MACROFINANCIAL DIMENSIONS IN RWANDA: STABILITY, INCLUSION, AND DEVELOPMENT[1]

Rwanda's financial development may have been just as impressive as its economic growth plane over the past decade. But many experts and practitioners are skeptical about "financial growth success stories" in a low-income country context—more often than not have such episodes benefited only a narrow share of the population, while ending in tears for the country (and shattered public finances). Hence, did Rwanda's financial growth coincide with actual improvements in the population's access to financial services? Did financial stability suffer from the extraordinary growth of the past years? How can the public sector strike the appropriate balance between encouraging financial innovation and maintaining safeguards through proper regulation and supervision? These questions cannot be conclusively answered in this paper, but we wish to support their public discussion by providing a few facts and observations on Rwanda's financial sector.

A. Overview of the Financial Sector

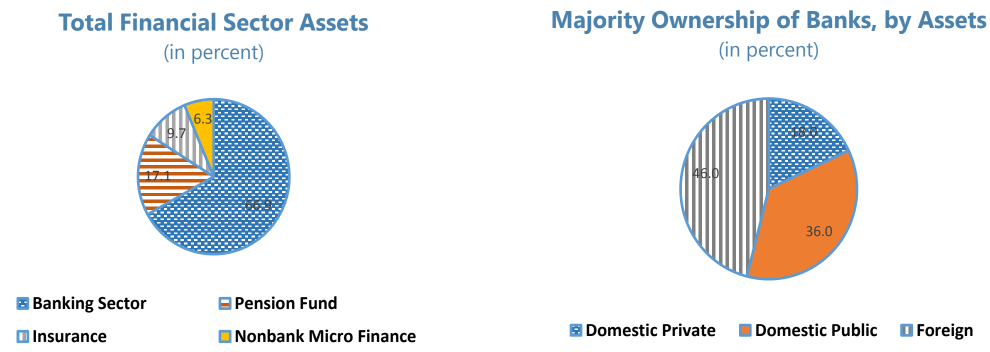
1. **Despite significant growth in the past eight years, and notable progress on inclusion, the Rwandan financial sector is still fairly simple structured.** Total assets of the system increased from 31 to 54 percent of GDP in December 2016, in the face of strong economic growth that averaged 7.8 percent per year over the same period. The financial sector is dominated by commercial banks, which hold two thirds of financial assets, followed by the pension fund, insurance, and microfinance (figure 1).[2]

2. **Rwanda's banking system is quite concentrated and dominated by foreign-owned banks.** The three largest of Rwanda's 17 commercial banks hold nearly half of total bank assets, the share of assets held by majority foreign-owned banks is equally high. But despite the large degree of foreign ownership, funding of banks is overwhelmingly domestic and comes mainly from deposits, limiting upstream vulnerability from exposure to cross-border financing shocks.

[1] Prepared by Tobias Roy and Samson Kwalingana.

[2] Rwanda's financial sector is composed of a total of a total of 504 supervised financial institutions, of which 16 are banks (11 commercial banks, 3 micro-finance banks, 1 development bank and 1 cooperative bank); 472 micro-finance institutions (17 limited liability companies and 455 cooperatives of which 416 are Umurenge SACCOs and 39 non-Umurenge SACCOS); 15 insurers (13 private and 2 public); and 1 public pension scheme.

Figure 1. Financial Sector Structure and Bank Ownership



3. **Commercial banks are systemically important for nonbank financial institutions, but not vice versa.** The two parts of the financial sector are interconnected mainly through bank liabilities, but even the biggest nonbank institution—the pension fund—does not appear to pose a risk to the banking system. For illustration, 33 percent of the pension fund's assets are comprised of bank deposits (24 percent) and bank equity (9 percent). Conversely, the pension fund contributes about 10 percent to banks' deposit funding. Given these orders of magnitude, systemic risk will likely be channeled through the banking system rather than nonbank institutions.

4. **Capital markets remain relatively undeveloped.** Established in 2005, the Rwanda Stock Exchange has provided a platform for transactions of domestic and foreign shares, as well as government and a few corporate bonds. Stock market capitalization is estimated at about 26 percent of GDP as of end-2016. Currently, there are seven listed companies, including four local companies and three cross-listings. The bond market, introduced in 2008, is shallow. While the size of the government primary market has increased, corporate sector participation remains depressed, with only two issuances in 2016. The market also lacks intermediaries (primary dealers) and is illiquid, as most investors hold securities to maturity, so there is next to no secondary market. To deepen the bond market, the authorities are implementing a seven-year capital markets plan. It includes an improved and more regular sovereign bond issuance program; measures that encourage retail and foreign investors; and professional capacity building.

