

# Fighting poverty, profitably

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

Kenya

BILL & MELINDA  
GATES foundation



SPECIAL REPORT ANNEX:  
Country-specific data on payments  
systems and financial inclusion,  
September, 2013

# 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 Kenya

## Characteristics

- **Payments activity is fragmented across players** – banks, clearing & settlement networks, and telcos – increasing costs, and leading to limited market coordination (e.g. lack of switch interoperability)
- **The user base is highly segmented** – Because only a few providers cater to each segment, competition is more limited than a traditional concentration analysis might indicate
- **Incumbents have held defensible positions** – In traditional non-cash payments, banks are in control; in mobile money, Safaricom is the largest provider and de facto leader
- **Products are generally expensive with limited consumer orientation**, stemming from limited competition among entrenched incumbents, and a historical lack of consumer orientation
- **Regulators have let the market lead** – They have not inhibited the growth of mobile money nor have they acted to unify or rationalize the network or distribution infrastructure (e.g., clearing & settlement, ATMs, agents)
- **Remittance-dominated mobile money is used widely and dominated by a single telco provider** -- its growth was driven by a heavily rural population and strong rural-urban connections, but formal C2B use and linked financial services remain limited

## Implications for financial inclusion

- **Mobile money is a natural winner in this economy, but may be stalled** at providing money transfer; expansion of mobile money functionality likely will require coordinated change across institutional players, merchants and consumers, e.g.:
  - Provider de-fragmentation to reduce costs
  - Merchant education and re-pricing to further acceptance
  - True interoperability among mobile money players and between MM players and banks
  - An increase in competition in both the banking and telecom sectors)
- **Non-mobile money cashless solutions** will not access poor populations until agent banking gains sufficient reach and/or banks gain access to the mobile channel
- **Driving mobile money usage at the merchant** may require a new POS solution outside of USSD/SMS that provides quick and cost-effective payments



# Payments in Kenya by the numbers

Usage & Inclusion	Instrument usage	<b>Cash-heavy with widespread use of mobile in C2C</b> <ul style="list-style-type: none"> <li>Percentage of digital and mobile payments by value: 54% C2C, 7% C2B, 24% B2C</li> </ul>
	Financial inclusion	<b>Low</b> <ul style="list-style-type: none"> <li>Formal access: 42% of population, 19% of bottom 40%</li> </ul>
Payment system	Network infrastructure	<b>Fragmented</b> <ul style="list-style-type: none"> <li>Central platforms (RTGS and ACH for cheque clearing) co-exist alongside fragmented interbank transaction platforms (e.g., ATMs), creating inefficiencies in the system and user experience (e.g., multiple POS, limited ATM reach)</li> </ul>
	Regulation	<b>Permissive</b> <ul style="list-style-type: none"> <li>Private-sector-led market development, including free-development of mobile money, with some uncertainty over domain of each related regulator body; market-led system that supports entrepreneurial efforts to a significant degree</li> </ul>
Environment	Banking system reach	<b>Low-reach, urban-centered</b> <ul style="list-style-type: none"> <li>Branches – 5 branches per 100K pop.</li> <li>ATMS – 10 ATMs per 100K pop.</li> <li>POS – 88 POS per 100K pop.</li> </ul>
	Mobile & telecoms	<b>Developed</b> <ul style="list-style-type: none"> <li>Established mobile market led by single dominant provider – Safaricom – and other MNOs</li> <li>Mobile users: 67% of population</li> </ul>
	Other market infrastructure	<b>Sufficient</b> <ul style="list-style-type: none"> <li>Telecoms functions relatively reliably in major markets, but can increase access in rural areas. Power functions in major markets but population electrification rates are 10-20%; where payment systems are deployed, core infrastructure does not pose major problems for functionality</li> </ul>
	Economic environment	<b>Lower income</b> <ul style="list-style-type: none"> <li>GDP: \$800 / capita. GINI coefficient of 42.5 in 2008</li> </ul>
	Demographics & geography	<b>Rural, young population, urbanizing slowly</b> <ul style="list-style-type: none"> <li>Adult population (over 15) of 24.5 million, total population of 43 million (42.5% of population 0-14 years)</li> <li>22% of population urbanized</li> </ul>

NOTE: Numbers are for 2011, unless otherwise stated

SOURCE: Findex Global Database; CIA Fact Book; Expert Interviews



# Mobile money is the most common digital payment channel by volume in Kenya, while RTGS payments dominate by value

■ Paper ■ Digital

% of Total	2011 Transaction Volume Millions of Transactions <i>(Total = 10,980 Million)</i>		2011 Transaction Value US\$ Billion <sup>1</sup> <i>(Total = \$305 Billion)</i>	% of Total
98.2	10,782.4	Cash	52.6	17.3
0.2	22.7	Cheque <sup>3</sup>	28.5	9.4
0.0	1.2	Credit transfer via RTGS <sup>2</sup>	211.8	69.6
0.1	15.9	Direct debit & credit transfer via ACH	6.4	2.1
0.1	5.8	Debit card	0.7	0.2
0.0	0.7	Credit card	0.0	0.0
1.4	151.6	Mobile money	4.5	1.5
0.0	0.1	Other <sup>4</sup>	0.0	0.0

- RTGS credit purchases account for the majority of transactions by value as initiatives such as value-capping and g-pay push greater large value transactions through the system
- Cash dominates the system – accounting for 98% of the total transaction volume

1 90 Kenyan shillings = 1 US\$, 2011 average; 2 Includes all payments through RTGS system, excludes net settlement resulting from clearing house operations; 3 Includes all cheques converted to ACH; 4 Includes prepaid cards

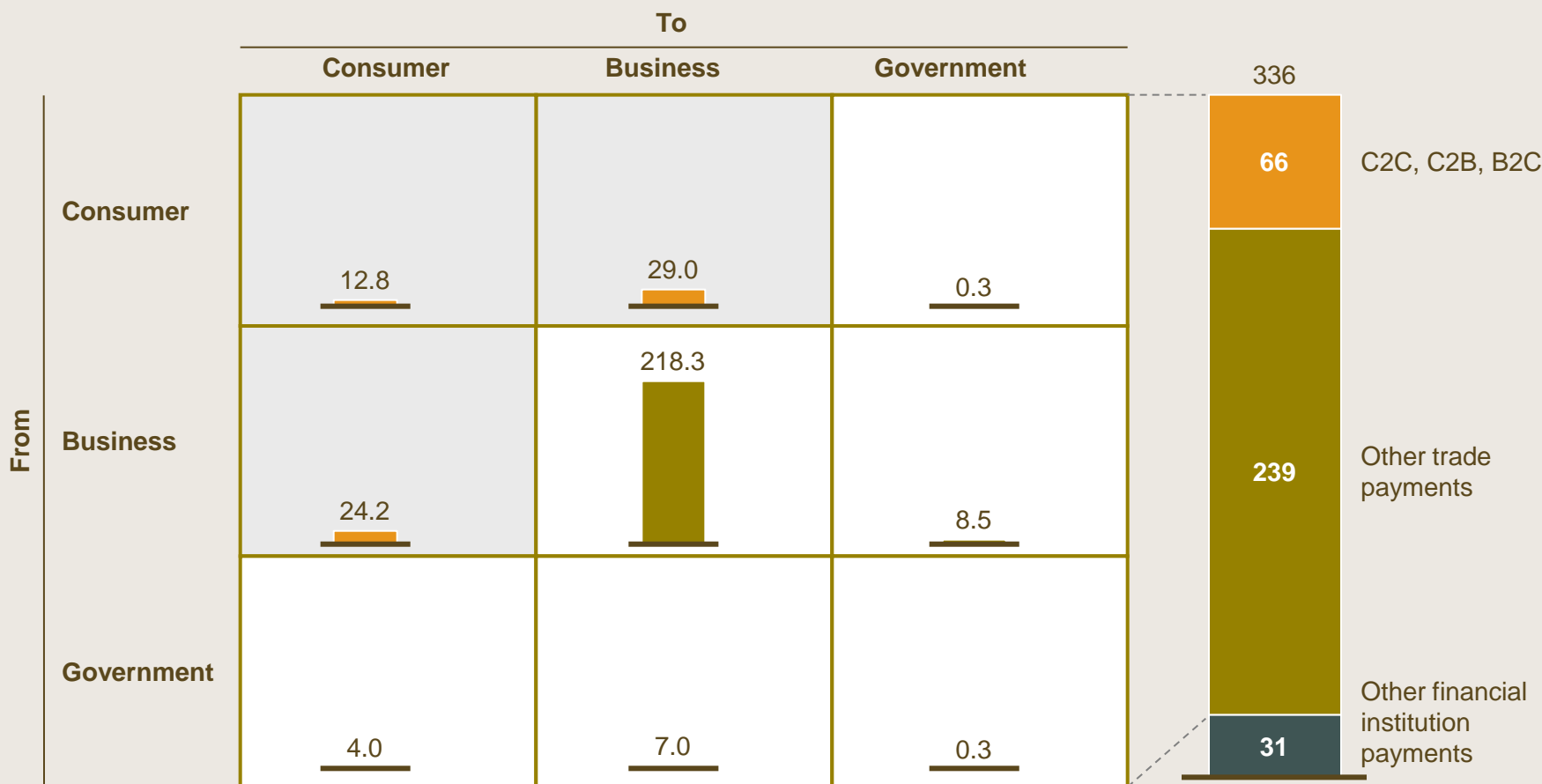
SOURCE: Kenyan Central Bank; Safaricom; Kenyan Bankers Association; Expert interviews



