



BANK OF GHANA

# PAYMENT SYSTEMS OVERSIGHT

ANNUAL REPORT, 2015



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## EXECUTIVE SUMMARY

This is the maiden edition of Ghana's Payment Systems Annual Report. The report aims at highlighting developments and identifying vulnerabilities in the payment systems space that may pose risk to price and financial stability. This report also aims at supporting policy to deepen the payment systems and also help to foster financial and social inclusion.

The year 2015 witnessed significant changes in the Ghanaian Payment Systems. Most prominent was the introduction of the Guidelines for Electronic Money Issuers and Agent Guidelines in July. These Guidelines were issued as part of the Bank's broader strategy to create an enabling regulatory environment for convenient, efficient and safe non-cash retail payment and funds transfer. In addition, the Payment Systems Office of the Bank developed a series of prudential returns to collect and monitor developments in the electronic money business and also in the payment system landscape. A web based portal to enable reporting institutions to submit these returns online was developed. This portal is hosted at the Bank's website.

The year also witnessed the release of several new innovative electronic payment services, including GhIPSS Instant Pay (GIP) and gh-link eCommerce services to promote fast, reliable and efficient online retail payments, and Ecobank Capital Advisors TBILL4ALL, which allows customers to remotely register, apply, purchase, rediscount and redeem treasury bills through their mobile phone. Also, mobile Point of Sale (mPos) device, which provides affordable means for merchant to accept card payments, and the Airtel-Bank of Africa Cross-Border Money Transfer Service, which allows customers to send cross-border inward remittances from one AirTel money wallet to another were launched. The year under review also witnessed Vodafone Ghana joining the other major mobile network operators in the mobile money business.

Cash as a payment instrument continued to play a significant role in Ghana's economy; however its role is

gradually decreasing on account of non-cash alternatives that have emerged. This is largely due to various policies put in place by the Bank and other stakeholders to move Ghana towards a "cash-light" economy. All the major non-cash payment streams experienced considerable growth in volumes, values and clearing of transactions in 2015 compared with 2014. Cheques continued to be the major non-cash retail payment instrument, accounting for 71.7% of total value of non-cash retail payments, while volume of mobile money transactions represented approximately 94% of total volume of non-cash retail payments. Cheques saw modest growth in transaction value and volume of 2.64% and 15.38%, respectively, while other non-cash payment instruments witnessed exponential growth in transaction value and volume. E-zwich increased in transaction value and volume by 260.08% and 238.47%, respectively. Mobile Money recorded 150.16% and 205.77% growth in volume and value of transactions in 2015. Registered mobile money customers of 13,120,367 as at end 2015 showed an increase of 83.05% over the 2014 position of 7,167,542.

One of the key priorities of the Bank is to contribute to the development of modern, resilient and efficient market infrastructures to serve the needs of the economy and also facilitate the development of a safe and efficient financial market. The Payment Systems Office conforms to the Principles for Financial Market Infrastructures issued by the Committee on Payment and Settlement Systems (CPSS) of the Bank for International Settlements (BIS) and the Technical Committee of the International Organisation of Securities Commission (IOSCO) in carrying out its oversight activities. The key principles that guide the office in its oversight work are as follows:

- **Transparency:** The Bank publicly declares its oversight policies and standards for the various payment system streams.
- **International Standards:** Relevant internationally recognized standards are suitably adopted for the payment and settlement

systems oversight activities.

- **Exercise of Statutory Authority:** The Bank uses its authority under the applicable laws to engage stakeholders to comply with relevant standards and also to conduct their businesses to foster sound, effective and efficient national payment and settlement system as well as financial stability.
- **Consistency:** Oversight standards are consistently applied to comparable payment and settlement systems.
- **Cooperation in Oversight:** The Bank collaborates with other relevant central banks and other supervisory authorities including the National Communications Authority (NCA) to promote safety and efficiency of the payment and settlement systems. A draft Memorandum of Understanding between the Bank and the NCA was prepared after various consultations.

The Office conducted on-site inspections of all security cheque printers and analysed off-site the monthly returns of payment systems providers. As part of its oversight responsibility, systems operators and participants (GIS, GhIPSS, Bank of Ghana as a participant, universal banks and mobile network operators who issue e-money) submitted monthly returns to the Bank. The returns broadly covered

access and usage and provided information on transactions volumes and values, service fees and tariffs of the various payment distribution channels, branch and agent network. Information on incident, fraud and defalcation; customer complaint; service interruption; suspicious transactions and concentration levels among the largest e-money holders were also submitted by Electronic Money Issuers. Submission of the prudential returns commenced in June 2015. The Bank also made some commitments in the Alliance for Financial Inclusion Maya Declaration. The Maya Declaration is a set of common principles regarding the development of financial inclusion policy made by a group of developing nation regulatory institutions during the Alliance for Financial Inclusion's (AFI) 2011 Global Policy Forum held in Mexico. One of the major commitments made by Ghana in this declaration was to review the regulatory framework of branchless banking to create an enabling environment and promote innovation towards the achievement of 70% financial inclusiveness in Ghana by the year 2017.

The significant growth in various payments streams, especially electronic money showed that the payment systems landscape is changing fast on account of interest shown by financial institutions, non-financial institutions and the non-bank public.

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# Chapter 1: Developments in the Payment Systems Landscape

## 1.0 EVOLUTION OF THE GHANAIAN PAYMENTS SYSTEM IN 2015

The Payment System landscape witnessed significant developments in 2015 and key among these developments were:

- Significant changes in Regulatory Environment
  - Launching of E-Money and Agent Guidelines
  - Development of Payment System Reporting Framework
- Product/Service Development
- Growth in Non-Cash Payment Streams
- Continuous growth in mobile money float balances

### 1.1 SIGNIFICANT CHANGES IN REGULATORY FRAMEWORK

#### 1.1.1 LAUNCHING OF E-MONEY AND AGENT GUIDELINES

In July 2015, the Bank published two payment systems guidelines, namely Guidelines for E- Money Issuers in Ghana and the Agent Guidelines. These Guidelines form part of the Bank's broad strategy of creating an enabling regulatory environment for scaling up adoption and usage of convenient, efficient and safe electronic retail payments and funds transfer systems. The Agent Guidelines were issued to promote the use of agents as channels for the delivery of financial services and also specify the necessary safeguards and controls to mitigate risks and also protect consumers..

The publication of these Guidelines has engendered the interest of financial and non-financial institutions service providers in the mobile money subsector. New institutions emerged in the payment ecosystem space and new products as well as services were delivered through market-driven collaboration between financial and non-financial institutions. An example of this collaboration is the opportunity for e-money holders to withdraw money from Automated Teller Machines (ATMs) of some selected financial institutions without using a payment

card. Other products arising from these collaborations included savings, credit, insurance and inward remittances.

#### 1.1.2 PAYMENT SYSTEMS REPORTING FRAMEWORK

In 2015 the Payments System Office of the Bank developed various reporting formats and guides to collect and monitor developments in the payment system landscape. The following reporting guides and formats were introduced:

- Guide for Reporting Institutions (E-Money Issuers)
- Guide for Reporting Institutions (Deposit Money Banks)
- E-Money Transaction Return
- E-Money Regional Distribution Return
- Incident, Fraud and Defalcation Return
- Customer Complaints Return
- Service Interruption Return
- Suspicious Transactions Return
- Hundred Largest e-money Holders Return
- E-Money Issuers Fees/Tariffs and Charges Return

### 1.2 PRODUCT/SERVICE DEVELOPMENT

#### 1.2.1 GHIPSS INSTANT PAY (GIP) AND GH-LINK ECOMMERCE

In August 2015, GhIPSS launched two services, namely, the gh-link<sup>TM</sup> Internet Payment Gateway and GhIPSS Instant Payment Services, to promote fast, reliable and efficient online retail payments. The Instant Pay service provides real time funds transfer while the gh-link<sup>TM</sup>MeCommerce gateway enables merchants and service providers to accept payments online.

#### 1.2.2 ECOBANK CAPITAL ADVISORS TBILL4ALL

Ecobank Capital Advisors (ECA), a wholly-owned subsidiary company of Ecobank Ghana Limited, in collaboration with MTN obtained approval from the Bank to sell Treasury bills on MTN mobile money platform with the view to facilitating mobilization of funds from the informal sector.

The platform serves as channel to



transmit customers' Treasury bill requests from their phones to the TBill4All database application system. It also enables transfers between customers' mobile money wallets and ECA mobile money wallets for Treasury bills purchases and rediscounts. The instruments that are available on the mobile money platform are:

- 91-day Treasury bills
- 182-day Treasury bills

The service allows customers to remotely register, apply, purchase, rediscount and redeem treasury bills.

### 1.2.3 mPOS

GCB Bank Limited (GCB) was granted approval to deploy mobile Point of Sales (mPOS) across the country. The mPOS is a smartphone, tablet or dedicated wireless device that enables POS transactions. The mPOS is connected to a merchant's phone through the Bluetooth technology to enable the processing of a payment transaction.

