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The Impact of Interest Rate Caps on the Financial Sector

Evidence from Commercial Banks in Kenya

Mehnaz Safavian Bilal Zia



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Abstract

Interest rate caps can have far-reaching consequences on the composition and maturity of commercial bank loans and deposits. This paper carefully documents these impacts on the formal financial sector in Kenya after the recent interest rate caps of 2016. Using bank-level panel data from before and after the caps, the paper identifies a significant decline in aggregate lending, an increase in nonperforming loans, and a change in composition of lending away from small and medium enterprises and toward safer corporate clients. Banks also shifted away from offering interest on current account deposits to preserve their interest margins. These quantitative findings are supported by qualitative evidence through detailed interviews of commercial bank executives, and have important implications for economic growth and financial inclusion.

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The Impact of Interest Rate Caps on the Financial Sector: Evidence from Commercial Banks in Kenya

Mehnaz Safavian and Bilal Zia¹

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¹ Both authors are from the World Bank, <u>msafavian@worldbank.org</u> and <u>bzia@worldbank.org</u>, respectively. This paper is the culmination of a year-long independent study of the impact of interest rate caps in Kenya, commissioned by the World Bank country office in Kenya at the request of the Central Bank of Kenya (CBK). We are very grateful to CBK for providing data from commercial banks that are used in this paper. We also thank the World Bank team involved in the study, in particular Rajiv Daya, Allen Dennis, Sarah Sanya, and Caroline Wambugu. Finally, we thank all financial sector participants who accepted our interview invitations and responded to CBK's data request. All analyses, conclusions, and recommendations presented in this paper are our own, as are any remaining errors.

I. Introduction

In August 2016, Kenya embarked on an ambitious path to regulate the cost of commercial credit by imposing a government cap on interest rates. This paper examines how this policy has affected the financial sector in Kenya, and provides an assessment on whether the cap is likely to achieve its desired objectives.

The cap was imposed when the President of Kenya signed the Banking (Amendment) Bill 2015, which put a cap on interest rates charged on loans and a corresponding floor on the interest rate offered for deposit accounts by commercial banks. This new legislation was in response to the public view that lending rates in Kenya were too high, and that banks were engaging in predatory lending behavior. The interest rate caps were therefore intended to alleviate the repayment burden on borrowers and improve financial inclusion as more individuals and firms would be able to borrow at the lower repayment rates.

Previous global evidence on the effectiveness of interest rate caps is quite mixed (for reviews, see Maimbo and Gallegos (2014); and Ferrari, Masetti, and Ren (2017)). Although more than 70 countries worldwide have enacted interest rate caps to some degree, their various forms and modes of implementation make definitive conclusions on their net impact difficult to assess. In theory, interest rate caps can help reduce the cost of borrowing for consumers and are often used by governments to protect unsophisticated borrowers from predatory lending. Yet, the real economic impacts depend on (a) how banks adjust supply and composition of loans in reaction to the policy; (b) how consumers adjust demand for credit when faced with changes in supply; and (c) the magnitude of the difference between the nominal value of the cap and the market interest rate.

This paper carefully documents the key short-term responses from the banking sector to the interest rate caps. The findings are based on quantitative analysis of loan and deposit data from commercial banks for the panel January 2015 to September 2017. The quantitative analysis is ably supported by detailed qualitative evidence from interviews and consultations with key counterparts on the regulatory side as well as financial sector actors themselves.

Identifying the causal impact of interest rate caps in any setting is quite challenging due to the lack of a counterfactual, since all banks are subject to the policy. Isolating the impact of caps in Kenya is further confounded by events prior to the caps, where the economic and market conditions were already in a downturn due to several reasons: the banking sector crisis of early 2016, the slowdown in loan growth and demand due to severe drought conditions, and the political uncertainty associated with the 2017 general elections.

Due to these reasons, we focus our analysis on identifying key microeconomic changes in loan and deposit trends starting 22 months prior to the caps, and differentiate between the responses of commercial banks to across different bank tiers and different types of clients. For this purpose, we divide the time-series from January 2015-Septembe 2017 into three periods: January 2015 to February 2016 representing the pre-downturn period; February 2016 to October 2016 representing the interim period prior to the caps; and October 2016 to September 2017 representing the one-year period after the caps for which data are analyzed in this study.²

Several important findings emerge from the quantitative analysis. First, the data confirm a statistically significant decline in aggregate lending in the Kenyan economy, with a 3.1% decline after February 2016 from an aggregate base of Ksh. 167.65 billion (US \$1.64 billion) in the pre-February 2016 period, and a further 2.7% decline after the interest rate caps. Correspondingly, there is a sizable increase in Non-Performing Loans (NPLs), with the size of abnormal loans seeing an increase of almost 53% after February 2016 from an aggregate base of Ksh. 25.67 billion (US \$0.25 billion), and an additional 8% after the caps. The increase in NPLs is exhibited across nearly every major sector in the economy.

This precipitous rise in NPLs is reflective of both the prevailing economic and market downturn as well as the interest rate caps. Our microeconomic analysis finds that after the caps, commercial banks started issuing loans of shorter maturity, thus likely contributing to the increase in NPLs. Furthermore, according to two recent Central Bank of Kenya (CBK) Commercial Banks' Credit Surveys for the second and third quarters of 2017, the upward trend in NPLs was expected to continue into the fourth quarter of the year and beyond due to the political uncertainty and economic downturn in the country. The CBK surveys further confirm commercial banks responded to these changes by elevating their risk mitigation measures, effectively rationing out many small and unsecured borrowers. As a result, 54% of the respondents revealed that interest rate caps had negatively affected their lending to SMEs.

Our data analysis confirms that commercial banks indeed responded to the interest rate caps by shoring up their corporate clients. Both tier 1 and tier 2 banks exhibited a significant flight towards corporate clients after the interest rate caps, which came at the expense of lending in other sectors such as SME loans.

Tier 3 banks exhibited a flatter trend initially but an eventual flight to corporate clients after the interest rate caps. These banks also sharply reduced their SME lending. Our discussions with counterparts suggest that tier 3 banks were relatively less successful in immediately shoring up their corporate books, as these clients were taken up by higher tier banks. Instead, the smaller tier 3 banks were forced to maintain their portfolios in SME and consumer lending, but, as the data show, with time even smaller banks reduced lending to the SME sector.

