Fighting poverty, profitably

Transforming the economics of payments to build sustainable, inclusive financial systems

Nigeria

BILL & MELINDA GATES foundation

SPECIAL REPORT ANNEX:
Country-specific data on payments systems and financial inclusion

About the Gates Foundation's Financial Services for the Poor program

Poor people do not live in a static state of poverty. Every year, many millions transition out of poverty by successfully adopting new farming technologies, investing in new business opportunities, or finding new jobs. At the same time, large numbers of people fall back into poverty due to health problems, financial setbacks, and other shocks. However, it is costly to serve poor people with financial services, in part because most of their transactions are conducted in cash. Storing, transporting, and processing cash is expensive for banks, insurance companies, utility companies, and other institutions, and they pass on those costs to customers.

The Gates Foundation's Financial Services for the Poor program aims to play a catalytic role in broadening the reach of digital payment systems, particularly in poor and rural areas, and expanding the range of services available on these systems. Until the infrastructure and customer base are well established, this might involve a combination of mobile money services that are accessible via cell phones and brick-and-mortar stores, where subscribers can convert cash they earn into digital money (and vice-versa).

Our approach has three mutually reinforcing objectives:

- Reducing the amount of time and money that poor people must spend to conduct financial transactions
- Increasing poor people's capacity to weather financial shocks and capture income-generating opportunities
- Generating economy-wide efficiencies by digitally connecting large numbers of poor people to one another, to other consumers, to financial services providers, to government services, and to businesses.

We are not focused on a particular product or distribution channel, but rather on innovative ways to expand access and encourage markets. At the same time, we are aware that interventions in this and other areas too often involve technologies that are made available to the intended users, but are not adopted. To address this demand-side challenge, we are supporting research and product design experiments to identify design features, price incentives, and marketing messages that will encourage poor people to adopt and actively use digital financial services. We are also supporting policymakers as they work to develop policies and regulations that facilitate these developments.

We believe that the combined effect of interventions to expand and encourage markets will accelerate the rate at which poor people transition out of poverty and decrease the rate at which they fall back into poverty. Our strategy also recognizes that countries are at different stages in developing an inclusive digital financial system, and that we must tailor our interventions accordingly.

About this document

Our goal: create a holistic view of payment system economics. The Gates Foundation's Financial Services for the Poor program conducted this research because we believe that there is a gap in the fact base and understanding of how payment systems can extend digital services to low income consumers in developing markets. This is a complex topic, with fragmented information and a high degree of country-by-country variability. A complete view across the entire global payment system has been missing, limiting how system providers, policy makers, and regulators (groups we refer to collectively as *financial inclusion stakeholders*) evaluate decisions and take actions. With a holistic view of the system, we believe that interventions can have higher impact, and stakeholders can better understand and address the ripple effects that changes to one part of the system can have. In this report, we focus on the economics of payment systems to understand how they can be transformed to serve poor people in a way that is profitable and sustainable in aggregate.

Factors to keep in mind as you consider this report. The data available to evaluate individual payment systems is limited. Even in highly advanced economies, complete and comparable information is difficult to obtain. In the developing world, much of this data simply does not exist. Given that there are limited examples showing how providers make money from providing financial services to the poor at scale, we looked at payment systems in both the developed and developing worlds, and tried to learn how to apply lessons from both to reach the poor. In this report, we present a complete set of analyses and estimates based on the strongest collection of data that we could assemble. Readers should understand this base of data as a "best efforts" attempt to provide a full picture of payment system costs and revenues, rather than a definitive source. We have focused on evaluating formal payment flows that have available data and benchmarks. We recognize that there are large payment flows over informal channels, such as unlicensed money transmitters, that are outside the scope of our analysis.

What we analyzed. As part of our work, we conducted a thorough assessment of the payment systems in six significant economies – Nigeria, Kenya, India, China, the U.S., and the Netherlands – to understand their elements, changes over time, and the economics for providers. McKinsey & Company's Global Payments Map – a structured and consistent dataset on payment systems – provided a critical pillar. We also interviewed more than 100 industry experts across the countries profiled.

Structure of this pack. This pack summarizes our findings across the countries we analyzed. For each country, we provide an overview of the payment system and the level of financial inclusion, followed by specific country analyses pertaining to the four main elements of the payment system: accounts, cash in-cash out (CICO), transactions, and adjacencies.

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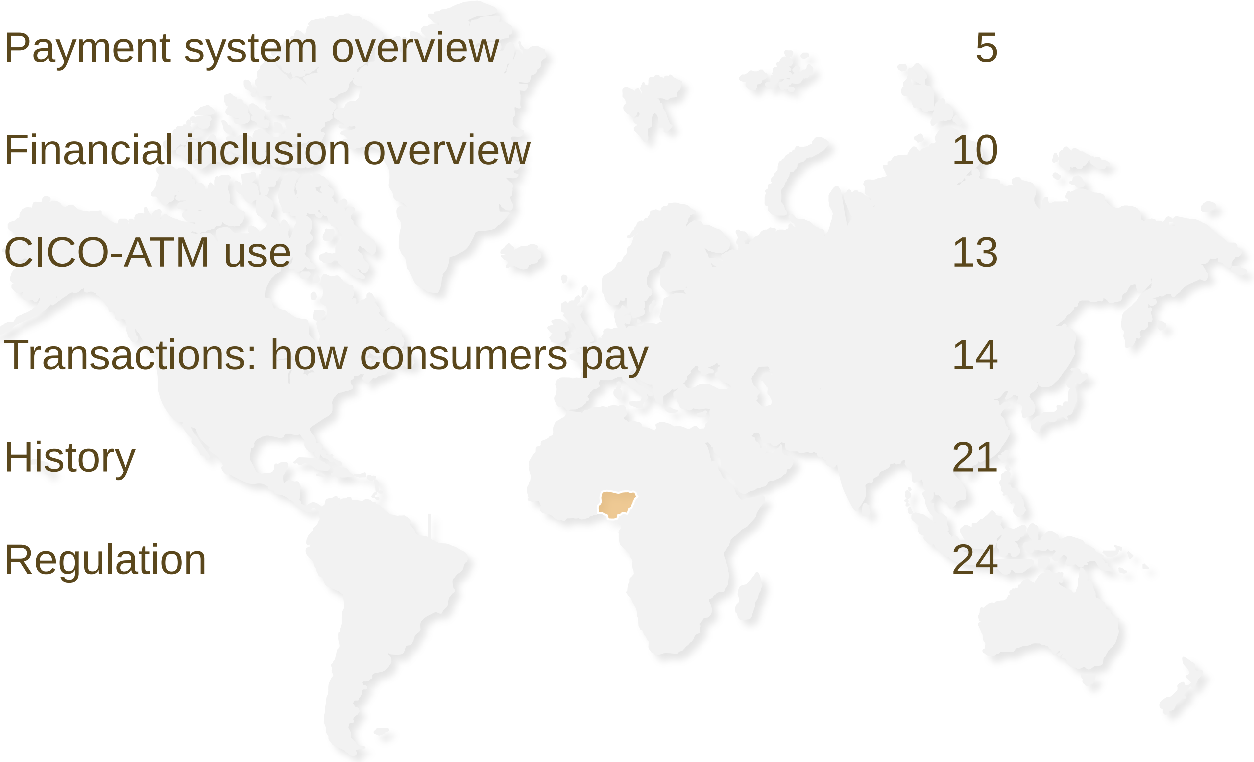


The payment system in Nigeria

Characteristics

- **An established banking system, with a handful of particularly strong players**, administers non-cash payment instruments, and focuses mostly on corporate and wealthy retail customers
- **The economy is heavily cash-based** with corresponding high costs of cash, carried largely by banks. The unbanked use cash exclusively; even the banked must carry cash in case of service outages and a lack of digital acceptance at merchants; banks still cover cash management costs so merchants see no need to change
- **A consolidated, locally led payments infrastructure**: Domestic infrastructure players (NIBSS, InterSwitch) lead the market
- **The regulator (Central Bank) plays an active role in shaping the payments system,** e.g., “Cashless” initiative, mobile money licenses, routing most payments via NIBSS
- **The Central Bank’s “Cashless” initiative applies multiple levers to drive non-cash usage;** offering a case-study on electronification of payments in developing markets
- **Mobile money growth is seen as complementary to traditional bank offerings**; and expanding traditional bank distribution channels is seen as complementary to mobile money expansion (ATM cardless cashout, POS-enabled cashback, customer migration and cross-sell)
- **The bank-led model for mobile money has a clear goal to be a major part of the financial system**; it’s unclear if demand will be sufficient to drive usage at scale. Mobile money is seen as an accelerator to bringing customers into formal banking