### 1.2.4 AIRTEL-BOA CROSS-BORDER MONEY TRANSFER SERVICE

Airtel Ghana Limited in collaboration with the Bank of Africa obtained approval to engage in cross-border inward money transfer operations under the name 'Airtel-BOA Cross-Border Money Transfer Service'. The scheme allows a sender to either send money from his Airtel Money (AM) wallet to the recipient's AM wallet; or walk to an Airtel Money agent and deposit the cash meant for transfer.

### 1.2.5 VODAFONE MOBILE CASH PRODUCT

Vodafone Ghana Ltd. was authorised in September 2015 to operate as Dedicated Electronic Money Issuer (DEMI).

## 1.3 GROWTH IN NON-CASH PAYMENT STREAMS

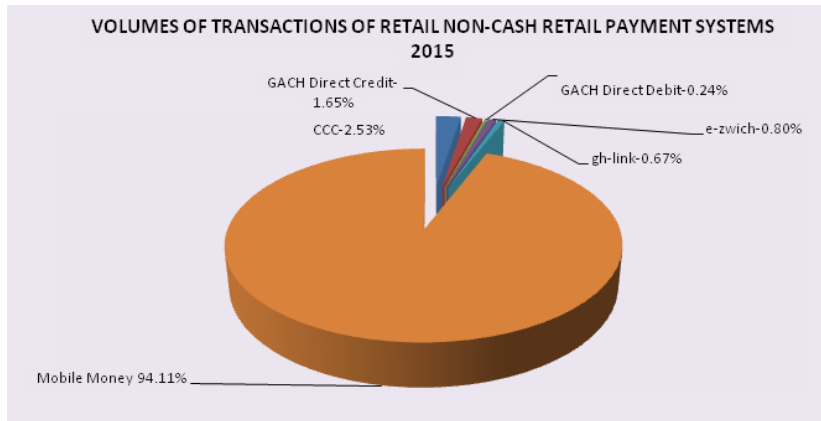
All the major payment streams (see Table 1) experienced growth in both volumes and values of payment and clearing transactions processed in 2015 compared to 2014. Cheques continued to be the major non-cash retail payment instrument in terms of value of transactions whilst mobile money financial services accounted for significant amount of volume of retail payment transactions. Value of cheques cleared on CCC platform accounted for 71.7% of total value of non-cash retail payments while volume of mobile money transactions represented approximately 94% of total volume of non-cash retail payments (Table 1 and Charts 1 & 2). The growth in payments, clearing and settlement transactions may be attributed to the recent interest shown by the public, financial institutions and non-financial institutions in the current regulatory environment.

The data below represented the annual aggregate of volumes and values of payment, clearing and settlement transactions processed through respective payment systems in 2014 and 2015 (Table 1 and Chart 1 & 2).

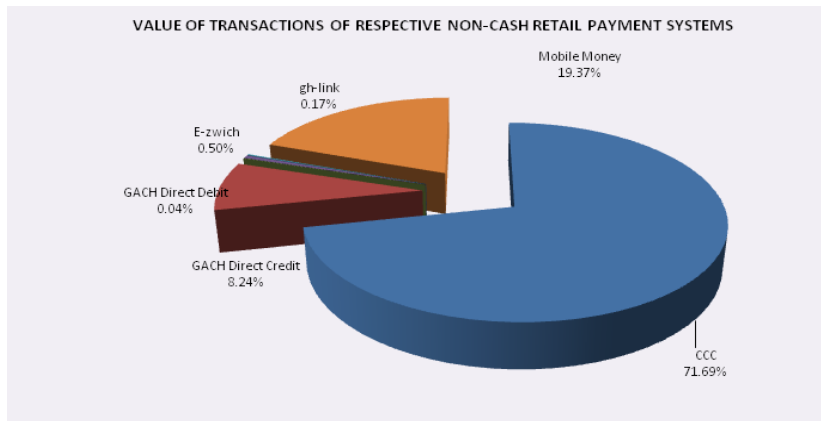
**TABLE 1: TOTAL TRANSACTIONS OF NON-CASH PAYMENT SYSTEMS UNDER REVIEW**

Payment System	2014		2015		Change 2015		% Change 2015	
	Volume	GH¢ million	Volume	GH¢ million	Volume	GH¢ million	Volume	GH¢ million
GIS	699,956	758,312.16	794,282	1,032,544.00	94,326	274,232	13.48	36.16
CCC	6,962,297	113,698.39	7,146,259	131,189.70	183,962	17,491	2.64	15.38
GACH Direct Credit	3,963,802	10,815.21	4,668,636	15,075.07	704,834	4,260	17.78	39.39
GACH Direct Debit	341,875	31.48	692,615	70.91	350,740	39	102.59	125.25
E-zwich	625,167	272.67	2,251,101	922.9	1,625,934	650	260.08	238.47
gh-link	1,346,963	183.32	1,899,645	305.14	552,682	122	41.03	66.45
Mobile Money	106,431,007	11,592.00	266,246,537	35,444.38	159,815,530	23,852	150.16	205.77

**CHART 1: VOLUMES OF TRANSACTIONS OF RESPECTIVE NON-CASH RETAIL PAYMENT SYSTEM -2015**



**CHART 2: VALUES OF TRANSACTIONS OF RESPECTIVE NON-CASH RETAIL PAYMENT STREAMS -2015**



## Chapter 2: Developments in Payment Systems Statistics

### 2.1 KEY PAYMENT SYSTEMS STATISTICS 2014-2015

The major Financial Markets Infrastructures (FMIs) under the supervision of the Bank included the following:

- Ghana Interbank Settlement (GIS) which is Ghana's Real Time Gross Settlement (RTGS) system.
- Cheque Codeline Clearing (CCC) system
- Ghana Automated Clearing House (GACH) system
- National Biometric SmartCard Payment System - e-zwich<sup>TM</sup>
- National Switching and Processing System - gh-link<sup>TM</sup>
- Ghana's Paper Payment Instrument Accreditation Scheme

The GIS system handles large-value and high-priority payments and is operated by the Bank. The Ghana Interbank Payment and Settlement System

(GhIPSS), a wholly owned subsidiary of the Bank handles retail payments and clearing systems. These systems process large volumes of relatively low value payments.

The large value transactions are processed directly through the GIS whilst low value payments transactions are cleared and netted through GhIPSS's platform and posted into GIS for settlement.

Three (3) local security printers were accredited by the Bank to print paper payment instruments operating under the Paper Payment Instrument Accreditation Scheme. The purpose of the Scheme is to ensure high integrity of paper payment instruments. Accredited printers are subjected to annual inspection for re-accreditation.

Table 2 provides some of the key comparative economic and payments statistics for 2014 and 2015.

TABLE 2: BASIC ECONOMIC DATA AND PAYMENT STREAMS STATISTICS - 2014 & 2015

Category	Indicators	2014	2015	Annual Change 2015 (%)
Basic Statistical data	Total Population Estimate (Million)	27.04	27.67	2.33
	Exchange Rate (GHS/USD\$)-End of Year	3.2	3.8	18.69
	Nominal Gross Domestic Product (GDP) GH¢'Million	113,343	133,297	17.60
Institutions offering payment services	Licensed Banks (DMBs)	28	29	3.57
	Bank Branches	967	1,173	21.30
	Rural and Community Banks	138	139	0.72
	NBFI	60	62	3.33
	Micro Finance Institution (MFI)	503	546	8.55
	Mobile Money Operators	3	4	33.33
	Active mobile money agents	20,722	56,270	171.55
Large Value Payments (RTGS): Ghana Interbank Settlement (GIS) system	Volume	699,956	794,282	13.48
	Value (GH¢'million)	758,312.16	1,032,544.00	36.16
	Average Value per Transaction (GH¢)	1,083,371.18	1,299,971.55	19.99
	Volume of transactions per day	2,777.60	3,164.47	13.93
Cheque Codeline Clearing (CCC)	Volume	6,962,297	7,146,259	2.64
	Value (GH¢million)	113,698.39	131,189.70	15.38
	Average Value per Transaction (GH¢)	16,330.59	18,357.81	12.41
	Average Volume of transactions per day	27,628.16	28,471.15	3.05
ACH Direct Credit	Volume	3,963,802	4,668,636	17.78
	Value (GH¢'million)	10,815.21	15,075.07	39.39
	Average Value per Transaction (GH¢)	2,728.49	3,229.01	18.34
	Average Volume of transactions per day	15,729.37	18,600.14	18.25

