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**Do Interest Rate Controls Work?
Evidence from Kenya**

by C. Emre Alper, Benedict Clements, Niko Hobdari, and Rafel Moyà Porcel

I N T E R N A T I O N A L M O N E T A R Y F U N D

IMF Working Paper

African Department

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Abstract

This paper reviews the impact of interest rate controls in Kenya, introduced in September 2016. The intent of the controls was to reduce the cost of borrowing, expand access to credit, and increase the return on savings. However, we find that the law on interest rate controls has had the opposite effect of what was intended. Specifically, it has led to a collapse of credit to micro, small, and medium enterprises; shrinking of the loan book of the small banks; and reduced financial intermediation. We also show that interest rate caps reduced the signaling effects of monetary policy. These suggest that (i) the adverse effects could largely be avoided if the ceiling was high enough to facilitate lending to higher risk borrowers; and (ii) alternative policies could be preferable to address concerns about the high cost of credit.

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I. INTRODUCTION

High interest rates on loans from the banking sector have been a frequent frustration of policymakers in developing countries. These high rates are seen as an obstacle to greater investment, financial inclusion, and economic growth. High spreads between deposit and lending rates, in the absence of effective competition, can also lead to above-normal profits. The handsome profits of the banking system in some countries also makes them a frequent target of populist ire, provoking calls to regulate borrowing costs by controlling interest rates.

In Kenya, proposals to control interest rates have emerged from time to time over the past two decades. In September 2016, a law on interest rate controls, which imposed a ceiling for lending rates at four percentage points above a “reference rate” and a floor on deposits at 70 percent of the “reference rate” received unanimous support from Parliament. The reference rate was subsequently clarified to be the Central Bank Policy Rate (CBR). At the time of their introduction, Kenya’s interest rate controls affected more than half of all existing loans and deposits.² As such, they were among the most drastic ever imposed and provide a fascinating case study with lessons for many developing countries.

The paper uses a novel dataset from two bank-level surveys conducted by the Kenya Bankers Association (KBA), the first immediately prior to the implementation of the interest rate controls in August 2016, and the second one year after their introduction. Together with central bank monetary survey data, these datasets allow us to assess the impact of interest rate controls on loans and deposits by the type of bank, borrower, and depositor, and also to assess the relative importance of factors driving bank intermediation spreads. Several important findings emerge. By lowering the lending rate spreads, the law on interest rate controls seems to have had the opposite effect of what the lawmakers intended. These include the collapse of bank credit to micro, small, and medium enterprises; the shrinking of the loan book of small banks; and an overall adverse impact on financial intermediation as commercial bank credits shifted away from the private sector and towards the public sector. We also show that interest rate caps reduced the signaling effects of monetary policy. These findings suggest that (i) the adverse effects could largely be avoided if the ceiling was high enough to facilitate lending to higher-risk borrowers; and (ii) alternative policies could be preferred to address concerns about the high cost of credit.

The rest of this paper is structured as follows. First, we describe international experience with lending rate ceilings. Second, we discuss the nature of interest rate controls in Kenya. Third, we describe the impact of the controls, to date, in Kenya. Finally, we offer concluding remarks.

² The floor on deposits was removed in September 2018. In March 2019, Kenya’s high court ruled that the interest rate controls were unconstitutional, but also ruled that the controls remain in place for 12 months to allow time for Parliament to amend the irregular clauses in the Banking Act that introduced the controls.

II. INTERNATIONAL EXPERIENCE WITH INTEREST RATE CONTROLS

Floors on deposit rates are very rare and, in any event, are usually not combined with caps on lending rates. As for ceilings on lending rates, many countries still use some form of a maximum level of lending rates, including many advanced economies. Over the past several decades, however, caps on lending rates have been relaxed in most countries, and nowadays they generally target predatory lending practices or provide support to a specific industry to address a perceived market failure. The literature on interest rate ceilings suggests they create several potential problems:^{3, 4}

- **Reduced financial intermediation.** Loans to small borrowers (such as small farmers, SMEs, and individuals) tend to be riskier and are costlier to manage. Banks are likely to offer less credit to these borrowers when interest rate caps are imposed. Instead, financial institutions reallocate their lending towards the government and large private sector borrowers.
- **More, not less predatory lending.** As access to bank credit is curtailed, potential borrowers may be forced to turn to informal lenders that charge much higher rates and are not subject to supervision. This can lead to lower banking sector intermediation.
- **Reduced transparency.** Lenders may institute non-interest charges, such as fees, to compensate for lower income from loans. This makes it more complicated for customers to understand the total cost of borrowing and more difficult to make well-informed borrowing decisions.
- **Elevated risks to financial stability.** Implementation of binding ceilings on lending rates and binding floors on deposit rates can adversely affect the viability of small and medium-sized banks, whose business model relies on attracting deposits at higher interest rates and lending to high cost/high return SMEs.⁵ This, in turn, can have contagion effects and thus pose risks to overall financial stability.

³ See, for example, Campion and others (2010), Cottarelli and others (1986), Hawkins and Khalil (2015), Helms and Reille (2004), and Heng (2015).

⁴ Despite their prevalence in advanced and developing countries, previous works on lending rate ceilings are relatively sparse (Cottarelli and others, 1986, Helms and Reille, 2004, Campion and others, 2010, and Mbengue 2013). Instead, previous literature has mainly focused on financial repression and deposit rate ceilings. Indeed, a google scholar search with “lending rate ceiling” -deposit returned 14 results while “deposit rate ceiling” -lending returned 429 results in July 2018.

⁵ Microcredit costs are high because of the greater delivery costs of small-scale transactions that require face-to-face interaction. In effect, micro-finance institutions use personal contact as a substitute for formal collateral or information from credit bureaus (see Helms and Reille, 2004; Mbengue, 2013; and Rosenberg and others, 2013).