# The transactions most strongly impacting Kenyan consumers account for \$66 billion of payment flow

Trade payments in Kenya by transaction parties, 2011  
US\$ Billion<sup>1</sup>

Total trade payments by value, 2011  
US\$ Billion<sup>1</sup>



1 90 Kenyan shilling = 1 US\$, 2011 average

SOURCE: Kenyan Central Bank; Safaricom; Kenyan Bankers Association; Expert interviews



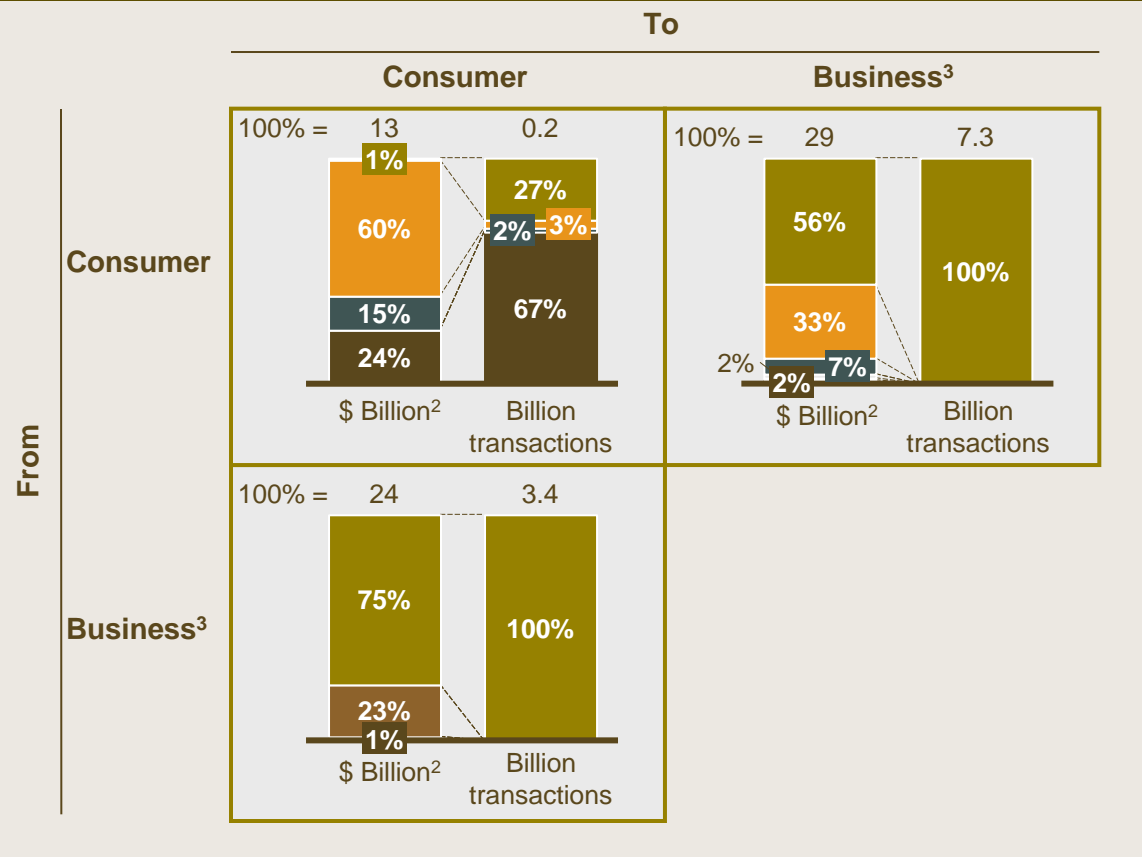


# Mobile money plays a major role in C2C payments in Kenya, but paper instruments predominate for other payments

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

## Kenyan trade payments by transaction parties, 2011<sup>1</sup>

Value in US\$ Billions<sup>2</sup>, Transactions in Billions



### Major instruments used by transaction type

	C2C	C2B	B2C
Cash	#	##	##
Cheque	\$	\$	
Direct debit			
Credit transfer			\$
Debit card			
Credit card			
Mobile money	##		

1 Note that official data for most of these quantities does not exist, so many of these numbers are best estimates. Largest uncertainties are in C2B numbers, since the division between formal and informal sectors is hazy

2 90 Kenyan shillings = 1 US\$, 2011 average

3 Includes both business and government payments.

SOURCE: Kenyan Central Bank; Safaricom; Kenyan Bankers Association; Expert interviews



# Financial inclusion in Kenya

## Overall financial inclusion performance: low-medium

- **Percent with an account at a formal financial institution**
  - Overall -- 42%
  - Top 60% -- 62%
  - Bottom 40% -- 19%
  - Women -- 19% have formal financial accounts
  
- **Payment services access**
  - Debit card access -- 30%
  - Credit card access -- 6%
  - Wages received in formal account -- 16%
  
- **Distribution access (per 100,000 people):**
  - Bank branches -- 5
  - ATMs -- 10
  - POS terminals -- About 88
  - Mobile payment agents -- 143
  - Mobile access -- 67% of population

## Key takeaways

- **The traditional bank branch network is not well penetrated in rural areas;** bank branch expansion into these areas in the late 1990s was reversed when banks changed course and closed unprofitable branches, creating distrust among affected customers
- **Formal banking products are perceived to have little relevance for many of the poor** who have limited balances and irregular income. **Consumers are also averse to ongoing monthly maintenance fees**
- **Financial literacy** of banking products is generally low and consumers find banking intimidating
- **MPESA enjoys massive adoption across all segments of the population** and enjoys significant consumer trust
- **MPESA suits consumer needs for storing and transferring money; and consumers are much more willing to accept transaction charges** (which are 1.5%-2% for average-sized transactions)

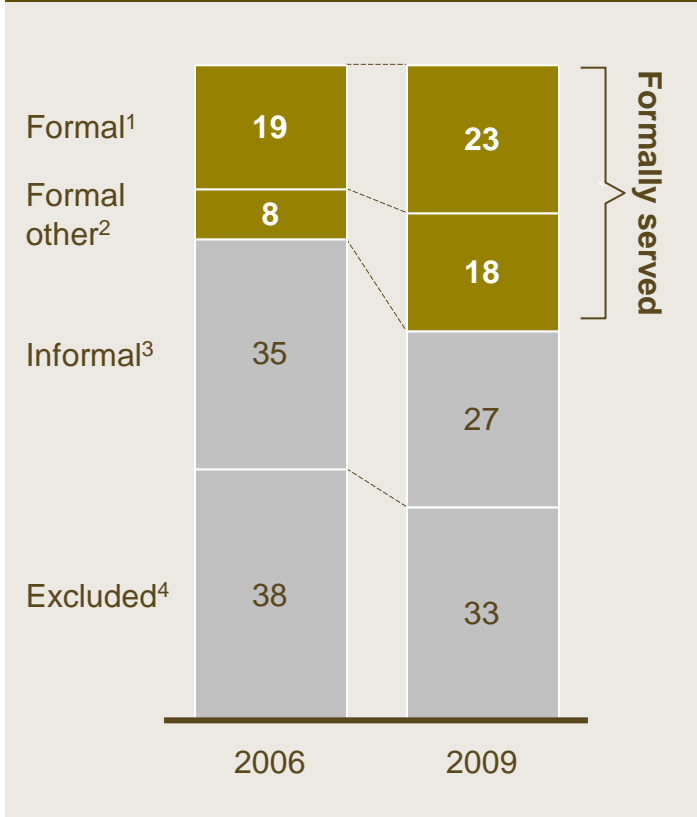
1 Based off of number of agents in 2012

SOURCE: Findex Global Database; Central Bank of Kenya; WMM Global Insight; Expert Interviews

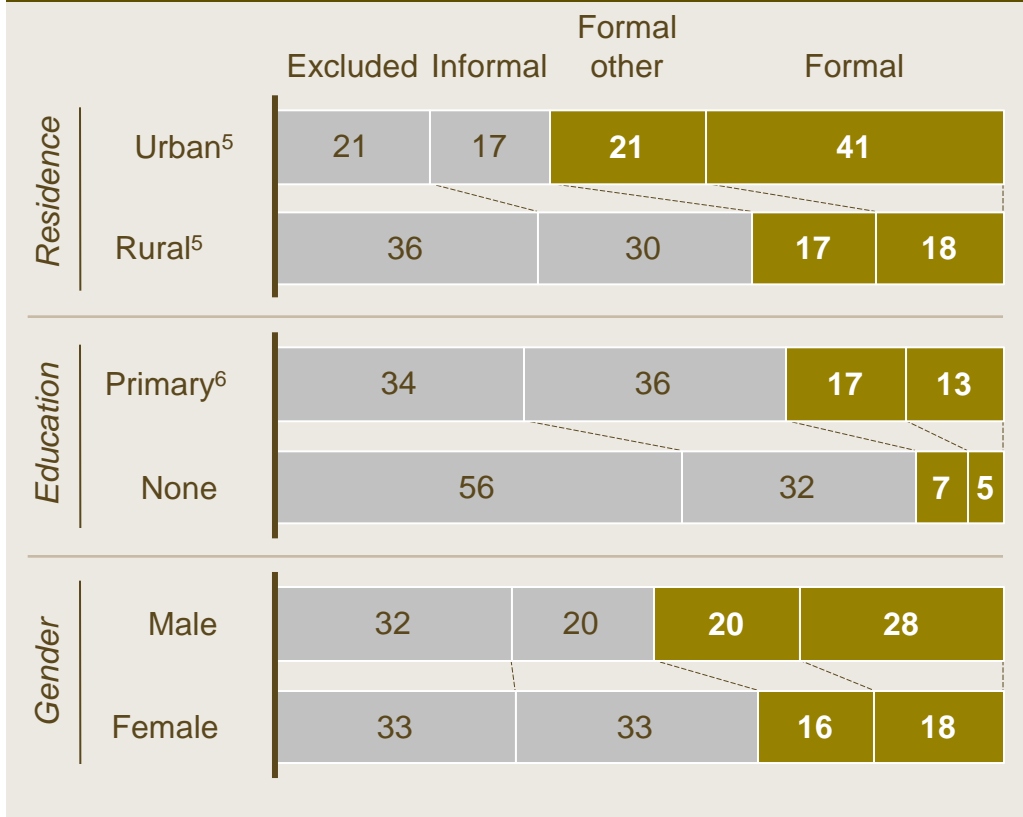


# Fully 40% of adults have formal access, with higher inclusion in urban areas, among men, and those with at least primary education