Category	Indicators	2014	2015	Annual Change 2015 (%)
ACH Direct Debit	Volume	341,875	692,615	102.59
	Value (GH¢'million)	31.48	70.91	125.25
	Average Value per Transaction (GH¢)	92.08	102.38	11.19
	Average Volume of transactions per day	1,356.65	2,759.42	103.40
E-Zwich	Total Number of Cards Issued	1,084,121	1,369,369	26.31
	Volume of Transactions	625,167	2,251,101	260.08
	Value of Transactions (GH¢million)	272.67	922.9	238.47
	Average Volume of transactions per day	1,712.79	6,167.40	260.08
Gh_Link (National Switch)	Volume	1,346,963	1,899,645	41.03
	Value (GH¢'million)	183.32	305.14	66.45
	Average Value per Transaction (GH¢)	136.1	160.63	18.02
	Average Volume of transactions per day	3,690.31	5,204.51	41.03
Mobile Money	Total number of mobile phone subscribers (Cumulative)	30,360,771	35,008,387	15.31
	Registered mobile money customers (Cumulative)	7,167,542	13,120,367	83.05
	Active mobile money customers	2,526,588	4,868,569	92.69
	Registered Agents (Cumulative)	26,889	79,747	196.58
	Active Agents	20,722	56,270	171.55
	Total volume of mobile money transactions	113,179,738	266,246,537	135.24
	Total value of mobile money transactions (GH¢'Million)	12,123.89	35,444.38	192.35
	Balance on Float (GH¢'Million)	223.33	547.96	145.36
	Average Volume of transactions per day	310,081.47	729,442.57	135.24

TABLE 3: DATA ON PAYMENT CHANNELS AND INSTRUMENTS REPORTED BY THE BANKS\* - HALF YEAR ENDING 2015

Item	Indicators	Half Year Ending Dec. 2015
ATMs	Number of ATMs (cumulative)	912
	Volume of transactions	28,367,033
	Value of transactions (GH¢)	5,876,478,243
POS Terminals	Number of Terminals (cumulative)	4,841
	Volume of transaction	1,007,180
	Value of transaction (GH¢)	403,263,712
Internet Banking	Number of Customers registered	840,532
	Volume of transactions	999,439
	Value of transactions (GH¢)	2,286,702,322
Mobile Banking	Number of Customers registered	1,449,374
	Volume of transactions	5,440,387
	Value of transactions (GH¢)	178,588,021
Debit Cards	Number of cards issued (cumulative):	4,304,097
	International Scheme Cards (EMV cards)	2,094,329
	Bank's own propriety cards issued	2,209,768
	Volume of transaction	22,852,411
	Value of transaction (GH¢)	5,213,724,329

Table 3 continued

Item	Indicators	Half Year Ending Dec. 2015
Credit Cards	Number of cards issued (cumulative):	5,438
	International Scheme Cards (EMV cards)	5,438
	Bank's own propriety cards issued	0
	Volume of transaction	57,801
	Value of transaction (GH¢)	33,728,201
Prepaid cards	Number of cards issued (cumulative)	44,250
	Volume of transactions	143,531
	Value of transactions (GH¢)	51,855,244

\* Payment data reported by twenty-nine (29) commercial banks and ARB Apex bank

## 2.2 LARGE VALUE PAYMENTS

Developments in large value payments in 2015 are discussed below:

### 2.2.1 GHANA INTERBANK SETTLEMENT (GIS) SYSTEM

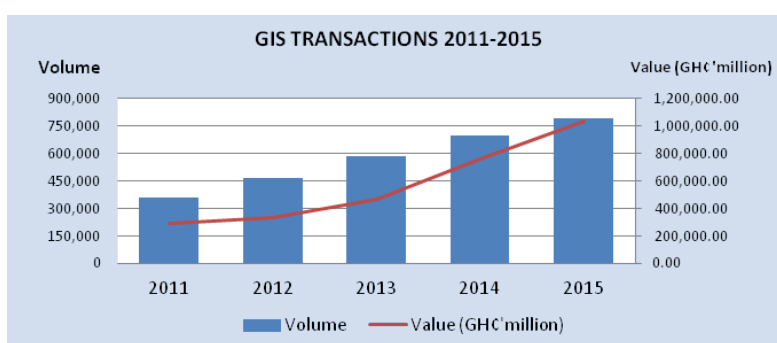
The Ghana Inter-bank Settlement (GIS) system which is Ghana's Real Time Gross Settlement (RTGS) system, continued to provide the platform for making high value payments for banks and their customers.

The total volume of GIS transactions of 794,282 in 2015 showed an increase of 13.48% over the 2014 position of 699,956. Total value of transactions also went up by GH¢274.23 billion (36.16 %) to GH¢1,032.54 billion in 2015 compared to GH¢758.31 billion in 2014. The average value per transaction was GH¢1.30 million in 2015 compared with GH¢1.08 million in 2014 (See Table 4 and Chart 3).

TABLE 4: GIS TRANSACTIONS (2011-2015)

Indicators	2011	2012	2013	2014	2015	Change volume/ value 2014 (%)	Change volume/ value 2015 (%)
Volume	360,954	467,642	586,200	699,956	794,282	19.41	13.48
Value (GH¢'million)	289,818.20	331,320.90	470,375.10	758,312.16	1,032,544.00	61.21	36.16
Average Value per Transaction (GH¢)	802,922.81	708,492.61	802,414.02	1,083,371.18	1,299,971.55	35.01	19.99

CHART 3: GIS TRANSACTIONS 2011-2015



## 2.3 LOW VALUE/RETAIL PAYMENTS

A retail payment system is a funds transfer system that typically handles a large volume of relatively low-value payments such as cheques, credit transfers, direct debits, and card payment transactions. Ghana retail payment system uses a number of payment instruments and various payment distribution channels to facilitate transfer of funds among payment system participants. The variety of the payment instruments and payment channels offer the banking population and institutions the option to choose various payment services or products that suit their business or financial transactions.

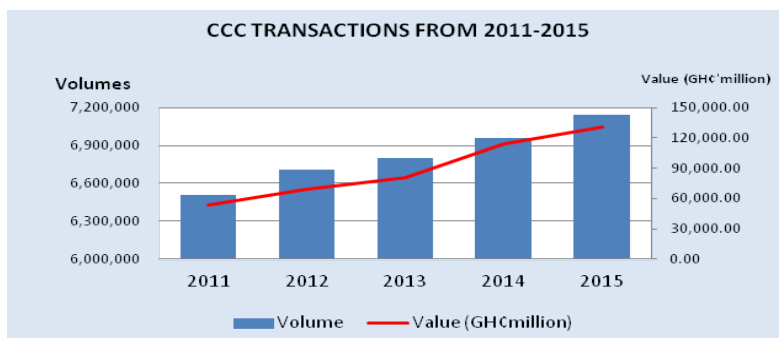
### 2.3.1 CHEQUES CODELINE CLEARING (CCC)

Cheque Codeline Clearing is an electronic system for clearing cheques using the cheque image and codeline data. It increases the efficiency and timeliness of the clearing and settlement process for cheques leading to customers' timely access to cheque proceeds. The total volumes and values of interbank cheques cleared during the year under review went up by 2.64% to 7,146,259 and 15.4% to GH¢131.19 billion respectively. The growth in value of transactions, consequently reflected in an increase in average value per cheque by 12.4% to GH¢18,357.81 compared to GH¢16,330.59 in 2014. (See Table 5 and Chart 4)

**TABLE 5: CHEQUES CLEARED**

Indicators	2011	2012	2013	2014	2015	Change volume/ value 2014 (%)	Change volume/ value 2015 (%)
<b>Volume</b>	6,509,594	6,710,475	6,796,712	6,962,297	7,146,259	2.44	2.64
<b>Value (GH¢'million)</b>	53,160.92	69,222.07	81,144.33	113,698.39	131,189.70	40.12	15.38
<b>Average Value per Transaction (GH¢)</b>	8,166.55	10,315.52	11,938.76	16,330.59	18,357.81	36.79	12.41

**CHART 4: CHEQUE CLEARING 2011-2015**



**2.3.2 GHANA AUTOMATED CLEARING HOUSE (GACH)**

GACH, which is an electronic payment system receives, processes and clears Direct Credit and Direct Debit payments on behalf of banks. The direct credit enables individuals and corporate bodies to make payments by electronic transfer directly into a bank account of the beneficiary. Direct credit may be used for payment of salaries, pensions, welfare benefits, commissions, supplier payments, dividend, refunds, interest payments and government payments.

Direct debit makes it possible for a customer to enter into an agreement with a service provider under a mandate authorizing the bank to accept future payment requests from the service provider and debit his account and transfer the funds to the service provider. Direct Debits are debit pull

instruments used for recurring payments such as mortgages, utility bills, insurance premiums, loan re-payments, rent and subscription based service payments.

