Each participant can extract transaction information from the system for reconciliation purposes or they may request reports at particular intervals.

7.4. Use of the Securities Infrastructure by the Central Bank

7.4.1. Open Market Operations

The main objective of BoJ’s open market operations is to conduct liquidity sterilization and provision operations that will maintain adequate liquidity consistent with attaining and maintaining low and stable inflation. This involves /includes:

- (i) Monetary policy through the use of direct instruments priced at fixed interest rates, floating interest rates or at variable interest rates.
- (ii) The fixed interest rate and floating interest rate instruments are used for sterilization operations.
- (iii) For liquidity provision operations, these are done as repos extended at fixed rates or through competitive (variable rate) auctions.
- (iv) Sterilization instruments are issued electronically and settled in a dematerialized form in JamClear-CSD.
- (v) Liquidity providing operations are conducted via telephone and settled in JamClear-CSD.

All transactions in relation to monetary policy operations are done using the real-time gross settlement system and are settled on the basis of DvP model 1.

The BoJ may purchase or sell securities as a part of its monetary policy operations and also conducts repo operations in the secondary market. Transactions are agreed via telephone and settlement effected in JamClear systems. Repos are agreed via telephone and settlement occurs in JamClear systems. There are foreign exchange interventions in the market, the process is described below:

- (i) The BoJ intervenes in the Foreign Exchange (FX) market via purchases and sales operations. The intervention currency is USD.
- (ii) As a general principle, the aim of intervention is equating market volumes by being a purchaser of last resort in surplus periods and a net supplier in periods where there are shortfalls in supply, which are likely to be short-lived.
- (iii) FX intervention is conducted at a fixed price (specifically the weighted average

- sale rate of the previous day), with the authorised FX dealers¹² indicating the volume.
- (iv) The market is advised via a market-notice which invites authorised FX dealers to submit bids for the amount. These bids are allocated within a two-hour window after the release of the market notice.
 - (v) Transactions are normally for value on the same day; except in cases where there is a public holiday in the US, in which case settlement is done on the next business day.
 - (vi) Settlement for the JMD equivalent of the FX trade is done using JamClear®-RTGS while settlement of the USD counterpart of the FX trade is done through overseas correspondent banks.

The JamClear-CSD is used to conduct auctions for sterilization instruments issued by the BoJ as a part of its monetary policy operations. The systems (JamClear-CSD and JamClear®-RTGS) are used for same-day settlement of transactions for fixed income securities on a DvP basis. The systems also support the Bank's liquidity assessments (forecasting and evaluation) as the Central Bank is able to identify the beneficial owner for the liquidity that emanates from Open Market Operations (OMO) payments. In addition, the systems facilitate real-time settlement and intra-day updates on liquidity conditions in the domestic market. To the extent that the OMO instruments are issued in dematerialized forms in the JamClear®-CSD, the ownership for instruments is fully transferrable among financial market participants who can use the instruments for secondary market transactions.

7.4.2. Lender of Last Resort

The BoJ operates as the lender of last resort, as clearing banks (commercial banks) are able to access JMD liquidity from the Central Bank, usually at the end day, to ensure settlement finality for transactions being settled in the JamClear®-RTGS. The BoJ's lender of last resort operations are conducted as per the requirements of Section 23(f) of the Bank of Jamaica Act: all loans are collateralized by various types of securities, including government-issued bonds; with the Act stipulating that the value of the loan not exceeding 75 per cent of the market value of the securities used. Deposit-taking institutions (DTIs) can access JMD liquidity from the Central Bank via a standing overnight facility.

DTIs are the only financial institutions that can access the standing liquidity facilities (overnight repos). All repos are agreed over the counter and settlement occurs in JamClear Systems. Overnight repos are available on demand in unlimited quantities at a rate determined by the Bank that is a spread above the 30-day CD rate. Institutions usually provide securities housed in JamClear®-CSD to access overnight liquidity. Settlement is done same-day. Outside of overnight standing liquidity facilities, the Bank provides loans to DTIs only. The loans provided by the BoJ are conducted in accordance with the requirements of Section 23f of the BoJ Act, which stipulates the tenor for loans (maximum of 6 months) and that all loans must be collateralized. Within the context of the stated requirements, liquidity is provided to financial institutions (DTIs only) through:

- (i) Competitive (variable rate) repo auctions for a short-term (14-days) liquidity.

¹² The term authorized FX dealers is the group of financial institutions specifically licensed by the BoJ to conduct trading and dealing in foreign exchange trading and dealing (Section 22A of BoJ Act).

- ✓ The DTI submits a bid that includes amount and price for the volume specified by the Central Bank for each operation.
- ✓ Each bid is settled at the interest rate of the bid.
- ✓ The nominal value of the securities to be delivered for a successful bid is determined after the auction allotment is finalized.
- ✓ Settlement for the successful bids from the auction is conducted on the next business day.

(ii) Other repo operations are conducted occasionally, and are generally offered at a fixed-price and determined as a spread relative to the 30-day CD rate.

