



Digital Credit Regulation in Selected Countries in Africa and Asia

Pierre Biscaye, Kirby Callaway, Melissa Greenaway, Daniel Lunchick-Seymour, Max McDonald

EPAR Technical Report #351b

Travis Reynolds, Marieka Klawitter, & C. Leigh Anderson

Professor C. Leigh Anderson, Principal Investigator
Professor Travis Reynolds, co-Principal Investigator

April 11, 2017

Executive Summary

Digital credit products refer to loans that are “instant” (take no more than 72 hours for loan approval and disbursement), “automated” (using alternative¹ credit data and algorithms to score potential borrowers), and “remote” (accessible with minimal physical human interaction). Developed as a result of increasingly widespread access to mobile services in developing countries and increasing availability of alternative data for credit scoring, digital credit products may offer loans to customers who have historically lacked access to the formal financial system, including those lacking formal financial documentation, a formal bank account, or physical proximity to financial services.

Like other digital financial services (DFS), such as mobile money, digital credit exists in an overlapping regulatory environment (Arner et al., 2015; Blechman, 2016). For instance, digital credit products that use a mobile money platform to approve and disburse loans may fall under the regulatory authority of a financial regulator, a telecommunications regulator, and a competition authority all within one country. This report does not provide a comprehensive review of all existing regulatory structures that may affect digital credit, such as existing general country finance or competition regulations which apply to all financial products. Instead, we focus on how specific regulatory challenges—arising from digital credit characteristics reputedly not clearly covered by existing regulations—are addressed by new regulations in selected African and Asian countries and jurisdictions². For example, several studies note gaps and limitations in regulations relating to digital credit ranging from inadequate data privacy procedures and insufficient disclosure of product terms to governance requirements (AFI, 2015; Arner et al., 2015; Blechman, 2016; Karlan, Kendall, Pande, Suri, & Zinman, 2016; Malady, 2016).

We conducted a targeted review of peer-reviewed and grey literature to identify specific regulatory concerns arising from the growth of digital credit products. We identified five regulatory issues related to digital credit that concern market conduct (data management and privacy, product disclosure, customer redress, consumer over-indebtedness, and rates and pricing) and five issues that concern systemic risk (licensing and reporting requirements, lending prohibition, regulatory sandboxes, capital requirements, and governance requirements).

Acknowledging that broader finance, telecommunications, and competition regulations may cover digital credit regulatory concerns, we searched for examples of new regulatory documents addressing gaps in regulations related to digital credit in Asian and African countries and jurisdictions (Table I). Because digital credit

¹ Refers to data that are not from credit bureaus or involve traditional financial history, but instead may include mobile phone, mobile money, utility payments, or social media data. Digital credit providers access alternative data to inform credit decisions either due to unique product algorithms or because traditional financial data may be absent (Hwang, 2016).

² We identified separate regulatory documents for China and Hong Kong, therefore we are referring to Hong Kong separately from China when we use the term “jurisdictions.”

products are relatively new, many regulatory agencies have not yet adopted the term “digital credit” but instead reference digital, online, and mobile products that provide credit, lending, or loan services in regulations. We review regulatory documents that were recently enacted or planned and that contain specific language that may target digital credit products, or that were discussed in the literature and by DFS working groups as being relevant to digital credit regulation.³

Table 1. Number of Regulatory Documents Identified by Digital Credit Regulatory Issue, Selected Countries and Jurisdictions in Africa and Asia