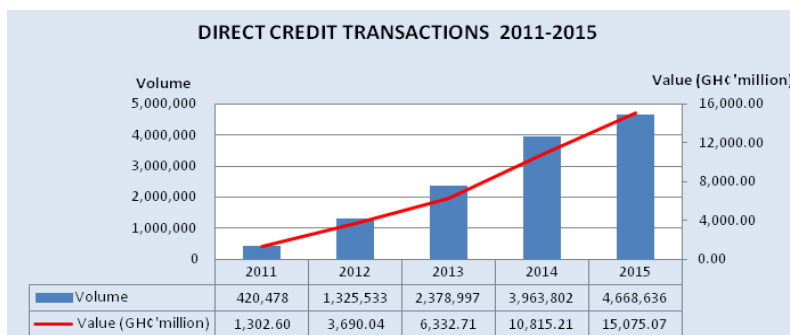
**2.3.4 DIRECT CREDIT**

In 2015, total volume of transactions cleared through the direct credit system was 4,668,636, and showed an increase of 17.78% over the 2014 position of 3,963,802 with a growth of 66.62%. Total value of direct credit transfers was GH¢15.08 billion compared with GH¢10.82 billion for 2014. The average value per transaction of GH¢3,229.01 in 2015 was an increase of 18.34% over the 2014 position of GH¢2,728.49. Payment of SSNIT pensions by Bank of Ghana on behalf of Government continued to be the major contributor to the growth in the direct credit transactions. (See Table 6 and Chart 5).

**TABLE 6: ACH DIRECT CREDIT TRANSACTIONS**

Indicators	2011	2012	2013	2014	2015	Change volume/ value 2014 (%)	Change volume/ value 2015 (%)
<b>Volume</b>	420,478	1,325,533	2,378,997	3,963,802	4,668,636	66.62	17.78
<b>Value (GH¢'million)</b>	1,302.60	3,690.04	6,332.71	10,815.21	15,075.07	70.78	39.39
<b>Average Value per Transaction (GH¢)</b>	3,097.90	2,783.82	2,661.92	2,728.49	3,229.01	2.50	18.34

**CHART 5: ACH DIRECT CREDIT TRANSACTIONS FROM 2011-2015**



**2.3.5 DIRECT DEBIT**

Total volume of direct debit transactions was 692,615 in 2015 and valued at GH¢70.91million. The average value per transaction in 2015 was GH¢102.38 compared with GH¢92.08 in 2014.

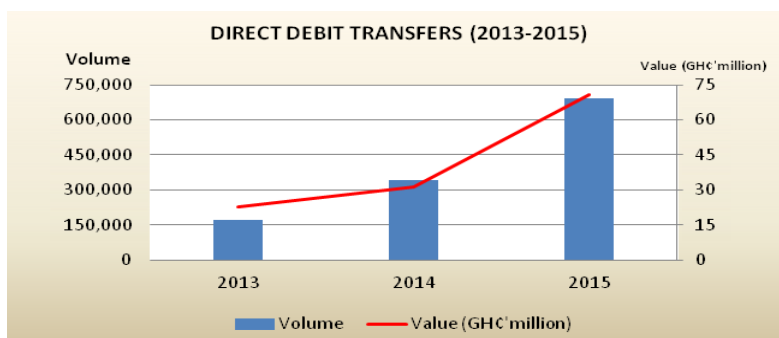
volume of transactions in 2015 compared with 63.12% in 2014 (See Table 7 and Charts 6 & 7) The main reasons accounting for returned direct debits were insufficient funds, invalid account, mandate not received, wrong presentation, stopped payment and customer account blocked. The Bank is working with GhIPSS to find a solution to these irregularities.

Returned unpaid direct debit formed 69.82% to the total

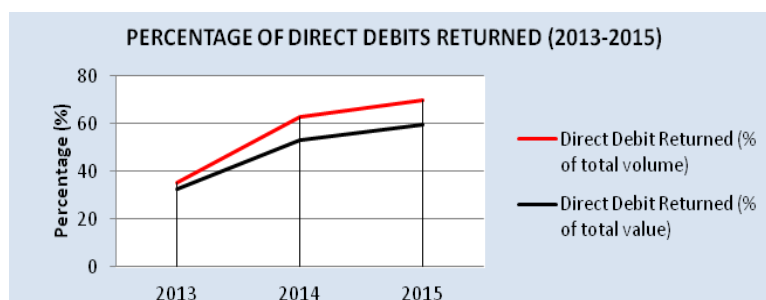
**TABLE 7: ACH DIRECT DEBIT TRANSFERS**

Indicators	2013	2014	2015	Change volume/ value 2014 (%)	Change volume/ value 2015 (%)
<b>Volume</b>	172,908	341,875	692,615	97.72	102.59
<b>Value (GH¢'million)</b>	22.81	31.48	70.91	38.01	125.25
<b>Average Value per Transaction (GH¢)</b>	131.92	92.08	102.38	(30.20)	11.19
<b>Returned Transactions (Volume)</b>	60,766	215,777	483,585	255.09	124.11
<b>Returned Transactions (Value GH¢'million)</b>	7.51	16.78	42.25	123.44	151.79
<b>Returned (Volume) as % of total</b>	35.14	63.12	69.82	79.62	10.61
<b>Returned (Value) as % of total</b>	32.92	53.29	59.58	61.88	11.81

**CHART 6: ACH DIRECT DEBIT TRANSFERS 2013-2015**



**CHART 7: PERCENTAGE OF DIRECT DEBIT TRANSFERS THAT WERE RETURNED**



**2.3.6 E-ZWICH TRANSACTIONS**

E-zwich is an interoperable biometric smart card payment system which offers a suite of electronic payment and banking services accessible from a Point of Sales (POS) terminals or ATM. These services include payments at merchants' point of sale, withdrawal of cash, deposit onto the card and transfer of funds. The e-zwich system also facilitates the distribution of payments such as loans, salaries, wages and pensions.

The number of e-zwich card holders of 1,369,369 in 2015 showed an increase of 26.38% over 2014 position of 1,084,121. Total volume of e-zwich transactions increased by 260.08%; from 625,167 in 2014 to 2,251,101 in 2015. Similarly, total value of transactions in 2015 grew by 238.47% or GH¢650.23 million to GH¢922.9 million compared to GH¢272.67 million in 2014. (See Table 8 and Charts 8 & 9)

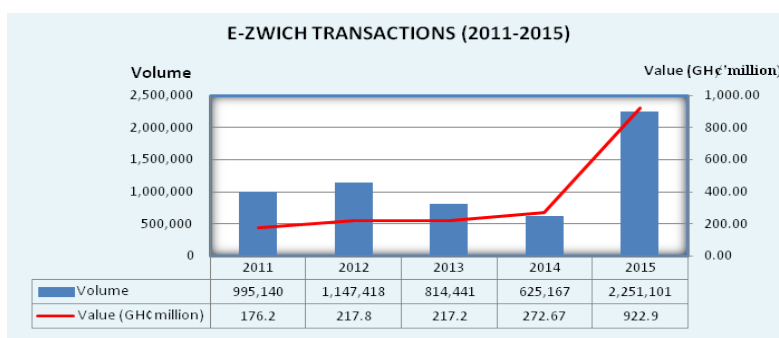
The significant increase in e-zwich transactions may be attributed to Government’s use of the system to pay caterers of national school feeding programme, beneficiaries of the Livelihood Empowerment Against Poverty (LEAP) and

personnel of the National Service Scheme as means of ensuring efficiency in payments and eliminate waste in its expenditure.

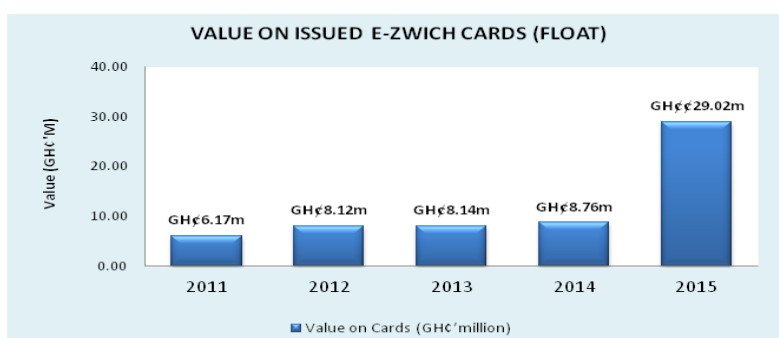
**TABLE 8: SELECTED INDICATORS OF E-ZWICH USAGE**

Indicators	2011	2012	2013	2014	2015	Change volume/ value 2014 (%)	Change volume/ value 2015 (%)
<b>Total Number of Cards Issued</b>	676,779	792,966	903,724	1,084,121	1,369,369	19.96	26.31
<b>Value on Cards (GH¢)</b>	6,170,553	8,120,680	8,141,135	8,764,310	29,016,267	7.65	231.07
<b>Number of Cards with Value</b>	272,387	343,918	388,418	419,807	613,403	8.08	46.12
<b>Cards with Value (% of total)</b>	40.2	43.4	43.0	38.72	44.8	(9.95)	15.70
<b>Average Value Per Card (GH¢)</b>	22.7	23.6	21.0	20.88	47.3	(0.57)	126.53
<b>Volume of Transactions</b>	995,140	1,147,418	814,441	625,167	2,251,101	(23.24)	260.08
<b>Value of Transactions (GH¢million)</b>	176.2	217.8	217.2	272.67	922.9	25.54	238.47