In order to access a BoJ loan facility as per Section 23f, BoJ Act the Bank accepts government-issued treasury-bills, government-issued bonds, government-guaranteed securities, gold, bills of exchange, promissory notes, and certain types of warrants. In addition, the Bank accepts its Certificates of Deposits (OMO sterilization instrument) as collateral.

The mechanisms of the BoJ to monitor financial system risks are as follows;

(i) The BoJ (Amendment Act), 2015 outlines that the Bank has legal and institutional responsibility for the stability of Jamaica's financial system. As defined in the BoJ (Amendment Act), 2015 financial stability in relation to Jamaica refers to; the orderly operation of financial institutions, financial markets and the payment and settlement infrastructure. In addition, the capability of these components that make up the financial system to absorb internal and external shocks without substantial impairment of the financial system and the real economy.

(ii) The monitoring of financial stability by the BoJ is done at various levels:

- Through a Financial Stability Committee which is an established legal body that has the responsibility to coordinate the activities pursuant to the object of financial system stability (see Section 34H, BoJ (Amendment Act), 2015).
- Through a Financial Stability Department which actively monitors and forecasts micro and macro risk factors that may impact financial institutions and by extension, financial system stability.
- The Payments System Department (PSD) has oversight responsibility of the National Payment System (see Section 3, PCSA, 2010). As part of this responsibility the department monitors and assesses payment systems risks to maintain the stability of financial systems.

(iii) The BoJ publishes, on its website, a Financial Stability Report annually. The details of stress tests and assessment of risk factors to financial stability are extensively discussed therein.

8. STATISTICAL TABLES

The series A of tables are statistics regarding payment and securities clearing and settlement in Colombia. They were prepared according to the common methodology of the Western Hemisphere Payments and Securities clearing and Settlement Forum (WHF). However, there are some differences from the methodology due to the availability of data. The series B are more general statistics related to the financial sector.

SERIES: A

PAYMENTS AND SECURITIES CLEARING AND SETTLEMENT STATISTICS

Table A1: Basic Statistics Data
At year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Population	2638.877	2648.324	2657.76	2667.202	2676.666	2686.105	2695.543	2704.133	2711.476	2717.862	2723.246
GDP (million, nominal)	622.573	699.991	784.17	885.353	997.3	1,065.6	1,154.0	1241.071	1315.756	1430.425	1529.435
GDP per Capita	235923.4629	264323.6965	295049.2144	331940.7379	372,596.7	396,719.0	428,105.6	458953.387	485254.526	526280.256	561693.415
Consumer Price Index	13.7	12.6	5.7	16.8	16.8	10.2	11.7	6.0	8.0	9.7	6.4
Exchange Rate vs. USD	61.63	65.58	67.15	70.62	80.5	89.6	85.9	86.6	92.8	106.4	114.7
<i>Year- end-of-year</i>	61.63	64.58	67.15	70.62	80.5	89.6	85.9	86.6	92.8	106.4	114.7
<i>Average</i>	61.34	62.5	65.88	69.06	72.9	88.5	87.4	86.1	89.0	100.8	111.2

Source: Bank of Jamaica

Table A2: Settlement Media Used by Non-Banks
At year-end, national currency, in millions

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Banknotes and coin in circulation outside banks	25,750	28,705	34,745	39,911	41,193	43,855	47,015	51,505	57,051	57,038	61,969
Transferable deposits											
<i>of which:</i>											
<i>in local currency</i>	25,229	19,820	21,478	23,198	34,000	51,721	37,862	44,573	50,219	48,743	43,164
<i>in foreign currency</i>	9,180	10,266	12,875	13,997	15,963	17,289	14,380	14,750	16,701	22,268	23,878
Narrow money supply (M1)	67,823	72,736	86,886	105,555	100,097	107,818	112,234	120,570	133,265	148,734	165,010
Other:											
E-money storages	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Software-based	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Network-based	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Outstanding value on e-money storages	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

Table A3: Settlement media used by banks
At year-end, national currency, in millions

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Transferable balances held at the central bank											
Required reserves											
<i>In local currency</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>In foreign currency</i>	106,876	125,495	145,868	133,255	143,503	127,577	226,675	215,345	157,283	161,895	252,313
Free reserves											
<i>In local currency</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>In foreign currency</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Transferable balances held at other banks											
Credit extended by the central bank											