**Population breakdown by level of inclusion<sup>5</sup>**  
Percent of adult population



**Population segment breakdown by level of inclusion, 2009<sup>5</sup>**  
Percent of adult population



1 Formal: use a bank, PostBank or insurance product; 2 Formal other: use services from non-bank financial institutions such as SACCOs (Savings and Credit Cooperative Societies) and MFIs; 3 Informal: use informal service providers (e.g., ASCAs, RoSCAs) 4 Excluded: use none of the above; 5 Based on a survey of adults 18 years or older, with ~6,500 survey respondents; 6 Respondent with higher than primary education have yet higher access levels (34.7% and 70.3% formal inclusion for those with secondary and tertiary education, respectively)

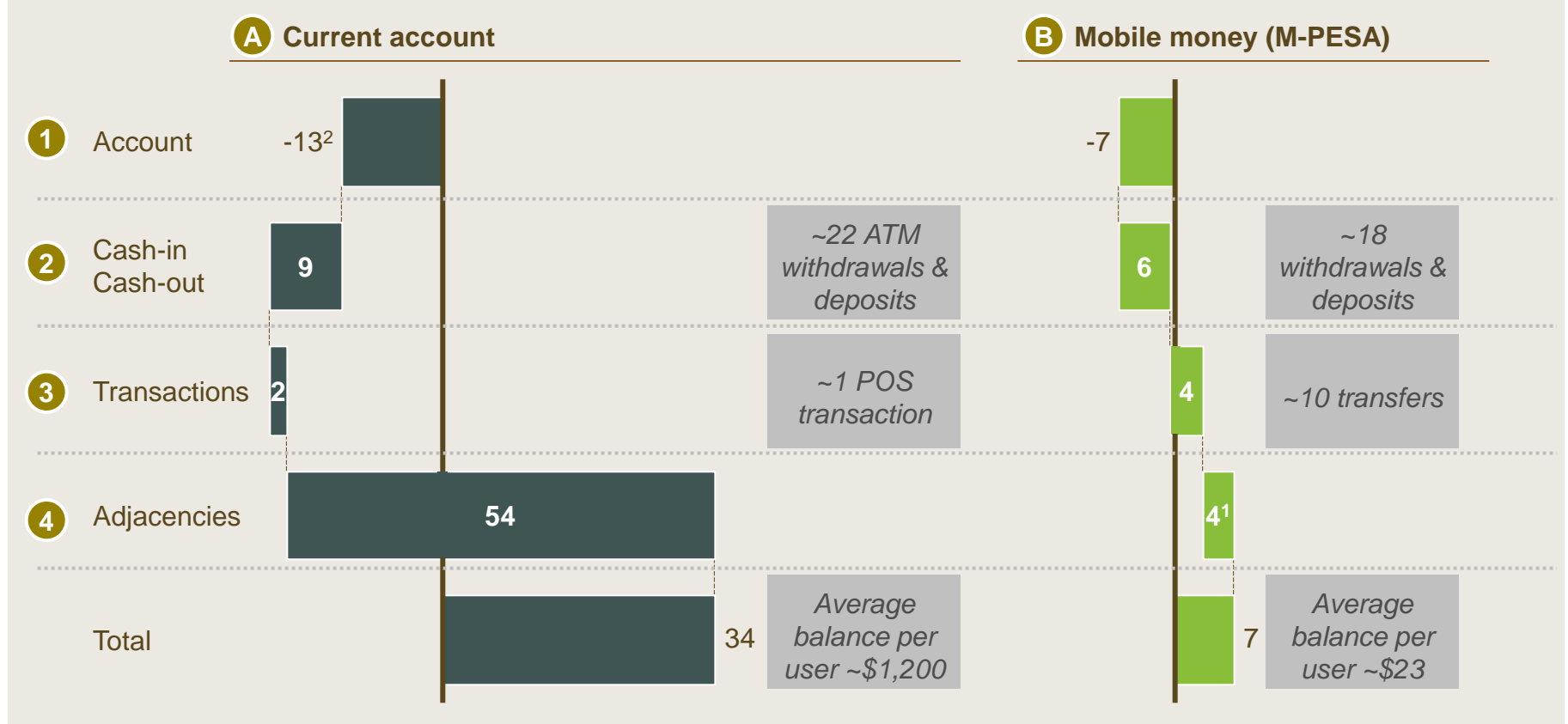
SOURCE: FinAccess National Survey 2009, Dynamics of Kenya's changing financial landscape



# Kenya has two distinct payment system profit models – bank-led current account and telco-led mobile money

ESTIMATES

Estimated profit decomposition per customer for mobile money and current accounts 2012  
USD



1 Estimated range of adjacencies benefits are \$2-6, based on Safaricom data supplemented by interviews. This is the mid-point. 2 Costs per account are estimated by taking industry-wide operating expenses, and assigning 50% to liabilities-linked activities. 86% of aggregate balance sheet liabilities are customer deposits. Hence 50% x 85% of total costs are assigned to deposit accounts. CICO and transaction costs from debit cards are subtracted from this total

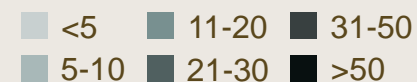
SOURCE: Central Bank of Kenya; Safaricom Annual reports; Equity Bank annual reports; WDI; Oanda; Expert interviews





# Outside Nairobi, formal banking reach is limited; mobile money agents are more common but still sparse in some areas

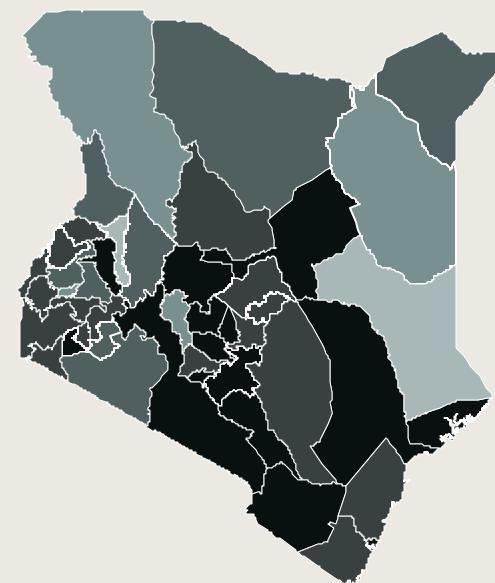
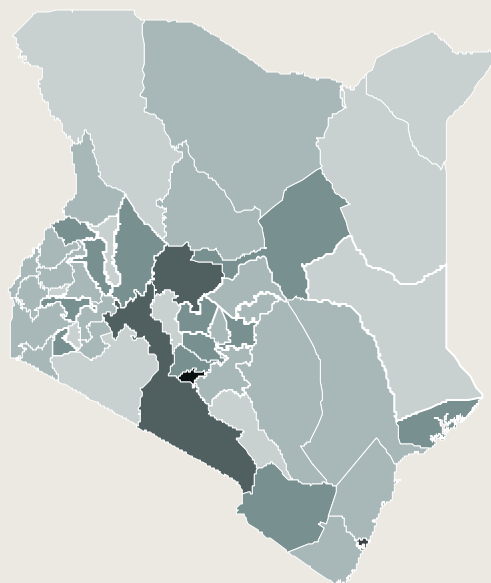
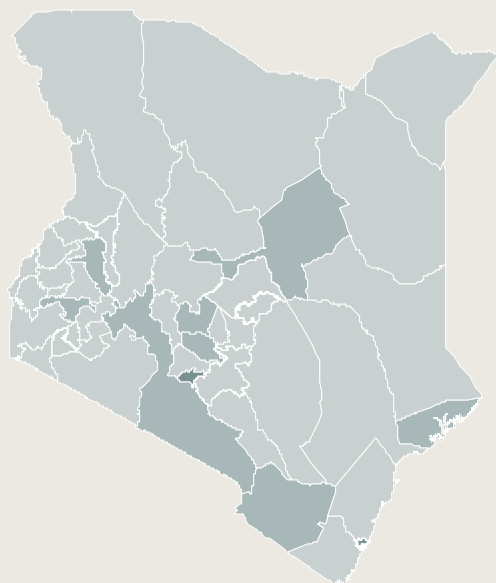
**Provider density**  
Outlets per 100,000 adults