As discussed in Maimbo and Gallegos (2014), specific examples of how these problems have manifested themselves include:

- A withdrawal of financial institutions from the poor or from specific segments of the market, especially for small borrowers that have higher loan management costs for banks, such as rural clients and women with low collateral (e.g., WAEMU countries, Bolivia, Colombia, the Dominican Republic, Ecuador, Haiti, Nicaragua, Peru, Poland, and Zambia);
- An increase in average loan size, reflecting lower access to small borrowers and larger loans to more established firms after the imposition of the caps (e.g., Bolivia, Ecuador, South Africa, and Zambia);
- A proliferation of fees and commissions, reducing the transparency of the cost of credit (e.g., Armenia, Nicaragua, South Africa, and Zambia);
- Decreased diversity of products for low-income households (e.g., France and Germany) and reduced bank competition (e.g., Italy); and
- An increase in illegal lending (e.g., Japan and United States).

III. INTEREST RATE CONTROLS IN KENYA

The law on interest rates, which was sponsored by a group of lawmakers and received unanimous support from parliament, became effective in September 2016. Similar attempts in the past to impose interest rate controls (in 2001 and 2011) had failed. The law imposed: (i) a ceiling on lending rates by "banks or financial institutions" at 4 percent above a "reference rate";⁶ and (ii) a floor on interest rates for time deposits, equal to 70 percent of the "reference rate." Both the CBK and the Treasury had come out publicly against the bill when it was approved by Parliament in late July 2016.⁷ While signing the law "as is," the President also made explicit his reservations that the law could push some lending back into the informal market.

The Central Bank of Kenya (CBK) issued a circular in September 2016 setting the policy rate (CBR) as the reference rate for the purposes of this law. When the law became effective, the CBR was 10.5 percent, implying a deposit rate floor of 7.35 percent and a lending rate cap of 14.5 percent.

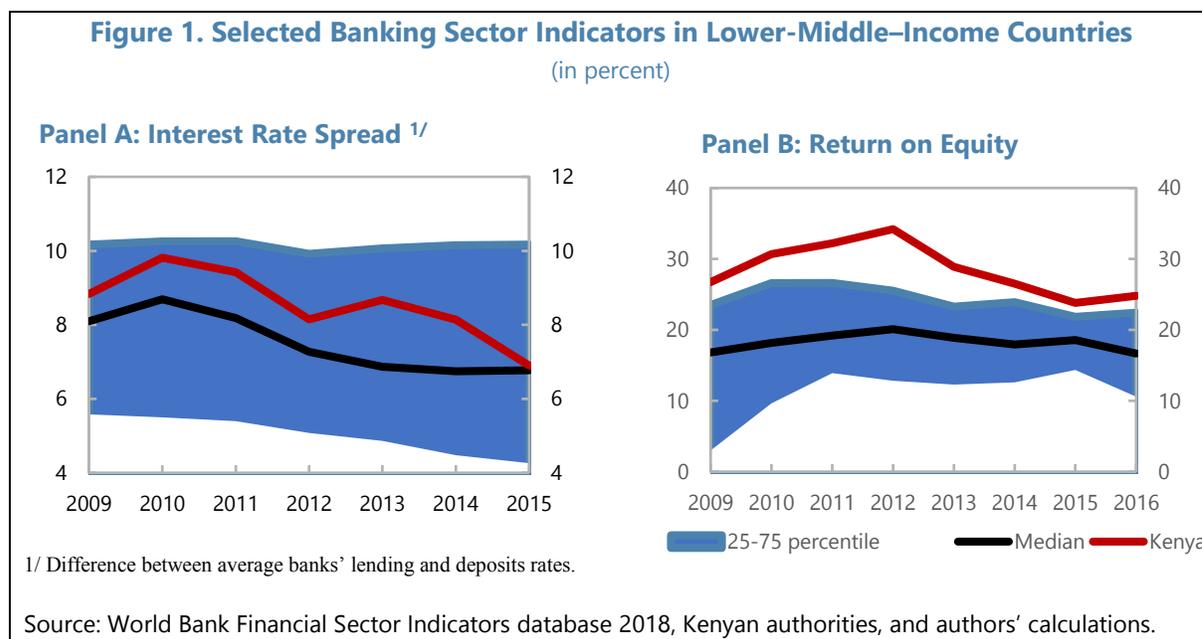
The lawmakers' objective in setting interest rate controls was to expand access to credit and increase the return on savings. High lending rates were viewed as a source of excess profits

⁶ The law does not apply to non-deposit taking microfinance institutions (MFIs), Savings Credit Cooperatives (SACCOs), microfinance banks, and mobile money-related financial transactions.

⁷ See for example Njoroge (2016).

for banks, while also harming the economy by stifling investment and putting borrowing out of reach for many consumers (e.g., for mortgages and consumer loans).

At the onset of the interest rate controls, interest rate spreads were trending downwards and broadly aligned with Kenya's peers selected from a group of 53 Lower-Middle-Income Countries, (Figure 1, panel A). However, the profitability of Kenyan banks, as measured by the return on equity, remained above the 75th percentile of the Lower-Middle-Income Countries, although it was also trending downward before interest rate controls (Figure 1, panel B).



High profitability did not seem to reflect a lack of competition. The level of concentration in Kenya's banking sector, as measured by the Herfindahl-Hirschman index (a commonly used indicator of the degree of competition), was less than 0.1 and the lowest in Africa at the time controls were introduced.

To assess the factors driving the decline in interest rate spreads, we conduct an accounting decomposition exercise to assess the relative importance of different factors (Table 1).⁸ Using bank balance sheets and income statements, the average intermediation spread between effective deposit and lending rates is decomposed into: (i) the interest paid to recover the interest costs of funds deposited as required reserves, (ii) loan loss provisions, (iii) operating costs allocated based on the share of loans in total assets, and (iv) pretax profit margins on private sector lending.⁹ The results indicate that the average intermediation spread declined from 14.9 percent in 2002 to 8.3 percent in 2015. In addition, while overhead

⁸ For the spread accounting data definitions, see description in Annex I.