Source: Bank of Jamaica

Table A4: Banknotes and coin
At year – end, in millions

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total banknotes and coin issued	84,947,360	88,404,000	94,784,500	102,573,000	109,407,000	119,090,660	110,869,420	106,473,000	118,552,500	132,420,500	138,597,500
Total banknotes issued											
<i>of which:</i>											
\$5,000	n.a.	n.a.	n.a.	n.a.	n.a.	2,940,000	2,425,000	2,255,000	2,090,000	2,265,000	2,335,000
\$1,000	18,956,000	20,720,000	25,120,000	34,540,000	42,570,000	50,360,000	49,410,000	48,500,000	50,630,000	54,710,000	60,830,000
\$500	9,324,000	9,540,000	11,740,000	12,335,000	12,960,000	12,715,000	12,750,000	11,820,000	11,380,000	11,995,000	14,005,000
\$100	2,179,400	2,456,000	2,633,000	2,316,000	2,436,000	2,528,000	2,592,000	2,611,000	2,346,000	2,461,000	2,403,000
\$50	335,300	364,000	389,500	418,500	410,500	409,500	435,100	453,000	454,500	459,500	437,500
Total coin issued											
<i>of which:</i>											
\$20	26,160,000	26,800,000	27,360,000	25,040,000	24,800,000	25,040,000	21,840,000	20,080,000	22,560,000	30,720,000	30,880,000
\$10	14,400,000	15,920,000	14,160,000	14,960,000	14,480,000	14,320,000	10,960,000	10,880,000	13,800,000	14,960,000	18,760,000
\$5	7,860,000	7,860,000	7,920,000	7,740,000	6,300,000	7,200,000	4,920,000	5,160,000	7,260,000	8,640,000	2,810,000
\$1	5,280,000	4,352,000	5,072,000	4,848,000	5,040,000	3,176,000	5,264,000	4,488,000	7,664,000	6,016,000	5,944,000
25cent	276,500	238,000	224,000	241,500	262,500	250,000	182,000	142,000	220,000	120,000	138,000
10cent	176,000	154,000	166,000	134,000	148,000	152,000	91,000	84,000	148,000	74,000	55,000
1cent	160	0	0	0	0	0	0	0	0	0	0
Banknotes and coin in circulation held by banks	31,261	34,395	40,838	45,510	47,194	49,948	54,625	60,344	62,150	67,060	71,913
Banknotes and coin in circulation outside banks	32398.103	35644.528	42317.322	47220.65	49025.65	51856.183	56710.719	62646.682	64684.14	69801.724	74937.086

Source: Bank of Jamaica

Table A5: Institutions offering payment services to non-banks
At year-end

Categories	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central Bank											
Number of branches or offices	1	1	1	1	1	1	1	1	1	1	1
Number of accounts (banks)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of accounts (no-banks)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Value of accounts (\$ billions)	33.918	29.159	32.370	35.597	56.379	74.083	51.403	58.680	69.025	70.264	65.530
Banks											
Number of institutions	65	63	63	62	62	61	59	57	56	50	48
Number of branches or offices	231	246	246	246	249	246	241	242	242	243	234
Number of accounts	1,562,656	1,673,284	1,778,711	1,876,968	1,995,214	2,097,181	2,110,315	2,130,084	2,227,095	2,335,666	2,456,399
Value of accounts (\$ billions)	145.387	156.669	183.436	204.014	214.016	228.855	246.666	261.648	303.326	338.784	366.418
Other institutions offering payment services to non-banks											
Number of institutions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of branches or offices	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of accounts	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Value of accounts (\$ billions)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Electronic money institutions											
Number of institutions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Value of accounts (\$ billions)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Outstanding value on e-money storages	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

Table A6: Payment card and accepting devices
At year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
A. Cards issued in the country											
Cards with a cash function	1,083,012.00	1,218,779.00	1,286,491.00	1,389,860.00	1,534,553	1,699,515	1,872,387	1,895,819	2,116,311	2,349,950	2,776,854
Cards with a debit function	1,083,012.00	1,218,779.00	1,286,491.00	1,389,860.00	1,534,553	1,699,515	1,872,387	1,895,819	2,116,311	2,349,950	2,776,854
Cards with a delayed debit function	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cards with a credit function	197,967.00	156,958.00	167,598.00	175,876.00	190,432	187,611	209,974	196,671	208,774	215,084	227,001
Cards with an e-money function	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>of which: cards with an e-money function which have been loaded at least once</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total number of cards	1,306,422.00	1,375,737.00	1,515,880.00	1,640,859.00	1,802,111	1,959,490	2,140,218	2,146,769	2,377,308	2,616,156	3,049,154
<i>of which: cards with a combined debit, cash and e-money function</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Memo: Retailer cards											
B. Terminals located in the country											
ATM											
<i>of which:</i>											
<i>ATMs with a cash withdrawal function</i>	302	330	372	378	405	419	430	423	424	445	526
<i>ATMs with a credit transfer function</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Number of ATMs networks	1	2	2	2	2	2	2	2	2	2	2
POS terminals											
<i>of which EFTPOS terminals</i>	10,484	12,020	13,609	11,319	12,468	13,342	13,233	14,336	16,565	19,666	24,425
e-money card terminals											
e-money card payment terminals											
e-money card loading/unloading terminals											
Number of EFTPOS networks	1	2	2	2	2	2	2	2	2	2	2
<i>Nationals</i>											
<i>Regionals</i>											