Table 1. Size and Structure of the Financial System

(Billions of Rwandan francs, unless otherwise indicated)

	December-08				December-13				December-16			
			In percent of				In percent of				In percent of	
	Number	Total assets	Financial system Assets	GDP	Number	Total assets	Financial system Assets	GDP	Number	Total assets	Financial system Assets	GDP
Banks		**511**	**64.7**	**20.0**	**11**	**1,510**	**65.9**	**46.3**	**17**	**2,378**	**66.9**	**35.9**
Domestic Private		...	...	...	...	...	...	...	3	428	12.0	6.5
Domestic Public		...	...	...	...	...	...	...	1	856	24.1	12.9
Foreign		...	...	...	...	...	...	...	13	1,094	30.8	16.5
Assets of Three Largest Banks		...	...	...	...	...	...	...	3	1,132	31.8	17.1
Other Nonbank Institutions		**279**	**35.3**	**10.9**	**...**	**780**	**34.1**	**11.8**	**488**	**1,177**	**33.1**	**17.8**
Insurance		80	10.1	3.1	...	233	10.2	3.5	15	345	9.7	5.2
Pension Fund		139	17.5	5.4	...	418	18.3	6.3	1	608	17.1	9.2
Microfinance Institutions		60	7.6	2.4	...	129	5.6	1.9	472	224	6.3	3.4
Total Financial System		**790**	**100**	**30.9**		**2,290**	**100**	**58.1**	**505**	**3,555**	**100**	**53.7**

Source: IMF Staff estimates and BNR

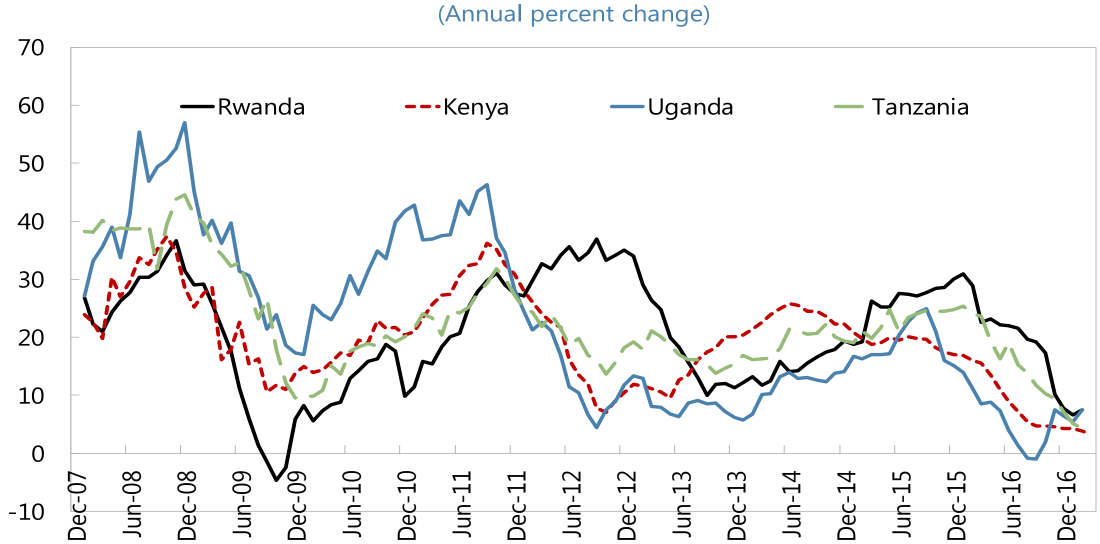
B. Financial Stability

The Financial Cycle

5. The financial cycle has been buoyant in the past seven years. Bank credit to the private sector grew by an annual average of 13 percent in real terms. In fact, over the past two years, credit to the private sector in Rwanda increased at a more rapid pace than in any of its peers in the East African region (figure 2).

Figure 2. Private Sector Credit in the EAC

(Annual percent change)

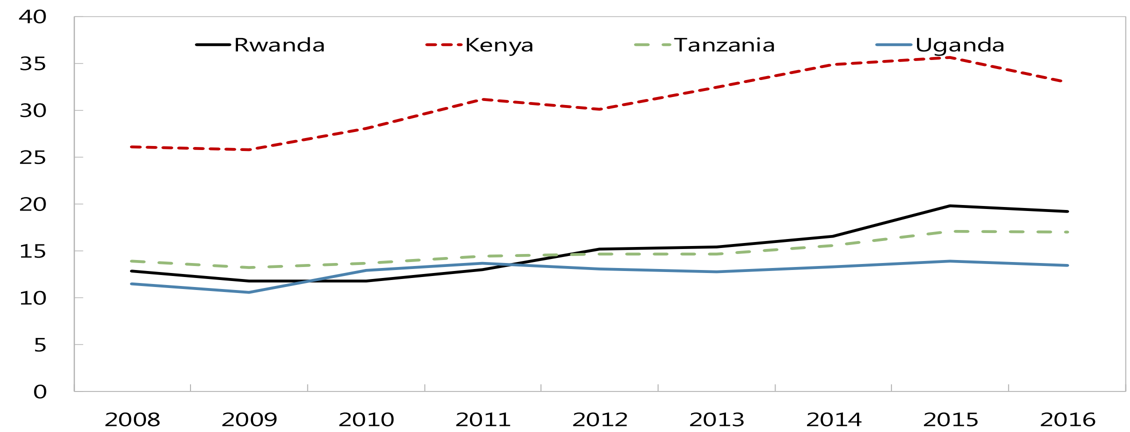


Sources: Country authorities; and IMF staff calculations.