⁹ See for example Beck and Fuchs (2004) and Cihak and Podpiera (2005).

costs—of which 40 percent are personnel costs—are an important contributor to intermediation spreads, rose slightly between 2002 and 2015, profit margins fell.

Period	2002	2015
No. of banks	(43)	(40)
Interest earned on loans	18.3	15.3
Interest paid on customer deposits	3.4	7.0
Spread	14.9	8.3
Interest paid to cover required reserves	0.3	0.3
Loan loss provisions/ loans	2.5	1.5
Operating costs/loans	5.9	6.1
Pre-tax profit	6.2	0.4
<i>Memorandum items:</i>		
Return on assets (after tax)	1.4	1.6
Personnel costs (% of operational costs)	...	40.4

Notes: Data for 2002 from Beck and Fuchs (2004). The decomposition is similar to Cihak and Podpiera (2005). Simple averages based on end period data for 2014-15. Asset size weighted averages would result in intermediation spread of 9.3 in 2015. Further details are available in Annex I.
Sources: Central Bank of Kenya and IMF staff calculations.

Survey data from The Kenya Bankers Association (KBA) at the onset of interest rate controls, based on August 2016 data, provides important insights into the structure of the banking sector and how the controls would affect the industry (Table 2).¹⁰ More specifically:

- On average, about 60 percent of outstanding loans were at interest rates above the lending rate ceiling. The share was roughly uniform across different bank groups by size.
- The share of bank loans to micro, small and medium-sized enterprises (SMEs)—higher risk borrowers—was significantly higher for small banks. The overall share of banking sector loans to SMEs was about 18 percent. However, the share for small banks (about 40 percent) was significantly higher than that of large banks (13 percent).

¹⁰ The survey covered 28 of the 40 commercial banks. The responders accounted for about 73 percent of the banking sector in Kenya and were representative across the various banking groups (small, medium, and large), covering at least 2/3 of banks in each group size.

- The average lending rate to SMEs was broadly uniform across bank groups. This is somewhat surprising, as large banks have lower costs than small banks, yet charge similar interest rates. This may have reflected the market power of the large banks.
- The share of consumer loans was higher for the large banks. This possibly reflects the preference of large banks to provide low-risk, payroll-backed personal loans. Similar to the pattern on loans to SMEs, rates for consumer loans were roughly uniform across banks of different size.

Table 2. Kenya: KBA Survey Results for Bank Loans to Private Sector

	SME loans		Consumer loans		Share of loans with int. over 14.5%
	Share	Avg. int.	Share	Avg. int.	
Bank Size					
Large	11%	19%	22%	18%	59%
Medium	21%	17%	13%	16%	65%
Small	39%	17%	8%	16%	55%
Average 1/	17%	18%	18%	17%	61%
Notes:					
1/ Averages weighted by market share of each bank.					
Sources: Survey to Kenyan banks conducted by the Kenya Banking Sector Association.					

Similarly, more than half of outstanding saving deposits carried an interest rate below the floor set by the law. However, there were significant differences across banks, with small banks relying more heavily on interest-earning deposits and paying a higher interest rate at the time of the adoption of the law relative to medium and large banks (Table 3). Specifically, the deposit rate floor affected (on average) over half of bank deposits, but only about one third of deposits in small banks. This reflected the business model of small banks, i.e., relying on higher-cost funding to lend to high risk/high return borrowers such as SMEs.

Table 3. Kenya: KBA Survey Results on Bank Deposits

	Savings deposits		Share of deposits with interest less than 7.35%
	Share	Avg. int.	
Bank Size			
Large	57%	6.6%	55%
Medium	71%	7.0%	54%
Small	70%	8.4%	30%
Average 1/	63%	6.9%	53%
Notes:			
1/ Averages weighted by market share of each bank.			
Sources: Survey by the Kenya Banking Sector Association.			