Source: Bank of Jamaica

Table A7: Indicators of the use of payment instruments and terminals by non-banks (volume)
In thousands, summed through the year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
A. Transactions per type of payment instrument											
Credit transfers											
<i>paper based</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>non-paper based</i>	n.a.	n.a.	0.040	209.633	333.584	456.583	596.937	772.836	969.350	1,405.706	1,785.127
Direct debits	0.000	0.000	0.000	92.360	377.908	406.292	401.072	413.989	443.599	461.650	456.187
Card payments with cards issued in the country											
<i>payments by cards with a debit function</i>	n.a.	n.a.	34,024.615	39,659.651	45,873.464	48,815.548	50,417.406	52,653.582	55,463.821	58,389.256	63,463.648
<i>payments by cards with a delayed debit function</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>payments by cards with a credit function</i>	n.a.	n.a.	7,060.809	7,259.252	8,739.363	9,303.408	9,832.943	11,439.432	14,453.071	16,422.940	16,958.147
e-money payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cheques	20,024.369	21,622.196	23,103.225	22,789.244	23,132.868	21,720.373	21,041.405	20,259.881	19,251.523	18,734.491	16,769.408
<i>In local currency</i>	20,024.369	21,622.196	23,103.225	22,789.244	23,132.868	21,720.373	21,041.405	20,259.881	19,251.523	18,734.491	16,769.408
<i>In foreign currency</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other payment instruments	n.a.	n.a.	0.040	0.207	0.344	0.453	0.592	0.766	0.960	1.391	1.772
Total number of transactions with payment instruments	0.00	0.00	0.000	0.089	0.351	0.356	0.349	0.363	0.390	0.399	0.411
<i>of which: cross-border transactions sent</i>											
memo: Cross-border transactions received											
B. Transactions per type of terminal											
Cash transactions	n.a.	n.a.	26,308.717	30,749.311	34,908.838	36,527.781	37,415.222	38,656.093	41,730.684	44,383.055	47,046.252
<i>ATM cash withdrawals</i>	n.a.	n.a.	26,308.717	30,749.311	34,908.838	36,527.781	37,415.222	38,656.093	41,730.684	44,383.055	47,046.252

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
transactions											
<i>e-money card</i>											
loading-unloading transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>e-money card</i>											
payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>e-money storage</i>											
devices payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

B.III Transactions at terminals outside the country by cards issued in the country

Cash transactions

ATM cash withdrawals	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ATM cash deposits	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
POS payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
e-money payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>e-money card</i>											
loading-unloading transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>e-money card</i>											
payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>e-money storage</i>											
devices payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
transactions											
<i>e-money card loading- unloading transactions</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>e-money card payment transactions</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>e-money storage devices payment transactions</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

Table A9: Participation in selected interbank funds transfer systems
At year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Large-value payment systems											
JamClear®-RTGS											
Number of participants	n.a.	n.a.	n.a.	n.a.	n.a.	25	24	24	26	26	25
Direct participants	n.a.	n.a.	n.a.	n.a.	n.a.	24	23	22	24	24	23
Banks	n.a.	n.a.	n.a.	n.a.	n.a.	7	7	7	7	7	6
Central bank	n.a.	n.a.	n.a.	n.a.	n.a.	1	1	1	1	1	1
Other direct participants	n.a.	n.a.	n.a.	n.a.	n.a.	16	15	14	16	16	16
<i>General government</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	1	1	1
<i>Postal institution</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Clearing and settlement organisations</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Other financial institutions</i>	n.a.	n.a.	n.a.	n.a.	n.a.	16	15	14	15	15	15
<i>Other</i>	n.a.	n.a.	n.a.	n.a.	n.a.	1	1	1	1	1	1
Indirect participants	n.a.	n.a.	n.a.	n.a.	n.a.	1	1	2	2	2	2
Retail payment systems											
Automated Clearing House											
Number of participants											
Direct participants											
Banks	6	6	6	6	6	7	7	7	7	7	7
Central bank	1	1	1	1	1	1	1	1	1	1	1
Other direct participants	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>General government</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Postal institution</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Clearing and settlement organisations</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Other financial institutions</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Other</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Indirect participants											
MultiLink											
Number of participants											
Direct participants											
Banks	4	4	4	4	4	4	4	4	4	4	4
Central bank	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other direct participants	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>General government</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Postal institution</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Clearing and settlement organisations</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Other financial institutions</i>	3	3	3	3	3	3	3	3	3	3	3
<i>Other</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Indirect participants	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
cheques	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other payment instruments	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cross-border transactions (sent)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
credit transfers	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
direct debits	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
card payments	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ATM transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
e-money transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
cheques	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other payment instruments	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Concentration in terms of volume (%)											

Source: Bank of Jamaica

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
direct debits	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
card payments											
ATM transactions	17447.501	22385.889	28612.402	35608.052	42351.214	48771.277	50541.951	52706.086	56156.540	60574.199	66134.026
e-money transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
cheques	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other payment instruments	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Cross-border transactions											
(sent)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
credit transfers	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
direct debits	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
card payments	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ATM transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
e-money transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
cheques	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other payment instruments	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Concentration in terms of value											
(%)											