The analysis also focuses on debt maturity and deposit composition to understand changes in the types of products offered by commercial banks after the interest rate caps. While tier 1 and tier 2 banks expanded their long- and medium-term loan books, likely signifying their desire to fulfill demand from good quality clients, tier 3 banks were the only ones that exhibited an increase in short-term loan offerings. These changes in debt maturity likely have negative

² The bill was signed in August 2016, and came into full effect in mid-September 2016.

consequences for small firms requiring longer-term capital investment from tier 1 and tier 2 banks.

On the deposit side, the analysis confirms a significant shift towards offering interest only on longer term deposits and eliminating any interest offerings on current accounts. This shift is most evident among tier 3 banks where interest bearing accounts dropped precipitously to nearly zero percent of portfolio in response to the interest rate caps, down from a previous average of 36%. These changes in deposit composition are indicative of the banking sector's response and their preference for maintaining their interest margins.

These changes in loan and deposit books have important implications for financial inclusion. First, our findings suggest that the interest rate caps certainly did not attenuate the upward trend in NPLs, and therefore did not aid financial inclusion. Instead, we find a continued rise in NPLs after the caps.

Second, a vibrant and growing SME and consumer sector is an important cornerstone of a typical developing economy. Yet, the data from the CBK-regulated commercial banking sector and commercial bank surveys show no loan growth in the SME sector and an expectation of further loan rationing in the future.

Third, the documented flight towards corporate clients, tightening of risk mitigation measures, and offering of loans with shorter maturities in tier 3 banks all have potential consequences for financial inclusion of smaller firms and consumers and could reverse the recent gains in financial access achieved in the last decade. Unable to access credit from traditional financial institutions, riskier borrowers are forced to turn to the unregulated market, such as informal money lenders, that charge much higher rates and lack consumer protection.

Overall, these findings suggest that the interest rate caps were largely unsuccessful in mitigating the downward trends in financial inclusion due to prevailing market and economic conditions, at least in the short run.

The rest of this paper proceeds as following. Section II presents a short background and context for interest rate caps in Kenya and poses hypotheses for the empirical analysis. Section III discusses the assessment challenges associated with identifying the impact of interest rate caps. Section IV presents the qualitative evidence, and Section V the quantitative evidence for this study. Finally, Section VI concludes with policy recommendations.

II. Background and Hypotheses

Background

In August 2016, the President of Kenya signed the Banking (Amendment) Bill 2015, which came into full effect in mid-September 2016.³ The law caps the maximum interest rate charged

³ See Appendix A for the complete text of the signed bill.

for a credit facility in Kenya by banks at no more than 4 percent of the base rate set by the Central Bank of Kenya (currently at 10 percent); and provides a floor for the deposit rate held in interest earning accounts to at least 70 percent of the base rate.

This new legislation was in response to the public view that lending rates in Kenya were too high, and that banks were engaging in predatory lending behavior. Interest rate spreads in Kenya averaged 10.1 percent between 2001 and 2015, with profits (48 percent) and overheads (40 percent) accounting for a large portion of these margins (World Bank, 2016).

The policy dialogue around the imposition of interest rate caps has been ongoing in Kenya for quite some time, dating back to 2008. Interest rate spreads have long been high, and threats from the government and politicians to impose caps have emerged periodically, especially near election cycles. Prior to the caps, many attempts were made by government and financial sector regulators to engage the banking sector to promote a market-based solution designed by the sector itself. For example, in 2012, the National Treasury constituted a Committee on the Cost of Private Sector Credit and Mortgage Finance to identify policy reforms that could address the high cost of credit in the country. Key reform recommendations from this committee included strengthening the system for movable collateral, increasing the scope of credit reporting, and promoting consumer protection measures. Such reforms have been effective in lowering the cost of credit in other countries (Martinez Peria et al. 2017), and it was anticipated they could have an attenuating effect on the cost of credit in Kenya as well.

While the policy reform debate continued, CBK took separate initiatives to insert a degree of transparency and competition into lending practices, with the goal of arming consumers with better information so they could make more informed choices across banks and loan products. For example, CBK started publishing the average lending rates for various loan products by banks as well as the overall average weighted lending rate.

Policy reforms in the movable property and credit information space did move forward and the CBK initiatives were implemented simultaneously, but none of these measures resulted in lower interest rates. While commercial banks did agree in principle to take steps to bring down interest rates, no specific initiatives were offered. Ultimately, the general fatigue among the public and policy makers, combined with political pressure during an upcoming election year finally pushed politicians into passing the Banking (Amendment) Bill of 2015.

Hypotheses

Understanding how Kenya's decision and experience with interest rate caps compares to similar initiatives implemented in other jurisdictions can help generate empirical hypotheses on the impact of this policy initiative.

To the best of our knowledge, no other country has imposed as restrictive a cap on the financial sector as Kenya. First, the interest rate cap of 14 percent was set very close to the risk-free rate of public sector borrowing, which at the time was 12-14 percent on long term money. Having the nominal interest rate so close to the government risk free rate meant that banks had little

incentive to provide financing to risky market segments. Instead, commercial banks directed their investments to government treasury bills. Given that banks of different size have different levels of access to public debt, we expect to see larger banks moving to the risk-free space proportionally more than smaller banks.

Second, the bill provided very little implementation guidance, which resulted in confusion and irregular application. For example, it was unclear if the bill solely applied to banks, or to all regulated financial institutions, including MFIs and SACCOs. There was little guidance as to whether the bill also covered mobile loans and mobile service providers. No part of the bill, or any corresponding regulation, indicated whether the bill was retroactive, so that all current loans would need to be refinanced, or if it would only apply to new loans originated after the bill's adoption.

At the time of this paper, some of these questions remain unresolved. For example, the mobile money and mobile loan space does not seem to be included in the bill's implementation, and remains an open question. While all banks are adhering to the cap on their conventional loan products, many mobile loans continue to carry effective interest rate charges of over 100% per annum. Additionally, the consensus is that MFIs and SACCOs are not subject to the cap, creating an uneven playing field across the lending and credit markets, and informal sector lenders are purported to have increased their rates substantially, even as demand for credit has increased.