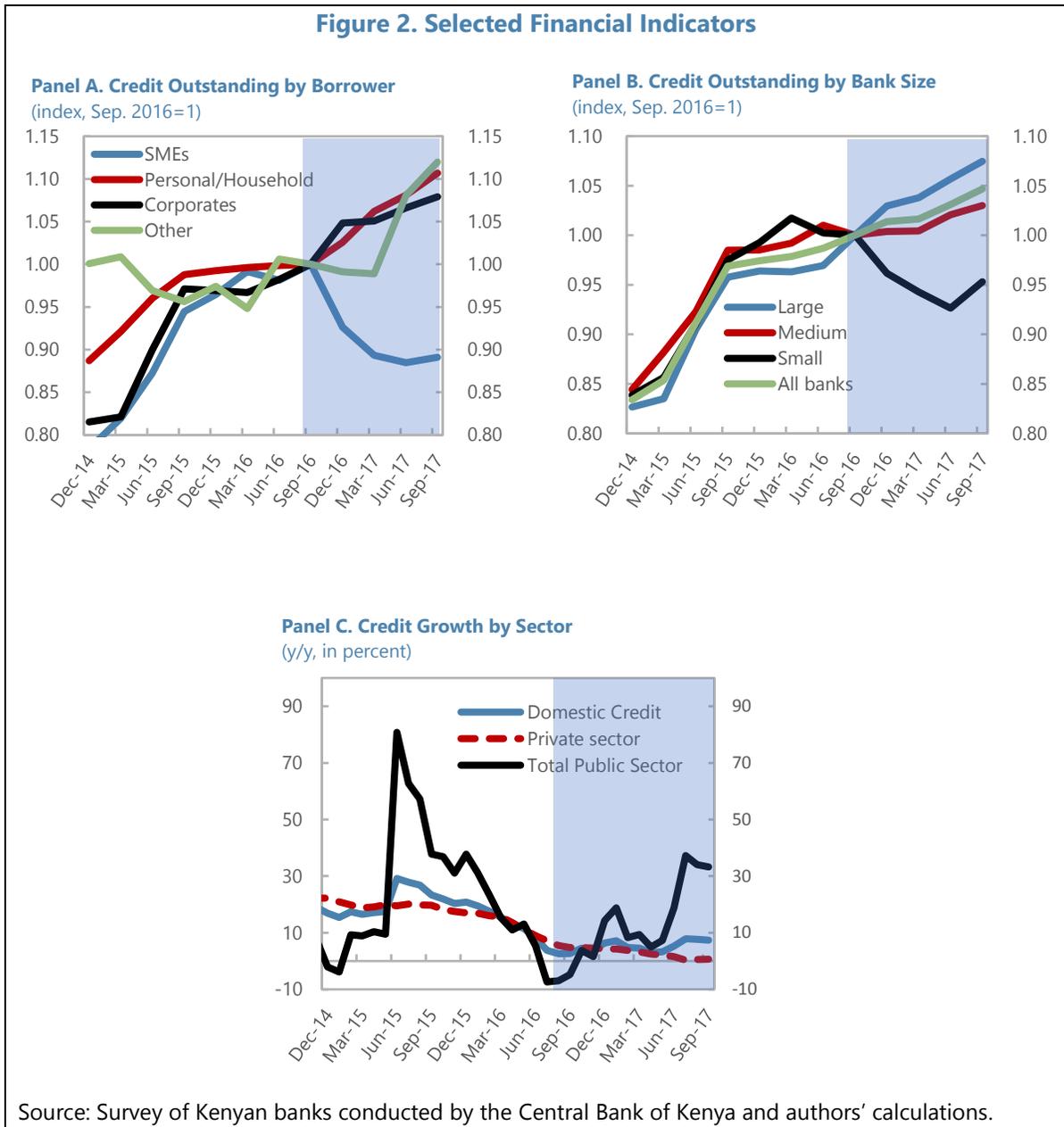
IV. THE IMPACT OF INTEREST RATE CONTROLS IN KENYA

A survey was conducted by the CBK one year after the introduction of the interest rate controls to assess their impact. A total of 32 banks participated in the survey, representing over 80 percent of the banking sector in Kenya, covering data through September 2017 (one year since the introduction of the controls). In summary, the survey results showed a number of adverse effects. These included a sharp decline in bank credit to SMEs (especially in trade and agriculture), as well as a disproportionate hit on the lending activity and profitability of small banks. In addition, as discussed below, the controls reduced the signaling role of the policy rate, thus complicating the communication of monetary policy by the CBK.

Credit Developments: Adverse Effects on SMEs and Small Banks

The lending caps seem to have contributed to substantial changes in the lending behavior of banks:

- **Collapse of bank credit to SMEs.** The stock of credit to SMEs dropped by around 10 percent in just one year (Figure 2, panel A). In contrast, lending to other types of borrowers (such as households or large corporates) continued to increase at a rate similar to the one prevailing before the introduction of the caps.
- **Shrinking of the loan book of small banks.** The outstanding stock of credit of small banks declined by about 5 percent in the 12 months to September 2017 (Figure 3, panel B). Medium- and large-sized banks, on the other hand, have continued to achieve moderate credit growth. While the slowdown of credit started about a year before the introduction of lending caps, it was broadly shared across all bank groups. One explanation for why small banks have been disproportionately hit since the caps is their different business model: they rely more strongly on higher-risk/higher-return borrowers, such as SMEs. With most of the lending to this segment at rates above the ceiling on the lending rate (see Table 2), small banks seem to have restricted credit to these borrowers.
- **A shift of credit away from the private and towards the public sector.** Overall credit to the private sector has grown very slowly in nominal terms (growth of 2 percent y/y as of end-October 2017), resulting in a sharp decline in real terms and as a share of GDP. At the same time, lending to the public sector has increased sharply (growth of over 25 percent during the same period), helping finance a larger fiscal deficit (Figure 2, panel C). These developments reflect reduced financial intermediation rather than a crowding out story, given that T-bill rates remained broadly unchanged following the implementation of interest controls.



A simple empirical analysis confirms the apparent structural breaks in the share of credit to SMEs, lending by small banks and the relative shares of credit extended to the private and public sector following the implementation of interest rate controls in September 2016. The results summarized in Table 4 show the significant trend reversal in the share of credit extended to SMEs and by small banks. In addition, bank lending to the public sector (as a share of total deposits) increased significantly, while the growth of private sector credit, as a share of deposits, was dampened. Private sector credit growth, as a whole, has also been notably slower in the post-controls era.

Table 4. Short-term Trend Reversal Following Interest Rate Controls 1/

(Quarterly, Dec. 2014 – Sep. 2017)

	Pre-controls 2/	Post-controls 2/	Difference
Credit to MSMEs relative to corporate sector	0.23**	-0.59**	-0.82**
Small banks' credit relative to large banks' credit	0.02**	-0.23**	-0.25**
Public sector credit relative to deposits 3/	0.11*	0.22**	0.12**
Private sector credit relative to deposits 3/	0.37**	0.28**	-0.09**
Private sector real credit growth 3/	0.06**	0.00	-0.07**

Notes:

1/ Based on regressing each variable on a constant, a time trend, and the time trend multiplied by a dummy variable that takes the value of one from 2016Q4 onward. Post-controls trend coefficient is calculated as the sum of the two coefficients on the trend terms.

2/ Implementation starts from 2016Q4.