	Regulatory Issue	Brief Description of Regulatory Approach	Number of Regulatory Documents Identified	Countries/Jurisdictions with Regulations
Market Conduct	Data Management and Privacy	Data privacy, Data management requirements, Confidentiality	10	Bangladesh; China; Ghana; India; Indonesia; Pakistan; Zambia
	Product Disclosure	Transparency of fees, charges, terms, etc.	6	China; India; Kenya; Tanzania; Zambia
	Customer Redress	Redress procedure, Internet/telephone complaint center	4	China; India; Ghana; Pakistan
	Consumer Over-indebtedness	Lending amount limits	2	China; Indonesia
	Rates and Pricing	Rate caps, Length of loan terms, Competitive pricing	1	Kenya
Systemic Risk	Licensing and Reporting Requirements	License requirements, Business continuity plan, Reporting requirement	7	Bangladesh; China; Ghana; India; Indonesia; Pakistan; Zambia
	Lending Prohibition	Prohibits lending from certain types of institutions	6	Democratic Republic of Congo; Ghana; Lesotho; Malaysia; Sri Lanka; Zambia
	Regulatory Sandboxes	Allow organizations to experiment with new financial technology models with minimum supervision within defined time and space limits	5	Hong Kong; Indonesia; Malaysia; Singapore; Thailand
	Capital Requirements	Equity in relation to debt, Ratio of capital to risk-weighted assets	5	India; Indonesia; Ghana; Pakistan; Zambia
	Governance Requirements	Managing financial risk, Managing maturities of loans and investments, Organizational governance standards	2	India; Indonesia

We found no regulatory documents from Africa or Asia that specifically mention the digital credit market, but identified 20 regulatory documents from multiple African and Asian countries and jurisdictions that specifically target different aspects of the online and mobile credit and lending industries⁴ and that include regulations addressing the digital credit regulatory challenges highlighted in the literature. Existing regulations that do not specifically mention online/digital credit/lending may also be applied to address these digital credit regulatory issues, so a low number of regulatory documents does not mean a particular issue is not covered in country regulations—only that few new regulatory documents have emerged to address these potential challenges. Appendix A presents details for each of the 20 regulatory documents identified in the review, including the year in which they were passed or proposed, the country or jurisdiction, and which digital credit regulatory

³ Regulations that do not explicitly mention digital, online, or mobile credit products excluded from this review, unless we found literature specifically mentioning that a regulation may apply to digital credit.

⁴ Because we did not identify any regulations that use the specific term “digital credit,” Appendix C presents language from either the regulation or supporting grey literature supporting the inclusion of the regulation in this review.

issues they address. Appendix B summarizes relevant digital credit regulations for the five focus countries from EPAR’s 2017 Digital Credit Product Review: India, Kenya, Nigeria, Tanzania, and Uganda.

Twelve of the regulatory documents we identified include regulations related to the theme of market conduct, and 8 of these 12 address more than one issue related to provider market conduct. Ten documents address data management and privacy, making it the most commonly addressed issue across all market conduct regulations. The use of alternative data, or non-traditional data sources like mobile money and social media to score applicants for digital credit is increasingly common, but has also raised concerns around consumer privacy (AFI, 2015; Blechman, 2016; Jentzsch, 2016). While we identified seven countries with regulations targeting data management/privacy that may relate to digital credit, recent efforts to regulate data management within the Fintech (financial technology) sector are widely viewed as disjointed (ITU, 2016). Further, the regulatory documents we identified do not address the design of a company’s algorithm and what data they use to make credit decisions, but rather focus on shielding a customer’s information from inappropriate data-sharing to prevent irresponsible use of private data.

Product disclosure and transparency—identified by AFI (2015) as the most important market conduct issue—was addressed in six regulatory documents, targeting digital credit providers’ sharing of product terms, conditions, fees, and/or mechanisms with customers. Six documents discussed consumer over-indebtedness and consumer redress, and one included regulations on loan rates and pricing. Digital credit products are sometimes characterized by high interest rates relative to other credit options (Hwang & Tellez, 2016). Controlling high digital credit rates is a concern for regulators, but some authors argue that regulations that cap interest rates risk stifling innovation in emerging markets (Helms & Reille, 2004; Mbengue, 2013; van de Walle, 2016).