Given these ongoing out of equilibrium changes, assessing permanent impact of the caps becomes particularly challenging. Past literature on the impact of interest rate caps is fairly thin as well, and what exists records several potential detrimental effects of such policies (Maimbo and Gallegos, 2014). Despite their intentions, interest rate caps can in fact reduce credit availability and increase costs for low-income borrowers, and reduce financial product transparency and diversity (Ferrari, Masetti, and Ren, 2017). In South Africa, for example, several financial institutions evaded the interest rate caps by charging credit life insurance and other service fees, which reduced the transparency of the total cost of credit. In West African and Monetary Union (WAEMU) countries, the imposition of interest rate caps on microfinance loans led microfinance institutions to withdraw lending to the poorest borrowers and to remote areas. Similarly in Nicaragua, microfinance institutions reduced lending and left urban areas due to high operational costs and risks. They also responded by adding fees to circumvent the interest rate cap. Elsewhere, in Japan, the supply of credit appeared to contract, acceptance of loan applications fell, and illegal lending rose. Finally, in France and Germany, interest rate ceilings decreased the diversity of products for low-income households; and in India, the interest rate caps in 2011 led to a slowdown in borrowing and lowered formal financial access.

We hypothesize that the lack of clarity on the caps in Kenya could potentially magnify such negative effects. It is clear that the broad scale of interest rate caps can have far-reaching implications within the Kenyan economy, including impacts on banking sector stability, banking investments, financial inclusion, consumer and SME finance, as well as impacts on alternative forms of financial services provided by microfinance institutions and savings associations (SACCOs).

This paper carefully documents the key short-term responses from the banking sector to the interest rate caps. The findings are based primarily on quantitative analysis of loan and deposit panel data from commercial banks for the period January 2015 to September 2017. The quantitative analysis is also supported by detailed qualitative evidence from interviews and consultations with key counterparts on the regulatory side as well as financial sector actors themselves.

Data Description

The analysis presented in this paper combines insights from qualitative interviews and quantitative data to understand the impacts of interest rate caps on commercial bank loans and deposits in Kenya.

Detailed qualitative interviews were conducted over several weeks in March and April 2017, with the objective of understanding the perspective of affected institutions. Meetings were held with key financial sector regulators including the Central Bank of Kenya (CBK), National Treasury (NT), Capital Markets Authority (CMA), and SACCOS Society Regulatory Authority (SASRA). In addition, we met with financial institutions, including tier 1, 2, and 3 commercial banks, deposit taking microfinance banks, and SACCOs. Finally, we also consulted with development partners including Financial Sector Deepening Kenya (FSD-K) and DFID.⁴ These meetings provided valuable observational insight on the impact of the interest rate caps on the financial sector.

The quantitative analysis presented in this paper focuses on the formal banking sector in Kenya, and is based on two panel datasets: (a) a panel of sector-level data compiled by the Central Bank; and (b) a panel of bank-level data provided by the commercial banks in response to our request submitted through the Central Bank. Both datasets span the period January 2015 to September 2017.⁵

III. Assessment Challenges

There are several important challenges associated with assessing the impact of interest rate caps. First and foremost is the fact that only one year has elapsed since the interest rate caps were enacted and any data analysis will at best capture short-term effects, while various economic and financial adjustments are still in progress. The data we analyze primarily cover the period from January 2015 to September 2017. Moreover, there has not been enough time since the passage of the legislation to influence lasting structural changes in the financial sector and for effects to trickle down into the real economy.

⁴ See Appendix B for the full list of meetings.

⁵ See Appendix C for the list of banks included in the panel dataset.

Second, several other factors were contemporaneous in the Kenyan economy around the time of the caps, thus complicating the ability to directly measure and isolate the effects of the caps on the financial sector. There was a general decline in the Kenyan economy even prior to the introduction of the interest rate caps, and overall demand for credit was low across many economic sectors. According to data from the National Treasury, loan growth to businesses and homes in 2016 had decreased to 4.3% from the previous year's growth of 20.6%.

In addition, the collapse of two Kenyan banks in early 2016, Imperial and Chase, precipitated a crisis of confidence in the banking system, decreasing the magnitude of inter-bank borrowing and influencing a flight of depositors from smaller banks to larger counterparts. Many smaller banks were already facing liquidity shortfalls as depositors fled to perceived safer institutions and inter-bank funds became inaccessible.

The election cycle also potentially affects our ability to draw more definitive conclusions about the effect of interest rate caps. Presidential, parliamentary, and local elections were held in August and October 2017. Uncertainty surrounding the elections and future policy initiatives likely affects the behavior of both consumers and financial institutions. The private sector typically adopts a conservative approach to borrowing during an election cycle, preferring to defer major strategic decisions. These factors, in addition to the corresponding economic downturn, affect our ability to distinguish between the impact of the policy change and other contemporaneous effects on the financial sector.

Most importantly, since the interest rate caps affected the entire banking sector for which we have obtained data, it is difficult to conduct counterfactual analysis since all banks in our dataset were exposed to the caps. This lack of a counterfactual is further confounded by the factors mentioned above and undermines our ability to make causal inferences.

Given these identification challenges, we do not make causal claims in our analysis, and instead focus our attention on documenting key variations in loan and deposit composition and maturity across time, and on studying variations in responses across different formal financial actors (i.e. tier 1, tier 2, and tier 3 banks) and borrower types (e.g. corporate, consumer, SME, unsecured).

IV. Qualitative Evidence

The qualitative interviews conducted as part of this study form an integral part of understanding the quantitative impacts of interest rate caps and how commercial banks responded to the policy.

At the financial institution level, several negative trends were identified by banking sector actors that characterize the microeconomic impacts of the interest rate caps across all lenders. The proportion of new borrowers fell by more than half, from a peak of 13% in March of 2016, to roughly 6% after the caps. Across the banking sector, returns on equity slumped, as did

foreign participation in the Nairobi Stock Exchange (NSE), which is dominated by domestic financial sector players. Although the NSE has staged a strong rebound since the second quarter in 2017, the trading volumes of commercial bank shares remain volatile.

According to bank executives, new branch expansions slowed after the caps and some banks even reported staff cuts and branch closings. Unable to properly price riskier loans, most commercial banks adjusted their portfolios away from SMEs and unsecured clients towards less risky asset classes such as corporate loans. The shift in bank portfolios away from smaller and riskier borrowers is particularly impactful in Kenya, where SME and mobile borrowers make up nearly 80% of all borrowers.

The interviews further highlighted concerns about the asymmetrical impact of the caps on smaller banks and their customers. While large banks reported declining margins, shrinking returns on equity, a slowdown in loan growth, and hiring freezes, smaller banks felt these same pressures but also impacts on their ability to raise sufficient liquidity due to the deposit rate floor. Conversations with smaller banks revealed several operational changes due to the caps, such as attempts to tap into the unsecured loan market that the larger banks largely abandoned, reductions in overhead through mobile platform innovations, and forays into alternative sources of revenues such as through money transfers. A few small banks simply tried to stay afloat in the new environment by rationing out riskier borrowers and hoping for a policy reversal.