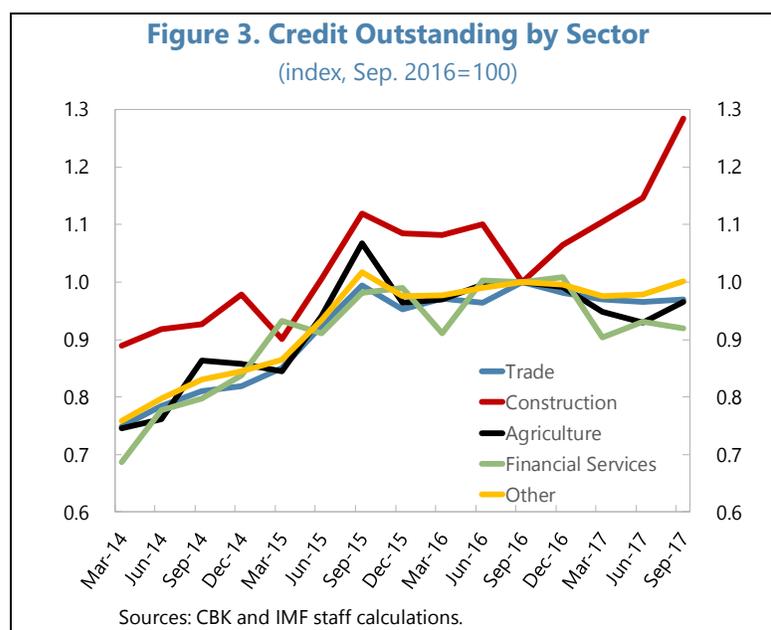
3/ Estimation for 2003Q1-2018Q1.

* Denotes significance at 5% level based on Newey-West standard errors.

** Denotes significance at 1% level based on Newey-West standard errors.

Sources: CBK and authors' calculations.

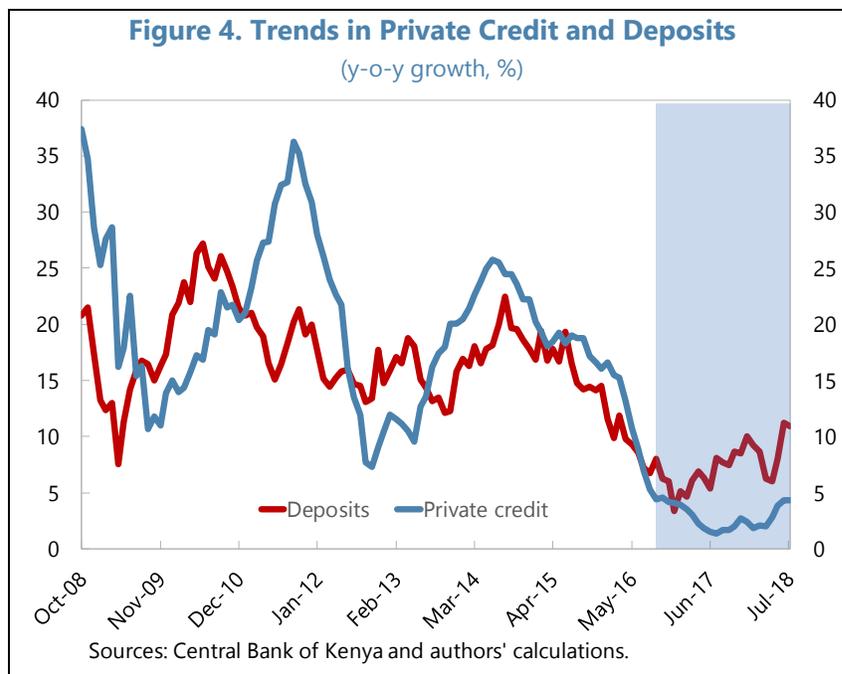
Across sectors, the reduction in private credit has affected mainly agriculture, trade and financial services (Figure 3). The stock of credit to the trade sector—which is the second largest sector in terms of borrowing and accounts for about a fifth of total credit to the private sector—dropped by about 3 percent. Other small sectors, such as agriculture and financial services (which, combined, account for about 7 percent of outstanding bank credit) also experienced a decline. Meanwhile, credit to the construction sector continued to grow at a very rapid pace.



The controls have also had an adverse impact on the population's access to bank credit. The caps have contributed to a reduction in the number of borrowers since the introduction of the

lending caps (by about 27 percent), whereas the average loan size has increased (by about 47 percent). There is no evidence that the high-risk borrowers that have been cut off by the banks have been able to find alternative sources of finance during the period covered by this paper, as growth of lending by institutions that are not subject to interest caps (such as micro-finance institutions and SACCOs) remained broadly unchanged through end-September 2017. The number and value of mobile loans has continued to increase, but at a slower pace than before the introduction of the caps.

Trends in the growth of bank credit and deposits have diverged since the introduction of interest rate controls (Figure 4). Starting in mid-2014, the growth of both deposits and lending by banks began to slow. The two have generally comoved in recent years. But while deposits have staged a rebound since early 2017, credit to the nominal private sector has remained broadly unchanged, growing at about 2 percent y/y over the past several months.