6. Credit deepening suggests an increasingly important role of the private sector for income generation and growth. Rwanda's credit growth exceeded nominal GDP growth, lifting credit from 11.8 percent of GDP in 2009 to 19.2 percent in 2016, the second highest in the EAC, after Kenya (figure 3). Besides other benefits, this will amplify the impact of monetary policy, but it also raises the stakes for maintaining financial stability. Recognizing this challenge, the authorities are in

Figure 3. Credit Depth in the EAC

(In percent of GDP)



Sources: Country authorities; and IMF staff calculations.

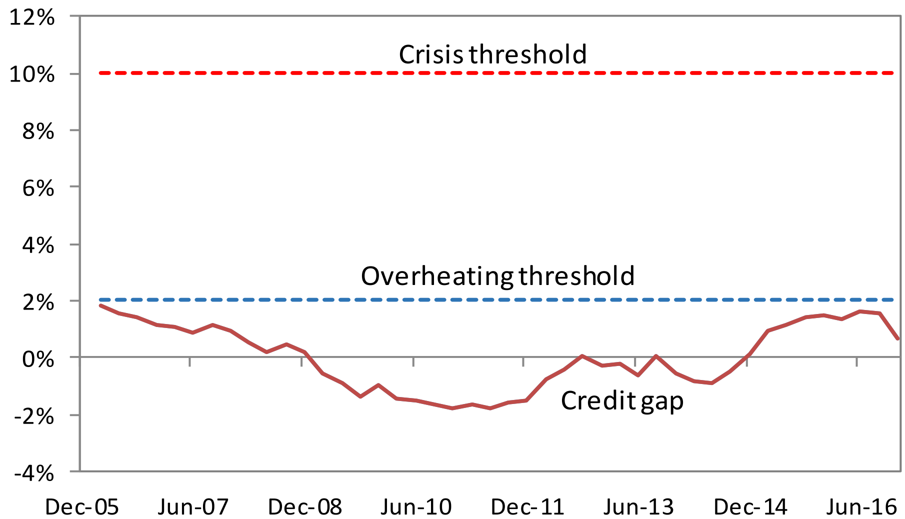
the process of adapting and extending the set of macroprudential tools that are appropriate for Rwanda's financial landscape, with a view towards implementing a full-fledged macroprudential framework.[3]

7. The credit gap suggests that most of the credit expansion of the past decade can be attributed to financial deepening. Mortgage, commercial lending, and loans to the hotel sector dominate bank lending, constituting 68 percent of their loan portfolio with the private sector. Unfortunately, the lack of historical data on house prices limits the scope for identifying eventual asset price bubbles that would be indicative of financial overheating. However, the financial cycle can still be assessed through the overall credit gap (figure 4). Despite high nominal credit growth that would normally raise red flags, the evolution of the credit gap over the past ten years does not show signs of credit-fueled financial exuberance. Even in the buoyant past two years, the credit gap remained below the two-percent threshold that commonly triggers concerns about a developing financial bubble. And with the recent cooling of regional financial conditions, which is reflected in lower credit growth across the EAC, Rwanda's credit gap appears to be closing. Credit growth is returning to its long-term structural trajectory, characterized by gradual financial deepening.

[3] The Rwandan authorities are in the process of creating a Financial Sector Coordination Committee. The new committee, which includes representatives of all financial regulatory agencies under the lead of the BNR, will be tasked with macroprudential supervision and planning for crisis resolution scenarios.

Figure 4. The Credit Gap

(In percentage points of GDP)



Source: IMF staff estimates.

Banking Sector Performance

8. **Rwanda's financial sector vulnerability risk appears well-contained and manageable.** In the financial soundness indicator map (table 2a), the overall rating moved from low to medium during 2016, mainly on behalf of nonperforming loans (NPLs) whose ratio to total credit expanded at a rate faster than 25 percent annually. This increase of the NPL-to-credit ratio is very consistent with the observed softening of the financial cycle, as it takes time for loan performance problems to manifest themselves, causing NPLs to rise with past periods' credit growth rates rather than the current growth rates, which mechanically bumps up the NPL ratio. In its most recent financial stability report, the BNR also notes that the "slowdown of economic activities in the first half of 2016… subsequently affected the debt servicing capacity of some borrowers".[4] However, while the increase of the NPL ratio appears high in percentage terms, it should be noted that the increase applies to a remarkably low level achieved in 2014 and 2015, which probably had overstated the quality of the loan portfolio due to high credit growth during that period. Also, even after the recent increase Rwanda's NPL ratio is still the lowest of all EAC countries (table 2b).

[4] BNR: *Annual Financial Stability Report (June 2015 – June 2016)*, p. 17.