Implications for financial inclusion

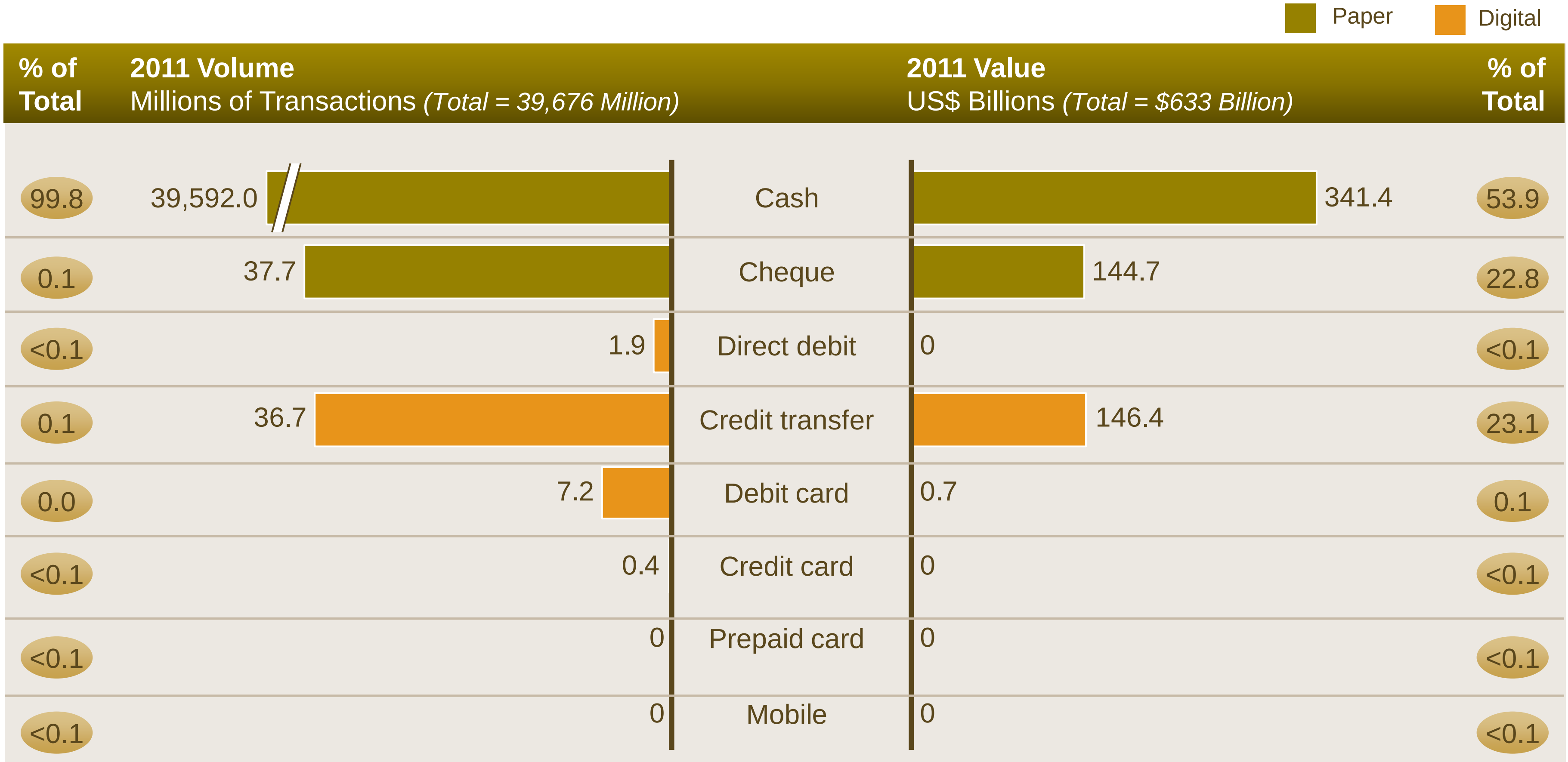
- **Bank-led test case** – The regulator may stimulate a bank-led mobile money model with much broader payments usage than remittance and non-payment financial services; if successful this will provide lessons for other developing markets
- **Core Infrastructure** – Reminder that basic infrastructure will limit opportunities in many markets that are still struggling to establish reliable electricity and telecoms
- **A good example of how early adoption economics may function –** Generating public awareness of non-cash alternatives; economics of POS rollout and investment recovery; convincing merchants to accept card payments; structuring value chain profitability to align incentives
- **Substantial financial exclusion in urban areas** – There is a major opportunity to expand inclusion, focusing on urban centers and more traditional infrastructure, given proximity to branches, ATMs, and POS

Payments in Nigeria by the numbers

Usage & Inclusion	**Instrument usage**	**Highly cash dominated with virtually no mobile money** ▪ Percentage of digital payments: 0.02% of volume, 49% of value; bank card usage low with debit cards used mainly for ATM withdrawals
	Financial inclusion	**Low** ▪ Formal access: 36% of population, 14% of bottom 40%. Access concentrated in large cities with rural areas underpenetrated
Payment system	**Network infrastructure**	**Centralizing** ▪ NIBSS (privately owned by CBN and banks) serves as a platform for much of Nigeria's payment infrastructure running the ACH and National Central Switch. Interswitch (privately owned) is dominant cross-bank ATM switch and largest card switch ▪ ACH infrastructure is relatively new and modern; cheque truncation implemented recently
	Regulation	**Highly active** ▪ Led by Central Bank of Nigeria (CBN), with major programs across instruments (e.g., cash-reduction, mobile money, agent banking). Some gaps in regulation (e.g. consumer redress) ▪ Regulator is taking strong measures to structure market (e.g. excluding telcos from mobile money, regulating value chain activities in POS), and has backtracked on certain regulations (e.g. independent ATM deployers)
Environment	**Banking system reach**	**Low-reach, urban-centered** ▪ Branches: - 7 branches per 100K (~6,000 total) ▪ ATMS – 11 ATMs per 100K (~9,900 total) ▪ POS – About 175 per 100K (~150,000 total, up from 12,000 in 2010) ▪ Banking sector more focused on corporate banking, relying on retail deposits for cheap funding
	Mobile & telecoms	**Moderate** ▪ Rapidly growing market, with 3 major providers (MTN (~40%), Glo (~20%), AirTel (~20%)) ▪ Mobile users: 55% of population
	Other market infrastructure	**Poor** ▪ Lack of reliable electricity and telecom causes failed transactions and unpredictable connectivity; substantial issue for basic payment functionality in merchant locations
	Economic environment	**Lower middle income** ▪ GDP: $1,400 / capita. 14th richest country (out of 47) in Sub-Saharan Africa but oil accounts for about 40% of GDP ▪ About 48 million formal sector employment, about 54 million informal sector employment. GINI Coefficient 48.8 (2010)
	Demographics & geography	**Mixed urban/rural; young, rapidly urbanizing population** ▪ Adult population of about 85 million; total population of about 160 million; 50% of adult population rural; 50% urban ▪ Economic activity highly concentrated in Lagos and Abuja

SOURCE: Findex, EFInA, World Bank, Expert interviews

Cash dominates Nigerian payments by both value and volume; credit transfers are the most common digital channel



- Cash dominates the system, accounting for about 99% of the total transaction volume
- Credit transfers are catching up to cheques, and may have overtaken them in 2012 by volume and value
- Cards are negligible relative to size of the economy with debit cards more widely used than credit or prepaid
- Mobile has not yet taken off in any meaningful way even though a few players have launched mobile money

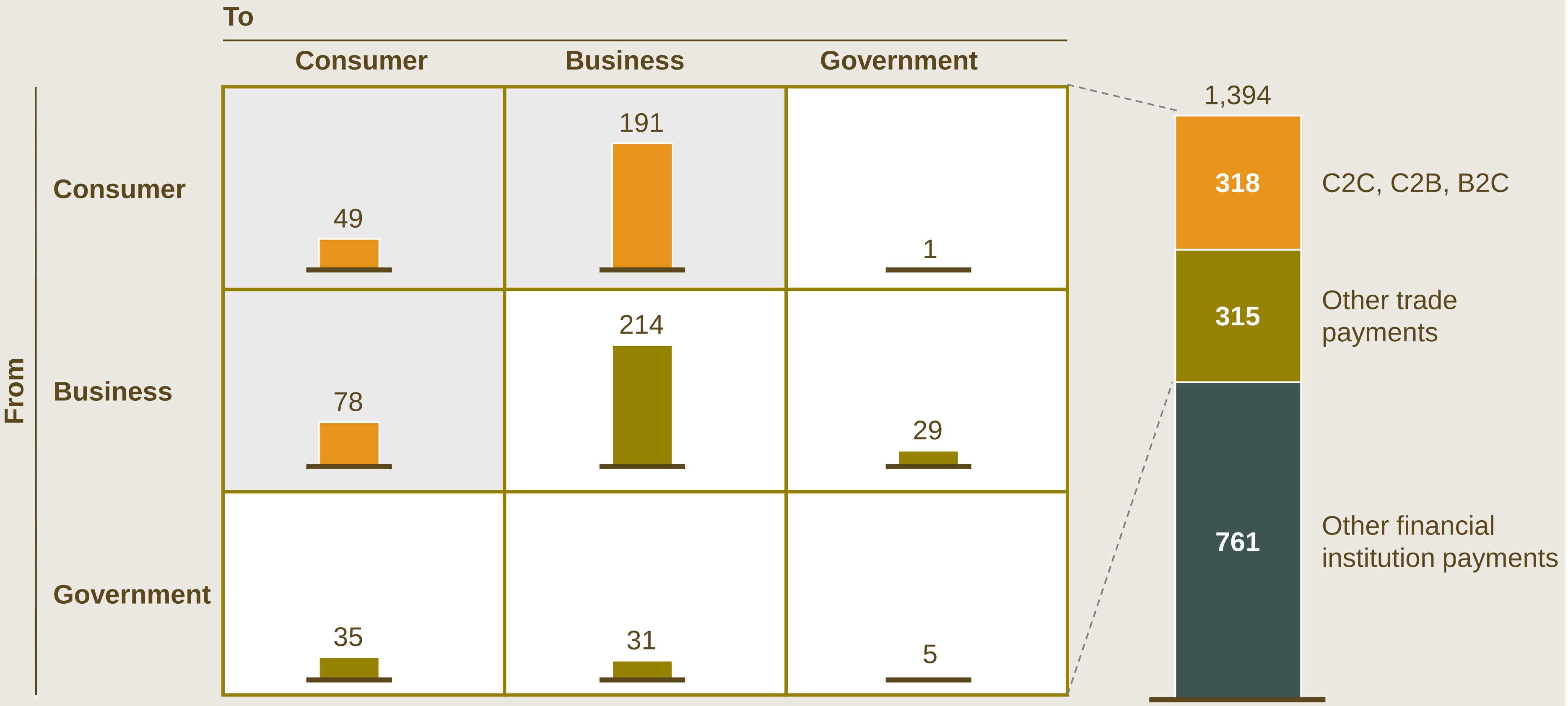
SOURCE:Central Bank of Nigeria, Retail Banking Research, Expert interviews

The transactions most strongly impacting Nigerian consumers account for $318 billion of payment flow

Area of focus

Trade payments in Nigeria by transaction parties, 2011[1]
US$ Billion

Total trade payments by value, 2011[1]
US$ Billion



	Consumer	Business	Government
Consumer	49	191	1
Business	78	214	29
Government	35	31	5