Regulations that address systemic risk aim to protect a lending environment from collapsing (Arner et al., 2015). We identified 13 regulatory documents that address five systemic risk issues potentially relevant to digital credit. Seven documents include regulations outlining efforts by regulators to monitor digital market activity through defining licensing procedures and outlining the information firms must provide to regulatory agencies on an ongoing basis, beyond more general laws and regulations on financial licensing and reporting requirements such as those mandated in the international Basel Accords. We found no regulations requiring digital credit providers to report positive or negative credit history to credit bureaus. Some countries (Kenya) have permitted non-bank credit providers to submit credit information to credit bureaus, other countries (Tanzania) only mention banks when discussing credit reporting requirements (AFI, 2015; Blechman, 2016). The other most common issue within the theme of systemic risk was lending prohibitions (six documents), though the regulatory language is unclear in terms of how e-money lending prohibitions affect the viability of digital credit products in those countries.

Five countries or jurisdictions (Hong Kong, Indonesia, Malaysia, Singapore, and Thailand) have established flexible “regulatory sandboxes”—frameworks put into place by regulatory agencies that allow Fintech companies to experiment with new products for a limited period of more relaxed regulations. The objective of these regulatory sandboxes is to transform financial markets by encouraging innovative technology development within a moderately controlled environment. The regulating agency approves and monitors all participating companies and also designates the approved timeframe for each product in the sandbox in an effort to ensure both the economy and consumers are protected from large or long-term negative effects. Because the regulatory sandboxes are relatively new, these countries are still in the early phase of accepting applications, and information on how markets and regulatory environments are affected is not yet available.

Five regulatory documents discuss capital requirements that may specifically relate to digital credit. Capital requirements are intended to ensure the financial system is robust, resilient to shocks, and less vulnerable to financial instability, but some authors note that if capital requirements are too high, leaving little money for lending, they may restrict market entry and stifle innovation (Council on Foreign Relations, 2009; Harris, Opp, & Opp, 2014). Two of these documents also include governance requirements which are meant to reinforce

responsible decision-making and investments in the financial industry, whether digital or non-digital, though some research suggests that the effects are inconclusive or may stifle innovation (Lal & Sachdev, 2015; Burns, 2016).

Given the limited number of regulatory documents specifically mentioning digital or online credit or loans, we also briefly summarized how high-level regulatory documents used in a principles-based approach to regulation in some countries may cover regulatory gaps created by the digital credit industry. These documents represent overarching guidelines for consumer protection or financial practices, which could extend to products not specifically included in current regulations. Many countries have high-level regulations, acts, or guidelines focusing on consumer protection, competition, mobile money or electronic transactions, agent or branchless banking, customer service or dispute resolution, or payment systems and banking. Even still, these documents may not cover all digital credit products, such as products that exclusively use online platforms instead of mobile money channels. It can be unclear if digital credit providers must also comply with regulations for formal banks and other financial institutions (Arner et al., 2015; van de Walle, 2016), and the relevance of existing regulations to digital credit in a given country may require years of litigation to establish.

This review aimed to identify regulations that were created or planned in order to address the unique challenges and opportunities that digital credit products may present, and therefore focused on regulatory documents that specifically mention both online, mobile, or digital products and credit or lending services. While we found documents with regulations covering ten current regulatory issues across two broad themes, countries may implement additional regulations or modify regulations if they determine existing regulations inadequately cover digital credit challenges. For example, more data management and privacy regulations may be needed to address the unique nature of using alternative data as criteria for financial decisions. Existing regulations may be amended to more clearly specify whether different types of digital credit business models and providers are covered by the terms of the regulations. Additionally, as more information is collected on the digital credit market (e.g., the amount of new debt created by digital credit products; the number and types of new consumer groups that access digital credit products), regulations may be developed to address issues that have yet to be identified.

For digital credit regulators, the speed of growth in the industry is a major challenge (Arner et al., 2015), though the extent to which digital credit is creating new loans or substituting for existing loans is not clear (MicroSave, 2017). While multiple countries (Bangladesh, China, Ghana, India, Indonesia, Pakistan, Zambia) are attempting to license non-bank or internet-based financial companies, this is often only accomplished after companies are already operating and putting pressure on the financial system with a large number of products and borrowers. The pace of technological innovation ensures that regulators will have shorter amounts of time than in previous decades to understand and respond to the implications of emerging credit alternatives (*ibid.*).