**CHART 8: E-ZWICH VOLUME AND VALUE OF TRANSACTIONS 2011-2015**



**CHART 9: VALUE ON E-ZWICH CARDS AS AT END OF YEAR**



**2.3.7 GH-LINK™ (NATIONAL SWITCH)**

A total of thirty-three (33) member institutions were connected to the gh-link™, the national switch as at the end of 2015. The composition of the institutions connected to the switch was twenty-seven (27) banks, five (5) savings

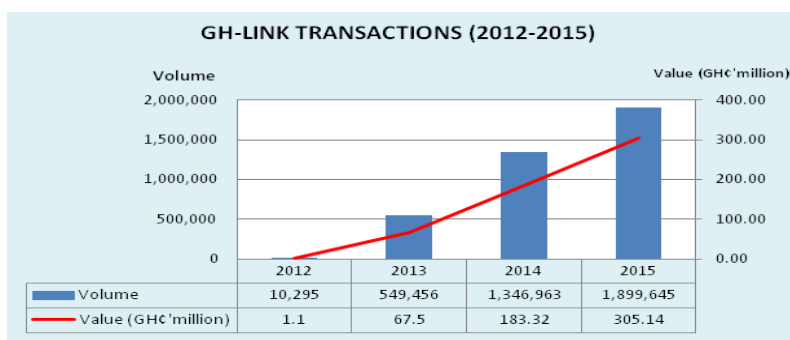
and loans companies and one (1) switch operator compared with twenty-five (25) banks and four (4) NBFIs in 2014. The total number of gh-link™ transactions recorded in 2015 was 1,899,645 with a value of GH¢305.14 million compared with 1,346,963 with a value of GH¢183.32 million in 2014.



TABLE 9: GH-LINK™ TRANSACTIONS

Indicators	2012	2013	2014	2015	Change volume/ value 2014 (%)	Change volume/ value 2015 (%)
Volume	10,295	549,456	1,346,963	1,899,645	145.14	41.03
Value (GH¢'million)	1.1	67.5	183.32	305.14	171.59	66.45
Average Value per Transaction (GH¢)	106.85	122.85	136.10	160.63	10.79	18.02

CHART 10: GH-LINK (NATIONAL SWITCH) TRANSACTIONS 2012-2015



### 2.3.8 MOBILE MONEY SERVICES

The mobile money space had a boost with the passage of the Electronic-money Issuers and Agents Guidelines in July 2015 to replace the Branchless Banking Guidelines (2008). There were four (4) Mobile Network Operators (MTN, TIGO, AIRTEL and VODAFON) which offered mobile money services as at end of 2015.

Registered mobile money customers of 13,120,367 as at end 2015 showed a growth of 83.05% over the 2014 position of 7,167,542 compared with 63.13% growth in 2014. Similarly, the number of active mobile money customers<sup>1</sup> increased by 92.69% from 2,526,588 in 2014 to 4,868,569 in 2015 compared with 154.75% growth in 2014. The cumulative active registered

agents<sup>2</sup> of the four mobile money operators (MMOs) in 2015 stood at 56,270 and represented a growth of 171.55% over the previous year's position of 20,772. Total value of mobile money transactions of GH¢35.44 billion in 2015 showed a 192.35% growth over the 2014 position of GH¢12.12 billion compared with a growth of 357.08%. (See Table 10 and Chart 11 & 12)

The total float balance of GH¢547.96 million as at December 2015 showed a growth of 145.36% over 2014 float balance of GH¢223.33 million, whilst the 2014 position was a growth of 255.51% over the 2013 position of GH¢62.82 million. Key financial highlights in the mobile money ecosystem is summarised below:

TABLE 10: MOBILE MONEY SERVICE 2012-2015

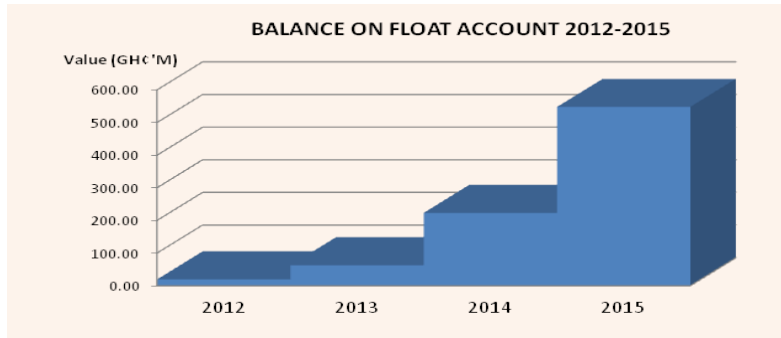
Indicators	2012	2013	2014	2015	Annual Growth 2014 (%)	Annual Growth 2015 (%)
Total number of mobile phone subscribers (Cumulative)*	25,618,427	28,026,482	30,360,771	35,008,387	8.33	15.31
Registered mobile money customers (Cumulative)	3,778,374	4,393,721	7,167,542	13,120,367	63.13	83.05
Active mobile money customers	345,434	991,780	2,526,588	4,868,569	154.75	92.69
Registered Agents (Cumulative)	8,660	17,492	26,889	79,747	53.72	196.58
Active Agents	5,900	10,404	20,722	56,270	99.17	171.55
Total volume of mobile money transactions	18,042,241	40,853,559	113,179,738	266,246,537	177.04	135.24
Total value of mobile money transactions (GH¢'Million)	594.12	2,652.47	12,123.89	35,444.38	357.08	192.35
Balance on Float (GH¢'Million)	19.59	62.82	223.33	547.96	255.51	145.36

\* Source: National Communications Authority (NCA)

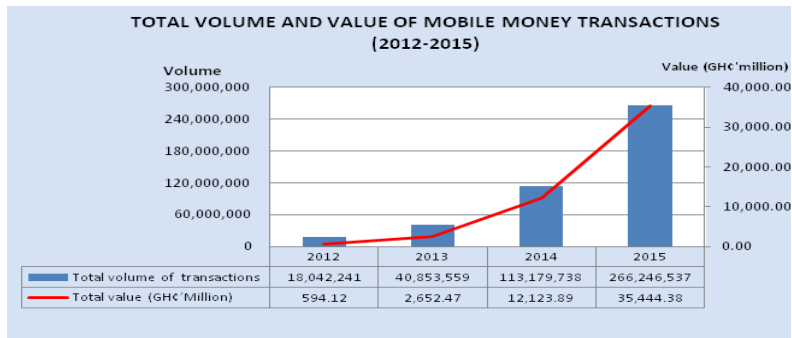
<sup>1</sup> The number of customers who transacted at least once in the 90 days prior to reporting

<sup>2</sup> The number of agents who transacted at least once in the 30 days prior to reporting

**CHART 11 FLOAT ACCOUNTS BALANCE**



**CHART 12: TOTAL MOBILE MONEY TRANSACTIONS**



## Chapter 3: The Financial Sector

### 3.1. DEPOSIT MONEY BANKS AND OTHER FINANCIAL INSTITUTIONS

The number of licensed Deposit Money Banks (DMBs) was twenty-nine (29) with 1,173 branches in 2015 compared with twenty-eight (28) DMBs with 967 branches in 2014. ARB Apex Bank (Apex

body of Rural and Community Banks) had 139 licensed Rural and Community Banks compared with 138 in 2014. Total number of Non-Bank Financial Institutions (NBFIs) and Micro-Finance Institutions in 2015 were 62 and 546 compared with 60 and 503 in 2014 respectively. (See Table 11)

**TABLE 11: REGULATED FINANCIAL INSTITUTIONS**

Regulated Financial Institutions	2014	2015
Deposit Money Banks (DMBs)	28	29
Bank Branches	967	1,173
Rural and Community Banks	138	139
Non-Bank Financial Institution (NBFI)	60	62
Micro Finance Institution (MFI)	503	546

### 3.2 INTERNET AND MOBILE BANKING

Ghana's universal banks offer a range of electronic payment schemes such as internet banking and mobile banking to provide customers variety of payment options. Electronic payment schemes witnessed significant increase in number of registered customers, volume and value of transactions as at December, 2015. Twenty-nine (29) universal banks offered both internet and mobile banking services. The total number of registered customers of Internet Banking increased by 22.86% from 684,120 as at end-June 2015 to 840,532

at end-December 2015. Mobile banking service customers were 1,198,291 as at end-June 2015, and showed a growth of 20.95% to 1,449,374 at end 2015.

The volume and value of internet banking transactions for the half-year ending December 2015 were 999,439 and GH¢2,286.70 million respectively. Similarly, the volume and value of mobile banking transactions for the half-year ending December 2015 were 5,440,387 and GH¢178.59 million respectively. Meanwhile, average volume of transactions per day was 5,461 for internet banking and 29,729 for mobile banking. (See Table 12)

**TABLE 12: INTERNET AND MOBILE BANKING (HALF YEAR ENDING DEC 2015)**

<b>Internet Banking</b>	Number of Customers registered (Cumulative)	840,532
	Volume of transactions	999,439
	Value of transactions (GH¢'Million)	2,286.70
	Average volume of transactions per day	5,461
<b>Mobile Banking</b>	Number of Customers registered (Cumulative)	1,449,374
	Volume of transactions	5,440,387
	Value of transactions (GH¢'Million)	178.59
	Average volume of transactions per day	29,729

### 3.3 AUTOMATED TELLER MACHINES (ATMS) AND POINT OF SALES (POS)

The banks deployed 912 Automated Teller Machines (ATMs) and 4,841 Point of Sales (POS) terminals as at end December 2015. These financial services access points serve as a major payment channel for electronic card holders.