Table 2a. Banking Sector Soundness Indicator Map

Rwanda	2014Q3	2014Q4	2015Q1	2015Q2	2015Q3	2015Q4	2016Q1	2016Q2	2016Q3	2016Q4	2017Q1	Latest
Overall Financial Sector Rating	L	L	L	L	L	L	L	M	M	L	M	M
Credit cycle	L	L	L	L	L	L	L	L	L	L	L	L
Change in credit / GDP ratio (pp, annual)	0.3	1.5	2.6	2.8	2.7	2.2	1.2	1.3	0.9	-0.1	-0.3	-0.3
Growth of credit / GDP (%, annual)	1.7	10.3	17.7	19.0	17.2	13.2	6.9	7.1	5.1	-0.4	-1.7	-1.7
Credit-to-GDP gap (st. dev)	-1.1	-0.4	0.6	0.4	0.2	-0.1	-0.7	-0.4	-0.8	-2.2	-2.1	-2.1
Balance Sheet Soundness	L	L	L	L	L	L	L	M	M	L	M	M
Balance Sheet Structural Risk	L	L	L	L	L	L	L	L	M	L	L	L
Deposit-to-loan ratio	125.4	117.4	115.4	118.8	115.0	111.7	108.5	110.0	99.5	105.0	103.1	103.1
FX liabilities % (of total liabilities)	26.0	30.2	23.7	23.3	28.5	23.5	23.2	25.0	27.0	28.3	28.5	28.5
FX loans % (of total loans)	3.6	7.2	5.4	6.2	6.7	9.0	11.2	12.4	10.6	10.2	11.5	11.5
Balance Sheet Buffers	L	L	L	L	L	L	L	M	M	L	M	M
Leverage	L	L	L	L	L	L	L	L	L	L	L	L
Leverage ratio (%)	13.4	13.7	15.4	14.2	14.1	14.1	15.6	14.7	15.2	14.4	14.3	14.3
Profitability	L	L	L	L	L	L	L	L	L	L	L	L
ROA	2.8	2.8	3.3	3.3	3.0	2.9	2.8	2.6	2.8	2.5	2.7	2.7
ROE	15.2	15.3	17.6	17.7	16.2	15.7	14.7	14.0	14.4	13.6	14.9	14.9
Asset quality	L	L	L	L	M	M	M	H	H	M	H	H
NPL ratio	5.3	5.2	5.7	5.5	5.8	5.9	6.0	7.0	7.4	7.1	7.7	7.7
NPL ratio change (%, annual)	-11.2	-12.0	-2.8	4.5	10.2	13.1	6.3	27.6	27.5	19.9	28.6	28.6

Table 2b. Financial Soundness Indicator Map in the EAC

	Kenya	Rwanda	Tanzania	Uganda
Overall Financial Sector Rating	M	M	M	M
Credit cycle	L	L	n.a.	L
Change in credit / GDP ratio (pp, annual)	-1.0	-0.3	n.a.	-0.5
Growth of credit / GDP (%, annual)	-2.9	-1.7	n.a.	-3.3
Credit-to-GDP gap (st. dev)	-1.5	-2.1	n.a.	0.2
Balance Sheet Soundness	M	M	M	M
Balance Sheet Structural Risk	L	L	M	M
Deposit-to-loan ratio	110.5	103.1	120.0	141.3
FX liabilities % (of total liabilities)	23.6	28.5	38.4	42.4
FX loans % (of total loans)	26.4	11.5	33.4	44.1
Balance Sheet Buffers	M	M	M	M
Leverage	L	L	L	L
Leverage ratio (%)	14.3	14.3	12.2	11.7
Profitability	L	L	L	L
ROA	4.0	2.7	1.7	2.4
ROE	25.9	14.9	12.2	14.7
Asset quality	H	H	H	H
NPL ratio	11.7	7.7	8.2	10.4

Source: IMF staff estimates.

Reflects latest data available between 2016Q3 and 2017Q1

9. **Most banking sector balance sheet and earnings indicators are strong, and stress tests suggest that capital buffers are robust.** Since 2016, the BNR has been using the Cihak model for regular stress testing exercises, applying shock scenarios to test for credit, exchange rate, and liquidity risks. The most recent round of stress-testing[5] found that, even after applying consecutive

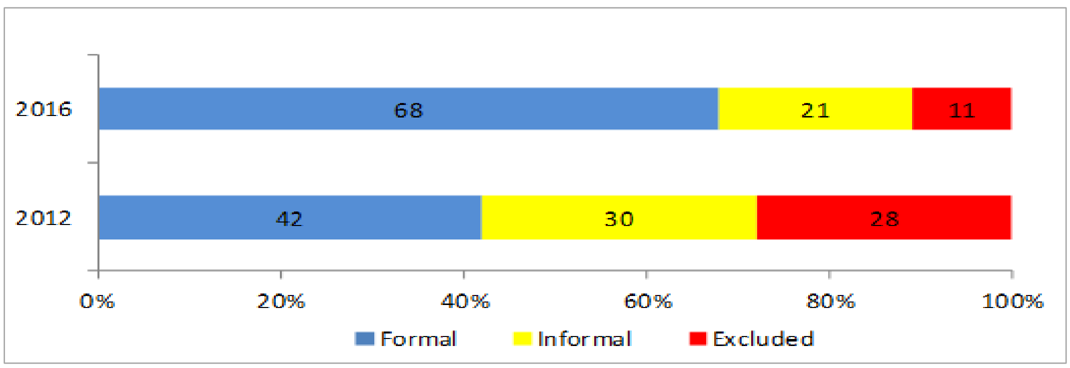
[5] BNR (2016): *Annual Financial Stability Report*, p. 22.