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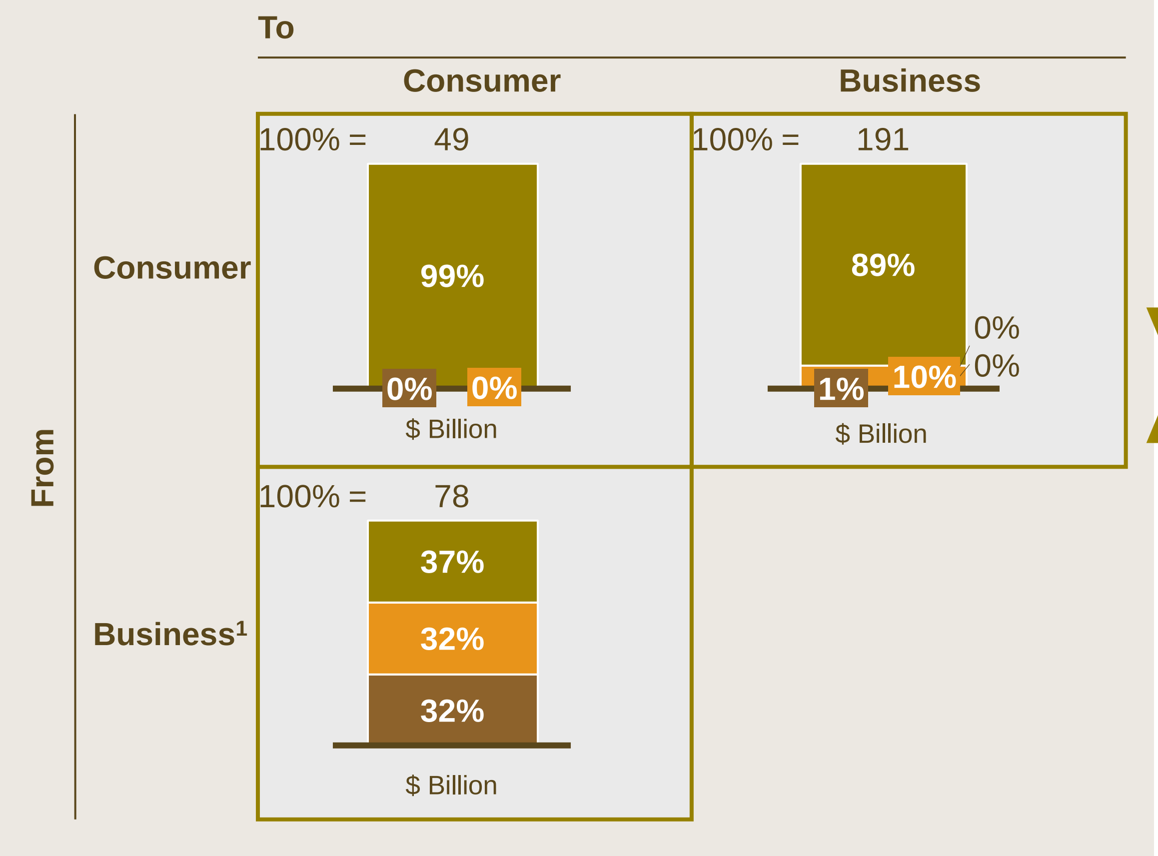
1 Payment flows based on best available official and public data for Nigeria, including C2B flows based on official NBS Consumption Patterns in Nigeria 2009/10 report and B2B calculated as a residual of all other payment flows (may be underestimated)

SOURCE: CBN Annual Reports; RBR Research, National Bureau of Statistics, Press Search

Cash dominates consumer payments in Nigeria, except in B2C where firms with 50+ employees must pay salaries digitally

ESTIMATES

Nigeria trade payments value by transaction parties, 2011
Value in US$ Billions



$ = High value (>20% use)
# = High volume (>20% use)

Major instruments used by transaction type

	C2C	C2B	B2C
■ **Cash**	$#	$#	$#
■ **Cheque**			$
■ **Direct debit**			
■ **Credit transfer**			$
□ **Debit card**			
■ **Credit card**			
■ **Mobile**			

1 B2C figured based on salary/wage payments. Assumed formal sector employees paid 1/3 cash, 1/3 cheque, 1/3 credit transfers. Formal sector represents ~95% of total B2C flows. Informal sector assumed to be paid entire in cash. Informal sector, only ~10% of wages are B2C with the remainder C2C due to large number of owner/proprietors whose salary payments are considered to be C2C.

SOURCE: National Bureau of Statistics, Expert interviews

Financial inclusion in Nigeria

Overall financial inclusion performance: low

Percent with an account at a formal financial institution

- Overall -- 30%
- Top 60% -- 40%
- Bottom 40% -- 14%
- Women -- 23% have formal financial accounts

Payment services access – Bottom 40% (Top 60%):

- Debit card access -- 7% (27%)
- Credit card access -- less than1% (less than 1%)
- Wages received in formal account -- 3% (18%)

Distribution access (per 100,000 people)

- Bank branches -- 6.8
- ATMs -- 11.8
- POS terminals -- about 175
- Mobile payment agents -- 0
- Mobile access -- 55% of population

Additional comments:

- Nigeria ranks 88th globally in access to an account at a formal financial institution, but is above the average for Sub-Saharan Africa (24%) and for low income countries (24%).
- About 24% of people report that they do not have a bank account because banks are far away

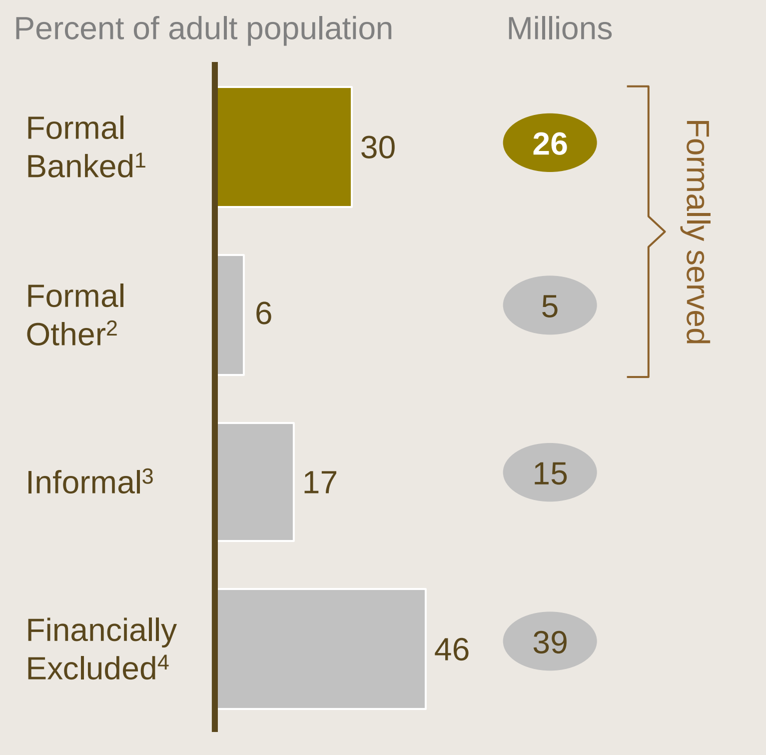
Key takeaways

- **The bank branch network remains very uneven and does not reach large segments** of the population, especially in the north and rural areas
- **Banking remains generally expensive for the majority of people,** despite some product innovation towards affordability (e.g. lower account balances)
- **Some consumer segments perceive limited relevance for traditional branch banking products** due to low or irregular income, high cost of banking and intimidating bank processes
- **Financial literacy is a major concern** as the less educated find account opening, deposits and withdrawals intimidating and stressful
- **Recent developments such as the CBN Financial Inclusion Strategy** may pave the way for improving reach and relevance while decreasing cost

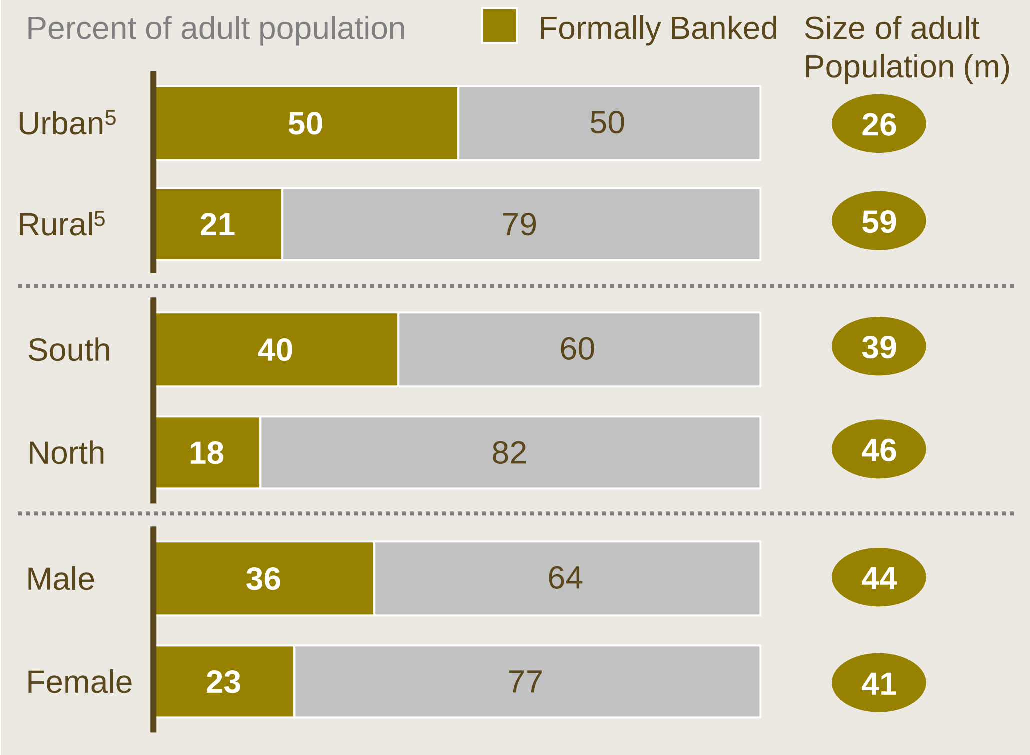
SOURCE: EFInA Access to Financial Services in Nigeria 2010, Findex Global Database

Only 30% of adults are banked, with greater inclusion in urban areas, in the South and among men