V. Quantitative Evidence

Empirical Strategy

As mentioned in the Introduction, the crisis of confidence in the financial sector due to the bank failures of early 2016 is an important precursor to the interest rate caps. It is difficult to pinpoint an exact month for this earlier crisis, since the warning signs were already present in late 2015. For the purposes of our analysis, we assign the months after February 2016 as the post-crisis period. Similarly, we assign the months after October 2016 as the post-caps period. Hence, the data analysis focuses on differential effects on loan and deposit outcomes across three time periods: pre-February 2016, post-February 2016, and post October 2016.

Since we do not have variation across the cross-section of sectors or banks (since all banks were affected by the caps and faced the same prevailing economic and market downturn), the only heterogeneity we can exploit is across these three time periods. As such, we cannot make causal claims since we do not have a counterfactual group in the cross-section. Nevertheless, identifying the determinants of changes across the three time periods is valuable to understanding how the two shocks affected loans and deposits in the formal financial sector.

The sector-level analysis uses the following specification:

 $Y_{it} = \alpha_i + \beta_1. Post_{Feb \ 2016} + \beta_2. Post_{Oct \ 2016} + \varepsilon_{it}$

Where Y_{it} is the outcome of interest in sector *i* and month *t*, α_i is a dummy for each sector *i* (i.e. sector fixed effect), β_1 is the coefficient on a dummy that is equal to 0 for all months prior to February 2016, and equal to 1 for February 2016 itself and all months after. Similarly, β_2 is a dummy equal to 0 for all months prior to October 2016, and equal to 1 for October 2016 itself and all months after. ε_{it} is the error term. Robust standard errors are computed and reported in all regression tables.

The interpretation of the coefficients is as follows: β_1 represents the average change in outcome Y across all sectors in the interim period between February 2016 and October 2016. β_2 represents the additional change in outcome Y after October 2016, and $(\beta_1 + \beta_2)$ represents the total change in outcome Y in the post-October 2016 period. All coefficients report changes relative to the pre-February 2016 average value of outcome Y. α_i is simply a sector specific fixed effect and controls for all time-invariant changes across sectors. Moreover, α_i ensures that the analysis measures changes within sectors over time, thus controlling for any pre-existing differences across sectors.

Since we are interested in the significance levels of β_1 , β_2 , as well ($\beta_1 + \beta_2$), all regression tables report the p-value of the F-test of joint significance of ($\beta_1 + \beta_2$).

The bank-level analysis uses an identical specification where the data are analyzed at the bank level instead of the sector level. Hence, all the properties of the regression equation above are maintained, with only the underlying aggregation of the panel data changing from the sector-month to the bank-month level.

Aggregate Level Analysis

As a first step, we use sector-level data from the Central Bank to generate economy-wide aggregate trends in lending. Figure 1(a) presents the trend in aggregate loan amounts across all lending sectors in the financial system. The figure shows trends by the nature of loans: normal portfolio refers to loans in good standing, while the other categories represent various stages of late repayment. Figure 1(b) aggregates the late portfolios together to present a simple comparison of normal vs. abnormal loans.⁶

The vertical pink dotted line represents the post-crisis period after February 2016 and the vertical orange dotted line represents the post-caps period after October 2016.

Several interesting findings emerge from these aggregate figures. First, the entire period after February 2016 was characterized by a drop in the normal portfolio of lending. Loan values dropped after February 2016 and remained low after October 2016. Second and converse to normal lending, abnormal loans were on an upward trend indicating an increase in non-

⁶ Note that corresponding data on loan volume are available but subject to numerous errors and missing observations. As such, we are not confident in conducting analysis with them and focus instead on loan value where the data quality is much better.

performing loans. This upward movement in NPLs also began in February 2016 and continued past October 2016.

Table 1 presents the same data and trends in the form of aggregate summary statistics for loan value across the three time periods.

The simple comparison of means shows an average decline in loan value after February 2016 and October 2016; and a corresponding increase in abnormal loans. This simple comparison, however, does not account for heterogeneity across sectors.

Table 2 improves on the analysis by studying these changes in a regression framework with strict sector-level controls. Disaggregated data at the sector-level are used for the analysis and the specification controls for sector fixed effects, thus accounting for all time-invariant differences across loan sectors.

The findings in Table 2 corroborate the trends seen in Figures 1(a) and 1(b); and Table 1. The coefficient on "Post Feb 2016" represents the average change in lending in the interim period between February 2016 and October 2016, and the coefficient on "Post Oct 2016" represents the additional average change in lending in the period after October 2016. Both coefficients represent comparisons with average lending in the months prior to February 2016.

Compared to loan values prior to February 2016, the interim period up to October 2016 saw a decline of 3.1% in lending from an aggregate base of Ksh. 167.65 billion, with a further 2.7% decline after the caps. In contrast, there was a sizable increase in abnormal loans, with a 52.6% increase in the interim period from an aggregate base of Ksh. 25.67 billion, and a further 7.8% increase after the interest rate caps.

These findings confirm the qualitative evidence in the previous section of this paper. There is certainly a statistically significant downturn in lending and upturn in NPLs after the interest rate caps. However, these respective upward and downward trends were present in the economy even before the caps, likely due to the prevailing economic and market downturn. Indeed, the CBK Commercial Banks' Credit Surveys for the second and third quarters of 2017 confirm that commercial banks expect a continuing rise in the level of NPLs due to the industry's perception of increased political risk and the general economic downturn. Furthermore, the analysis presented later in this paper documents that commercial banks started issuing debt of shorter maturity after the interest rate caps, likely further contributing to the rise in NPLs.

Overall, it is very difficult to disentangle and isolate the impact on loans due to these myriad causes. What we can say with confidence is that the interest rate caps certainly did not attenuate the negative trends in lending precipitated by the prevailing economic and market downturn.

On the loan demand side, we do not have clean data on loan applications but instead refer to the CBK's Credit Surveys which find that even though the interest rate caps led to an increase in loan demand (attributable to cheaper credit), this increased demand had little impact on the

actual credit advanced. These findings corroborate our analysis where we, in fact, document a decline in aggregate loans.