credit default shocks, the large majority of banks would remain safely above the regulatory minimum (risk-weighted) CAR requirement of 15 percent. The system also displayed satisfactory resilience to liquidity and exchange rate shocks. As of March 2017, capital was well above regulatory requirements, and balance sheet vulnerabilities from liabilities denominated in foreign currency were low.[6]

C. Financial Inclusion and Innovation in Rwanda

10. Sustained growth in microfinance and mobile financial services have contributed to more financial inclusion in Rwanda. Total assets of microfinance institutions almost doubled from end-2013 to 2016, while deposits increased by 65 percent over the same period. The rapid increase in microfinance activities, in particular through Umurenge SACCOs, has been one of the drivers of financial inclusion in Rwanda. The 2016 FINSCOPE survey indicates a significant overall increase in financial access of the adult population over the past four years, overwhelmingly on behalf of access to formal financial services (which includes microfinance) (figure 5).

Figure 5. Access to Financial Services, 2012–16



Source: Finscope 2016

11. There has also been a significant diffusion of mobile financial services in recent years, with Rwanda following a similar trend as its EAC peers. As of end 2016, more than 9.7 million users had subscribed to mobile payment systems, and nearly one million users had subscribed for mobile banking services, and the value of total e-payments rose to more than 30 percent of GDP within five years (table 3).[7] Financial services innovation is an important driver of financial inclusion, and the rapid diffusion of money mobile transactions, pioneered by Kenya over the past decade, has caught on across the EAC (figure 6).

[6] Per BNR's regulations, each bank's foreign exchange net open position may not exceed 20 percent of tier 1 core capital. The system's net exposure stood at -4.4 percent of core capital as of March 2017.

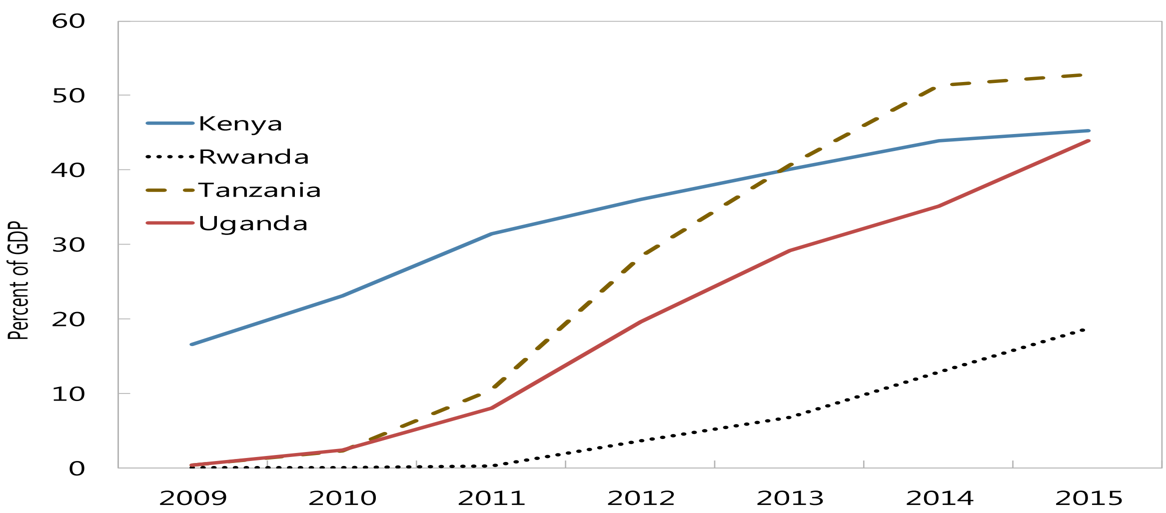
[7] Part of this increase has come from improved national communication infrastructure (telecommunication and the internet), while regional (EAC) harmonization of mobile money transactions has also helped increase financial access for cross-border transactions.

Table 3. Evolution in Financial Innovation

	2011		2012		2013		2014		2015		2016	
	Value (billion)	% of GDP	Value (billion)	% of GDP	Value (billion)	% of GDP	Value (billion)	% of GDP	Value (billion)	% of GDP	Value (billion)	% of GDP
POS Transactions	**6.4**	0.2	9.0	0.2	14.7	0.3	19.2	0.4	26.6	0.4	41.5	0.6
Mobile banking	5.2	0.1	3.9	0.1	17.5	0.4	41.3	0.8	48.3	0.8	37.2	0.6
Internet banking	**0.7**	0.0	12.8	0.3	117.2	2.4	333.0	6.1	581.2	9.8	1,017.1	15.4
Mobile payments (transfers and payment services)	51.0	1.3	161.8	3.6	330.4	6.7	691.5	12.7	1,093.5	18.4	1,040.5	15.7
Total e-payment	**63.4**	**1.6**	**187.5**	**4.2**	**479.7**	**9.7**	**1,084.9**	**19.8**	**1,749.6**	**29.4**	**2,136.2**	**32.3**

Source: BNR

Figure 6. Evolution of Mobile Banking



Sources: IMF Financial Access Survey.