Breakdown of population by level of inclusion



Population that is formally banked

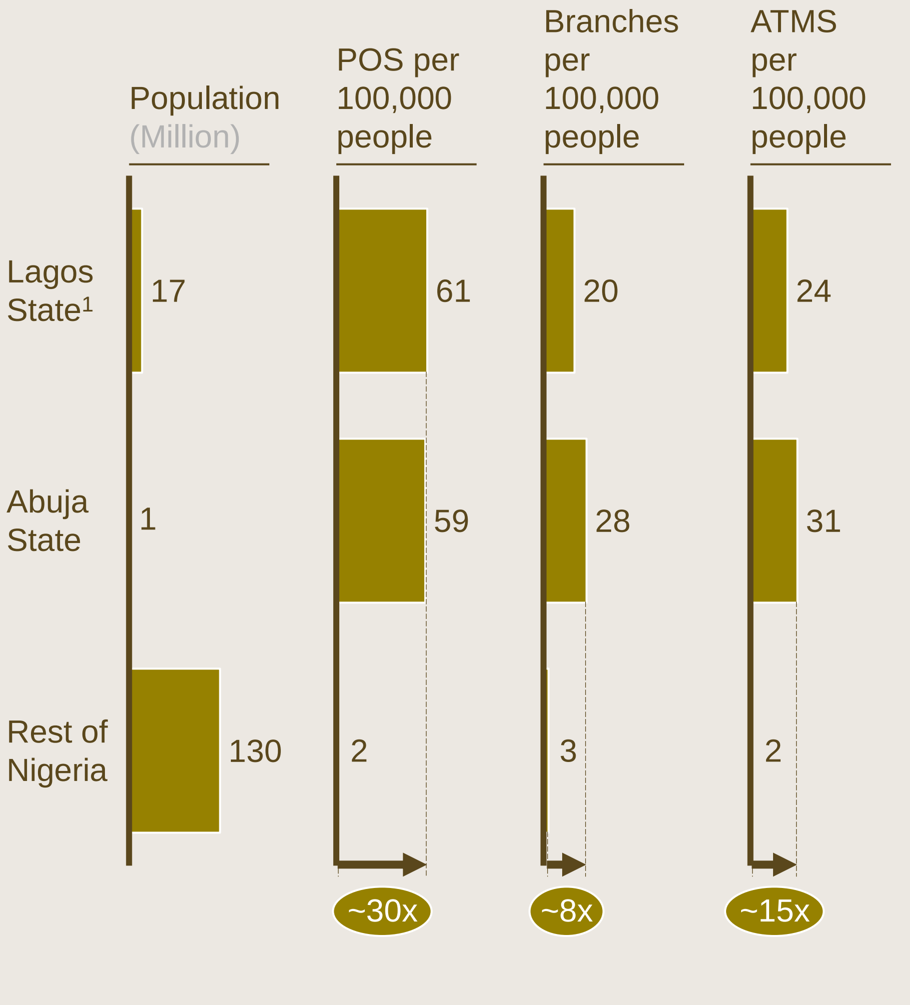


1 Banked: All adults who have access to or use a deposit money bank; 2 Formal other: All adults who use other formal institutions and financial products not supplied by deposit money bank, including insurance companies, microfinance banks, remittances; 3 Informal only: All adults who have access to or use only informal services and products. This includes Savings clubs/pools, informal remittances (via a transport service or recharge card); 4 Financially excluded: Adults not in the formal (banked), formal other or informal only categories; 5 EFInA data based on survey differs in its assessment of overall urban-rural split (~30/70) vs. other sources which give the urban-rural split to be ~50/50

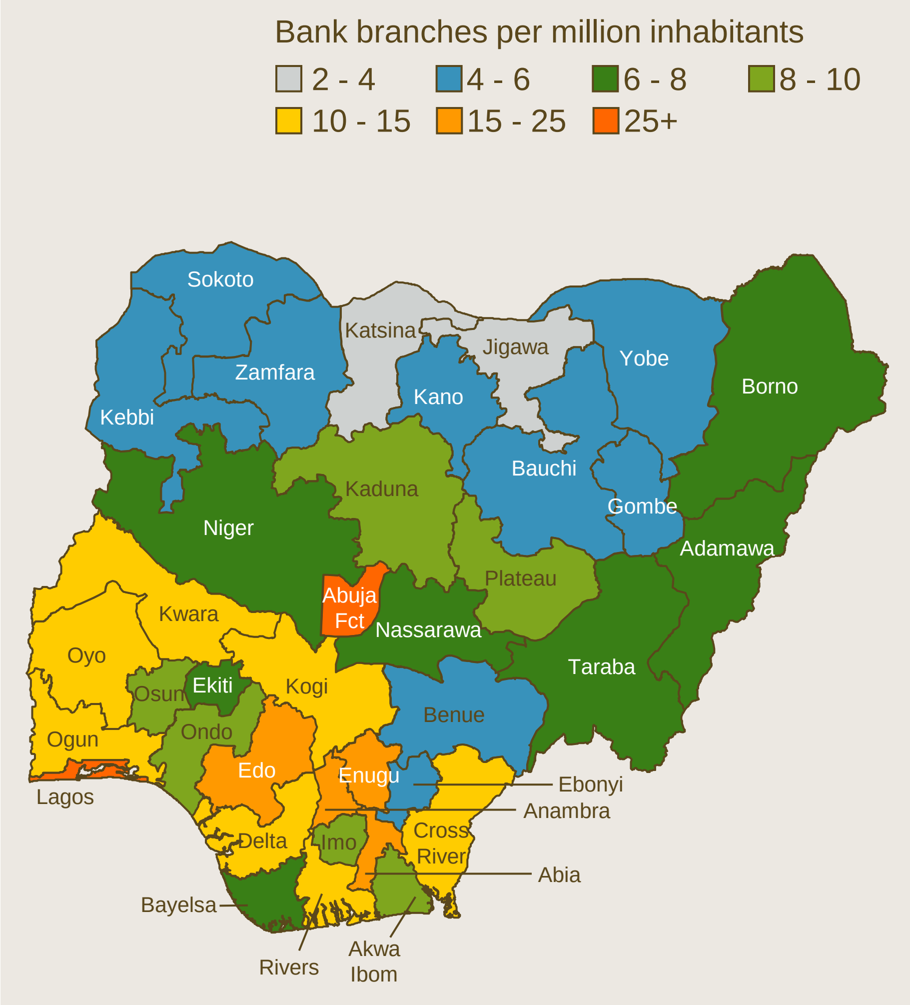
SOURCE: EFInA Access to Financial Services in Nigeria 2010

Outside of Lagos and Abuja, access to bank services or any non-cash options for transacting are limited

Banking infrastructure density by region, 2009



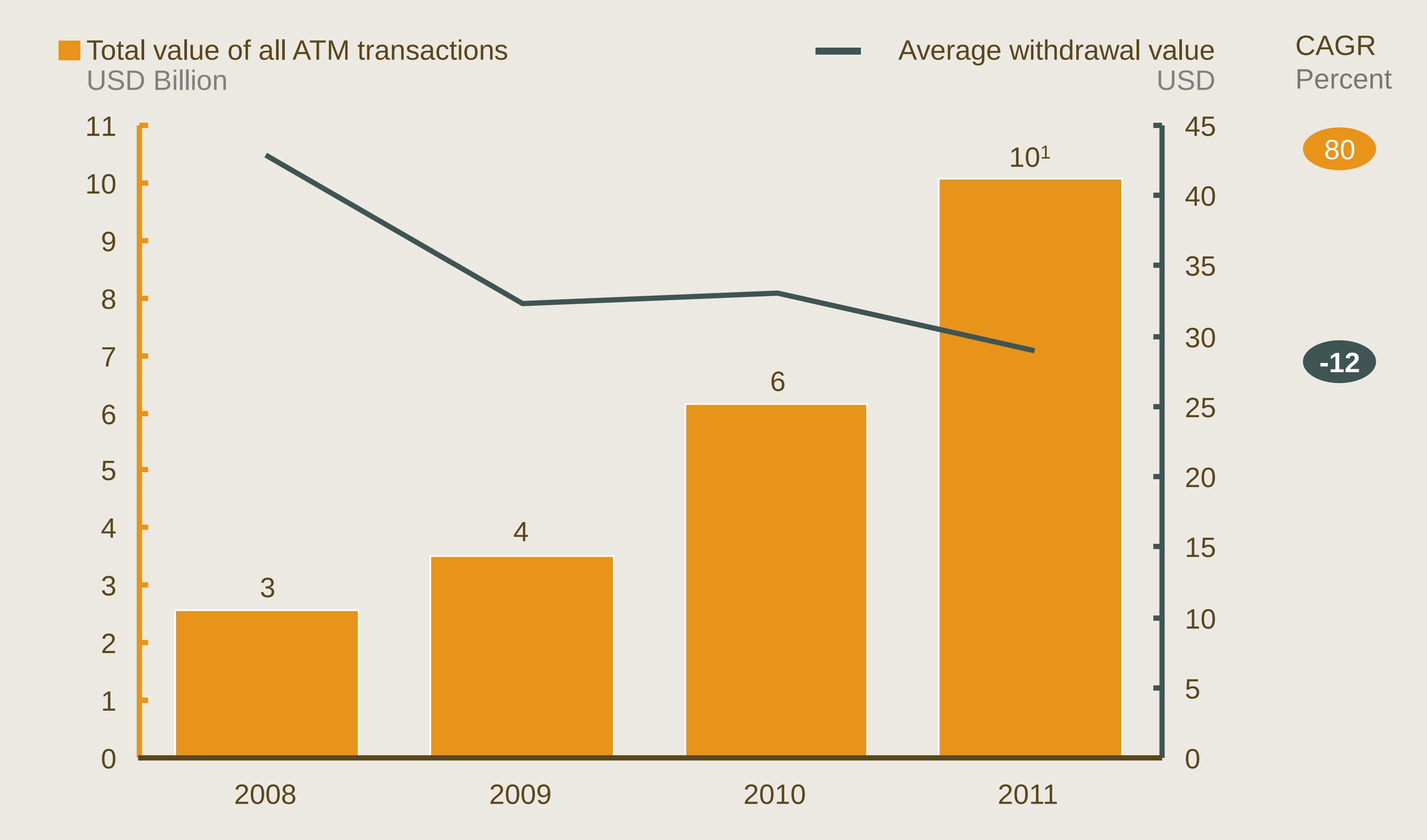
Bank branch density by Nigerian State, 2009