Source: Bank of Jamaica

Table A12: Participation in SWIFT by domestic institutions
At year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Members <i>of which: live</i>	2,280	2,229	2,288								
Sub-members <i>of which: live</i>	3019.00	3060.00	3120.00								
Participants <i>of which: live</i>	2368.00	2574.00	2697.00								
Total users <i>of which: live</i>	7,667	7,863	8,105								

Source: Bank of Jamaica

Table A14: Number of participants in exchanges and trading systems
At year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Jamaica Central Securities Depository											
Total number of participants											
central bank											
central counterparties (CCPs)											
banks											
other											
Total number of domestic participants											
central bank											
central counterparties (CCPs)											
banks											
other											
Total number of foreign participants											
central bank											
central counterparties (CCPs)											
banks											
other											

Source: Bank of Jamaica

Table A15: Number of listed securities
In thousands, at year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Jamaica Central Securities Depository											
Total number of securities admitted to trading											
Debt securities											
short-term paper											
bonds											
Equities	40.00	41.00	44.00	44.00	45.00	44.00	43.00	40.00	36.00	36.00	36.00
Other											

Source: Bank of Jamaica

Table A16: Market capitalisation of listed companies
In millions, at year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
System A											
Total market capitalisation	879,297.2 96	839,852.7 62	822,862.3 51	876,690.6 10	597,277.0 36	544,882.5 59	564,720.7 05	619,444.7 70	590,637.4 43	492,179.9 64	296,836.8 62

Table A19: Number of clearing members
At year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Entity A (CCP or clearing house)											
Total number of clearing members											
central bank	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
central counterparties (CCPs)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other	11	11	11	11	11	11	11	11	10	10	12
Number of domestic clearing members											
central bank	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
central counterparties (CCPs)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other	11	11	11	11	11	11	11	11	10	10	12
Number of foreign clearing members											
central bank	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
central counterparties (CCPs)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of OTC derivatives contracts cleared											
Financial futures	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Financial options	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other financial derivatives	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Commodity futures	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Commodity options	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other commodity derivatives	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of OTC derivatives contracts cleared											
Financial futures	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Financial options	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other financial derivatives	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Commodity futures	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Commodity options	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other commodity derivatives	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

central securities depositories	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other	21	21	19	19	19	19	19	19	19	18	20

Total number of foreign participants in
CSDs

central bank	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
central counterparties (CCPs)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
central securities depositories	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

Table A23: Number of securities held on accounts at CSDs
In thousands, summed through the year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JamClear-CSD											
Total number of ISIN codes held	n.a.	n.a.	n.a.	n.a.	n.a.	1039	1174	871	825	783	824
Debt securities											
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	902	1069	864	817	733	707
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	137	105	7	8	50	117
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Jamaica Central Securities Depository											
Total number of ISIN codes held											
Debt securities											
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Equities	40	41	44	44	45	45	51	52	52	57	62
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

Table A24: Value of securities held on accounts at CSDs
In thousands, summed through the year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JamClear-CSD											
Total value of securities held	n.a.	n.a.	n.a.	n.a.	n.a.	161886.146	805643.120	860276.513	842930.480	836049.807	851179.030
Debt securities											
short-term	n.a.	n.a.	n.a.	n.a.	n.a.	3,155.806	660,310.218	761,249.270	783,621.011	800,812.654	794,344.441
paper											
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	158,730.340	145,332.902	99,027.243	59,309.469	35,237.153	56,834.589
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Jamaica Central Securities Depository											
Total value of securities held	87,929.00	82,796.00	81,475.00	87,131.00	59,330.00	55,243.00	64,938.00	85,539.00	81,165.00	76,609.00	55,780.00
Debt securities											
short-term	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
paper											
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Equities	87,929.00	82,796.00	81,475.00	87,131.00	59,330.00	55,243.00	64,938.00	85,539.00	81,165.00	76,609.00	55,780.00
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

Table A25: Number of delivery instructions processed
In thousands, summed through the year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total number of delivery instructions	n.a.	n.a.	41,921	38,621	30,323	17,173	29,028	44,047	36,585	35,932	33,779
JamClear-CSD											
DVP transactions	n.a.	n.a.	n.a.	n.a.	n.a.	59	566	842	397	106	53
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	59	566	842	397	106	53
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	59	65	28	22	9	2
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	0	501	814	375	97	51
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Free-of-payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	1,001	8,911	12,003	11,626	10,385	13,010
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	1,001	8,911	12,003	11,626	10,385	13,010
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	979	5,479	7,049	6,169	5,408	4,673
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	22	3,432	4,954	5,457	4,977	8,337
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Jamaica Central Securities Depository											
DVP transactions	n.a.	n.a.	41,921	38,621	30,323	16,113	19,551	31,202	24,562	25,441	20,716
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Equities	n.a.	n.a.	41,921	38,621	30,323	16,113	19,551	31,202	24,562	25,441	20,716
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Free-of-payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