**Bank branches**

**SACCOs**

**Mobile money agents**

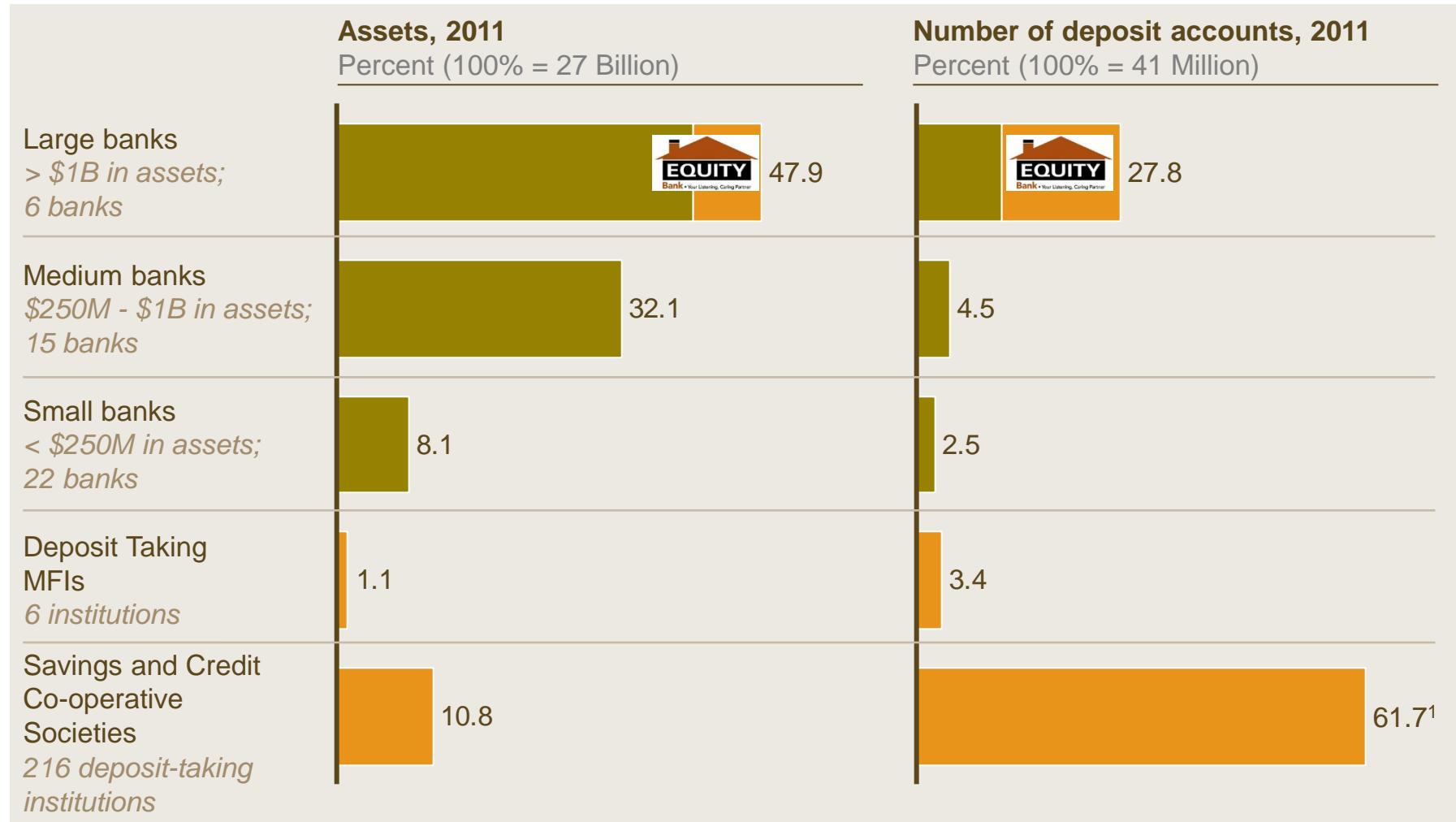


SOURCE: CBK – *Bank Supervision Annual Report (2011)*; themix.org



## Except for Equity Bank, smaller and potentially less efficient institutions maintain the largest number of deposit accounts

■ Stronger focus on poor users
 ■ Less focus on poor users



<sup>1</sup> Assumes accounts have the same average balance as the average balance of DTM accounts with under 100,00 Ksh (\$1,157)

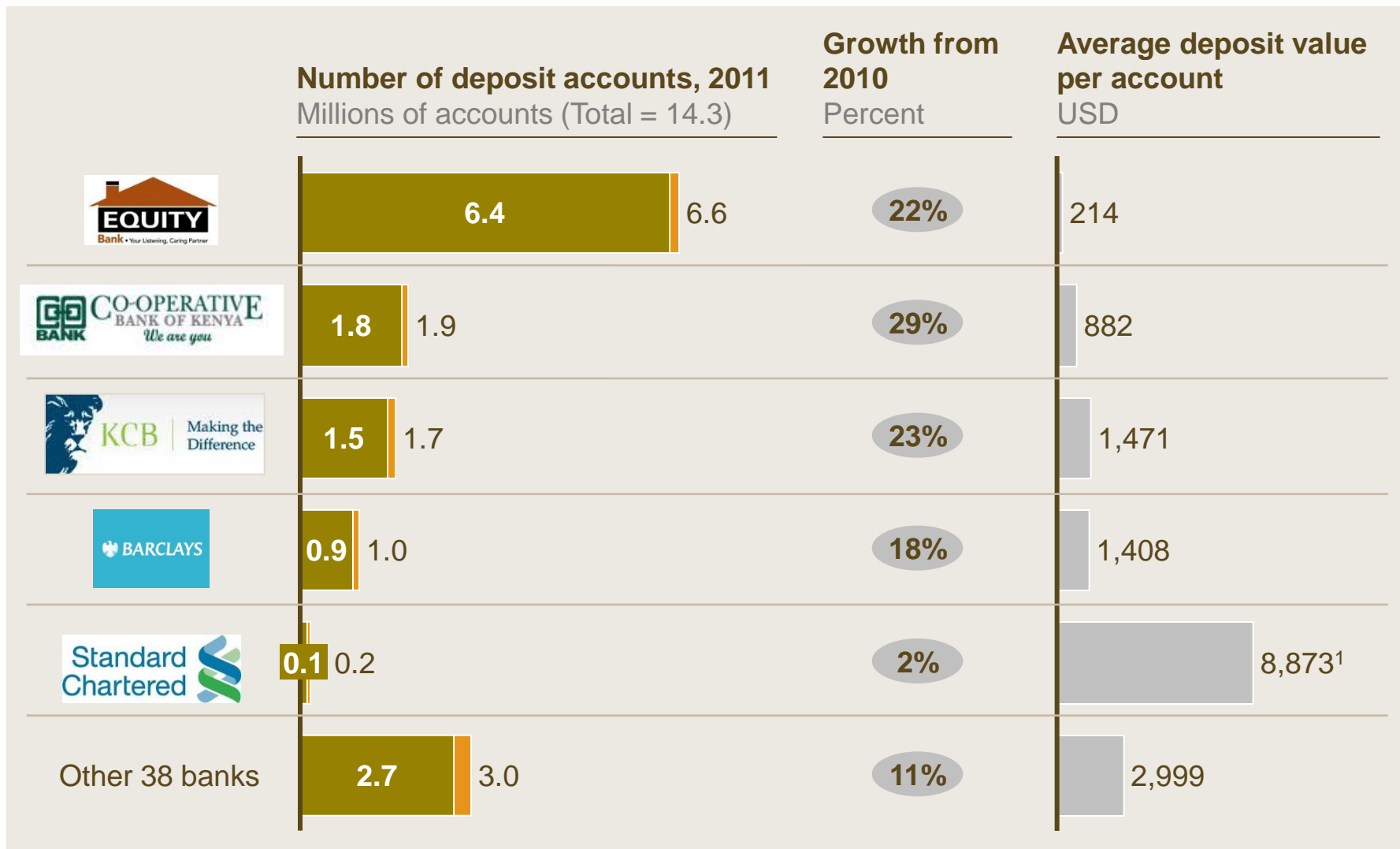
SOURCE: CBK – Bank Supervision Annual Report (2011), Financial Sector Stability Report (2011), Oanda



# Across banks, most deposit accounts have under \$1,160 in deposits; banks with more accounts have smaller average balances and higher growth rates