Introduction

Digital credit products refer to loans that are instant (take no more than 72 hours for loan approval and disbursement), automated (using alternative credit data and algorithms to score potential borrowers), and remote (accessible with minimal physical human interaction) (Chen & Mazer, 2016). Digital credit products offer loans to customers who have historically lacked access to the formal financial system, including those lacking proper financial documentation, a formal bank account, or close physical proximity to financial services (*Ibid.*).

Digital credit products have been lauded by some for creating the opportunity to extend liquid capital to unbanked and other financially excluded groups (AFI, 2015; Cook & McKay, 2015). The Consultative Group to Assist the Poor (CGAP) claims that digital data collected from mobile phone use, social media or mobile money account transactions have the potential to benefit both consumers and providers of digital credit (Chen & Faz, 2015). Scoring consumers' credit-worthiness by examining alternative credit information, such as digital data, is purported to enable lending to consumers who lack access to conventional credit markets (Parada & Bull, 2014; Costa, Deb, & Kubzansky, 2016).

Most digital credit products in Asian and African countries have launched in the last six years. One of the first examples of a digital credit product in Sub-Saharan Africa was M-Shwari, a mobile money-based product from Kenya that launched in 2012 (Cook & McKay, 2015). While digital credit is relatively new, some countries are seeing large volumes of uptake in their markets. For example, M-Shwari noted 1.8 million active accounts and US\$277.2 million of loans dispersed as of December 2014 (*Ibid.*), while M-Pesa reported almost two million registered users within their first three months of beginning operations (Murithi & McCaffrey, 2015). Omidyar Network conducted a survey in Kenya to determine where people apply for loans, and while respondents could select multiple options, 76 percent said they applied to mobile money providers; the only loan option that received a higher response was friends and family (Costa et al., 2016). Tanzania's digital credit market however has reported low uptake by certain customer groups, such as smallholder farmers (The Initiative for Smallholder Finance, 2016). Omidyar Network estimates that the current suite of digital credit products in India could accept as many as 100-160 million new users in the near future (Costa et al., 2016).

Digital credit products are provided in a wide variety of ways, including through mobile money, feature phone platforms, online platforms, and hybrid platforms, and also follow multiple product business models, including general purpose loans, retail loans, and person-to-person (P2P) loans (EPAR, 2017). The rapid spread of digital credit and the unique characteristics of these products have raised concerns among consumers, advocates, and regulators. Digital credit's use of digital data to score potential borrowers raises questions of data privacy and security (AFI, 2015; Chen & Faz, 2015; PwC, 2016). Other characteristics of digital credit—typically including short loan terms and high interest rates—raise issues of consumer protection, including threats to customer credit and the risk of over-indebtedness (AFI, 2015). The rapid rise of digital credit across many countries paired with more slowly evolving regulatory processes can also raise concerns of broader systemic risk and potential instability in a market that in some cases remains largely unregulated (Arner et al., 2015).

This report examines regulations that are planned or currently exist relating to online, mobile, or digital credit and lending products in selected African and Asian countries and how they address regulatory issues related to consumer protection and market structure. Like other digital financial services (DFS) products, such as mobile money, digital credit products exist in an overlapping regulatory environment (Arner et al., 2015; Blechman, 2016). For instance, digital credit products that use a mobile money platform to approve and disburse loans may fall under the regulatory authority of a financial regulator, a telecommunications regulator, and a competition authority all within one country. A 2016 EPAR report reviewed the broader DFS regulatory environment through the lens of consumer protection, and considered both the institutions and regulations in

22 countries. The authors found that DFS regulation is generally administered by a central bank, but telecommunication regulators and competition authorities often also have some authority over DFS. They further identified and reviewed a broad suite of regulations covering consumer protection, competition, fraud, product terms disclosure, security policies, and consumer complaint reporting mechanisms.