1 Lagos accounts for ~66% of all cheques and ~85% of all POS trans-actions in Nigeria

SOURCE: New Cash Policy – Cashless Lagos Stakeholder Implementation Session. October 2011; OPM analysis of surveyed banks (EFInA Access to Financial Services in Nigeria 2010)

ATM usage is growing rapidly with withdrawal sizes shrinking



1 3% of total cash transaction value in Nigeria (vs. ~10% in the Netherlands)

SOURCE: Central Bank of Nigeria; NIBSS

Along with its universal accessibility, the lower visible cost of cash accounts for its dominance

C2B TRANSACTIONS

	Consumer						Merchant					
	Requires Bank Acct	**Direct Fees (Naira/USD)**	**Indirect Fees (Naira)**	**Benefits**	Merchant Accept. (%)	Actual Use[1] (Val, %)	Consumer Access (%)	**Requires Bank Acct**	**Direct Cost (Naira)**	**Indirect Cost (Naira)**	**Benefits**	Sample use cases
Cash		-	ATM $0.64 (off-us); $0-0.42 (on-us) Theft/Loss	▪ Accessible ▪ Ubiquitous	100	89.4	100		-	▪ Cash handling	▪ Ubiquitous ▪ Immediate ▪ Avoid VAT	▪ Used almost exclusively for day to day spend
Cheque	✓	-	▪ Cheque-book costs, current account fee	▪ Convenient for large txs ▪ Float benefit	2	10.0	30	✓	-	▪ Transport	▪ Convenient for large txs ▪ Widely used	▪ Wealthy for large value (e.g. school fees)
Credit Transfer	✓	Same day: $13 + 0.1%	▪ N/A	▪ Convenient for large txs	x	0.3	30	✓	-	▪ …	▪ Convenient for large txs	▪ Large value purchases & remittances
Direct Debit	✓	-	▪ N/A	▪ Convenient for recurrent pmts	x	0.0	30	✓	-	▪ …	▪ Convenient for cash mgmt	▪ Hardly used (e.g. Dstv)
Debit Card	✓	Annual $3.23 Issuing $3.23		▪ Convenient to carry	~1[2]	0.4	~23	✓	Vary by industry ~1.25% or max $13	▪ Free terminal	▪ Direct credit ▪ Minimizes cash handling	▪ Some banked use for some categories (e.g. airline ticket)
Credit Card	✓	Annual $50 Issuing $50 Monthly $5	▪ Penalties, interest, other charges	▪ Float and liquidity benefit	~1[2]	0	~0.2	✓	Vary by industry ~1.25% or max $13	▪ Free terminal	▪ Direct credit ▪ Minimizes cash handling	▪ Wealthy use for international travel
Prepaid		Annual $3.23 Issuing $3.23 ATM $0.42-$0.64 Reload $0.13	▪ Limits on trx ▪ Additional fees (e.g. pin renew)	▪ Accessible	~1[2]	0	~0.2	✓	Vary by industry ~1.25% or max $13	▪ …	▪ Direct credit ▪ Minimizes cash handling	▪ Hardly used Banked and unbanked may use to shop online
Mobile		Cash out $0.64 for under $65 Transfer $0.32-0.64	▪ Handset/ terminal	▪ Accessible ▪ Low cost	-	0	-		N/A	▪ Handset/ terminal	▪ Direct credit ▪ Minimizes cash handling	▪ N/A

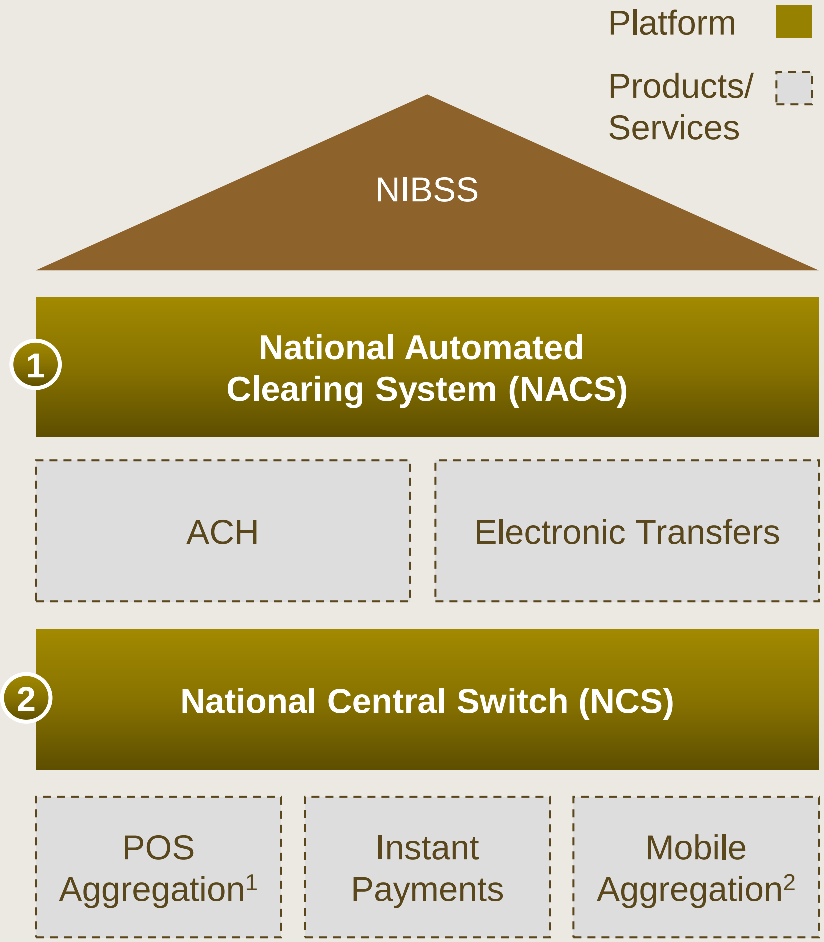
[1] Value used instead of volume due to lack of reliable volume data

[2] <1% assumes that informal sector merchants are counted towards merchant acceptance total

SOURCE: Zenith Bank website, UBA bank website, Skye Bank website, Bankable Frontiers, EFInA, Expert interviews,

NIBSS serves as a platform for much of Nigeria's payment infrastructure

Nigerian Interbank Settlement System (NIBSS) Background and Processing Infrastructure Platforms



- NIBSS was established in 1994 under mandate to make payments more efficient in Nigeria and to develop an integrated nationwide network for electronic transfers and settlements. NIBSS is owned by the CBN and the banks.

① NACS, established in 2002, was the first ACH in Nigeria. It is used for cheque, direct debit and credit transfers. Transfers run under the Nigeria Electronic Funds Transfer (NEFT) platform

② The National Central Switch (NCS) was implemented in 2010 and serves as a platform for multiple products and services.
  - The main purpose of NCS was to provide interconnectivity and interoperability for card payment schemes which it achieved via POS aggregation
  - NCS also offers NIBSS Instant Payments, a faster and more efficient method of funds transfer than NEFT
  - The NSC will also serve as an aggregator for mobile money schemes

[1] POS aggregation runs on top of existing NCS.

[2] Mobile aggregation not yet implemented but regulatory mandate has been issued that all mobile money transactions will route through NIBSS

SOURCE: NIBSS, Expert interviews

How the system works by instrument (1/2)

	Payer gateway	Payer intermediary	Clearing & Settlement	Payee intermediary
Cheque *# of Trx: 37.7m* *% of non-cash: 45%*	▪ Written by payer on cheque stock (paper) provided by the bank. Presented to payee. ▪ Cheques use MIRC technology and standardized for automated processing	▪ Receives batch data from ACH and posts individual debits to payer accounts ▪ Cheque truncation commenced Aug 2012	▪ Automated: NIBSS transmits instructions to ACH. ACH matches payee & payer bank, and notifies each of payment – Settlement in T+2 – Daily inter-bank settlement of net position using NIBSS ▪ Manual: 28 Bankers clearing houses, settling through NIBSS	▪ Payee receives cheque from payer and presents to bank. ▪ Payee bank processes account credit. Sorts cheques and sends to ACH for settlement via NIBSS
Direct Debit *# of Trx: 1.9m* *% of non-cash: 2%*	▪ Payer authorizes payee to withdraw money by paper authorization	▪ Payer bank debits payer account and authorizes settlement ▪ Settlement instructions directed to ACH via NEFT (NIBSS)	▪ NIBSS NEFT system used to deliver instruction to ACH which matches payee & payer bank, and notifies each of payment ▪ Direct debits clear in 3 days ▪ Daily inter-bank settlement of net position using NIBSS or CIFTS through NACS ▪ NIP also provides an alternative real-time option	▪ Payee authorizes bank to debit payer account ▪ Payee bank credits payee once it receives confirmation from ACH
Credit Transfer *# of Trx: 36.7m* *% of non-cash: 44%*	▪ Credit Transfer (single): Payer instructs bank to transfer funds to payee using payee account data (usually in branch) ▪ Credit Transfer (bulk): Corporates provide data file to bank for bulk processing (e.g. wages)	▪ Bank verifies funds availability, posts debit to customer account ▪ Bank sends outward instructions to ACH for clearing and settlement via NEFT (NIBSS) system	▪ NIBSS NEFT system used to deliver instructions to ACH which matches payee & payer bank which route transactions ▪ Credit transfers clear in 1 day ▪ Daily inter-bank settlement of net position using NIBSS or CIFTS (RTGS) through NACS ▪ NIP also provides an alternative real-time option	▪ Payee bank receives NEFT instructions and credits customer account ▪ Payments are irrevocable transfers with no recourse

SOURCE: Central Bank of Nigeria, NIBSS (NEFT) Corporate User Guide, Lafferty World Cards Nigeria 2009,

How the system works by instrument (2/2)