## Deposit account balance

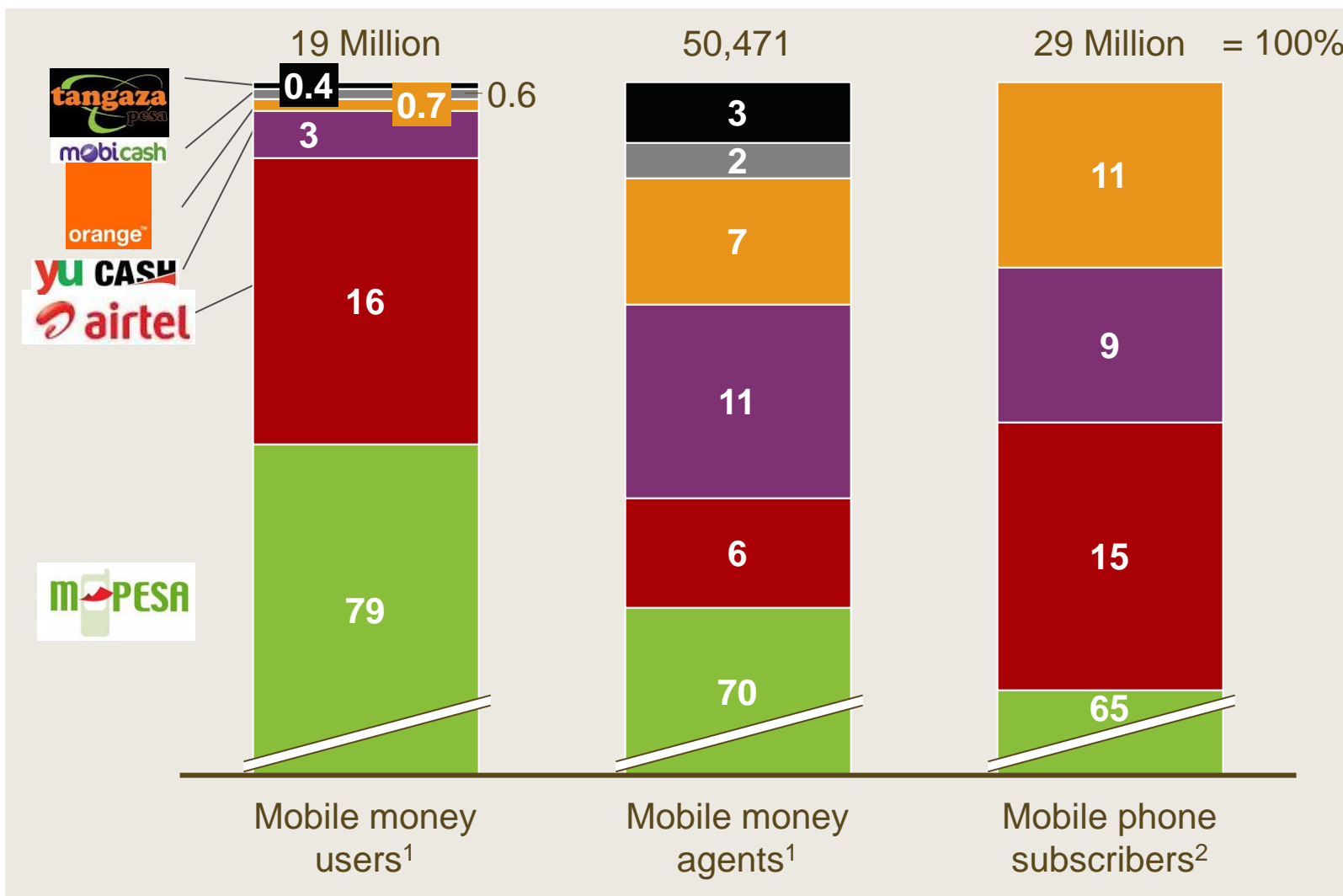
- <100,000 Ksh (\$1,157)
- >100,000 Ksh (\$1,157)



SOURCE: CBK – Bank Supervision Annual Report (2011), Financial Sector Stability Report (2011), Oanda



# Mobile money transactions occur through MMO-run closed networks; M-PESA offers the largest agent network

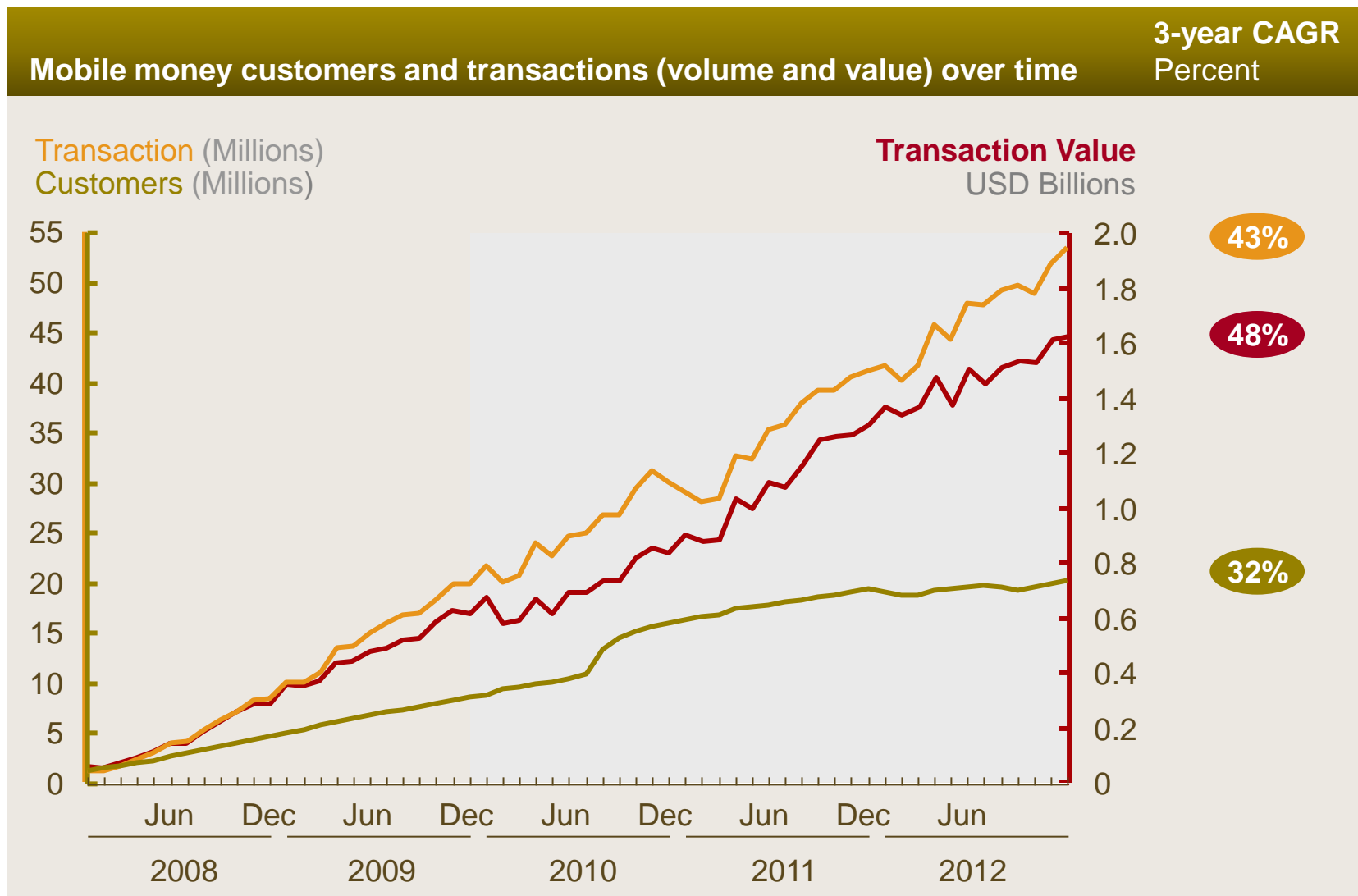


1 Dec 2011 data; 2 March 2012 data  
 SOURCE: Central Bank of Kenya; CCK





# Mobile money has exploded since its inception in 2007; volume and value transacted have grown even faster than number of customers

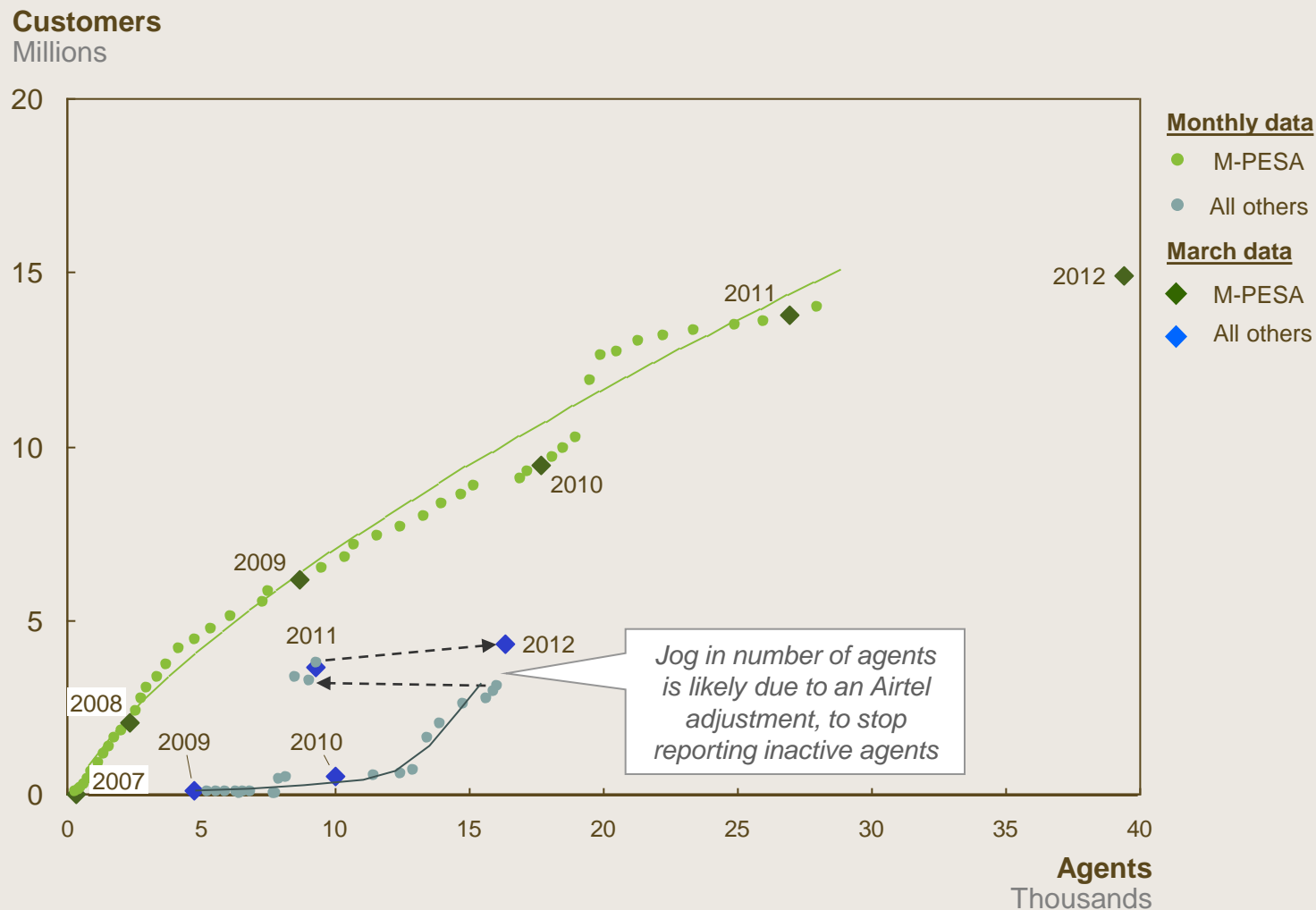


SOURCE: Central Bank of Kenya



# M-PESA grew its customer base faster compared to its agents than its competition; however, fast customer growth has stopped