Table A26: Value of delivery instructions processed
In millions, total for the year

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total value of delivery instructions	n.a.	n.a.	3,704.00	2,905.00	6,703.00	51,645.15	689,969.89	914,401.75	896,033.61	144,1164.97	257,8211.30
JamClear-CSD											
DVP transactions	n.a.	n.a.	n.a.	n.a.	n.a.	2,739.060	85,857.910	81,497.970	79,161.720	36,804.030	38,779.980
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	2,739.060	85,857.910	81,497.970	79,161.720	36,804.030	38,779.980
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	2,739.060	14,896.780	4,867.630	5,807.820	12,128.490	17.930
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	0.000	70,961.130	76,630.340	73,353.900	24,675.540	38,762.050
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Free-of-payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	47,687.090	602,007.980	830,679.780	810,242.890	1,402,624.940	2,537,950.320
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	47,687.090	602,007.980	830,679.780	810,242.890	1,402,624.940	2,537,950.320
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	46,284.970	286,319.360	360,367.730	241,044.710	80,716.120	59,455.440
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	1,402.120	315,688.620	470,312.050	569,198.180	1,321,908.820	2,478,494.880
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Jamaica Central Securities Depository											
DVP transactions	n.a.	n.a.	3,704	2,905	6,703	1,219	2,104	2,224	6,629	1,736	1,481
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Equities	n.a.	n.a.	3,704	2,905	6,703	1,219	2,104	2,224	6,629	1,736	1,481
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Free-of-payment transactions	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Debt securities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
short-term paper	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
bonds	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Equities	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Bank of Jamaica

TABLES PS SELECTED INTERBANK FUNDS TRANSFER SYSTEMS

Table PS1: Features of selected interbank funds transfer systems

System	Type	Settlement	Owner/manager	Processing	Membership	Degree of centralisation	Pricing	Closing time for same day transactions	Cut-off third-party orders	Standard money market hours	
										opening	closing
JamClear®-RTGS	L+R	RTGS	CB	RTT	R	C	V	16:45	16:20	07:30	16:45

Source: Bank of Jamaica

Table PS2: Payments processed by selected interbank funds transfer systems: value of transactions
Total for the year

System	Number of transactions											Increase in the number of transactions (% change on previous year)										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	JamClear®-RTGS						0.097	0.133	0.184	0.220	0.256									36.77	37.99	20.07

Source: Bank of Jamaica

Table PS3: Payments processed by selected interbank funds transfer systems: value of transactions
In millions, total for the year

JamClear®-RTGS

Value of transactions										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					7,406,972.26	11,002,155.36	12,497,785.09	13,328,884.44	14,209,521.17	14,605,340.45
Average value per transaction										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					76,023,527	82,361,326	68,028,115	60,445,714	55,473,871	49,761,642
Increase in the real value of transactions (% change on previous year, adjusted by CPI)										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value of transactions as a percentage of GDP (in %)										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					18.7	25.7	27.2	27.5	27.0	26.0

Source: Bank of Jamaica

Table PS4: Participation in selected interbank funds transfer systems
At year - end

JamClear®-RTGS

Total number of participants										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					25	24	24	26	26	25
of which: direct participants										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
					24	23	22	24	24	23
Concentration ratio in terms of volume										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Concentration ratio in terms of value										
2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014

Source: Bank of Jamaica

TABLES TRS SELECTED EXCHANGES AND TRADING SYSTEMS

Table TRS1: Features of selected exchanges and trading systems

System	Ower/manager	Market/products	Trading	Operating times	Relationship with CCP
System A System B					

Table TRS2: Trades executed on selected exchanges and trading systems: number of transactions

System	Number of transactions	Increase in the number of transactions (% change on previous
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TABLES CSD SELECTED CENTRAL SECURITIES DEPOSITORIES

Table CSD1: Features of selected central securities depositories

System	Type of securities held	Owner/manager	Securities settlement system	Closing time for same day transactions	Links to other CSDs	Type of Settlement	Delivery lag (T+n)	Intraday finality	DVP mechanism	Currencies	Cash settlement agent
JamClear-CSD	DOM, B, C, G	CB	JamClear-CSD	REALTIME	N/A		T+0	YES	DVP Model 1	JMD, USD	CB
Jamaica Central Securities Depository	DOM	O	DEPEND	1:00PM	N/A	DVP	TRADE DATE+3	NO		JMD & USD	CB

Source: Bank of Jamaica

Table CSD2: Transactions processed by selected central securities depositories: number of transactions
Total for the year

System	Number of transactions											Increase in the number of transactions (% change on previous year)										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JamClear-CSD						1,060	9,477	12,845	12,023	10,491	13,063						n.a.	794.06	35.54	-6.4	-12.74	24.52
Jamaica Central Securities Depository		41,921	38,621	30,323	16,113	19,551	31,202	24,562	25,441	20,716			n.a.	-8	-21	-47	21	60	-21	4	-19	