✓ Further details follow

	Payer gateway	Payer intermediary	Clearing & Settlement	Payee intermediary
✓ **Debit Cards** *# of Trx: 7.2m* *% of non-cash: 9%* ✓ **Credit Cards** *# of Trx: 0.4m* *% of non-cash: 0%* **Prepaid** *# of Trx: n.a*	▪ Payer presents card or details through POS, internet or mobile channel	▪ Issuer processer (e.g. Interswitch) authenticates and notifies payer bank ▪ Payer bank authorizes payment and posts debit to payer account	▪ All transactions first routed to National Central Switch at NIBSS before routing to local card networks. ▪ Local card networks (Interswitch and Unified Payments) request and notify payee bank, perform authorization and settlement ▪ Payer bank settles payee bank on a net basis after 1 day via accounts at NIBSS or CBN	▪ Payee swipes card at POS device or receives details ▪ POS device or internet gateway forwards details to NIBSS and then from NIBSS to card network for processing
	▪ POS Infrastructure: increased from ~12,000 in 2010 to ~150,000 in 2012 ▪ Card Brands: Visa, MasterCard and Verve (Interswitch) branded cards offered by major banks. ▪ Debit cards: Issued to all with bank account. Mainly used for ATM transactions. New cards are EMV compliant with chip and pin since 2010 ▪ Credit cards: Single or dual currency cards. Some cards still require collateral of up to 125% of limit. Limited local use of credit cards ▪ Prepaid cards: Offered by some banks (e.g. UBA). Negates need for formal bank account. Prefunded and reloadable. Usable at ATM, Web, POS	▪ ATM network: bank owned and Independent ATM Deployers (IAD)	▪ Card networks: Interswitch and Unified Payments provide issuing and acquiring processing. All issuing banks connected to Interswitch, Unified Payments or both. Card networks or PTSPs deploy and manage POS systems (hardware & software)	▪ Merchant Acquiring: Banks are the main merchant acquirers with the top 4 banks accounting for ~85-90%
Mobile *# of Trx: n.a*	▪ Consumer initiates transaction on mobile phone via USSD channel or via Java app ▪ Difference between mobile banking applications and new mobile money apps not linked to bank account	▪ MMO to authenticate and authorize payment ▪ "On-us" MM transactions cleared and settled ▪ "Off-us" MM transactions to be routed via NIBSS	▪ Inter-MM or inter-bank MM transactions to be routed through NIBSS	▪ Payee issues confirmation or sends verification that transaction has been accepted

SOURCE: Central Bank of Nigeria, NIBSS (NEFT) Corporate User Guide, Lafferty World Cards Nigeria 2009,

How clearing and settlement works by instrument

✓ Further details follow

▨ Public infrastructure

C Clearing

S Settlement

		Large Value Transfer System		Automated Clearing House		Card Payment Network		Comments
		Public[1]	Private	Public[1]	Private	Public	Private	
Network Design	Network	CIFTS NIP[3]		NACS[2]; NEFT[2]	N/A	N/A	Local card switches[6]	
	Time to settle	Instant		1-3 day			1 day	
	Net/Gross	Gross		Net	Net		Net	
Clearing & Settlement by instrument[4]	Cheque			S C				▪ Automated clearing centers in Abuja and Lagos account for bulk of volume ▪ 28 manual clearing houses remain in other states
	Credit Transfer	S C		S C				▪ NIBSS Instant Payment (NIP) used by both consumers and banks for some net settlement ▪ NIP payee gets instant value but settlement takes 1 day which present risk to payor bank ▪ CIFTS used for market side securities settlements and some net settlement between banks
	Direct debit			S C				
	✓ Debit card					S C	S C	▪ Private switches (e.g. Interswitch, Unified Payments, eTranzact) all have to route via NIBSS for final settlement ▪ ATM transactions using Interswitch ▪ International transactions routed via Visa and Mastercard internationally
	Credit card							
	Prepaid							
	Mobile					S C	S C	▪ Off-us inter-scheme mobile money transfers to route through NIBSS

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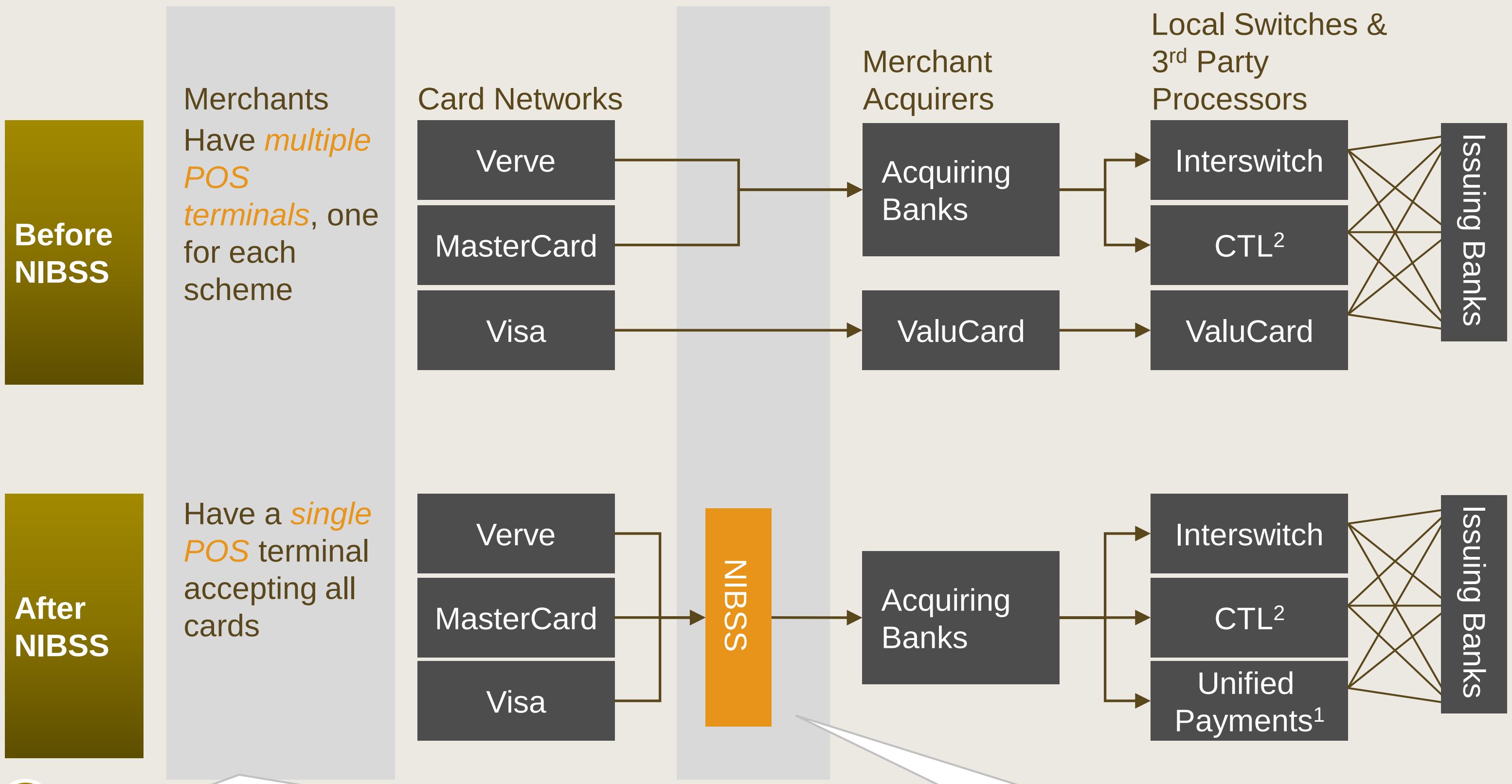
1 NIBSS is semi-public as it is owned by both the Central Bank and the banks. CIFTS is the only RTGS system exclusively owned by the Central Bank; 2 The Nigeria Automated Clearing System (NACS) used for cheques, NEFT system used for credit transfers and direct debits. Both fall under NIBSS umbrella; 3 NIBSS Instant Payment (NIP) used by both consumers and banks in lieu of CIFTS for both small and large value transfers; 4 Final net settlement by banks done through settlement accounts at the CBN or at NIBSS; 5 Quasi-public since the CBN has an ownership share and chairs the Board; 6 Valucard,Interswitch,CTL,eTranzact,3Line

SOURCE: Central Bank of Nigeria, NIBSS, Citi Bank Nigeria

Card information flow – NIBSS requires all card transactions to route via its central switch, imposing interoperability and aggregating data

Simplified schematic – Flow of information when a consumer swipes a card at a merchant



Merchants | Card Networks | Merchant Acquirers | Local Switches & 3rd Party Processors

Before NIBSS

Have *multiple POS terminals*, one for each scheme

Verve
MasterCard
Visa
Acquiring Banks
ValuCard
Interswitch
CTL[2]
ValuCard
Issuing Banks

After NIBSS

Have a *single POS* terminal accepting all cards

Verve
MasterCard
Visa
NIBSS
Acquiring Banks
Interswitch
CTL[2]
Unified Payments[1]
Issuing Banks

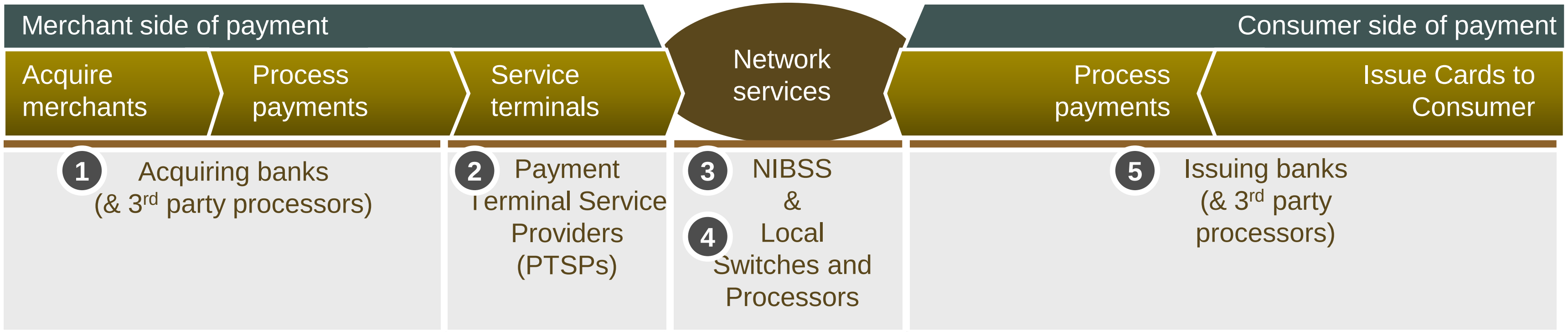
① Effectively imposed interoperability among card schemes, eliminating the need for multiple POS terminals
Note: Many merchants still have multiple terminals for different telcos to ensure a working connection at any time