### 3.4 ELECTRONIC PAYMENT CARDS (DEBIT AND CREDIT CARDS)

The number of debit cards issued by the banks as at end December 2015 was 4,304,097 and comprised 2,094,329 International Scheme Cards and 2,209,768 banks own propriety cards. The total volume and value of

transactions for the half year ending 2015 were 22,852,411 and GH¢5,213.72 million respectively.

Out of the twenty-nine (29) universal banks in Ghana only three (3) issued credit cards as at December 2015. The total number of credit cards issued by the three banks as at end December 2015 was 5,438. All the credit cards were International Scheme Cards (EMV cards). The total volume and value of transactions for the half year ending 2015 were 57,801 and GH¢33.73 million respectively.

### 3.5 RETAIL PAYMENTS INSTRUMENTS

The main payment instruments for retail payments were Cash, Cheque, Direct Credit Transfer, Direct Debit Transfer

and Payment cards – debit, credit and prepaid cards.

#### 3.5.1 USE OF CASH

Comparative ratio of currency outside banks to money supply of some selected developed and developing countries provided evidence of cash dominance in the Ghanaian economy. However, no precise statistics are currently available to determine the volume and value of transactions made with cash (See Table 13).

Ghana as at end 2014 had the highest currency with the public to narrow money supply ratio of 39.96% compared with Nigeria (20.77%), Gambia (33.46%), Bulgaria (32.68%) and Romania (33.64). The ratio however decreased to 38.33% in 2015.

TABLE 13: COMPARATIVE RATIOS OF SOME SELECTED COUNTRIES  
CURRENCY OUTSIDE BANKS TO MONEY SUPPLY (M1) RATIO.

(%)	2010	2011	2012	2013	2014
Ghana	45.72	43.18	44.08	42.63	39.96
Nigeria	19.43	18.39	17.53	20.57	20.77
Gambia	34.28	35.64	38.11	34.2	33.46
United Kingdom	4.69	4.93	4.86	4.6	4.52
Sweden	6.08	5.76	5.2	4.47	3.93
Romania	32.84	35.66	35.36	34.68	33.64
Bulgaria	40.01	37.06	36.93	33.56	32.68

Source: Central Banks Annual Reports, 2010 -2014

It is significant to note that the ratio has consistently been falling since 2010 on account of policies pursued by the central bank and other stakeholders to move Ghana towards a “cash-light” economy.

instrument in terms of values of transactions. Meanwhile, direct credit transfers continued to gain consumers acceptance, while almost 70% of direct debit transfers of the total volume of transactions in 2015 were returned unpaid. (See Table 14 and Chart 13)

#### 3.5.2 USE OF NON-CASH PAYMENT INSTRUMENTS

Cheques continued to be a major non-cash retail payment

TABLE 14: MAJOR PAPER-BASED PAYMENT INSTRUMENTS - 2015

Type of Instrument	Volume of Transaction	Value of Transaction (GH¢'million)	Average Volume of Transactions per day
Cheques (Cleared cheques)	7,146,259	131,189.70	28,471
Direct credit	4,668,636	15,075.07	18,600
Direct debit	692,615	70.91	2,759

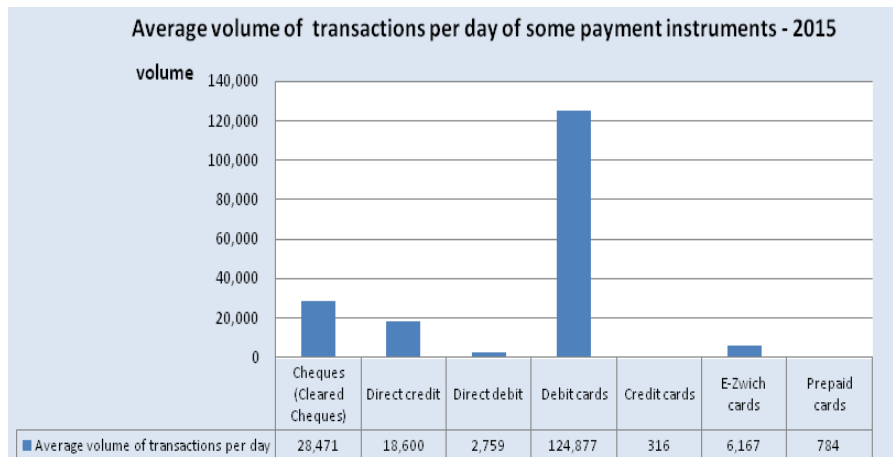
A range of payment cards were available in the market; notable among them were debit cards, credit cards, e-zwich

cards and prepaid cards (See Table 15 and Chart 13).

TABLE 15: NUMBER OF MAJOR PAYMENT CARDS ISSUED AND AVERAGE DAILY TRANSACTIONS

Card Type	Number of Cards Issued as at end December 2015	Average Volume of Transactions per day
Debit cards	4,304,097	124,877
Credit cards	5,438	316
E-Zwich cards	1,369,369	6,167
Prepaid cards	44,250	784

**CHART 13: AVERAGE VOLUME OF TRANSACTIONS PER DAY OF SOME MAJOR PAYMENT INSTRUMENTS- 2015**



# Chapter 4: Payment Delivery Channels

## 4.1 SUMMARY OF KEY PAYMENT DELIVERY CHANNELS

statistics on major payment channels)

### 4.1 SUMMARY OF KEY PAYMENT DELIVERY CHANNELS

Payment delivery channels are mechanisms and devices allowing the use of payment instruments, and also processing of banking transactions such as withdrawals, deposits, payments and credit transfers. The main payment delivery channels were bank branches, ATMs, POS terminals, and remote delivery channels such as internet and other digital finance devices. (See Table 6 for payment

Bank branches and banking agencies were the main payment distribution channels for cheques and credit transfers. However, few ATMs performed the function of accepting cheques deposit.

ATM networks and POS terminals were mostly used for payment cards transactions. However, some ATMs were configured to accept cardless transactions such as electronic-money for example mobile money cash out transactions. (See Table 16)

**TABLE 16: MAIN PAYMENT DELIVERY CHANNELS IN GHANA-2015**

	<b>Main payment delivery channels</b>	<b>Number of channels as at December 2015</b>
1	<b>ATMs</b>	912
2	<b>POS</b>	4,841
3	<b>Deposit Money Banks (DMBs)</b>	29
5	<b>Bank Branches</b>	1,173
7	<b>Rural and Community Banks</b>	139
8	<b>Non-Bank Financial Institutions (NBFI)</b>	62
9	<b>Micro Finance Institution (MFI)</b>	546
10	<b>Active mobile money agents</b>	56,270

# Chapter 5: Payment Systems Regulation and Oversight

## 5.1 REGULATORY ENVIRONMENT

### 5.1.1 THE ROLES AND SCOPE OF GHANAIAN PAYMENTS SYSTEM OVERSIGHT

The Bank has a statutory responsibility for the payment and settlement systems under the Bank of Ghana Act, 2002 (Act 612) and the Payment Systems Act 2003 (Act 662). This responsibility requires it to promote, regulate, and supervise these systems to ensure that they are safe, reliable and efficient. The Bank’s task is therefore to ensure that the public and businesses make payments in a safe and efficient manner.