Source: Bank of Jamaica

Table CSD3: Transactions processed by selected central securities depositories: value of transactions
Total for the year

	Value of transactions										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JamClear-CSD						50,426.150	687,865.890	912,177.750	889,404.610	143,9428.970	2,576,730
Jamaica Central Securities Depository		3,704.000	2,905.000	6,703.000	1,219.000	2,104.000	2,224.000	6,629.000	1,736.000	1,481.000	

	Average value per transaction										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JamClear-CSD						47.572	72.583	71.014	73.975	137.206	197
Jamaica Central Securities Depository		n.a.	-22	131	-81.814	72.600	5.703	198.067	-73.812	-15	

Increase in the real value of transactions (% change on previous year, adjusted by CPI)

	Increase in the real value of transactions (% change on previous year, adjusted by CPI)										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JamClear-CSD											
Jamaica Central Securities Depository											

Value of transactions as a percentage of GDP (in %)

	Value of transactions as a percentage of GDP (in %)										
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JamClear-CSD						47.321	596.083	734.992	675.965	1,006.295	1,685.000
Jamaica Central Securities Depository											

Source: Bank of Jamaica

Table CSD4: Participation in selected central securities depositories
At year end

System	Total number of participants											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	
JamClear-CSD							45	46	49	50	50	50
Jamaica Central Securities Depository	21	21	19	19	19	19	19	19	19	18	20	

Source: Bank of Jamaica

SERIES: B
GENERAL STATISTICS

Table B1: Number of Financial Entities
At year end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central bank	1	1	1	1	1	1	1	1	1	1	1
Total financial system	65	63	63	62	62	61	59	57	56	50	48
Bank											
<i>of which:</i>											
Private Banks	6	6	6	6	7	7	7	7	7	7	6
Foreign Capital Banks	4	4	4	4	4	4	4	4	4	4	3
Branches of Foreign Banks	1	1	1	1	1	1	1	1	1	1	1
Non-Banks Financial Entities											
<i>Building Societies</i>	4	4	4	4	4	4	4	4	4	3	3
<i>Licenseses under the Financial Institution Act</i>	5	5	5	4	3	3	2	2	2	2	2
<i>Credit Unions</i>	50	48	48	48	48	47	46	44	43	38	37

Source: Bank of Jamaica

Table B2: Number of Branches
At year end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central bank	1	1	1	1	1	1	1	1	1	1	1
Total financial system	230	246	246	246	249	246	241	242	242	243	234
Bank											
<i>of which:</i>											
<i>Public Banks</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Private Banks</i>	126	123	124	126	129	124	119	118	118	113	104
National Banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Foreign Capital Banks	123	119	120	120	118	113	108	107	106	101	80
Branches of Foreign Banks	1	1	1	1	1	1	1	1	1	1	1
Non-Banks Financial Entities											
<i>Building Societies</i>	48	47	47	45	47	49	49	50	50	50	50
<i>Licenseses under the Financial Institution Act</i>	6	10	10	9	5	5	4	4	4	4	4
<i>Credit Unions</i>	50	66	65	66	68	68	69	70	70	76	76

Source: Bank of Jamaica

Table B3: Number of Financial Sector Employees
At year end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central bank	522	490	487	550	504	589	608	605	586	562	567
Total financial system	7158	6896	7309	7418	6404	6493	7030	7721	7675	7180	6638
Bank											
<i>of which:</i>											
<i>Public Banks</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Private Banks</i>	5625	5391	5856	5846	5047	5129	5704	6065	6038	5746	5421
National Banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Foreign Capital Banks	5405	5172	5624	5607	4774	4766	5309	5618	5573	5282	4437
Branches of Foreign Banks	77	77	80	74	73	77	74	73	72	63	61
Non-Banks Financial Entities											
<i>Building Societies</i>	1345	1270	1202	1331	1159	1160	1139	1525	1520	1324	1098
<i>Licenseses under the Financial Institution Act</i>	188	235	251	241	198	204	187	131	117	110	119
<i>Credit Unions</i>											

Source: Bank of Jamaica

Table B4: Financial System: Assets
In billions, at year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central bank						310.103	371.175	370.875	315.455	342.719	505.726
Total financial system						814.793	833.056	874.424	941.004	1040.36	1159.09
Bank											
<i>of which:</i>											
<i>Public Banks</i>						n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Private Banks</i>						566.055	579.659	600.935	646.914	726.889	815.652
National Banks						n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Foreign Capital Banks						507.302	521.425	536.254	579.506	652.516	671.231
Branches of Foreign Banks						15.9632	15.6715	19.4379	18.1568	18.1072	16.0049
Non-Banks Financial Entities											
<i>Building Societies</i>						159.295	168.338	185.472	201.504	211.55	230.286
<i>Licenseses under the Financial Institution Act</i>						32.9513	24.2105	21.2897	21.3055	25.314	30.9646
<i>Credit Unions</i>						56.4917	60.8487	66.7268	71.2807	76.6078	82.1907