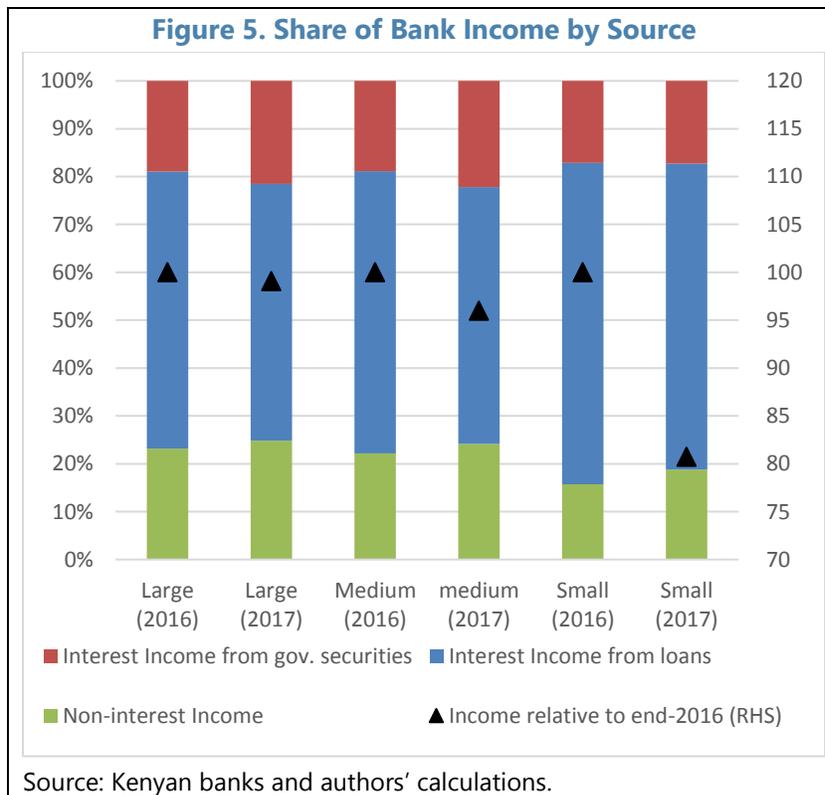


There has been a significant shift in deposits away from time and towards demand deposits, and a shortening of the maturity of new loans. The floor on the interest rate for time deposits was intended to increase the return on savings. But instead it has prompted a sharp and immediate decline in time deposits and a commensurate increase in demand deposits that are not remunerated. As a result, the ratio of time deposits to demand deposits declined by 30 percentage points (from 130 percent at the end of July 2016 to less than 100 percent in October 2016). The average maturity of new loans has also declined due to the lending caps.

Bank Profitability: A Disproportionate Hit on Small Banks

The law on interest rate controls has forced banks to adjust to a new environment of smaller interest margins. Bank profits are increasingly coming from fees and lending to the

government, and less from interest income on private sector lending (Figure 5). In a situation where the lending rate has been capped at 13-14 percent, investing in long-term government securities yields similar returns and has several additional advantages over lending to the private sector: (1) higher creditworthiness and lower risk relative to average private sector borrowers; (2) no need for borrower screening; (3) no administrative costs for loan servicing; (4) no requirement for additional capital for nonperforming loans; and (5) the ability to easily sell government securities in the market (a liquidity premium). The migration from lending to the private sector to investment in government securities is similar across the different bank groups. High government budget deficits and borrowing requirements, together with the floor on deposit rates (which was in effect until September 2018), have kept interest rates on government paper elevated, further aggravating the effect of the interest rate ceiling on private sector borrowing.



Amid a deterioration of income and an increase in non-performing loans (NPLs), the return on equity (RoE) for banks declined in 2017 relative to 2016. While all three bank tiers have suffered significant drops in RoE, the controls have again been particularly damaging for the small banks, whose profits were already below the industry average.¹¹ Banks have made several adjustments of their business models to adapt to the new environment. They have cut

¹¹ Safavian and Zia (2018) also confirms this result.

staff (by around 6 percent in 2016, accelerating a trend that started since 2015), and are also relying more on digital channels to reduce costs and overhead.

Many of these findings are supported by an accounting decomposition exercise of intermediation spreads for 2017 relative to 2015 (Table 5).¹² Specifically, average commercial bank intermediation spreads declined from 830 basis points in 2015 to 660 basis points in 2017. The decline is broadly uniform between large and small banks. While average effective lending rates also declined, contrary to the intention of the law, average deposit rates also declined, owing to the shift from time deposits to demand deposits. Average operating costs remained broadly stable, while average profit margins on private sector lending activities declined further and turned negative.

Size	Total		Large		Small	
	2015	2017	2015	2017	2015	2017
Period						
No. of banks	(40)	(40)	(6)	(6)	(20)	(20)
Interest earned on loans	15.3	11.8	13.7	11.6	14.8	11.6
Interest paid on customer deposits	7.0	5.2	3.6	3.1	7.7	5.9
Spread	8.3	6.6	10.0	8.5	7.1	5.7
Interest paid to cover required reserves	0.3	0.2	0.2	0.2	0.4	0.3
Loan loss provisions/ loans	1.5	2.0	1.5	1.8	1.5	2.2
Operating costs/loans	6.1	6.1	5.9	5.4	7.0	11.0
Pre-tax profit	0.4	-1.8	2.4	1.1	-1.8	-7.9
<i>Memorandum items:</i>						
Return on assets (after tax)	1.6	0.5	3.3	3.0	0.8	-2.1
Personnel costs (% of operational costs)	40.4	38.8	41.8	40.1	41.2	40.3

Notes: The decomposition is similar to Cihak and Podpiera (2005). Simple averages across banks are reported based on end-period data for 2014-2017. Medium-sized banks are included in the "Total". Further details are available in Annex I. Sources: Central Bank of Kenya and IMF staff calculations.