Ghana’s national payment system comprises the following:

1. Banks (including Bank of Ghana) and non-bank financial institutions that hold accounts and provide payment services
2. Payment infrastructures and service providers
3. Payment processing companies
4. Payment instruments
5. Laws, standards, rules and procedures governing payments and settlements
6. Market conventions and arrangements

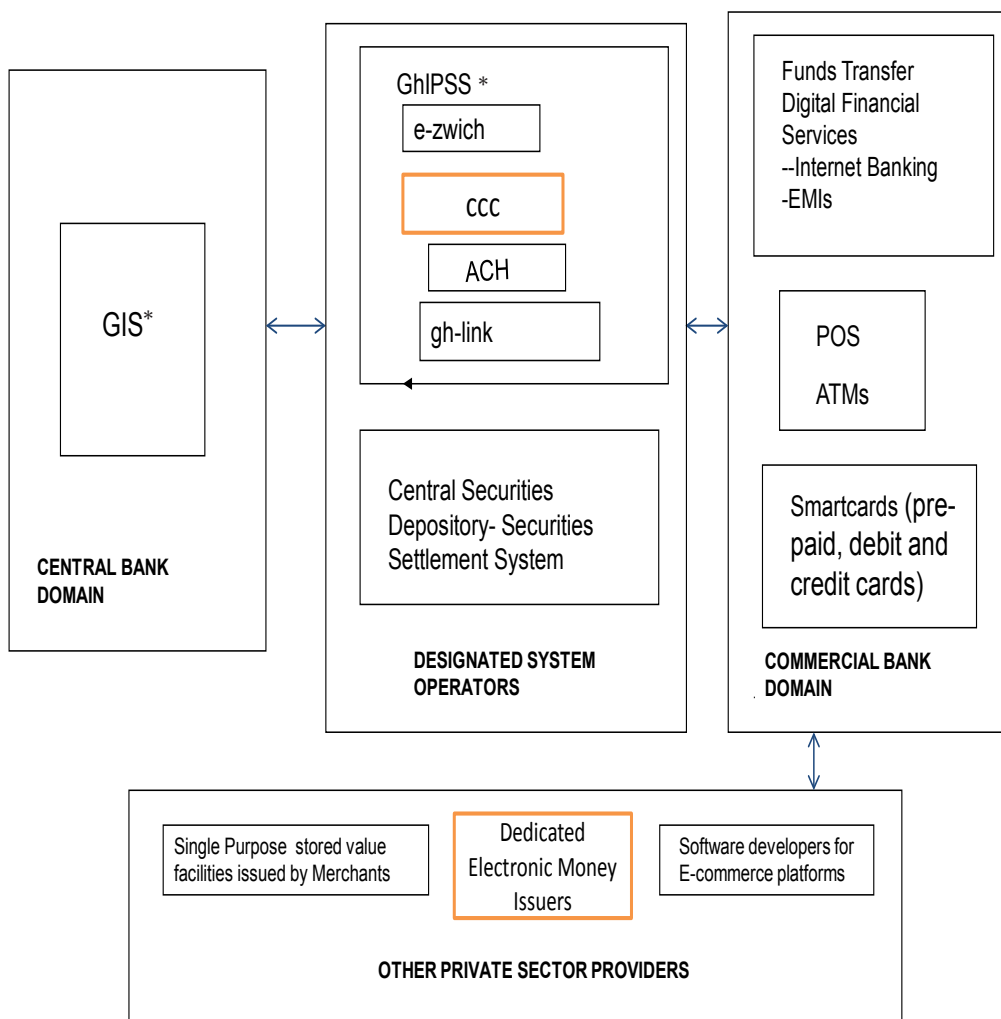
A key priority for the Bank is to contribute to the development of a modern, resilient and efficient market infrastructure which would serve the needs of the economy and facilitate the development of a safe and efficient financial market. The Bank has an interest in the design and management of payment and settlement systems as part of its responsibilities for monetary and financial stability.

The table below represents the financial market infrastructure (FMI) under the Bank’s oversight.

**TABLE 17: THE FINANCIAL MARKET INFRASTRUCTURE IN GHANA**

TYPE	MARKET INFRASTRUCTURE	FEATURES
<b>Clearing Systems</b>	Cheque Codeline Clearing with Cheque Truncation (CCC)	Provides clearing and settlement of cheques
	Automated Clearing House (ACH)	Enables direct debit and credit funds transfer from one bank to another
	gh-link™	Provides clearing and settlement for all domestic cards
	e-zwich biometric smartcard system	Provides clearing and settlement of e-zwich card transactions
<b>Settlement Systems</b>	Ghana Interbank Settlement (GIS) system	It is the real time gross settlement (RTGS) for high value funds transfers. It is managed and operated by the Bank.
	Central Securities Depository	The central depository and settlement system that provides clearing and settlement for securities issued by the Bank, Government of Ghana and Cocoa Board and other corporate securities
<b>Critical Service Providers</b>	Security Instrument Printers	Print payment instruments such as payment vouchers, cheques

CHART 14: GHANA'S PAYMENT SYSTEMS LANDSCAPE 2015



\*GIS: Ghana Interbank Settlement System (RTGS)

\*GhIPSS: Ghana Interbank Payment and Settlement System Ltd., a subsidiary of the Bank.

The Bank's oversight of the payment and settlement systems has the following objectives:

1. Containment of systemic and other payment risks in order to maintain stability in the financial system.
2. Monitoring and evaluation of payment systems performance.
3. Preventing possible market failures in payment and settlement systems
4. Oversight of market infrastructures of the financial system in line with the following laws:
  - a. Bank of Ghana Act, 2002 Act 612.
  - b. The Payment Systems Act, 2003, Act 662
  - c. The Bills of Exchange Act, 1961, Act 55
  - d. Foreign Exchange Act 2006, Act 723
  - e. Credit Reporting Act 2007, Act 726
  - f. Central Securities Depository Act 2007, Act 733
  - g. Anti-Money Laundering Act 2008, Act 749
  - h. Electronic Transactions Act 2008, Act 772

- The Ghana Interbank Settlement (GIS) system user guidelines
- Electronic Money Issuers and Agent Guidelines
- Cheque Codeline Clearing with Cheque Truncation Guidelines and Operational Procedures
- Ghana Automated Clearing House Direct Credits and Direct Debits Guidelines and Operational Procedures
- Ghana Bankers Clearing House Rules
- Paper Instrument Accreditation Scheme

The Bank in 2013 made public its oversight function of payment and settlement systems with a Notice number BG/GOV/SEC/2013/09. The notice further informed the public about the establishment of an office to perform the oversight function. The Bank further developed an oversight framework that same year to enable it execute these functions.

In addition to the above laws, there are rules for specific systems such as:



## 5.2 PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES

The Bank applies the *Principles for Financial Market Infrastructures* issued by the Committee on Payment and Settlement Systems of the Bank for International Settlements (BIS) and the Technical Committee of the International Organisation of Securities Commission (IOSCO) in the performance of its oversight functions.

Prospective participants in the financial market infrastructure require prior approval from the Bank in the form of authorization with respect to licensed banks and licence with respect to dedicated electronic money issuers. Security printers require valid licences and accredited security printers are subjected to regular annual inspections or condition for the renewal of their operating licences.

## 5.3 PARTICIPATION IN SETTLEMENT SYSTEMS

Participation in the GIS, cheque clearing and settlement operations and automated clearing house operations is limited to licensed universal banks. These banks are admitted into the clearing house after obtaining a banking licence and fulfilling all the entry requirements for a participating bank. As at December 31, 2015 the total number of banks on the GIS and in the clearing house was thirty-one (31) including the central bank. The clearing house is owned and managed by a wholly owned subsidiary of the Bank.

## 5.4 SUBMISSION OF RETURNS BY SYSTEMS OPERATORS

As part of its oversight responsibility for payment and settlement systems, payment systems operators and payment service providers are required to submit monthly returns to the Bank. These returns cover access and usage and also provide information on transactions volumes and values, service fees and tariffs of the various payment distribution channels, branch and agent network. For electronic money issuers, apart from access and usage data, they are also required to submit information on incident, fraud and defalcation; customer complaint; service interruption; suspicious transactions and concentration levels.

## 5.5 ON-SITE SUPERVISION OF DEDICATED ELECTRONIC MONEY ISSUERS

Onsite examination is conducted at least once a year to evaluate the operations of the Dedicated Electronic Money Issuers.

## 5.6 COLLABORATION WITH NATIONAL COMMUNICATIONS AUTHORITY

The Bank has initiated a process to collaborate with the National Communications Authority (NCA), the primary regulator of mobile network operators, in order to ensure effective oversight of e-money issuers to minimise regulatory arbitrage, protect consumers and promote effective recourse

mechanism. A Memorandum of Understanding was put in place to guide the two institutions.

## 5.7 REGULATORY POLICIES

Ghana's payment system is supported by various laws in line with the Principles for Financial Market Infrastructures (April 2012) issued jointly by the BIS Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO).

## 5.8 E-MONEY AND AGENT GUIDELINES

In July 2015, the Bank of Ghana issued two guidelines, namely the Guidelines for E-Money Issuers in Ghana and the Agents Guidelines. These Guidelines form part of the Bank's strategy of creating a congenial regulatory environment for scaling up adoption and usage of convenient, efficient and safe electronic retail payments and funds transfer. The Agent Guidelines were issued to promote the use of agents as a channel for delivery of financial services, specify necessary safeguards and controls to mitigate the associated risks and also ensure consumer protection safeguards.

## 5.9 PAYMENT SCHEMES

### 5.9.1 PAYMENT SERVICE AS MEANS OF FINANCIAL INCLUSION

The Bank was involved in promoting financial inclusion in line with the commitments made in the Maya Declaration. The Maya Declaration is a set of common principles regarding the development of financial inclusion policy made by a group of developing nation regulatory institutions during the Alliance for Financial Inclusion's (AFI) 2011 Global Policy Forum held in Mexico.

One of the major commitments made by Ghana in this declaration was to review the regulatory framework of branchless banking in order to create an enabling environment and promote innovation towards the achievement of 70% financial inclusiveness by the year 2017.