Numbers of customers *versus* agents over time



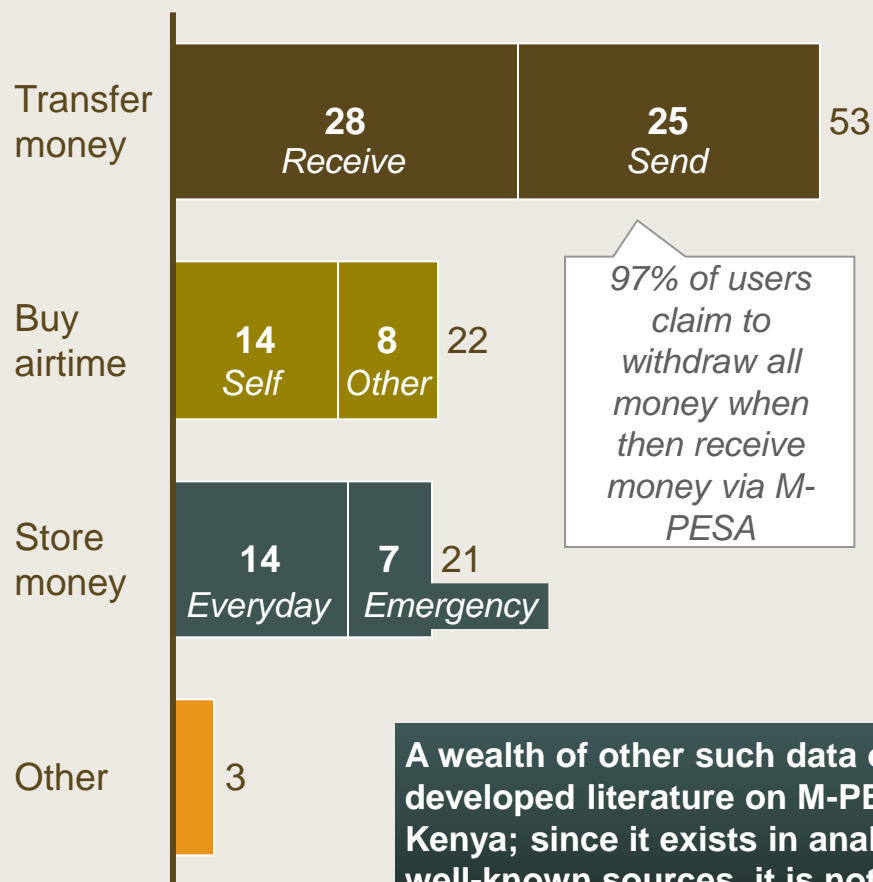
SOURCE: Central Bank of Kenya; M-PESA statistics release



## Mobile money is most valued as way to transfer money, commonly once a month or less frequently

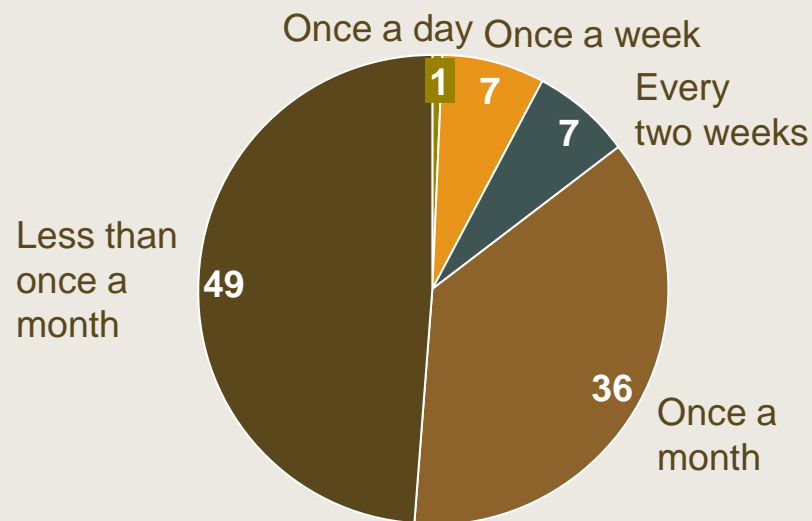
### Most important use of M-PESA<sup>3</sup>, 2009<sup>1</sup>

Percent



### M-PESA<sup>3</sup> usage frequency, 2009<sup>2</sup>

Percent



1 Based on 3,343 responses from 1,120 users; 2 1,120 responses; 3 M-PESA accounts for >95% of mobile money transaction volume and value so is a good proxy for mobile money use generale

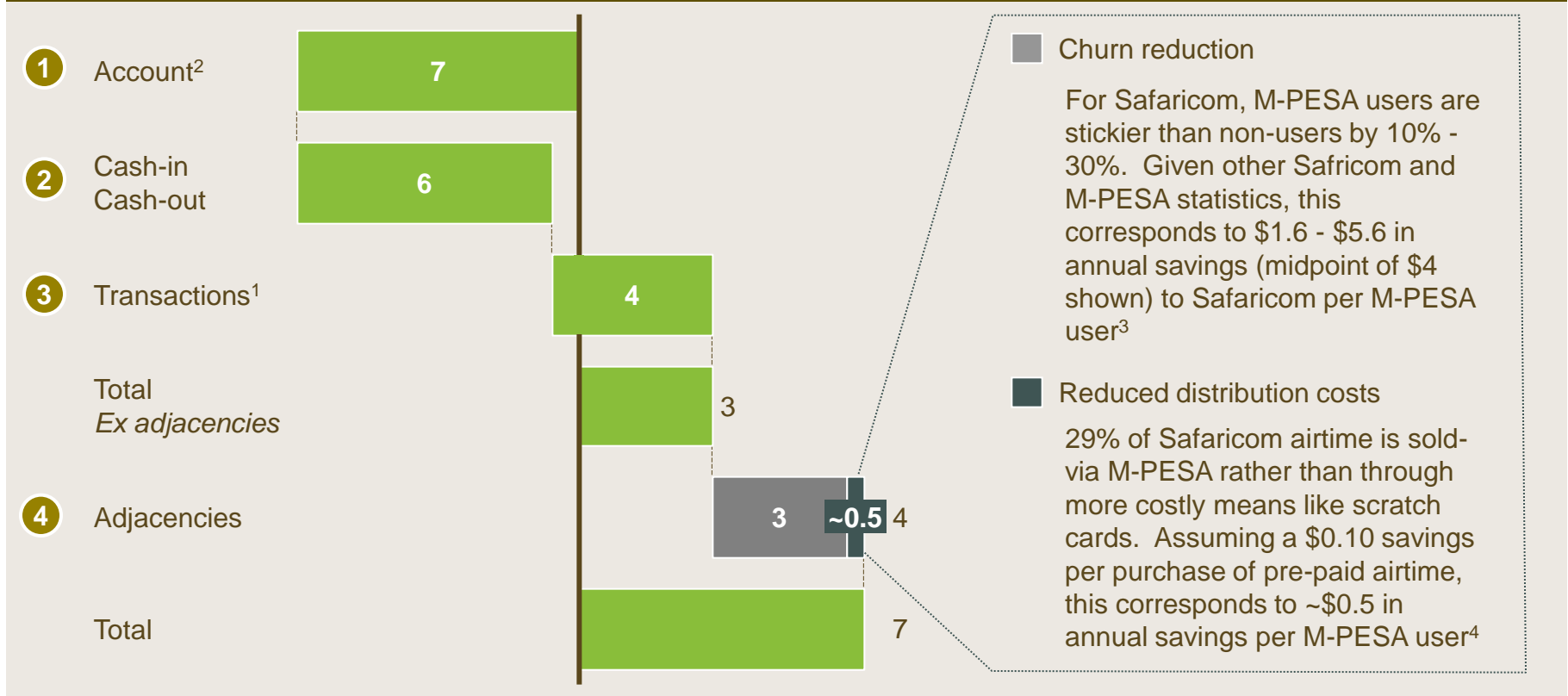
SOURCE: "Mobile Payments in Kenya: Findings from a survey of M-PESA users and agents", January 2009



# Including adjacent benefits to Safaricom through churn reduction and reduced distribution costs, adds \$2-6 of profit per M-PESA user