The CBK Credit Surveys further analyze the effect of the interest rate caps on lending to SMEs in the second and third quarters of 2017, and find that banks report tightening of risk mitigation measures and a corresponding decline in lending to SMEs, with clients below an elevated threshold being rationed out of the formal credit market. In fact, 54% of the respondents revealed that interest rate capping had negatively affected their lending to SMEs. These findings have severe implications on financial inclusion.

Sector Level Analysis

Next, we turn to sector-by-sector analysis. Figures 2(a)-(k) replicate lending trends across the 11 sectors of the economy. Corresponding regression tables are presented in Appendix D.

While the growth in normal loans varied across sectors with some increasing lending and others decreasing, the trend in abnormal loans is consistent. Virtually every sector (except for mining and quarrying) exhibited a significant increase in loans classified as abnormal, which is indicative of the downturn in the economy. As discussed above and as the regression tables in Appendix D confirm, we cannot attribute this downturn to the interest rate caps alone, as the negative effects were already present after the banking crisis in early 2016.

There are differential effects across sectors when we analyze changes in normal lending. The largest loan sector, personal and household loans, saw a 2.5% increase in lending in the post crisis period, and a further 5.3% increase after the caps. The abnormal portfolio in this sector also increased substantially. This increase in lending could signify a general shift in lending preferences by banks and a move towards personal and mobile lending platforms. Conversely, it could indicate a shift to larger loans to established individual clients. The next section will analyze how different types of banks (tier 1, 2, and 3) responded differently to the crisis and caps, and provides further insight on shifts in lending portfolios.

For other sectors, loan growth picked up slightly in Energy and Water after the caps, while it declined significantly in Agriculture, Building and Construction, Manufacturing, Tourism, and Trade. Overall, the trend in the major lending sectors of the economy tended towards a slowdown in loan growth.

Bank Level Analysis: Loan Portfolios

The most disaggregated data we analyze come directly from commercial banks. The data were originally received at the bank-sector-period level but were difficult to analyze due to a high level of missing observations and other statistical discrepancies. Hence, the data were converted to the bank-period level, which is the basis of our analysis.

First, we analyze changes in loan portfolios across banks and across time. Figure 3 presents the average shares of corporate, consumer, asset finance, project, SME, cooperatives, micro and mobile, and other unsecured loans across all banks.

Confirming the discussions with counterparts, the data show a flight to quality clients – there is a marked shift towards corporate loans after the interest rate caps and a decline in consumer and in particular SME loans.

The richness of the sample allows us to conduct disaggregated analysis by bank type, specifically by bank tier. Figures 4(a)-(c) repeat the analysis separately for tier 1, 2, and 3 banks respectively.

The figures show that corporate clients dominate the loan books of banks across all sectors. Tier 1 banks showed a marked increase in corporate clients and a corresponding decrease in consumer loans after February 2016. This trend continued after the interest rate caps, with further significant cuts in consumer lending and no return to 2015 levels.

Tier 2 banks showed a similar but steeper initial flight towards corporate clients after the interest rate caps. This change in lending composition came at the expense of consumer and SME lending, which both showed initial declines. These shifts settled down eventually but as with Tier 1 banks, the composition did not return to 2015 levels.

Finally, the trends in Tier 3 banks were initially mostly flat across sectors but eventually exhibited a similar flight to corporate clients and sharp reduction in SME lending after the interest rate caps. This drop in SME loans is particularly worrisome from a financial inclusion perspective, contrary to a vibrant SME-led economy. Further, our discussions revealed that the longer-term prospects for small banks are bleak as they may require more significant changes to their business models and lending books than large banks, which have effectively shored up their corporate books, as we see in the data, and investments in government Treasury bills.

Table 3 presents the loan portfolio composition analysis in regression form, where the specifications include bank fixed effects to control for time-invariant differences across banks.

First, the table confirms the observation from the figures that corporate clients dominate the loan books of all banks across all tiers: prior to February 2016, corporate clients comprised 48.5% of lending across all banks, with consumer lending at 20.8%, SME lending at 18% and micro & mobile at 1.3%.

The regression results show that banks increased their proportion of corporate lending substantially after the interest rate caps, with a 1.8% expansion over 2015 values. Consumer loans share declines sharply both in the post February 2016 period by 1.1%, and a further 1.4% after the caps. Similarly, SME loans share declines by 0.7% after the caps.

Overall, these results confirm the earlier discussions with counterparts that commercial banks shifted their portfolios towards more secure corporate clients in response to the crisis of confidence in early 2016, and additionally in response to the interest rate caps at the expense of consumer and SME lending.

Bank Level Analysis: Loan and Deposit Maturity

To better understand the financial sector response to the interest rate caps, it is instructive to analyze the maturity composition of loan and deposit portfolios. With a decline in loan interest rates and increase in deposit rates, our discussions with counterparts suggested that banks were inclined to issue loans of shorter maturity and make eligibility requirements more stringent for interest bearing deposit accounts. At the same time, however, the influx of quality clients could signify loans and deposits of longer maturity due to the risk of losing clients to competitor banks. In this sub-section, we explore these hypotheses in the data.

First, figures 5(a)-(c) plot the changes in loan portfolio by maturity status across different tiered banks. For tier 1 banks, there was a substantial increase in longer-term loans of more than 5 year maturity, and a corresponding decrease in medium-term loans of between 1 and 5 years, and a decrease in very short-term loans of less than 3 months. This shift in maturity composition could be indicative of a move away from smaller, riskier loans that are typically of shorter term, and a move towards shoring up larger and safer clients. Even for loans of up to a year in maturity, the data show a substitution away from the shortest-term loans of 3 months towards loans between 3 months and 1 year in maturity.

Given the flight to corporate clients in tier 1 banks, the shift towards longer-term loans could also be indicative of large banks fulfilling demands of their best clients who likely were eager to lock in lower rates. Ultimately, we are unable to disentangle these mechanisms with the available data. Nevertheless, the trends are in line with our earlier discussions.

The response of tier 2 banks is illustrated in figure 5(b). Unlike tier 1 banks, long-term loans of more than 5-year maturity initially stay flat after the interest rate cap for tier 2 banks and then show a slight decline. The largest shift is in medium-term loans between 1- and 5-year maturity where the portfolio increases substantially, at the expense of short-term loans of less than 1-year maturity. These results indicate a similar flight to quality among tier 2 banks and a corresponding increase in longer term loans for good clients.

Tier 3 banks show a mixed response to the interest rate caps, as depicted in figure 5(c). Apart from a slight increase in long-term loans, these banks showed the most increase in their short-term offerings, which is likely indicative of their desire to shy away from offering lower rates for loans of longer maturity. This hypothesis is also supported by the sharp decline in medium-term loans after the caps.