This commitment culminated in the passage of the EMI Guidelines and Agent Guidelines in July, 2015 to regulate the issuance and use of digital money in Ghana. New innovations in digital payments and digital financial services fostered financial inclusiveness.

### 5.9.2 USE OF MOBILE PAYMENT SERVICES

The passage of the Electronic-Money and Agent Guidelines has engendered financial and non-financial service providers' interest in innovating products and services to promote financial inclusion. For instance, the Bank granted an approval for Ecobank Capital Advisors in August 2015 to introduce an innovative service known as Tbill4All. Ecobank Tbill4All is a mobile-money-based service designed to allow the unbanked to purchase and manage Treasury Bills directly from their mobile phones. Airtel Ghana in collaboration with Bank of Africa was also granted authorisation in October 2015

to introduce cross-border inward mobile money transfer.

Under the new Guidelines, Mobile Network Operators are required to set up subsidiaries to enable them obtain a license to engage in electronic money business. The Guideline also provides for payment of interest on e-money float held by the universal banks. Under this new arrangement, 80% of accrued interest on float is paid to customers while the remaining 20% is retained by the electronic money issuers.

The EMI Guidelines also provides for consumer protection, complaints procedures, recourse mechanisms and Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT) Policies.

The Agent Guidelines provides for the management and recruitment of agents. An Agents' Registry is being put in place to help in the management of Agents

### 5.9.3 ATM AND POS INTEROPERABILITY

The National Switch, gh-link™, provides interoperability for ATM and POS devices. Gh-link™, by virtue of being an interoperable platform provides the switching, clearing and settlement of POS transactions of all member financial institutions. This allows member institutions cards to be accepted at the terminals of acquirer member institutions.

### 5.9.4 GHANA INTERBANK SETTLEMENT (GIS) SYSTEM

Ghana Interbank Settlement (GIS) System, (Ghana's Real Time Gross Settlement System) became operational on October 11, 2002. Designated as a systematically important payment system, the GIS is a large value domestic interbank funds transfer system that is highly secure and complies with BIS relevant principles for financial market infrastructures.

The system operates every working day between 08.30 and 17.00 GMT and offers a mechanism for the settlement of large value interbank real time transactions on gross basis.

Transactions that are settled in the GIS are irrevocable and unconditional and thus eliminate settlement and systemic risks inherent in the settlement process. Participation in the GIS system is limited to licensed clearing banks. The participants of the GIS platform comprised

- twenty-six (26) universal banks,
- the ARB Apex Bank
- Social Security and National Insurance Trust (SSNIT), the national pension funds manager, and the Central Securities Depository (CSD).

The Bank of Ghana is also a participant on the GIS platform. Participants holding accounts in the GIS are able to operate their accounts on real time basis from their own premises through a computerized network.

### 5.9.5 SETTLEMENT OF FUNDS IN THE GHANA INTERBANK PAYMENT SYSTEMS

Net settlement of batches of multilateral retail payments (cheque clearing, ACH, ATM, e-zwich, and mobile money) emanating from the Ghana Interbank Payment and

Settlement System (GhIPSS) are effected in the GIS. The system also allows the settlement of the cash leg of securities from the CSD through an interface to achieve Delivery versus Payment (DvP).

When a bank faces temporary shortage of funds during the day, the system temporarily keeps the transactions in a queue pending availability of funds. Transactions are released for settlement when funds are available on the basis of 'First In First Out' (FIFO). Payments that do not settle by the close of the business day on account of insufficient fund are automatically cancelled. The Bank is responsible for the management of queues while the system participants are responsible for determination of priority of transactions

## 5.10 OVERSIGHT ACTIVITIES

The Bank's payment system oversight covers both systemic importance and non-systemic important payment systems infrastructures. Payment system infrastructures are assessed against the relevant principles of financial market infrastructure (PFMI) taking into consideration their potential contribution to systemic risk. Initial assessment is carried out by comparing the operations of a payment system to its system's own rules and procedures. The Bank adopts both off-site and on-site supervision methodologies.

## 5.11 SYSTEMIC RISKS

The core objective of the Bank's payment system oversight is to prevent systemic risk in the national payment system and promote financial stability.

The Bank uses the following criteria to determine systemically important payment systems:

- A system's potential of creating significant credit and liquidity disruption in the economy should it fail to perform as expected
- A system's potential of creating huge credit or liquidity exposures relative to counterparties' financial capacity
- A system's ability to provide settlement for other systems
- The system's ability to settle time-critical and high amount of large-value transactions

The Ghana Interbank Settlement (GIS) system and the Cheque Codeline Clearing (CCC) with truncation are considered to be systemically important.

## 5.12 OPERATIONAL RISK INDICATORS

Payment System availability of 99.85% or above is required of systemically important infrastructures. With regard to non-systemically important payment system, no benchmark is currently defined however; the same level of system availability is expected, particularly in the mobile financial services space.

All interbank payment systems during the year under review recorded availability level of 99.9% with the exception of the gh-link which suffered two (2) downtimes stemming from

power fluctuations, and pre-announced interruptions in mobile money services for system upgrades.

Interbank payment systems capacity to handle large volumes of transactions during peak times and seasons were found to be adequate. All interbank payment system infrastructures operated 80% below their existing capacity. The risk of inadequate capacity to handle higher transaction volumes was therefore remote for all payment systems.

### **5.13 MONITORING FINANCIAL RISKS IN CENTRAL COUNTER-PARTIES**

Ghana Bankers Clearing House (CH), owned and operated by GhIPSS, is responsible for the clearing of cheques, credit and debit transfers through an automated clearing house. The CH does not play the role of a central counterparty hence is not exposed to any financial risks. Its role is to facilitate the exchange of value among participants.

The CH determines the net settlement positions of participants, communicates to participants their settlement position, and transmits the settlement report to the GIS for settlement to be effected in the settlement account of participants.

Participants in the CH guarantee settlement of their obligations by maintaining adequate funds in their settlement accounts. Participants make up for shortfall in their settlement accounts by borrowing from the interbank market.

### **5.14 FINANCIAL MARKET INFRASTRUCTURE ON-SITE INSPECTIONS**

The Bank conducted on-site inspection visits of Payment Service Providers (PSP). The visits complemented off-site reports submitted by PSPs. On-site inspections covered issues relating to security and premises, information technology infrastructure, internal processes, corporate governance and business continuity. Issues with regard to capacity utilisation, fraud, and activity levels were also assessed based on reports submitted by the PSPs.

In the year 2015, on-site visits were undertaken to the premises of GhIPSS with regard to CCC, ACH, and gh-Link. These systems were found to have strong physical and logical security, auditable internal processes, controls as well as good business continuity plan underpinned by an ISO 27001 certification.

With regard to the GIS, preliminary assessments were made against the relevant principles of the PFMI infrastructure through engagement with system operators. The level of compliance was observed to be satisfactory.

The Bank operates a cheque printer accreditation scheme aimed at promoting the integrity of cheque production and delivery to financial institutions. Cheque printers are accredited annually based on satisfactory performance in an annual accreditation inspection.

Three (3) cheque printers were inspected with regard to materials sourcing, external and internal security, production processes, internal controls, quality control, compliance with approved cheque standards and contingency measures. The assessment indicated that the printers had the capability to produce quality cheques in line with the approved cheque standards. However, recommendations were made for enhancement in cheque printing environment through adoption of ISO27001 certification.

No imminent threats to the stability of the payment system infrastructure were identified in 2015.

### **5.15 RETAIL PAYMENTS SYSTEM OVERSIGHT**

Retail payment systems are important to the daily economic life of individuals, corporate entities and government. They facilitate economic activity and also enhance fiscal activities of government. The efficiency and safety of the retail payment systems impact on confidence in the local currency.

The Bank's oversight functions aim at efficiency, security, reliability, competition, cooperation, innovation, product development, consumer protection and dispute resolution. Data is collected on usage of payment instruments and channels. Information is also collected on incidence of fraud, system downtime and complaints.

## Chapter 6: Summary and Conclusion

The year 2015 witnessed significant changes in the Ghanaian Payment Systems landscape. Publication of the Guidelines for Electronic Money Issuers and Agent Guidelines culminated in increased interest from both financial and non-financial institutions in the payment systems. These Guidelines were issued as part of the Bank's broader strategy to create an enabling regulatory environment for convenient, efficient and safe non-cash retail payment and funds transfer. In addition, the Payment Systems Office of the Bank developed series of prudential returns to collect and monitor developments in the electronic money space.

Innovative electronic payment services, such as GhIPSS Instant Pay (GIP) and gh-link eCommerce were introduced to provide fast, reliable and efficient online payments. Ecobank Capital Advisors TBILL4ALL, which allows customers to remotely register, apply, purchase, rediscount and redeem treasury bills through their mobile phone; mPOS, or mobile Point of Sale devices. Airtel-BOA Cross-Border Money Transfer Service, which allows customers to send cross-border inward remittances from one Airtel money wallet to another were also approved. Vodafone Ghana also submitted an application for licence to operate the business of e-money as a Dedicated E-Money Issuer.