Digital credit regulation encompasses policy issues related to the broader DFS regulatory environment, including rules and requirements surrounding the privacy of alternative data, consumer protection, transparency and disclosure, licensing and reporting requirements, and competition in the loan market. A recent report by the International Telecommunications Union (ITU, 2016) identifies two broad themes in the regulatory environment for DFS: regulating market conduct of digital credit providers (including protecting consumers) and regulating providers to avoid systemic risk. The main purposes of market conduct regulations are consumer protection and enhanced competition (AFI, 2015; Chen & Faz, 2015; Costa et al., 2015; Malady, 2016; Karlan et al., 2016), while the main goal of regulating systemic risk is maintaining market stability through licensing and monitoring of providers (Arner et al., 2015; ITU, 2016). We identified five market-conduct-related regulatory issues (data management and privacy, product disclosure, customer redress, consumer over-indebtedness, and rates and pricing) and five systemic-risk related issues (licensing and reporting requirements, lending prohibition, capital requirements, regulatory sandboxes, and governance requirements).

This review does not aim to comprehensively describe the overall DFS regulatory environment or how it may apply to digital credit. Rather, we focus on regulations that address these regulatory topics and include language referencing online, mobile, or digital product channels and the lending or credit industry. Regulations that do not fit in to either of these categories were excluded from this review, unless we found published or grey literature specifically mentioning that a regulation may apply to digital credit products. For example, a wide spectrum of regulations on banking, financial services, and telecommunications may apply to digital credit products (e.g., interoperability or e-money requirements), but these regulations are outside the scope of this review. Additionally, we did not include regulations specifically targeted at microfinance institutions, which may have similar regulations to digital credit, such as rate caps (Helms & Reille, 2004), but which are distinct from digital credit.

We identified 20 regulatory documents from African and Asian countries or jurisdictions⁵ that directly address one or more digital credit regulatory issues and reference online or mobile providers and lending. These regulatory documents have varying scopes, covering mobile financial services, peer-to-peer lending, internet finance, mobile payments, electronic money, data privacy, or financial services more broadly.

The structure of this report is as follows. After a discussion of review methods, we summarize the literature on digital credit regulatory issues under the two broad themes of market conduct and systemic risk. For each issue, we present examples of relevant country and jurisdiction regulations related to these issues. We list all the regulations reviewed by country/jurisdiction in Appendix A. Given the limited scope of this review of regulatory documents, we then briefly describe how a principles-based regulatory approach may cover some of the gaps created by the digital credit industry, and summarize a few examples of these high-level regulatory documents in multiple countries and jurisdictions, to add context on what other regulations may apply to digital credit without specifically mentioning it. We conclude by presenting a summary of trends in digital

⁵ We identified separate regulatory documents for China and Hong Kong, therefore we are referring to Hong Kong separately from China when we use the term “jurisdictions.”

credit-specific regulation, including ongoing concerns for consumer protection, competition, and market stability, and the added pressure placed on regulators by the rapid growth in the digital credit industry.

Methods

We conducted several searches for peer-reviewed and grey literature related to regulation for digital credit products in Asian, African and Latin American countries and jurisdictions. We first conducted a broad search on digital credit regulatory issues in Asia, Africa, and Latin America, then searched for regulatory documents that may affect digital credit products in countries and jurisdictions in these regions. For all searches we screened at least the first 50 results on both Google and Google Scholar, retrieved relevant documents, and recorded the relevant regulations and institutions to guide additional searches.⁶ Because we were unable to find any relevant publications, grey literature, or regulations for digital credit products in Latin American countries, we only include Asian and African countries and jurisdictions in this report.

A series of targeted searches for papers and reports on existing or potential digital credit regulation and regulatory issues in five focus countries (India, Kenya, Nigeria, Tanzania, and Uganda) and three regions (Asia, Africa, and Latin America) yielded 94 relevant documents from the peer-reviewed and grey literature. Grey literature is mostly comprised of institutional reports and business or general news articles related to drafting and/or adoption of new regulation. We reviewed this body of evidence literature to summarize the key regulatory issues relevant to digital credit products, and to identify the trends and gaps in digital credit regulation that we observed. Additionally, because we were unable to find regulatory documents that specifically mention digital credit, we use the literature to discuss how Asian and African country and jurisdiction regulatory documents potentially address issues relevant to digital credit products.