ESTIMATES

## Decomposition of estimated M-PESA profit per customer including adjacencies, 2012 USD



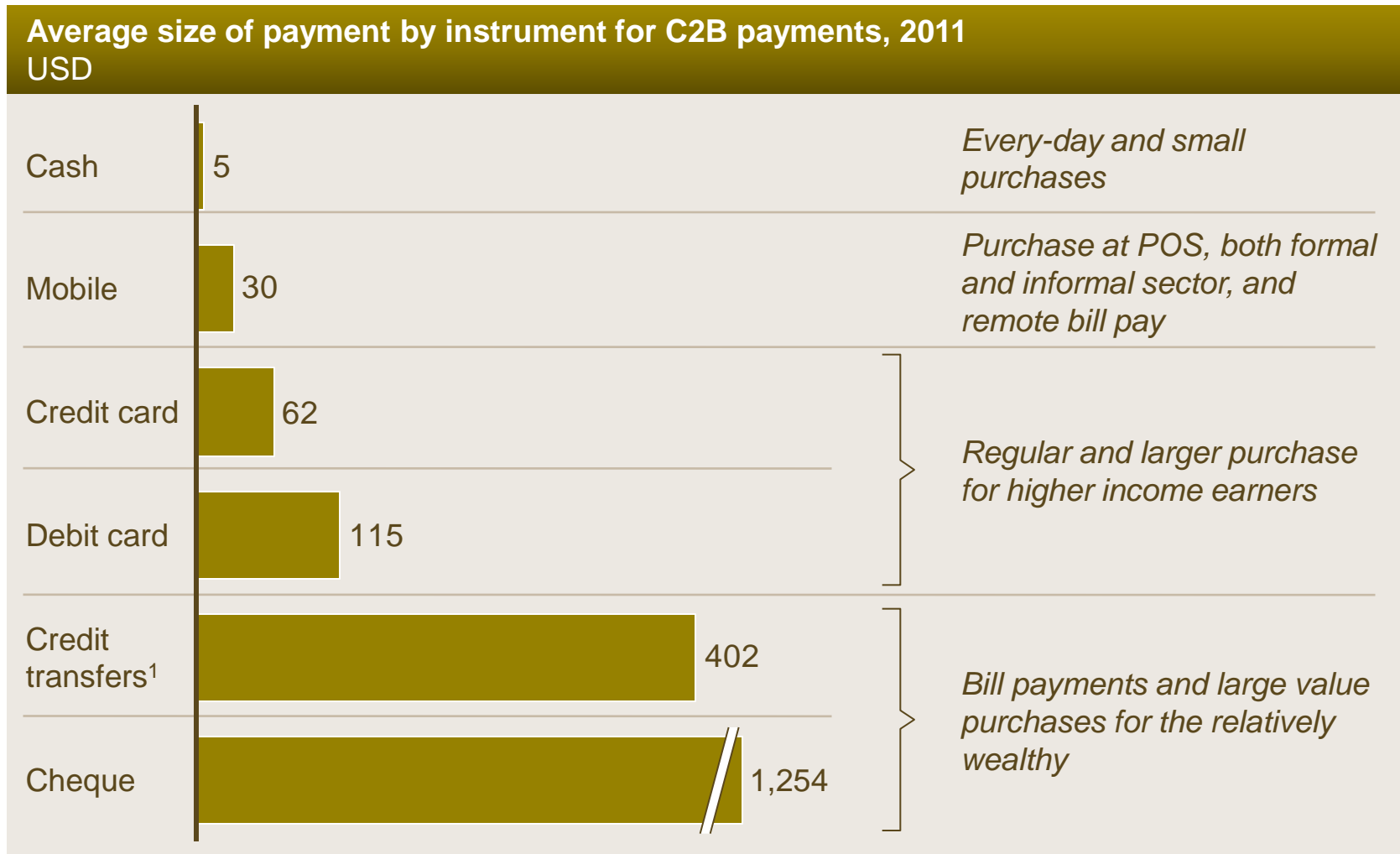
1 90 Kenyan shilling = 1 US\$, 2011 average

SOURCE: Central Bank of Kenya; Safaricom Annual reports; WDI; Oandal CCK; Expert interviews





# People pay with cash for small C2B transactions, cheque and credit transfers for large ones, and mobile and cards for those in the middle



<sup>1</sup> Only includes credit transfers via ACH

SOURCE: Kenyan Central Bank; Safaricom; Kenyan Bankers Association; Expert interviews



# Accessibility and cost govern the choice of C2C instrument; cash is generally preferred in-person and mobile money for remote payment

ESTIMATES

	Payer					Actual Use (Vol, %)	Payee					Example use cases
	Re-quires Bank Acct	Direct Fees <sup>2</sup> (USD)	Indirect Fees <sup>2</sup> (USD)	Benefits	Access (%)		Access (%)	Re-quires Bank Acct	Direct Fees <sup>2</sup> (USD)	Indirect Fees <sup>2</sup> (USD)	Benefits	
<b>Cash</b>	-	-	▪ ATM/ agent withdrawal (\$0.10-3.45 <sup>1</sup> )	▪ Accessible ▪ Ubiquitous	100	28	100	-	-	▪ -	▪ Immediate receipt ▪ Accessible ▪ Ubiquitous	▪ Gift ▪ Loans ▪ Informal sector payment
<b>Check</b>	✓	-	▪ Checkbook, postage (\$0.25-1.15)	▪ Convenient for large transactions ▪ Safety	42	3	42	✓	-	▪ -	▪ Convenient for large transactions ▪ Safety	▪ Gifts ▪ Loans ▪ Long distance remit
<b>Credit transfer</b>	✓	\$0.60-1.76	▪ Returned processes (\$0.50-1.15)	▪ Convenient for large transactions ▪ Safety	42	3	42	✓	\$0-0.60	▪ -	▪ Convenient for large transactions ▪ Safety	▪ Gifts ▪ Loans ▪ Long distance remit
<b>Mobile money</b>		\$0.03-1.15	▪ Handset	▪ Accessible ▪ Safety ▪ Relative low cost	67	67	67	-		▪ Potentially agent withdrawal (\$0.10-\$3.45)	▪ Accessible ▪ Safety ▪ Relative low cost	▪ Gifts ▪ Loans ▪ Long distance remit ▪ Informal sector payment

1 \$0.35-\$0.87 for own-bank / \$1.74-\$1.90 off-bank ATM and \$0.11-\$3.43 for mobile money withdrawal at an agent; 2 All values over \$0.110 rounded to nearest \$0.05

SOURCE: Expert interviews, World Databank, Bankable Frontier Associates, Central Bank of Kenya



# For C2B transactions, mobile money is generally not low cost compared to cash, and sees relatively little use

ESTIMATES

	Consumer					Actual Use (Vol, %)	Merchant					Example use cases
	Re-quires Bank Acct	Direct Fees <sup>3</sup> (USD)	Indirect Fees <sup>3</sup> (USD)	Benefits	Mer-chant Accept. (%)		Con-sumer Access (%)	Re-quires Bank Acct	Direct Fees <sup>3</sup> (USD/ %)	Indirect Fees <sup>3</sup> (USD)	Benefits	
<b>Cash</b>	-	-	▪ ATM/ agent withdrawal (\$0.10-3.45 <sup>1</sup> )	▪ Accessible ▪ Ubiquitous	100	98	100	-	-	▪ Cash handling	▪ Ubiquitous ▪ Immediate ▪ Avoid VAT	▪ In-store ▪ Bills (at office)
<b>Check</b>	✓	-	▪ Postage, checkbook (\$0.25-1.15)	▪ Convenient for large txs ▪ Float benefit	2	-	42	✓	-	▪ Transport	▪ Convenient for large txs ▪ Widely used	▪ Bills ▪ Remittance
<b>Credit transfer</b>	✓	\$0.60-1.76	▪ Returned processes (\$0.50-1.15)	▪ Convenient for large txs	N/A	-	42	✓	\$0-0.60	-	▪ Convenient for large txs	▪ Bills ▪ Online purch.
<b>Debit Card</b>	✓	-	-	▪ Convenient to carry	1-10	-	30	✓	1.8-3.0%	▪ Terminal (~\$320) ▪ Systems	▪ Direct credit ▪ Minimizes cash handling	▪ In-store ▪ Online purch.
<b>Credit Card</b>	✓	-	▪ Annual fees (\$25-70)	▪ Float and liquidity benefit	1-10	-	6	✓	1.8-3.0%	▪ Terminal (~\$320) ▪ Systems	▪ Direct credit ▪ Minimizes cash handling	▪ In-store ▪ Online purch.
<b>Prepaid</b>	N/A	N/A	▪ N/A	▪ Accessible	N/A	-	N/A	✓	N/A	▪ Terminal (~\$320) ▪ Systems	▪ Direct credit ▪ Minimizes cash handling	▪ Little used
<b>Mobile money</b>		\$0.03-1.15	▪ Handset	▪ Accessible ▪ Low cost	19	1	67	2	N/A	▪ Handset ▪ Agent withdrawal (\$0.10-\$3.45)	▪ Direct credit ▪ Minimizes cash handling	▪ Remittance ▪ Bill pay ▪ Growing in-store

1 \$0.35-\$0.87 for own-bank / \$1.74-\$1.90 off-bank ATM and \$0.11-\$3.43 for mobile money withdrawal at an agent; 2 Depends on merchant size; 3 All values over \$0.110 rounded to nearest \$0.05

SOURCE: Expert interviews, World Databank, Bankable Frontier Associates, Central Bank of Kenya



# For non-mobile money payment transactions, card and ATM clearing is fragmented but KEPSS plays a central role all settlement