② Introduced an additional step in the flow of a transaction that serves as a data aggregation point

1 Unified Payments (formerly ValueCard, also a 3rd party provider), PayMaster, CITISERVE, E-Top, Itex; 2 Valucard,Interswitch,CTL,eTranzact,3Line

SOURCE: NIBSS, Expert interviews

Card value chain – There are 5 main types of players in Nigeria



Merchant side of payment

Consumer side of payment

- Acquire merchants
- Process payments
- Service terminals
- Network services
- Process payments
- Issue Cards to Consumer

1. Acquiring banks (& 3rd party processors)
2. Payment Terminal Service Providers (PTSPs)
3. NIBSS
&
4. Local Switches and Processors
5. Issuing banks (& 3rd party processors)

Who	▪ At least 18 of out 21 Nigerian banks	▪ Only 5 licensed PTSP in Nigeria[1]	▪ NIBSS NCS - owned jointly by CBN & banks	▪ 5 local switches, which also provide ATM switching[2]	▪ All retail banks act as issuers
Activities	▪ Sign-up merchants, negotiating pricing & managing accounts ▪ Responsible for processing payments, often using 3rd party processors ▪ Can own POS	▪ Deploy and maintain POS – sole entities licensed to do so by CBN	▪ All POS transactions are routed through NIBSS at authorization ▪ Provides settlement services	▪ Provide payment infrastructure & route among banks & NIBSS ▪ Also act as 3rd party processors (e.g., Interswitch largest in Nigeria)	▪ Issue cards, maintain accounts, provide customer service ▪ Responsible for processing payments, often via 3rd parties
Revenue *MDR capped at 125 bps or 2,000N (~$13) by CBN*	▪ Earn 32.5% of MDR (~40% pre-NIBSS) ▪ Rarely profitable; Banks use to secure broader corporate relationships and lower or waive MDRs in some industries (e.g. downstream oil)	▪ Earn 25% of MDR ▪ Also charge a flat fee per terminal plus incentive fee based on volume/value	▪ Earns 7.5% of MDR (this came from came out of acquirers share when NIBSS was introduced)	▪ Earn 5% of MDR ▪ Those acting as 3rd party processors are paid additionally by banks for their services	▪ Earn 30% of MDR on interchange

1 Unified Payments (formerly ValueCard, also a 3rd party provider), PayMaster, CITISERVE, E-Top, Itex; 2 Valucard,Interswitch,CTL,eTranzact,3Line

SOURCE: Expert interviews; company websites

Historical milestones – six major milestones for the payment system

	Description	Impact on Financial Inclusion
1 Formation of NIBSS	▪ NIBSS created (1994) to initiate and develop an integrated nationwide network for electronic transactions. NIBSS pioneers first inter-bank EFT (1994). NACS (ACH) dramatically improves cheque processing (2002). NCS brings interoperability to card (2011) and to mobile (expected 2013)	▪ NIBSS's role in payments has grown ▪ NACS improves efficiency and cost to cheque system. NCS solves inter-operability of card and MM
2 Bank branch and ATM expansion	▪ 1990s was the first wave of major branch expansion. Structural weaknesses led to consolidation in the 2000s, but this period also saw a return to branch expansion (from ~2,200 in 2000 to ~5,500 in 2010) and the widespread roll out of ATMs from 2006 onwards	▪ Retail banking penetration rose considerably in the 2000s, albeit from a low base
3 Establishment of Interswitch	▪ Interswitch (2004) solved the problem of inter-bank interoperability in their ATM networks. Went on to launch the Verve debit card (2009) which is a local and lower cost alternative to Visa and Mastercard.	▪ Interoperable ATMs effectively expanded access and convenience for banked consumers, facilitated deployment of off-site ATMs
4 Payment System Vision 2020	▪ CBN lays out seven end user initiatives (2007) to shift transactions to electronic methods. PSV2020 directly led to further initiatives such as Cashless Lagos (2011)	▪ Initiatives drove bank account adoption and shift to e-payments but did not directly improve inclusion among poor
5 Mobile money regulation	▪ CBN puts out Regulatory framework for Mobile Payment Services in Nigeria (2009). Framework implements tiered KYC but also host of other regulation such as preventing telcos from becoming MNO's	▪ Mobile money still in its infancy but offers vast potential for the poor. The success of a bank-led model remains to be seen
6 Financial Inclusion Unit at CBN	▪ Financial Inclusion unit at CBN established (2012) that will prioritize regulatory initiatives aimed at improving financial inclusion (e.g. National Strategy for Financial Literacy, regulatory framework for agent banking etc)	▪ Financial Inclusion Unit highlights CBN's focus on bringing financial services to the poor. Too early to tell effectiveness of unit

HISTORY

While cheque and electronic payment instruments have developed substantially over the past 10 years, cash remains dominant (1/2)

	1990's and prior	2000-2010	2010 and beyond
Cash	▪ 1946-1959, currency notes and coins were issued by the West African Currency Board ▪ 1959: Issuance of the first Nigerian Pound currency note ▪ 1973: Decimalization of the currency and switch from Pounds to Naira	▪ 2007: Development of Payment System Vision 2020 sets out CBN plans to move away from cash. Seven initials including government supplier payments, P2P trade, salary, bill pay, taxes and securities settlement which should be electronified	▪ 2011: Cashless Lagos launched which introduced cash surcharging by imposing defined penalties if daily limits for withdrawals and deposits are breached. Deployed POS infrastructure and implemented public awareness campaign
Cheque	▪ 1993: Implementation of MIRC technology to reduce processing cost of cheques. Took several years before benefits were realized as banks did not comply with standards	▪ 2002: National Automated Clearing System (NACS) runs live in Lagos. Clearing cycle improved – T+3 (local) and T+5 (upcountry) ▪ 2005: NACS deployed to Abuja ▪ 2006: cheque standards and cheque printer accreditation scheme implemented ▪ 2007/8: MIRC upgrade. All cheque clearing (local and upcountry) in	▪ 2010: CBN caps cheque payments to N10m. Any transfer above N10m should be made via the RTGS or via NIBSS EFT ▪ 2012: cheque truncation implemented allowing faster and more efficient cheque processing
ACH, Switches and CIFTS	▪ 1994: NIBSS established and pioneered inter-bank EFT in Nigeria ▪ 1999: NIBSS Fast Funds launched in 1999	▪ 2004: Establishment of Interswitch and connecting all banks achieves interoperability of across ATMs ▪ 2004: NIBSS EFT system launched to deliver direct debits and credit transfers via the ACH system. Settlement is typically T+1 ▪ 2006: First live-run of Nigerian RTGS system - CBN interbank funds transfer system (CIFTS)	▪ 2010: Nigeria Central Switch (NCS) platform was rolled out by NIBSS ▪ 2011: NIBSS Instant Payments (NIP) system launched to offer real-time transfers. NIP to serve as open platform for mobile, e-commerce and inter-bank transfers ▪ 2011: NIBSS commences POS aggregation via CTMS platform running on NCS

SOURCE: CBN – The journey so far and the road ahead, CBN website, Expert interviews

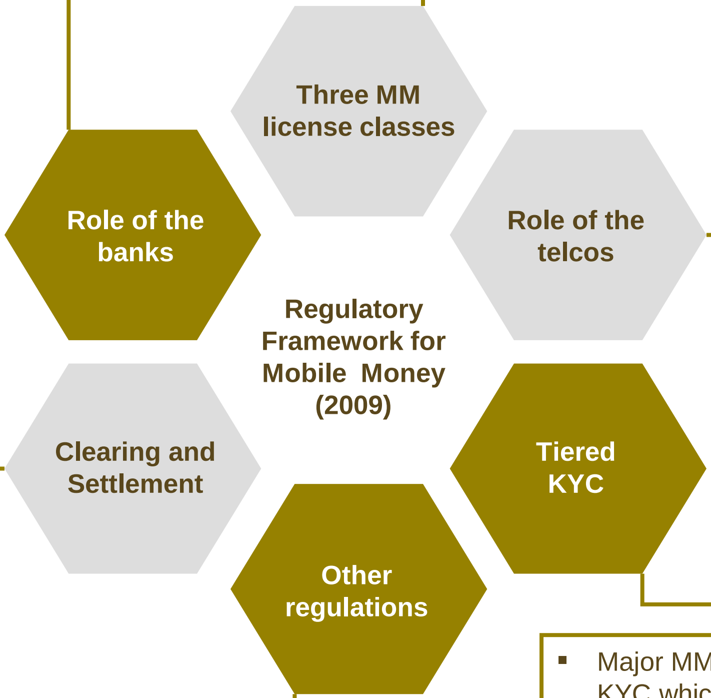
HISTORY

While cheque and electronic payment instruments have developed substantially over the past 10 years, cash remains dominant (2/2)

	1990’s and prior	2000-2010	2010 and beyond
Cards		▪ 2000: First local card issued ▪ 2003: Mastercard enters Nigeria even though first card issued only in 2005 ▪ 2009: The Central Bank granted license for first credit bureau potentially allowing banks to do better credit underwriting in the future	▪ 2010: Switch to EMV standard on all cards. Market set back from ~34m in 2006 to ~20m cards in 2012 ▪ 2011: All POS transactions are routed via NIBSS achieving interoperability of terminals ▪ 2012: CBN “encourages” POS expansion. POS increase from ~12,000 to ~150,000
Mobile		▪ 2009: CBN puts out Regulatory framework for Mobile Payment Services in Nigeria. CBN stipulates that telco’s cannot be MMOs. Mobile regulations establish tiered KYC	▪ 2012+: CBN close to issuing agent banking guidelines
General history (non-instrument specific)	▪ 1959: CBN is established ▪ 1961: First clearing house opens in Lagos ▪ 1990s: Period of significant bank branch expansion	▪ 2003: Guidelines issued for e-banking ▪ 2003-2007: Consolidation of the banking sector from 89 to 24 banks ▪ 2009: Nigerian Banking Sector Crisis. Down to 20 banks and regulatory overhaul	▪ 2012: CBN develops Financial Inclusion Strategy and appoints Financial Inclusion Unit ▪ 2013: New National Identity Number to be basis for new KYC verification