We searched for regulatory documents specific to digital credit in each of the five focus countries and three targeted regions (Asia, Africa, and Latin America). We did not identify any regulatory documents that use the specific term “digital credit,” so we broadened search criteria to include regulations covering online, internet, and mobile products (even if “digital” was not mentioned) that provide lending or loan services (even if “credit” was not mentioned). We only included regulatory documents that specifically mention lending/loan/credit products and services that are provided via online/internet/mobile/digital platforms. For example, we did not include regulatory documents that address mobile money products if they only oversee payment services (e.g., Nigeria’s Regulatory Framework for Mobile Money Services; Uganda’s Mobile Money Guidelines), nor did we include regulatory documents that oversee lending services but do not explicitly mention online, digital, or mobile forms of credit (e.g., India’s Micro Finance Institutions—Development and Regulation—Bill).

The goal of this report is to evaluate whether and how regulations address new regulatory challenges that the literature suggests are created by the growth of digital credit and that may not be addressed by existing regulations, rather than exhaustively describe the regulatory environments that apply to digital credit products. Thus, we do not include all financial and telecommunications regulations that may potentially apply to digital credit. Because digital credit logically falls in the intersection of two major regulatory frameworks (the laws and regulations that apply to ‘credit’ and other financial transactions; and the laws and regulations that govern ‘digital’ transactions), there may be other international and national regulations and guidelines that affect digital credit products. Instead of reviewing all possible regulations, we only review regulations that

⁶ See Appendix D for a summary of the search strings we used and their associated results

both 1) were recently implemented or planned and 2) specifically mention both online/internet/mobile/digital products and lending/loan/credit services.⁷

After identifying relevant regulatory documents, we conducted further targeted searches on the governing bodies to identify any additional approaches to digital credit (including online/mobile lending) regulation. We then searched other government and institution websites for regulations—active or planned—that relate to digital credit or online/mobile lending. The resulting body of evidence includes 20 regulatory documents. In cases where regulatory documents were not available in English (e.g., Indonesia) we relied on associated grey literature to understand how regulations may apply to digital credit. In addition to the complete list of regulations found in Appendix A, we include detailed information on search methods and included regulations in other appendices.⁸

We recorded information from the identified regulatory documents into a coding framework. A complete list of the categories in this coding framework is included in Appendix E. The framework captures general information covering regulatory scope such as the regulatory issue(s) discussed (e.g., licensing, data management and privacy, disclosure, redress, loan terms) and the type of digital credit provider(s) being regulated (e.g., MNO, bank, non-bank financial institution). We also coded for information on regulation impact on various aspects of digital credit (competition, innovation, consumer protection, transparency, and credit availability). Finally, we coded for basic information on the regulatory institution such as monitoring responsibility and market jurisdiction. A separate spreadsheet with the information from the reviewed documents coded according to this framework is available upon request.

Regulatory Issues Related to Digital Credit

According to the International Telecommunications Union (ITU), the regulatory environment for digital financial services (DFS) can be broken down into two broad themes: market conduct and systemic risk (ITU, 2016). While the ITU discusses these themes as they apply to the DFS sector broadly, we also use these themes to organize the main digital credit regulatory issues identified in the literature. Market conduct refers to the potential risks digital credit products may pose to consumers based on individual product services and details (AFI, 2015; Chen & Faz, 2015; Costa et al., 2015; Malady, 2016; Karlan et al., 2016). Systemic risk refers to the broader risks the digital credit sector and providers may pose to a country's financial system (Arner et al., 2015; ITU, 2016).