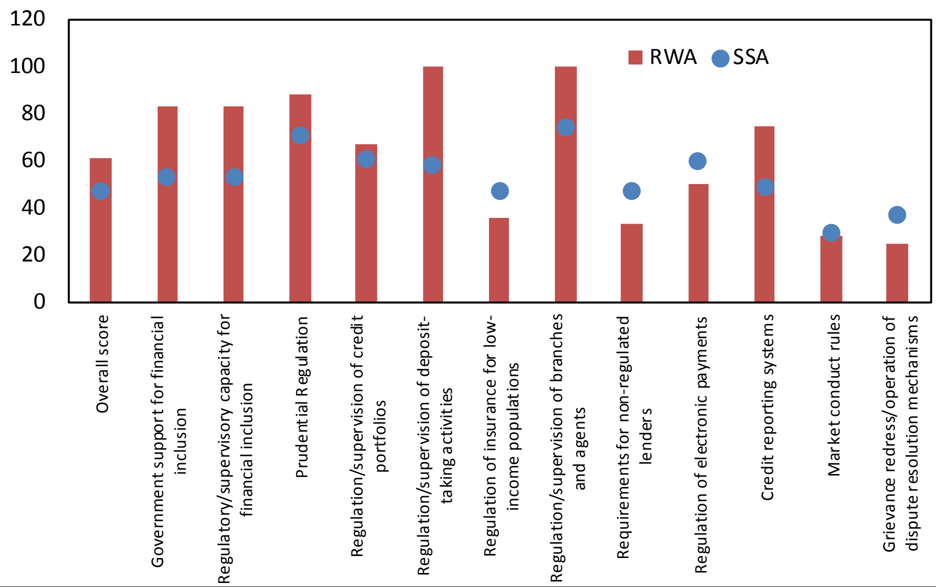
12. **The emergence of new alternative financing models could become the next frontier of financial innovation, with potential to further enhance financial inclusion in Rwanda.** A recent report by the University of Cambridge has documented a doubling in the value of financial transactions through innovative online funding and lending platforms from 2013 to 2015.[8] While the total amount raised in 2015 through such portals (US$4 million) is still only one thousandth of the overall financial system's assets, the potential of the technology to reach projects and customers not served by traditional funding mechanisms is significant. Fast recent growth indicates that these new portals meet the needs of both suppliers and customers.

[8] Cambridge Centre for Alternative Finance (2017): *The Africa and Middle East Alternative Financing Report*.

13. Rwanda is among the leaders in the region in creating an enabling regulatory environment for financial inclusion. The Economist Intelligence Unit's 2016 Global Microscope rates Rwanda at the 8th position of all countries.[9] Remarkably, Rwanda leapfrogged in the ranking by eight positions within one year, the third-highest observed relative improvement, mainly explained by significant capacity building in operating and supervising municipal savings and credit cooperatives. Compared to a total of thirteen surveyed SSA countries,[10] Rwanda's performance was bested only by Tanzania and Kenya, and it exceeded the regional average in seven out of twelve sub-indicators (Figure 7).

Figure 7. Regulatory Environment for Financial Inclusion

(EIU Microscope Index for Rwanda and SSA Average)



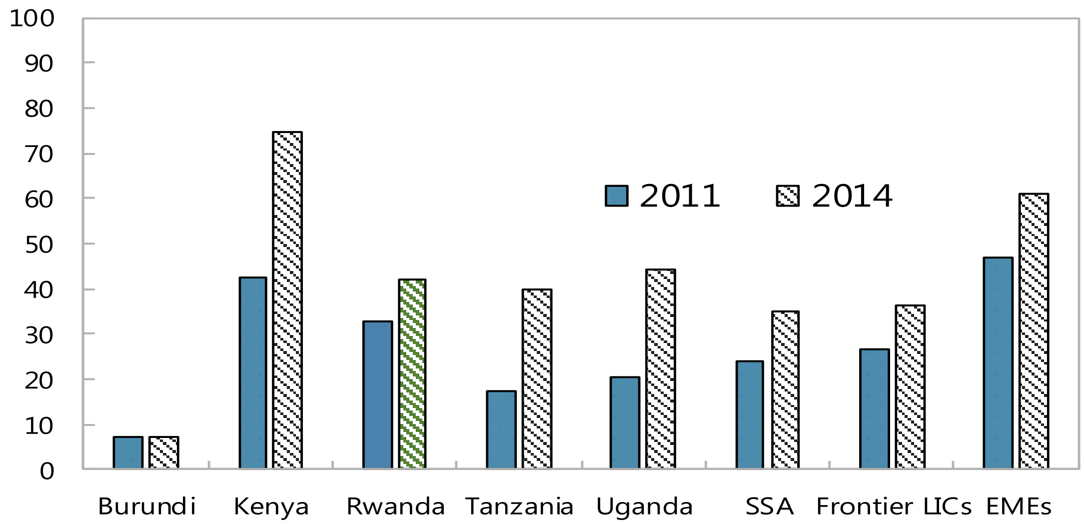
14. Rwanda also compares well with the EAC in the World Bank's Financial Inclusion Index. For the first time, the 2014 FINDEX survey included access to microfinance and mobile financial services, and the remarkable progress compared to 2011 may reflect that. The results also confirm a picture of consistent and rapid improvements in financial inclusion.[11] Interestingly, nearly all EAC