Next, we turn to the deposit side. Figures 6(a)-(c) plot the corresponding changes in deposit account composition across the different tiered banks. Data on deposit composition are only reliably available until March 2017, so the impacts should be considered very short-term. Nevertheless, the impacts are fairly uniform across all tiers. As expected, there is a significant drop in interest bearing accounts and a corresponding substitution towards non-interest bearing accounts. Our discussions with counterparts revealed new strategies adopted by banks across

all tiers to offer interest on deposits only on longer term accounts and to eliminate any interest offerings on current accounts.

This change is clearly borne out in the data, most dramatically in tier 3 banks where interest bearing accounts dropped precipitously to nearly zero percent of portfolio in response to the interest rate caps, down from a previous average of 36%. Correspondingly, non-interest bearing accounts increased by a similar magnitude to an average share of nearly 75%, up from a precaps average of 38.9%. These changes are highly statistically significant in companion regressions.

Overall, these changes in loan and deposit books highlight the strategic response of formal banks to the interest rate caps to minimize any potential financial losses, and to ensure sustainability of their best-risk clients.

Impacts on the Non-Bank Financial Sector

Outside of the formal banking sector, although SACCOS were not directly affected by the policy change, the indirect effects of the legislation on these institutions is also important. Data analysis on aggregate SACCO-level data provided by SASRA demonstrates that there were no noticeable changes in ongoing trends when it comes to loan portfolios, investments, deposits, or other indicators aggregated across the industry. These results largely confirm insights from conversations within the industry. Since SACCOs require new members to save for at least six months before they are eligible for loans, it is still too early to distinguish shifts in demand from consumers or changes in strategic behavior by the institutions.

SACCO membership requirements also impede these institutions from serving the small and riskier borrowers locked out from the traditional banking sector. However, it is notable that most of the large SACCOs have reduced their rates in line with the caps to stay competitive and to retain their customers. Similarly, SACCOs are turning to technology/mobile solutions to reduce costs and are also looking to non-funded income to supplement reduced funded income.

The same trends also apply to deposit-taking microfinance institutions (DTMFIs). The vague language contained in the Act resulted in customers expecting compliance from the DTMFIs with respect to the rate caps. Several institutions interviewed as part of this study reported that customers demanded lower rates and were unwilling to pay more than 14%, which they could receive from banks. As a result, loans were re-priced from 17-18% for SMEs and 22% for micro loans. On the funding side, deposits, which accounted for a large proportion of funding for DTMFIs before the enforcement of the Act, were drastically reduced. This resulted in lower liquidity and forced offshore borrowing at higher rates.

VI. Conclusion and Policy Implications

While interest rate caps are often implemented to lower the burden of high interest rates on borrowers, such policies can lead to unintended consequences that negatively impact both the aggregate banking sector and borrowers themselves. The analysis presented in this paper highlights some of the short-term impacts on the Kenyan economy after the interest rate caps of 2016.

While we cannot definitively attribute the slowdown in loan growth and compositional changes among Kenyan banks to the interest caps alone, we certainly do not find any economic attenuation effects that many advocates of the interest rate caps promote. Instead, we find a continued downward trend in loan growth and adverse compositional changes in loan and deposit maturity after the caps. These findings are consistent with a parallel cross-country study examining recent trends in the use of interest rate caps (Ferrari, Masetti, and Ren, 2017). Analyzing trends across five countries, the authors find that while interest rate caps result in lower nominal rates, they also lead to higher non-interest fees and commissions, lower transparency, and reduced credit supply especially for small and risky borrowers.

From a microeconomic perspective, our analysis highlights detrimental impacts on financial inclusion, with the crowding out of SME borrowers. Future analysis should focus on the longer-term impacts of the interest rate caps as more data become available from formal banks. Also, to fully understand the effects on financial inclusion, additional data from private sector associations and informal lending markets would greatly help expand the impact analysis.

From a policy perspective, our analysis suggests that interest rate caps can have important and unintended consequences in the economy. There are several policy alternatives that can both protect borrowers from excessive interest rates and limit the negative consequences of interest rate caps.

Foremost, reforms aimed at improving the efficient functioning of financial markets can work to counteract perennially high interest rates for borrowers. For example, the universal adoption of credit scoring and sharing can improve bank lending policies. A credit scoring system can allow banks to properly price loans rather than charge the same rate to all customers. This reform, coupled with a well-functioning credit bureau can further improve pricing transparency among banks, and broadly lower interest rates.

In addition to increasing the risk-pricing ability of lenders through more robust credit reporting, risk premia can be reduced by more efficient loan foreclosure procedures, including in the space of small claims, summary procedures for uncontested debt, and other resolution procedures that reduce the costs of debt collection. Reforms around movable collateral can also reduce interest rate charges, especially for SMEs. Allowing firms and individuals to leverage movable property as a security against debt, and simultaneously promoting a registry to make public those claims can provide lenders more confidence in lending, and borrowers more incentives to repay.

Increasing competition in the financial sector can further reduce the costs of borrowing. While the Kenyan economy already comprises 43 commercial banks, one avenue to increase competition is to allow SACCOs to compete on a level playing field. Despite their popularity and substantial market penetration, SACCOs current cannot access formal payment systems which greatly limits the services they can offer clients. If SACCOs could access the payment system, they could attract a substantially higher level of deposits and increase the competition vis-à-vis banks, leading to a more competitive financial sector overall.

Finally, the promotion of financial consumer protection can arm borrowers with the knowledge to make more informed credit choices, including demanding lower fees and interest charges if they can demonstrate a strong credit history. It can also support their ability to differentiate among competing loan offerings, and identifying exploitative loan conditions more easily. Debt counseling and redressal mechanisms can further help borrowers escape over-indebtedness and make informed choices about managing their finances.

Ultimately, these microeconomic reforms can be ably complemented with a holistic macroeconomic policy, including effective fiscal and debt management, as well as a developed capital market.