Through a review of the recent literature we identified ten regulatory issues within these two broad themes: five issues that are related to provider market conduct (data management and privacy, product disclosure, customer redress, consumer over-indebtedness, and rates and pricing) and five issues related to systemic risk aimed at the financial system as a whole (licensing and reporting requirements, lending prohibition regulations, regulatory sandboxes, capital requirements, and governance requirements). For all of these issues, the

⁷ As an exception, we also included regulatory documents mentioned in the literature as relevant to digital credit products, even if those documents did not specifically reference online/mobile/digital products or lending/credit—for instance, a blog post by CGAP mentioned Tanzanian and Ghanaian regulatory documents that could apply to digital credit products, so these were included in this review.

⁸ A summary of relevant regulations in each of the five focus countries is included in Appendix B. In Appendix C, we highlight the relevant language from each regulation that led to its inclusion in this review. Appendix D includes additional detail on literature search methods.

literature suggests particular regulatory challenges associated with digital credit products, though the issues also apply to financial products and services more broadly.

Digital credit logically falls in the intersection of two major regulatory frameworks: (a) the laws and regulations that apply to ‘credit’ and finance more broadly; and (b) the laws and regulations that govern ‘digital’ transactions. We identified 20 recent regulatory documents that specifically address lending/loan/credit products and services that are provided via online/internet/mobile/digital platforms, and that include regulations addressing the ten digital credit regulatory issues identified in the literature. Table 1 presents a summary of each of these regulatory issues and lists countries and jurisdictions where we identified existing or planned regulations that address the particular issues.⁹

Table 1. Regulatory Issues that Affect Digital Credit in Selected Asian and African Countries and Jurisdictions

	Regulatory Issue	Brief Description of Regulatory Approach	Number of Regulations Identified	Countries/Jurisdictions with Regulations Identified
Market Conduct	Data Management and Privacy	Data privacy, Data management requirements, Confidentiality	10	Bangladesh; China; Ghana; India; Indonesia; Pakistan; Zambia
	Product Disclosure	Transparency of fees, charges, terms, etc.	6	China; India; Kenya; Tanzania; Zambia
	Customer Redress	Redress procedure, Internet/telephone complaint center	4	China; India; Ghana; Pakistan
	Consumer Over-indebtedness	Lending amount limits	2	China; Indonesia
	Rates and Pricing	Rate caps, Length of loan terms, Competitive pricing	1	Kenya
Systemic Risk	Licensing and Reporting Requirements	License requirements, Business continuity plan, Reporting requirement	7	Bangladesh; China; Ghana; India; Indonesia; Pakistan; Zambia
	Lending Prohibition	Prohibits lending from certain types of institutions	6	Democratic Republic of Congo; Ghana; Lesotho; Malaysia; Sri Lanka; Zambia
	Regulatory Sandboxes	Allow organizations to experiment with new financial technology models with minimum supervision within defined time and space limits	5	Hong Kong; Indonesia; Malaysia; Singapore; Thailand
	Capital Requirements	Equity in relation to debt, Ratio of capital to risk-weighted assets	5	India; Indonesia; Ghana; Pakistan; Zambia
	Governance Requirements	Managing financial risk, Managing maturities of loans and investments, Organizational governance standards	2	India; Indonesia

Market Conduct

Market conduct regulations include those that direct the competitive conduct of providers in the market and protect the consumer from unfair practices (ITU, 2016). We identified five particular market conduct issues that may relate to digital credit: data management and privacy, product disclosure, customer redress, consumer over-indebtedness, and rates and pricing. While other international and national market conduct regulations and guidelines may exist and potentially affect digital credit, we only include regulations that both

⁹ Appendix A provides a table listing the specific regulations identified in this review that address these regulatory issues, organized by country.

1) were recently created or planned and 2) specifically mention both online/internet/mobile/digital products and lending/loan/credit services.