[9] The EIU Global Microscope Report focuses on the environment for financial inclusion and benchmarks 55 LIC and EMC against the composite of twelve indicators that reflect enabling conditions in laws, regulations, policy, and institutions.

[10] By relative order of their ranking in the index, the surveyed *SSA countries* are *Tanzania, Kenya, Rwanda, Ghana, Mozambique, South Africa, Senegal, Nigeria, Uganda, Ethiopia, Cameroon, Madagascar*, and *Democratic Republic of Congo*.

[11] An inherent limitation in all indicator-based measurements of inclusion is that they do not capture "extreme exclusion". In particular, the welfare losses for those parts of the population who may have no digital financial access at all, but are affected by the gradual disappearance of traditional (formal and informal) habits of financing and payment that comes with the diffusion of the new technologies.

Figure 8. Financial Inclusion Index for the EAC and Selected Regions



Source: World Bank (2016), Financial Inclusion Index

countries exceed both the composite SSA and the frontier LICs inclusion index,[12] and Kenya even exceeds the average index for emerging market economies (figure 8).

D. Financial Development

15. When measured against the IMF's financial development index, Rwanda's performance appears less favorable than it probably is. The IMF has developed a database capturing financial development across *depth*, *access*, and *efficiency*, measured across *institutions* and *markets* (table 4). Within this framework, Rwanda's performance is distinguished by the high quality of its financial institutions, but dragged down by its unsophisticated securities markets. However, recalling Rwanda's recent advancements in financial access and inclusion, it seems likely that the country's state of financial development is understated by the index, because it does not include data on microfinance or mobile financial services—the access parameters for institutions (number of mortar-and-brick branches; ATMs) may even be misleading in an innovative world that moves toward low-cost mobile payment and banking solutions.

[12] For the purpose of the FINDEX database, *Frontier LICs* include *Côte d'Ivoire, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Uganda, Zambia, Bangladesh, Bolivia, Cambodia, Honduras, Kyrgyz Republic, Mauritania, Mongolia, Nicaragua, Papua New Guinea*, and *Vietnam*.

Table 4. Composition of the IMF's Financial Development Index

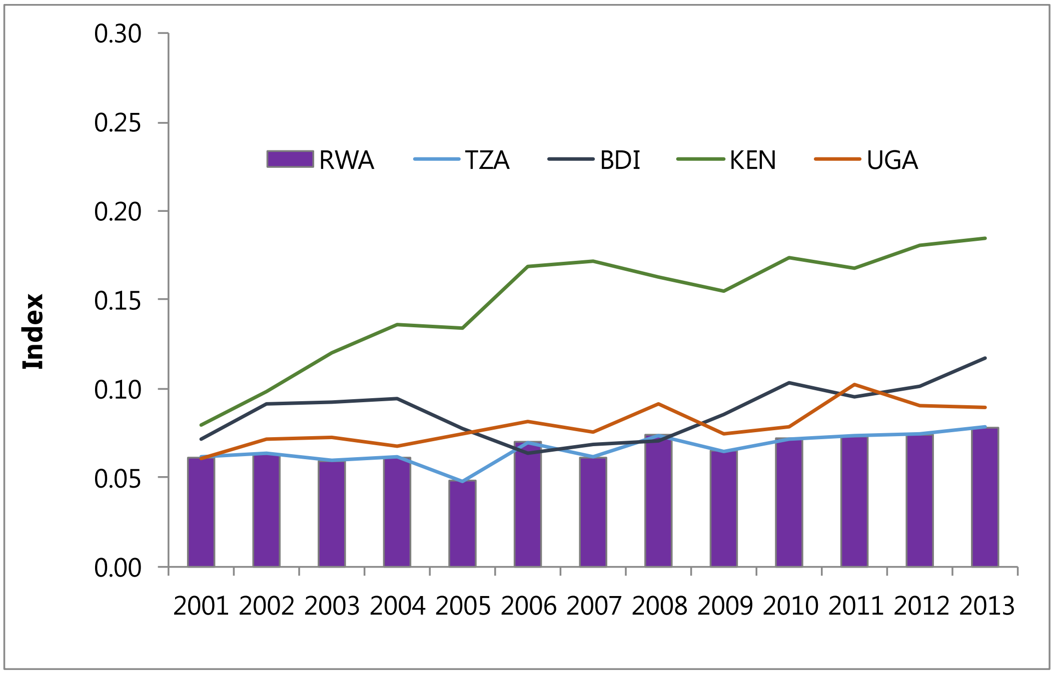
	FINANCIAL INSTITUTIONS	FINANCIAL MARKETS
DEPTH	1. Private sector credit (% GDP) 2. Pension fund assets (% GDP) 3. Mutual fund assets (% GDP) 4. Insurance premiums (% GDP)	1. Stock market capitalization to GDP 2. Stocks traded to GDP 3. International govt debt securities (% GDP) 4. Total debt securities of nonfin. corps. (% GDP) 5. Total debt securities of fin. corps. (% GDP)
ACCESS	1. Comm bank branches per 100,000 adults 2. ATMs per 100,000 adults	1. % of market cap. outside 10 largest companies. 2. Total number of issuers of debt.
EFFICIENCY	1. Net interest margin 2. Lending-deposite rate spread 3. Non-interest income to total income 4. Overhead costs to total assets 5. Return on assets 6. Return on equity	1. Stock market turnover ratio (stocks traded/capitalization)