Source: Bank of Jamaica

Table B5: Financial System: Deposits
In billions, at year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central bank											
Total financial system	320.899	347.955	400.882	457.044	481.323	524.235	551.216	580.082	638.886	698.499	752.305
Bank											
<i>of which:</i>											
<i>Public Banks</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Private Banks</i>	228.19	246.265	282.926	321.053	333.96	357.088	379.094	400.122	444.795	487.472	523.809
National Banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Foreign Capital Banks	216.699	227.801	263.936	301.431	307.6	326.084	343.947	363.459	407.112	443.108	433.676
Branches of Foreign Banks	7.20526	9.05363	8.85971	6.39501	6.32583	7.57769	11.7106	9.76408	8.43091	10.7705	10.7546
Non-Banks Financial Entities											
<i>Building Societies</i>	58.7918	64.0762	73.5851	84.4231	93.2853	110.094	115.891	121.783	131.438	141.353	152.225
<i>Licenseses under the Financial Institution Act</i>	11.4364	12.1399	14.017	17.1533	14.5194	13.0169	8.36102	6.55604	7.85211	11.1176	13.9361
<i>Credit Unions</i>	22.4803	25.4738	30.3547	34.4142	39.5587	44.0366	47.8706	51.6204	54.8012	58.5567	62.335

Source: Bank of Jamaica

Table B6: Financial System: Loans
In billions, at year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central bank	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total financial system	166.856	198.604	234.303	299.257	367.973	387.646	384.336	405.331	457.734	519.818	553.991
Bank											
<i>of which:</i>											
<i>Public Banks</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Private Banks</i>	113.369	132.095	153.449	195.103	246.165	256.39	251.341	266.043	307.479	362.116	380.97
National Banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Foreign Capital Banks	110.06	127.613	148.403	188.577	231.095	237.753	232.412	245.189	284.04	333.19	319.336
Branches of Foreign Banks	0.911	1.44657	0.95433	1.36526	0.46632	1.06191	2.11096	2.07453	2.667	3.81722	2.52745
Non-Banks Financial Entities											
<i>Building Societies</i>	29.2786	36.5227	43.7758	58.9659	76.1609	84.5802	87.3054	89.3396	95.8791	97.3765	107.174
<i>Licenseses under the Financial Institution Act</i>	6.8526	8.67026	11.1467	14.2072	10.8185	9.69138	7.18629	6.88545	5.62512	7.09309	9.25394
<i>Credit Unions</i>	17.3562	21.3155	25.9316	30.9812	34.8283	36.9841	38.5032	43.0629	48.7514	53.2328	56.5925

Source: Bank of Jamaica

Table B7: Financial System: Equity
In billions, at year-end

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Central bank	4.19454	3.0082	4.54292	5.84394	5.10589	8.83524	10.3918	13.0961	11.7226	7.65024	8.89897
Total financial system	67.1972	73.8733	84.6242	93.6134	95.9073	114.433	125.462	148.094	143.218	158.717	176.47
Bank											
<i>of which:</i>											
<i>Public Banks</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Private Banks</i>	41.2715	44.9249	51.9141	56.8716	62.6725	76.3324	84.0978	100.621	92.8582	105.048	117.261
National Banks	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Foreign Capital Banks	37.1316	40.6864	47.3295	51.9731	54.5872	65.512	71.8549	87.3043	79.1763	90.8395	90.1251
Branches of Foreign Banks	2.26946	1.92692	1.8564	1.90903	2.5496	3.24896	3.37397	3.71061	3.51783	3.8781	3.92061
Non-Banks Financial Entities											
<i>Building Societies</i>	15.4048	16.3661	18.5352	21.2015	20.3959	23.4891	26.5086	31.1057	33.3706	34.4321	37.9296
<i>Licenses under the Financial Institution Act</i>	5.78953	7.1125	7.91241	8.32819	4.66042	5.1246	4.67301	4.75555	4.67015	5.38064	6.05466
<i>Credit Unions</i>	4.73134	5.46978	6.26249	7.21216	8.17844	9.48725	10.183	11.6108	12.3192	13.8563	15.2242

Source: Bank of Jamaica

9. GLOSSARY

In January 2001 the Committee on Payments and Settlement Systems (CPSS) of the Bank for International Settlements (BIS) published the first edition of a glossary that included payment and securities clearing and settlement terms. This glossary can be found on the BIS web page: www.bis.org. The Western Hemisphere Payments and Securities Clearing and Settlement Forum (WHF), based on the glossary produced by the CPSS, has also produced a uniform glossary of terms in Spanish with the objective of avoiding unnecessary proliferation of terms and definitions. This glossary in Spanish can be found on the WHI web page: www.forodepagos.org.