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Figure 1: Aggregate Loan Portfolio Trends



(a) Disaggregated Portfolios

(b) Normal vs Abnormal Portfolios



Figure 2: Sector Level Loan Portfolio Trends



(a) Agriculture



(b) Building and Construction

(c) Energy and Water







(e) Manufacturing



(f) Mining and Quarrying



(g) Personal/Household







(i) Tourism, Restaurant, and Hotel

(j) Trade



(k) Transport and Communication



Figure 3: Average Lending Portfolio



Figure 4: Average Lending Portfolio by Bank Tiers



(a) Tier 1 Banks

(b) Tier 2 Banks



(c) Tier 3 Banks



Figure 5: Loan Maturity by Bank Tiers



(a) Tier 1 Banks

(b) Tier 2 Banks



(c) Tier 3 Banks



Figure 6: Deposit Portfolio by Bank Tiers



(a) Tier 1 Banks

(b) Tier 2 Banks



(c) Tier 3 Banks



	Table 1: Summar	ry Statistics	
	(1)	(2)	(3)
(Ksh. Billions)	Pre-February 2016	February 2016 - - October 2016	Post-October 2016
Aggregate Value of Loans:			
Normal Portfolio	167.65	165.39	163.88
	(146.04)	(148.11)	(151.18)
Abnormal Portfolio	25.67	42.45	49.62
	(18.79)	(30.62)	(37.39)
Watch Portfolio	14.71	21.14	25.61
	(10.59)	(15.11)	(19.74)
Doubtful Portfolio	5.63	10.30	12.64
	(4.84)	(10.05)	(11.97)
Substandard Portfolio	3.52	5.42	5.66
	(3.30)	(4.45)	(4.54)
Loss Portfolio	1.98	5.59	5.70
	(3.06)	(5.68)	(5.97)

Table 2: Aggre	gate Lending	
	(1)	(2)
	Log Normal	Log Abnormal
	Portfolio	Portfolio
Post Feb 2016	-0.031***	0.526***
	(0.011)	(0.037)
Post Oct 2016	-0.027***	0.078**
	(0.009)	(0.034)
R-squared	0.994	0.943
Ν	341	341
Pre Feb 2016 Dependent Variable Mean	4.674	2.848
Pre Feb 2016 Dependent Variable SD	1.049	1.001
(Post Feb + Post Oct) F-test p-value	0.000	0.000

		Table 3: Loa	n Portfolio Co	mposition					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
								Other	
	Corporate	Consumer		Project &		Cooperatives	Micro &	Unsecured	
	Loans	Loans	Asset Loans	Dev Loans	SME Loans	Loans	Mobile Loans	Loans	
Post Feb 2016	0.003	-0.011***	0.001	0.006***	0.002	0.000	0.001***	0.000	
	(0.003)	(0.002)	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.001)	
Post Oct 2016	0.015***	-0.014***	-0.007***	0.006***	-0.007***	-0.001***	-0.002**	0.005**	28
	(0.004)	(0.003)	(0.001)	(0.001)	(0.002)	(0.000)	(0.001)	(0.002)	
R-squared	0.978	0.948	0.954	0.956	0.980	0.961	0.979	0.856	
Ν	796	796	796	796	796	796	796	796	
Pre Feb 2016 Dependent Variable Mean	0.485	0.208	0.065	0.026	0.180	0.005	0.013	0.022	
Pre Feb 2016 Dependent Variable SD	0.263	0.167	0.066	0.052	0.179	0.020	0.044	0.057	
(Post Feb + Post Oct) F-test p-value	0.000	0.000	0.000	0.000	0.063	0.003	0.690	0.032	
Statistically significant pvalues are highlighted by: *	(p<0.10), ** (p<	05), and *** (p	<.01)						

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THE BANKING (AMENDMENT) ACT

No. 25 of 2016

Date of Assent: 24th August, 2016

Date of Commencement: 14th September, 2016

AN ACT of Parliament to amend the Banking Act

ENACTED by the Parliament of Kenya, as follows-

1. This Act may be cited as the Banking (Amendment) Short title Act, 2016.

2. The Banking Act in this Act referred to as "the Principal Act" is amended by inserting the following new section immediately after section 31.

Disclosure of information on loans. **31A.** A bank or financial institution shall, before granting a loan to a borrower disclose all the charges and terms relating to the loan.

3. The Principal Act is amended by inserting the following new section immediately after section 33A.

Powers of Central Bank to enforce interest ceilings.

33B (1) A bank or a financial institution shall set—

- (a) the maximum interest rate chargeable for a credit facility in Kenya at no more than four per cent, the base rate set and published by the Central Bank of Kenya; and
- (b) the minimum interest rate granted on a deposit held in interest earning in Kenya to at least seventy per cent, the base rate set and published by the Central Bank of Kenya.

(2) A person shall not enter into an agreement or arrangement to borrow or lend directly or indirectly at an interest rate in excess of that prescribed by law.

No. 25

508 Banking (Amendment)

(3) A bank or financial institution which contravenes the provisions of subsection (2) commits an offence and shall, on conviction, be liable to a fine of not less than one million shillings, or in default, the Chief Executive Officer of the bank or financial institution shall be liable to imprisonment for a term not less than one year. 2016

Amendment of section 33A of Cap. 488.

Appendix B: List of Qualitative Interviews

Туре	Description	No. of Institutions	Institutions
Regulators	Key financial sector regulators in Kenya	4	Central Bank of Kenya, National Treasury, Capital Markets Authority, Sacco Societies Regulatory Authority
Umbrella Associations	Private sector apex institutions	4	Kenya Bankers Association, Kenya National Chamber of Commerce and Industry, Kenya Private Sector Alliance, Association for Microfinance Institutions
Banks - Tier 1	Market share > 5%	5	Equity Group, Kenya Commercial Bank, Co- operative Bank, Commercial Bank of Africa, Barclays Bank Kenya
Banks - Tier 2	Market share > 1% and < 5%	3	NIC Bank, I&M Bank, Housing Finance Group
Banks - Tier 3	Market share < 1%	4	Gulf Africa Bank, Oriental Commercial Bank, Jamii Bora, Consolidated Bank
Microfinance	Deposit-taking microfinance institutions that are regulated by the CBK	2	Rafiki Microfinance Bank, Kenya Women Microfinance Bank (KWFT)
SACCOs	Savings and Credit Co- operatives that are regulated by SASRA	3	Mwalimu Sacco, Safaricom Sacco, UNAITAS
Private Sector	Largest mobile operator that operates M-pesa (largest mobile money platform) and M-shwari (mobile lending platform)	1	Safaricom
Development Partners	Key partner in Kenya, also asked by the CBK to conduct an independent analysis on the impact of interest rate caps	1	FSD Kenya
TOTAL		27	

Description	No. of Institutions	Institutions
Tier 1 Banks	б	Barclays Bank of Kenya, Commercial Bank of Kenya, Co-operative Bank, Equity Bank, Kenya Commercial Bank, Standard Chartered
Tier 2 Banks	13	Bank of Baroda, Bank of India, Citibank, Diamond Trust Kenya, Eco Bank, Family Bank, Guaranty Trust Bank, HFC, I & M Bank, National Bank, NIC Bank, Prime Bank, Stanbic Bank
Tier 3 Banks	13	ABC Bank, Credit Bank, Development Bank of Kenya, Guardian Bank, Gulf African Bank, Habib AG Zurich, Habib Bank Limited, Middle East Bank, Sidian Bank, Spire Bank, Transnational Bank, UBA Bank Limited, Victoria Commercial Bank
	32	

Appendix C: List of Commercial Banks Included in the Panel Dataset

Note: The tiers were held constant throughout the empirical analysis.