Source: IMF database.

16. **The index suggests that Rwanda's financial system has improved over the past decade, but is held back by size and scale limitations.** Developments are much in line with regional peers (figure 9), but the overall level of the index is lagging other EAC countries. It appears that this mainly reflects the limitations of a tiny national securities market: It is very difficult for smaller countries to score well on an index that measures market efficiency per absolute number of transactions.[13] A long-term strategy for gradual regional integration of financial markets within the EAC may present the best available chances for overcoming these size and efficiency issues.

[13] This is a familiar conundrum for policy makers in many smaller countries: When the potential for scale effects is missing, what are the best policies to upgrade a small and supposedly inefficient financial landscape, if it is both overbanked and suffers from lack of competition?

Figure 9. Financial Development in Rwanda and the EAC



Source: IMF (2016), Staff calculations

E. Conclusion

17. Rwanda's financial sector has grown significantly over the past decade. All financial institutions providing services to Rwandan consumers grew fast, but with remarkable structural stability and without major signs of financial exuberance or overheating. In parallel, the BNR strengthened supervisory capabilities, and adopted best practices for banking sector stress tests and for regulating the microfinance sector.

18. Financial system conditions are sustainable. The financial cycle appears to be cooling in a controlled manner. Partly as a response, nonperforming loans are rising, requiring continued close monitoring. Extending the existing macroprudential tools and policies is a crucial next step to accompany the financial system's growing importance in Rwanda's private sector-led growth strategy.

19. At the same time, financial inclusion indicators are improving. Indices from different data sources, and measured across different dimensions, all convey significant progress in Rwanda's financial inclusion, benefiting wider circles of the population. A general policy stance that is gently tilted toward gender and income equality will provide fertile grounds for new financial products to take hold.

20. Innovations and a favorable regulatory environment are making their mark. Rwanda's regulatory environment has strengthened over the past few years, and there appears to be a strong correlation between the diffusion of new financial technologies and ongoing financial inclusion. Maintaining the appropriate balance between stability and consumer protection, and the encouragement and promotion of new financial techniques will be an important and difficult challenge for policy makers and regulators. But getting the balance right also promises significant rewards in terms of financial inclusion and economic growth.

21. Financial development indicators convey a similar story, but do not accurately reflect recent financial innovation. In particular, microfinance and mobile financial services have made a big difference in creating avenues for economic participation and small-scale enterprises, but they are usually not reflected in financial development indices. Similarly, the recent emergence of new internet-based alternative financing models have great potential to enhance access and inclusion, but are hard to measure and regulate. Given Rwanda's obvious limitations regarding size and minimum scale thresholds for efficient markets, a strategy of regional integration may hold the best promise for bringing financial development to the next level.

References

IMF, 2016, Financial Development and Sustainable Growth, from the *Regional Economic Outlook for Sub-Saharan Africa* (Washington, DC: International Monetary Fund), April 2016

Sahay, Ratna, Martin Cihák, Papa N'Diaye, Adolfo Barajas, Ran Bi, Diana Ayala, Yuan Gao, Annette Kyobe, Lam Nguyen, Christian Saborowski, Katsiaryna Svirydzenka, and Seyed Reza Yousefi, *2015a. "Rethinking Financial Deepening: Stability and Growth in Emerging Markets." IMF Staff Discussion Note 15/08. Washington: International Monetary Fund.*

Sahay, Ratna, Martin Cihák, Papa N'Diaye, Adolfo Barajas, Srobona Mitra, Annette Kyobe, Yen Nian Mooi, and Seyed Reza Yousefi, 2015b. *"Financial Inclusion: Can It Meet Multiple Macroeconomic Goals?." IMF Staff Discussion Note 15/17. Washington: International Monetary Fund.*

Svirydzenka, Katsiaryna, 2016. *"Introducing a New Broad-based Index of Financial Development." IMF Working Paper wp/16/05. Washington: International Monetary Fund (May).*