SOURCE: CBN – The journey so far and the road ahead, CBN website, Expert interviews

The Central Bank of Nigeria has taken a proactive approach to regulating mobile money



Regulatory Framework for Mobile Money (2009)

Three MM license classes

Role of the banks

Role of the telcos

Clearing and Settlement

Tiered KYC

Other regulations

- Mobile money can be:
  - Card account based (linked to debit, credit, prepaid card)
  - Bank account based (current, savings, other)
  - Stored Value (no bank account necessary)
- Banks to provide financial, clearing and settlement services to mobile scheme operators where MM funds are held by the bank

- All final settlement processes to be routed through the Interbank Settlement System (NIBSS)
- All MM schemes to be inter-operable with other schemes, with channels (e.g. POS, ATM) and with central switch (NIBSS)
- Off-us inter-scheme final net settlement to be effected via CIFTS on T+1 basis

- Agent network guidelines:
  - MMOs can appoint agents for enrolling customers, deposits and withdrawals
  - Agents can be shared by multiple MMOs
- Dispute resolution guidelines
  - MMOs required to maintain complaints desks
  - CBN to set up the Office of the Ombudsman

- Bank focused: single financial institution provides MM services. Bank responsible for all aspects of MM scheme and reg. compliance.
- Bank led: consortium with financial institution as the lead. Banks provide clearing and settlement, risk management, and agent management.
- Non-bank led: 3rd party corporation, with stored value backed by settlement account at a bank. Must maintain ~$130,000 in paid in capital to offset risk

- Not allowed to receive deposits (i.e. cannot be MMOs)
- Must make network available to all MM scheme operators
- Must ensure its subscribers can sign up to and use any MM scheme

- Major MM regulatory reform was the introduction of tiered KYC which facilitates increased access for poor
  - Three tiers covering:
  - Unbanked (Least KYC): name and phone number. Transaction limit of $20 and daily limit of $190
  - Semi-banked (partial KYC): As per CBN KYC Manual. Transaction limit $64, daily limit $645
  - Fully banked (Full KYC): As per CBN KYC Manual. Transaction limit $645 and daily limit of $6,400

SOURCE: CBN – Regulatory Framework for Mobile Money Services, Expert interviews

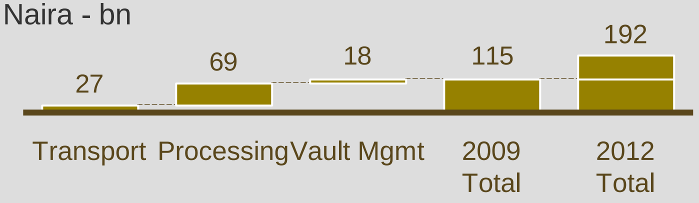
REGULATION – CASHLESS LAGOS

Cashless Lagos aims to decrease cash use by cash surcharging and aggressive deployment of POS infrastructure

Context: Cash-heavy economy

- Cash accounts for ~99% of the total transaction volume and ~51% of transaction value; ~89% of C2B transaction value is in cash
- Cash management costs are expected to grow rapidly and to reach N192bn in 2012; banks pass very little of these costs directly on to customers

Cash Management Costs (CBN + Banks)
Naira - bn



- 10% of branch cash transactions are above N150,000 but account for ~71% of the value
- Opportunities to pay electronically were limited, with only ~13 POS devices per 100K people in 2011 (versus 192 in the Netherlands) and no mobile options

Objectives

- Improve control over monetary policy;
- Lessen corruption through shift to formal channels Increase tax collection;
- Reduce cash costs;
- Free up cash

Approach: Multiple prongs, first piloted in Lagos

① **Introduce cash surcharging**

- CBN implements daily cash limits and penalties which are revised following protests:
  - *Corporate:* N3m (revised up from N1m). Penalties of 5% on withdrawals and 3% on deposits
  - *Individual:* N0.5m (revised up from N0.15m). Penalties of 3% on withdrawals and 2% on deposits

② **Deploy POS infrastructure**

- Developed POS guidelines and regulations
- Acquiring banks encouraged to deploy terminals, the cost of which they bear (number of POS devices went from ~12,000 in 2010 to ~150,000 by Q2 2012)

③ **Promote other electronic channels**

- License mobile money providers
- Push electronic funds transfer instruments and platform

④ **Increase public awareness**

- Stakeholder engagement and mass communication campaigns

Grassroot communications

Weekly print ads

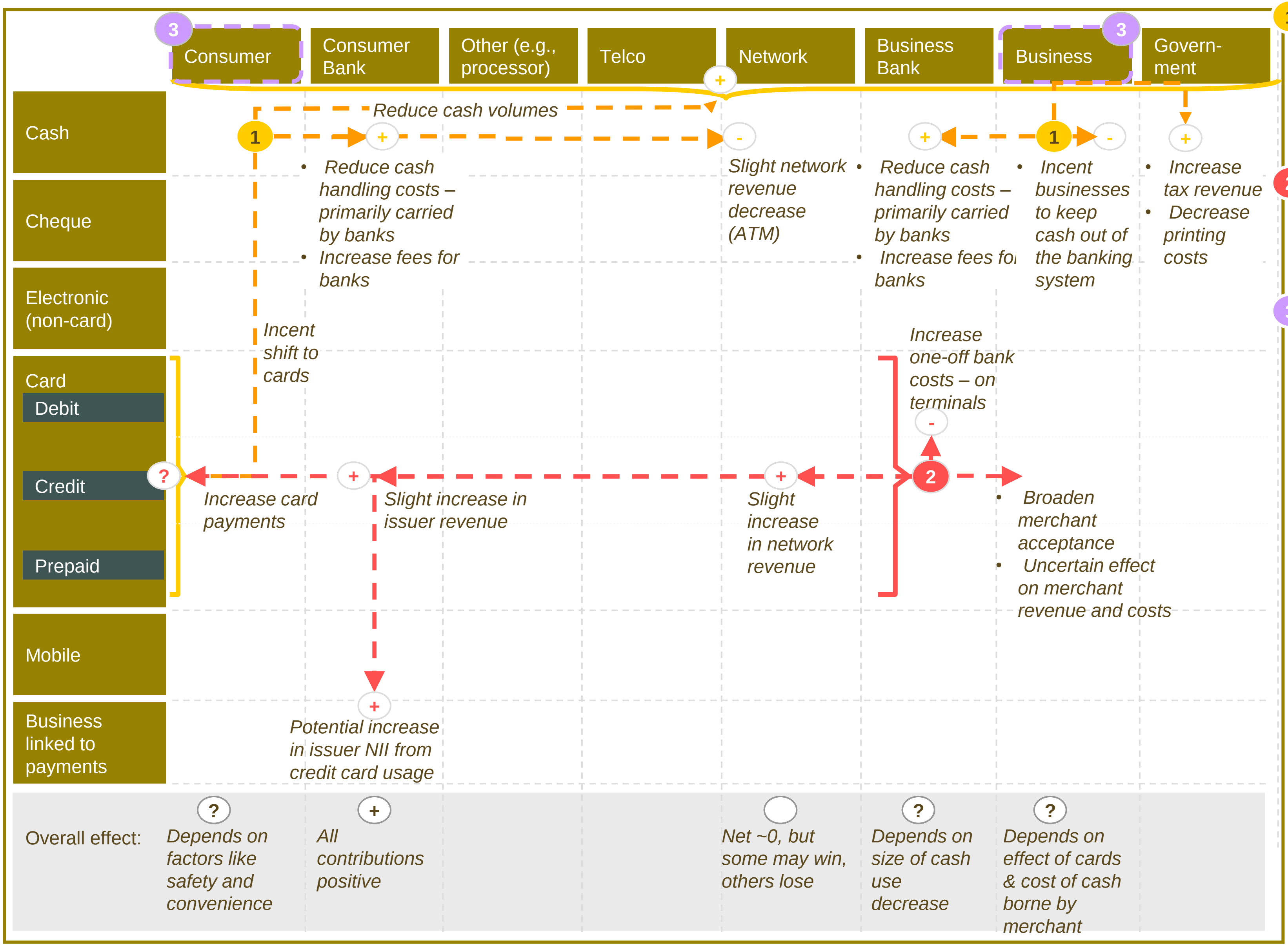
Cashless Lagos website

Banks Cashless FAQ sites

SOURCE: CBN, press search, New Cash Policy – Stakeholder Engagement Presentation Oct 2011

From a full system perspective, Cashless Lagos impact addresses multiple factors

ILLUSTRATIVE



Reduce cash volumes

- Reduce cash handling costs – primarily carried by banks
- Increase fees for banks

Slight network revenue decrease (ATM)

- Reduce cash handling costs – primarily carried by banks
- Increase fees fo banks

- Incent businesses to keep cash out of the banking system

- Increase tax revenue
- Decrease printing costs

Incent shift to cards

Increase one-off bank costs – on terminals

Increase card payments

Slight increase in issuer revenue

Slight increase in network revenue

- Broaden merchant acceptance
- Uncertain effect on merchant revenue and costs

Potential increase in issuer NII from credit card usage

	Consumer	Consumer Bank	Network	Business Bank	Business
Overall effect:	? Depends on factors like safety and convenience	+ All contributions positive	Net ~0, but some may win, others lose	? Depends on size of cash use decrease	? Depends on effect of cards & cost of cash borne by merchant

1 Cash surcharge paid by consumers and businesses on all transactions and withdrawals over a threshold

2 POS expansion funded by banks

3 Education campaign to reinforce 1 and 2

- Net positive for consumers' (issuing) banks
- Effect on business' (acquiring) banks will depend on savings from cash reductions vs one-off terminal costs
- First order effects on users are undetermined but banks may pass on savings indirectly