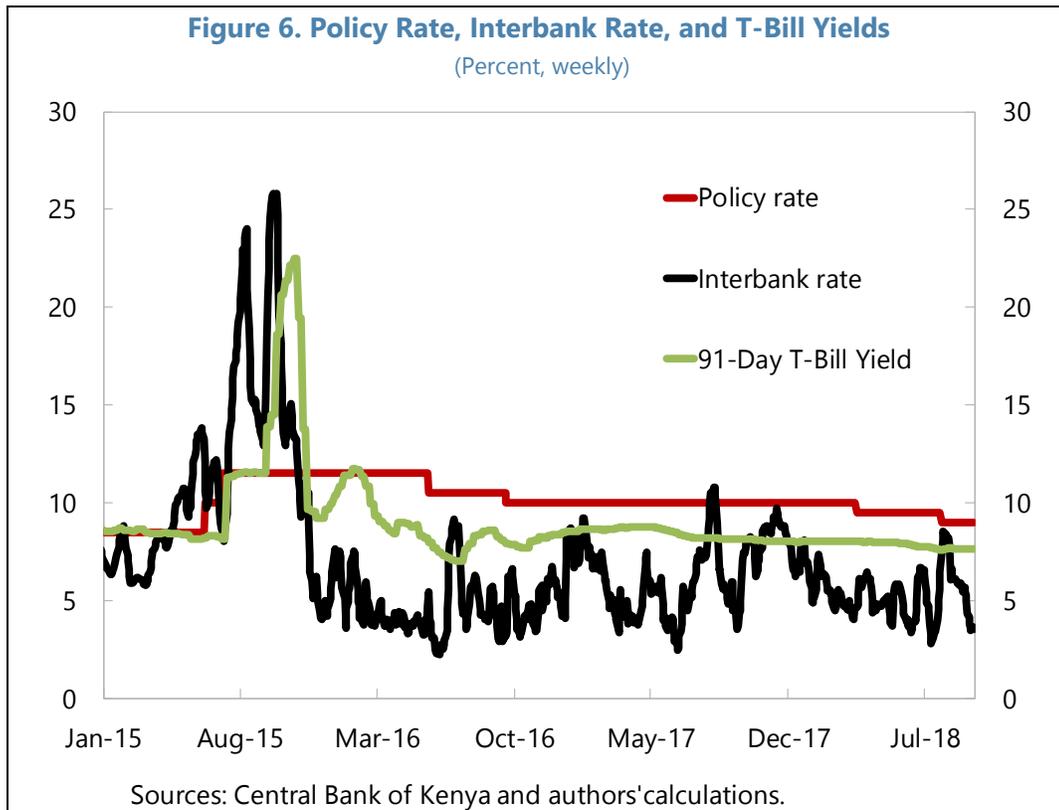
Reduced Monetary Policy Effectiveness

The introduction of interest rate controls has constrained the ability of the CBK to adjust the policy rate in response to economic developments. Prior to the introduction of interest rate controls, the CBK had been changing the CBR in response to developments in inflation and growth. Specifically, it appears to have increased the policy rate when core inflation moved above the mid-point of the inflation target range (5 ± 2.5 percent) and/or growth accelerated above potential, and lowered the policy rate when core inflation and growth moved in the opposite direction. After the introduction of the caps, however, the CBK kept the policy rate unchanged at 10 percent (until March 2018), despite lower growth and a reduction of core inflation in 2017. One concern was that a lower policy rate could potentially ration a greater

¹² The decomposition is the same as in section I above, with the methodology described in Annex I.

share of high risk/high return borrowers, exacerbating the credit constraints on this group of borrowers, thus ending up tightening (rather than loosening) credit conditions.

Liquidity conditions have been looser since the implementation of the interest rate controls than indicated by the policy rate. Since the introduction of the law on interest rate controls, the interbank interest rate has averaged about 6 percent (or 400 basis points lower than the policy rate), reducing the signaling effect of the policy rate as an indicator of the monetary policy stance. Excess liquidity has kept 91-day treasury bill rates between 150–250 basis points below the policy rate since September 2016. The interbank rate has also been very volatile during this period, ranging between 2.5 and 11 percent (Figure 6).



The significant difference between the policy rate and interbank interest rate, as well as the high volatility of the latter, have undermined the signaling role of the policy rate. The implementation of a forward-looking monetary policy framework requires that the central bank sets the policy rate to signal the stance of monetary policy, and intervene as necessary, to keep the interbank rate within a narrow corridor around the policy rate. In the presence of interest rate controls, however, steps to realign the interbank and policy rates at the current juncture would have likely resulted in a premature tightening of monetary policy in Kenya.

V. GAUGING THE IMPACT OF THE INTEREST RATE CONTROLS ON GROWTH

Several studies find that credit and economic growth are positively correlated, and the direction of causation is from credit growth to economic growth. Garcia-Escribano and Han (2015), for example, reports a positive and significant effect of credit growth (corporate, consumer, and housing credit) on output growth in emerging market economies. They find the response of GDP growth to a 1 percentage point increase in private credit growth ranging from about 0.03 percentage points for corporate credit to about 0.075 percentage points for consumer credit.

Our estimates for Kenya suggest that the response of real GDP growth to private credit growth changes is broadly similar to that in other studies on emerging market economies. Specifically, we use quarterly data from 2000Q1 to 2018Q1 under three different specifications: a static specification, an autoregressive distributed lag specification, and a bivariate VAR specification. We include lending rates to proxy for credit conditions as a control variable in each specification. We also control for global liquidity conditions and risk aversion by including the three-month LIBOR rate in US\$ and the VIX index.¹³ Our results suggest that a 10 percentage points rise in private credit growth corresponds to higher output growth of between 0.7 and 1.5 percentage points, depending on the specification, lying slightly at the higher range of estimates from the literature. In addition, using the bivariate VAR specification, block exogeneity Wald tests are conducted. They indicate the existence of unidirectional causality (in the Granger sense) from private credit growth to real GDP growth in Kenya, in line with results in Garcia-Escribano and Han (2015) for 31 emerging market economies.¹⁴

Despite this positive empirical effect of private credit on economic activity, assessing the impact of interest rate controls on Kenya's GDP growth is a challenging exercise. Our estimates suggest that the real GDP growth response to a 1 percentage point change in real private credit growth lies between 0.07 and 0.15, pointing to a fairly wide range.¹⁵ With nominal quarterly private credit growth at about 3.7 percent y/y as of end-June 2018 (compared to an average of about 20 percent between March 2008-June 2016), annual economic growth would, based on the above-mentioned elasticities, be lower by $\frac{3}{4}$ – $2\frac{1}{4}$ percentage points. However, not all this difference can be attributed to the caps on banks' lending rates, given that credit growth in Kenya had been slowing since September-2014, well before the introduction of the interest rate controls.