Appendix D: Sector-by-Sector Loan Regressions

Agriculture	e Lending	
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	0.019	0.231***
	(0.027)	(0.040)
Post Oct 2016	-0.053*** (0.016)	0.033 (0.040)
R-squared	0.140	0.613
N	31	31
Pre Feb 2016 Dependent Variable Mean	4.195	2.992
Pre Feb 2016 Dependent Variable SD	0.081	0.109
(Post Feb + Post Oct) F-test p-value	0.218	0.000

Statistically significant pvalues are highlighted by: * (p<0.10), ** (p<.05), and *** (p<.01)

Building and Const	ruction Lending	
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	-0.128***	0.462***
	(0.041)	(0.068)
Post Oct 2016	-0.029	0.121*
R-squared	0.419	0.826
Ν	31	31
Pre Feb 2016 Dependent Variable Mean	4.197	3.192
Pre Feb 2016 Dependent Variable SD	0.076	0.109
(Post Feb + Post Oct) F-test p-value	0.000	0.000

Energy and Wa	ater Lending	
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	-0.033	1.054***
	(0.020)	(0.145)
Post Oct 2016	0.049***	0.181**
	(0.011)	(0.088)
R-squared	0.187	0.826
Ν	31	31
Pre Feb 2016 Dependent Variable Mean	4.526	1.402
Pre Feb 2016 Dependent Variable SD	0.063	0.392
(Post Feb + Post Oct) F-test p-value	0.447	0.000

 Financial Serv	ices Lending	
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	0.057**	0.622***
	(0.022)	(0.174)
Post Oct 2016	-0.048** (0.023)	0.153 (0.187)
R-squared	0.161	0.587
N	31	31
Pre Feb 2016 Dependent Variable Mean	4.303	1.656
Pre Feb 2016 Dependent Variable SD	0.056	0.122
(Post Feb + Post Oct) F-test p-value	0.739	0.000

Manufacturin	ng Lending	
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	-0.064***	0.629***
	(0.017)	(0.078)
Post Oct 2016	-0.038***	0.218***
	(0.011)	(0.057)
R-squared	0.670	0.884
Ν	31	31
Pre Feb 2016 Dependent Variable Mean	5.417	3.515
Pre Feb 2016 Dependent Variable SD	0.045	0.186
(Post Feb + Post Oct) F-test p-value	0.000	0.000

Mining and Quar	rrying Lending	
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	-0.170***	-0.072
	(0.049)	(0.059)
Post Oct 2016	-0.152***	-0.358***
	(0.049)	(0.052)
R-squared	0.646	0.772
Ν	31	31
Pre Feb 2016 Dependent Variable Mean	2.410	1.473
Pre Feb 2016 Dependent Variable SD	0.105	0.124
(Post Feb + Post Oct) F-test p-value	0.000	0.000

Personal and Hou	sehold Lending	
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	0.025**	0.275***
	(0.012)	(0.051)
Post Oct 2016	0.053***	0.095
	(0.004)	(0.058)
R-squared	0.709	0.731
Ν	31	31
Pre Feb 2016 Dependent Variable Mean	6.199	3.887
Pre Feb 2016 Dependent Variable SD	0.036	0.059
(Post Feb + Post Oct) F-test p-value	0.000	0.000

Real Estate Lending			
	(1)	(2)	
	Log Normal Portfolio	Log Abnormal Portfolio	
Post Feb 2016	0.006	0.476***	
	(0.022)	(0.087)	
Post Oct 2016	0.002	0.217**	
	(0.019)	(0.083)	
R-squared	0.005	0.816	
Ν	31	31	
Pre Feb 2016 Dependent Variable Mean	5.607	3.772	
Pre Feb 2016 Dependent Variable SD	0.065	0.132	
(Post Feb + Post Oct) F-test p-value	0.749	0.000	

	(1)	(2)	
	Log Normal Portfolio	Log Abnormal Portfolio	
Post Feb 2016	0.060	0.957***	
	(0.054)	(0.117)	
Post Oct 2016	-0.013	-0.079	
	(0.020)	(0.121)	
R-squared	0.058	0.715	
Ν	31	31	
Pre Feb 2016 Dependent Variable Mean	3.714	1.933	
Pre Feb 2016 Dependent Variable SD	0.171	0.294	
(Post Feb + Post Oct) F-test p-value	0.386	0.000	

Tourism, Restaurants, and Hotel Lending

Statistically significant pvalues are highlighted by: * (p<0.10), ** (p<.05), and *** (p<.01)

Trade Lending			
	(1)	(2)	
	Log Normal Portfolio	Log Abnormal Portfolio	
Post Feb 2016	-0.011	0.550***	
	(0.024)	(0.054)	
Post Oct 2016	-0.086***	0.210***	
	(0.013)	(0.055)	
R-squared	0.443	0.927	
Ν	31	31	
Pre Feb 2016 Dependent Variable Mean	5.871	4.040	
Pre Feb 2016 Dependent Variable SD	0.077	0.077	
(Post Feb + Post Oct) F-test p-value	0.001	0.000	

Transport and Communication Dending		
	(1)	(2)
	Log Normal Portfolio	Log Abnormal Portfolio
Post Feb 2016	-0.102***	0.598***
	(0.023)	(0.088)
Post Oct 2016	-0.016	0.199***
	(0.019)	(0.034)
R-squared	0.535	0.818
Ν	31	31
Pre Feb 2016 Dependent Variable Mean	4.975	3.462
Pre Feb 2016 Dependent Variable SD	0.063	0.249
(Post Feb + Post Oct) F-test p-value	0.000	0.000

Transport and Communication Lending