		Large Value Transfer System		Automated Clearing House		Check Clearing House		Card Payment Network		Net Settlement System (NSS)		Rationale for choice
		Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	
<b>Network Design</b>	<b>Network</b>	KEPSS	N/A	N/A	Nairobi ACH	N/A	N/A	N/A	Kenswitch Paynet Bank-run	N/A	N/A	
	<b>Time to settle</b>	Instant			2 days				1-2 days			
	<b>Net/Gross</b>	Gross			Net				Net			
	<b>Open/closed</b>	Open			Open				Differs			
	<b>Interoperable</b>	Yes			Yes				Yes			
<b>Clearing &amp; Settlement by instrument</b>	<b>Check1</b>	S ←		C →								
	<b>Direct debit</b>	S ←		C →								
	<b>Credit purchases</b>	S ←		C →						} ACH		Maximum value of ACH transactions is capped and large credit purchases (and debits) are processed through KEPSS
		C S								} WIRE		
	<b>Debit card</b>											
<b>Credit card</b>									S ←		C →	
<b>Prepaid card</b>												

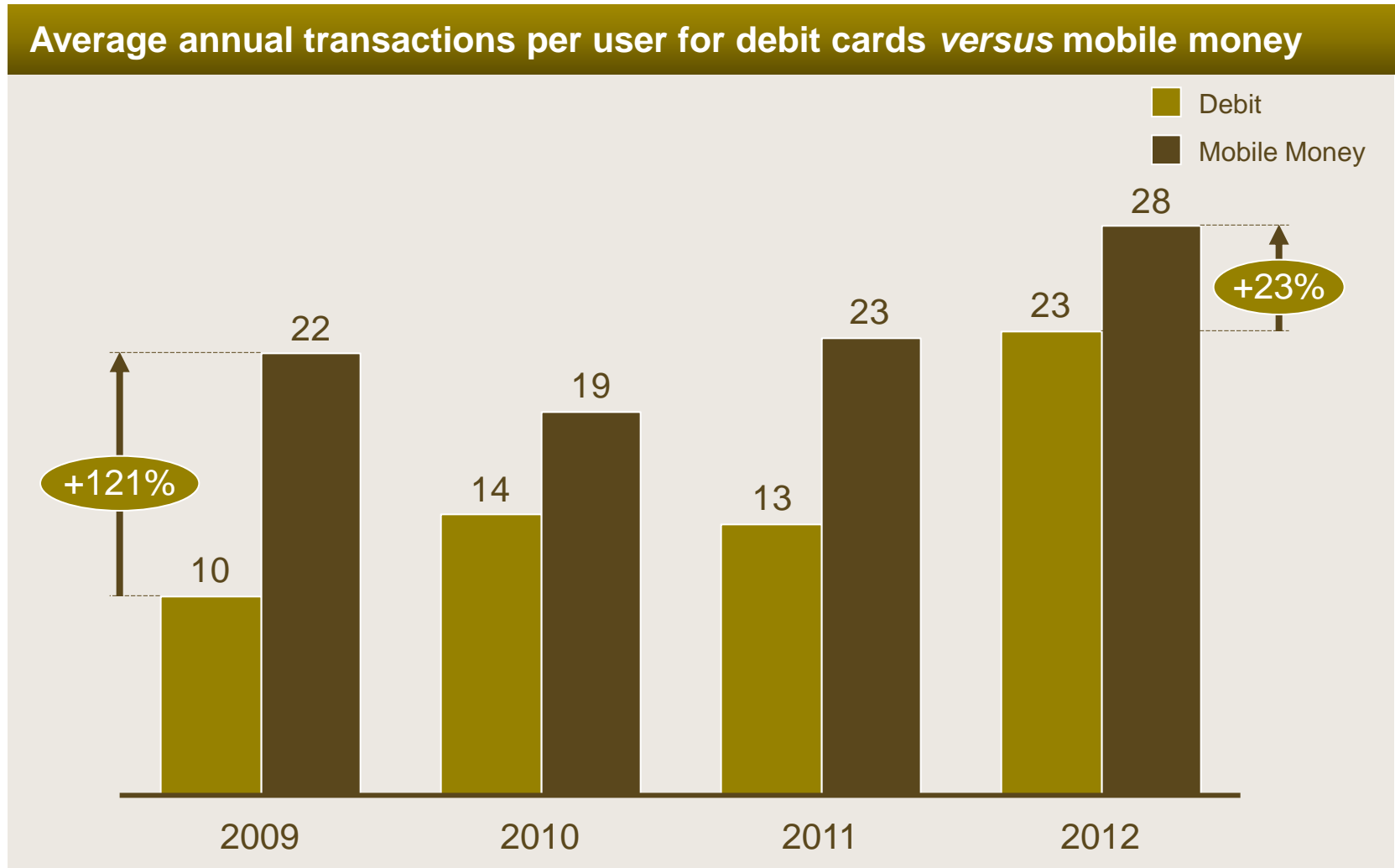
1 All checks are converted into ACH transactions and processed through ACH. 3 Estimated based on 2011 figures; WIRE represents all WIRE transactions including non-trade payments.

SOURCE: Central Bank of Kenya; Expert Interviews





## Among respective users, frequency of debit card usage is growing faster than that of mobile money

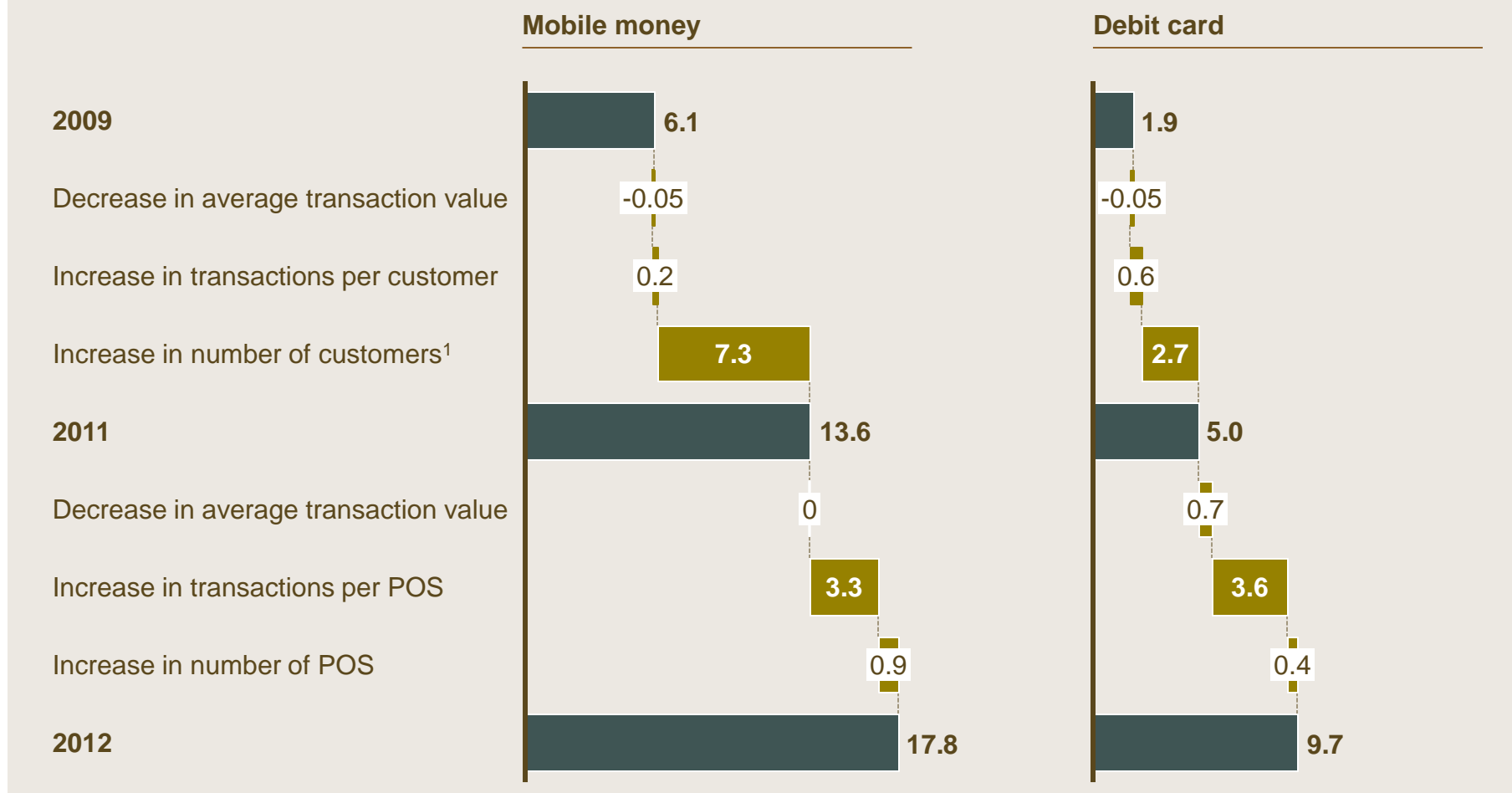


SOURCE: Central Bank of Kenya



# In 2011, the driver of mobile money and debit card growth switched from new customer acquisition to increased transactions

Decomposition of growth in transaction value, from 2009 to 2011 and from 2011 to 2012  
USD Billions



<sup>1</sup> Number of mobile money users grew from 9M to 19M to 20M from 2009 to 2011 to 2012, respectively, equivalent to growth in penetration of adult (>15 years) population from 37% to 78% to 82%.

SOURCE: Central Bank of Kenya; CIA Fact Book