¹³ VIX is a measure of the stock market's expectation of volatility implied by the S&P 500 index options published by the Chicago Board Options Exchange.

¹⁴ Estimation results are available from the authors upon request. Estimation results including Granger causality test results are similar when only the pre- interest rate caps-implementation period is used.

¹⁵ Analysis done by the Central Bank of Kenya suggest a similar response range (between 0.11 and 0.17). See Central Bank of Kenya (2018).

One way to assess the separate impact of the controls on credit is to look at the divergence in the growth of bank deposits and credit since the introduction of interest rate controls. As discussed earlier, credit growth has remained low following the implementation of the interest rate controls, despite a rebound in bank deposits. In the past, the correlation between deposits and lending growth rates has been very high (about 0.9). Assuming that the breakdown in the correlation between deposit and credit growth is due to the interest rate controls, we assess that their impact on growth to be between $\frac{1}{4}$ and $\frac{3}{4}$ percentage points. This is similar to the estimate of CBK (2018), which finds that rationing out Micro, Small and Medium Enterprises (MSMEs) from the credit market by the commercial banks is estimated to have lowered growth in 2017 by 0.4 percentage points.

Another approach is to look at the decline in credit to SMEs, which, as discussed earlier, is clearly related to interest rate controls. Specifically, credit to SMEs, which accounted for about 17 percent of overall bank credit to the private sector in Kenya (Table 1), has declined by about 10 percent in the 12 months since the introduction of interest rate controls (Figure 2). This compares to a growth of about 5 percent y/y before the introduction of interest rate controls. Using the same range of elasticities of credit growth on GDP growth as above, a “normal” credit growth to SMEs would have implied a higher GDP growth of about $\frac{1}{4}$ – $\frac{1}{2}$ percentage points on an annual basis.

VI. CONCLUDING REMARKS

Kenya’s interest rate controls introduced in September 2016 were among the most drastic ever imposed. Two aspects stand out. First, no country, at least to our knowledge, has imposed a floor on the interest rate for all time deposits, the majority of which carried an interest rate below the established floor (the floor on deposit rates was removed effective September 2018). Second, no country—at least in recent experience—has imposed a cap on lending rates that is as stringent as the one applied in Kenya. Over the past several decades, interest rate controls have been relaxed in most countries, and now focus mainly on protecting vulnerable borrowers from predatory lending practices. In contrast, about 60 percent of loans in Kenya at the time of the law on interest rate controls were above the cap set by the law.

Kenya’s experience suggests the difficulty of using interest rate controls to tackle perceived excesses in the profitability of the financial sector. By reducing lending rate spreads, the lawmakers intended to increase access to bank credit and boost the return on savings. However, the controls seem to have had the opposite effect. The analysis in this paper shows that since the introduction of introduction of interest rate controls there has been: (i) a sharp decline in bank credit to SMEs, especially in trade and agriculture; (ii) a disproportional hit on lending activity and the profitability of small banks; and (iii) reduced financial intermediation, with commercial bank credit shifting away from the private sector and towards the public sector. These are adverse for both growth and equity as they have curtailed access to credit from the banking sector. The analysis in this paper suggests that

interest rate controls have had an adverse impact on GDP growth, at between $\frac{1}{4}$ and $\frac{3}{4}$ percentage points on an annual basis. The paper also showed the increased divergence of interbank rates from the policy rates following the implementation of the interest rate controls. This reduced the signaling effect of the policy rate as an indicator of the monetary policy stance.

One possible way to reduce the adverse effects of the controls would be to put the ceiling at a rate high enough to facilitate lending to higher-risk borrowers. Setting the lending ceiling in this manner (as done in many advanced economies) would stop the most egregious forms of predatory lending, by providing a ceiling, but still provide sufficient margin to compensate for risks. One option could be to set the ceiling at the average of past monthly rates plus a margin. This margin would, however, need to be substantial (in the double digits) to avoid rationing out high-risk borrowers. In addition, consideration could be given to using other policy instruments, instead of interest rate controls, to increase financial access and address equity concerns related to the high profits of the banking sector. For example, more progressive taxation, both of personal income and excess corporate profits, could help avoid the distortions caused by the interest rate controls while dampening inequality.

VII. REFERENCES

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ANNEX I: DATA AND DEFINITIONS FOR BANKS' INTEREST SPREAD DECOMPOSITION

End-year audited income statements and balance sheets of commercial banks were used to derive the decomposition of interest spreads. The methodology follows closely Beck and Fuchs (2004) and Cihak and Podpiera (2005). Data is provided by the central bank of Kenya. Tables report simple averages across all commercial banks.

- **Spread** in year t is defined as the difference between the interest on loans in year t minus the effective interest paid on customer deposits in year t .
- **Interest earned on loans** in year t is the effective interest rate on loans calculated as the interest earnings on loans and advances from customers during year t divided by the simple average of end-period stock of loans and advances in years $t-1$ and t .
- **Interest paid on customer deposits** in year t is the effective interest expenditure on deposits calculated as interest expense on customer deposit in year t divided by the simple average of end-period stock of customer deposits in years $t-1$ and t .
- **Interest paid to cover required reserves** in year t is calculated as the interest paid on customer deposits in year t multiplied by the cash reserve requirement ratio $5\frac{1}{4}$.
- **Loans loss provisions/loans** calculated as loan loss provisions under the other operating expenses in year t divided by stock of loans and advances in year t .
- **Operating costs/loans** in year t represent the costs attributable to loans. It is calculated as a product of share of loan interest revenue in year t to total revenue in year t and the ratio of other operating expenses in year t to stock of loans and advances in year t .
- **Pre-tax profit** in year t attributable to intermediation of loans is calculated as the residual item, i.e., spread less interest paid to cover required reserves less loan loss provisions/loans less operating costs/loans.