Table 2. Regulatory Documents Reviewed that Address Digital Credit Market Conduct, By Issue

Regulatory Document	Data Management & Privacy	Product Disclosure	Consumer Redress	Consumer Over-Indebtedness	Rates and Pricing
Regulatory Guidelines for Mobile Financial Services (Bangladesh)	✓				
Guidelines for Information and Communication Technology Security for Banks and Non-Bank Financial Institutions (Bangladesh)	✓				
China Banking Regulatory Commission Regulation on Peer-to-Peer (China)	✓	✓		✓	
Guidelines on the Promotion of the Healthy Development of Internet (China)	✓	✓	✓		
Guidelines for E-Money Issuers (Ghana)	✓		✓		
Data Privacy Act (Ghana)	✓				
Consultation Paper on Peer-to-Peer Lending (India)	✓	✓	✓		
Financial Service Authority Regulation No 77/POJK.01/2016 (Indonesia)	✓			✓	
Banking Amendment Bill (Kenya)		✓			✓
Branchless Banking Regulations (Pakistan)	✓		✓		
Standard Form (Consumer Contracts) Regulation (Tanzania)		✓			
National Payment Systems Directive on Electronic Money Issuance (Zambia)	✓	✓			
Total	10	6	4	2	1

Table 2 summarizes which of the 20 recent regulatory documents related to digital/online lending/credit reviewed cover market conduct issues. Of the market conduct regulation issues identified, data management and privacy is most commonly addressed by the regulations (10 out of 12 regulatory documents). Product disclosure, identified as the most important market conduct issue by the AFI (2015) survey of regulators, was covered by six regulatory documents. Other issues were relatively unrepresented; four mandated or proposed a consumer redress mechanism (China, Ghana, India, Pakistan), two regulatory documents addressed consumer over-indebtedness (China, Indonesia), and one placed limits on rates and pricing (Kenya). Both of the regulatory documents we reviewed from Bangladesh only covered one market conduct issue (data management and privacy) as did one regulation from Ghana (data management and privacy) and one from Tanzania (product disclosure), but the other eight each addressed multiple issues.

Data Management and Privacy

The use of alternative data, or non-traditional data sources like phone, mobile money, and social media, is a key component of digital credit. According to Jentzsch (2016), DFS and Big Data applications provided an estimated 700 million adults with access to financial services between 2011 and 2014, and alternative data could potentially extend credit to between 625 million and 1 billion additional people. The author adds that access to data will become an increasingly critical issue as more products that rely on alternative data for their

credit-scoring algorithms enter or grow in the market. Some view the lack of publicly available data as a barrier to financial inclusion and market development in some countries (Chan & Faz, 2015). In Africa, Mobile Network Operators (MNOs) own some of the largest data pools because of customers using a variety of their services (e.g., phone, internet, payments, and loan). MNOs without incentives to publicly share these data can be expected to keep them private to leverage future services, but this can prevent alternative products from entering the market and accessing consumer alternative data points (AfricInvest, 2016; ITU, 2016). This lack of publicly-available alternative data is exacerbated by the low use of social media—Facebook for example had a penetration rate of only 12% across all of Africa in 2015 (AfricInvest, 2016).

The broad sharing of consumer information, including the financial data generated by digital credit, may pose potential risks to consumer privacy and personal information security (AFI, 2015; Jentzsch, 2016). In addition, some digital credit product algorithms may systematically exclude certain groups, creating equity concerns (Jentzsch, 2016). As such, data privacy is a key consumer protection issue for digital credit regulation (AFI, 2015; Chen & Faz, 2015; PwC, 2016). Defining what “consumer privacy” entails is also an important element of regulation. For example, some companies like Kopa Leo in Kenya or Rupaiya Exchange in India use “public shaming” via social media for borrowers who do not pay on time (Medine, 2015; Ombija & Chege, 2016), making it unclear which consumer data should remain private and which data can be used to serve unique product needs.

We identified seven countries with regulatory documents addressing digital credit data management and privacy issues. However, these documents do not address the design of a company’s algorithm and their use of alternative data for credit decisions, but rather focus on shielding a customer’s information from inappropriate data-sharing to prevent irresponsible use of private data. Some policies require that the mobile financial service or DFS product provide a certain level of transaction security (Bangladesh, Zambia). Others mandate a separate database or annual audit system for digital financial and credit data (Bangladesh, China, Ghana). All of the countries prohibit (or propose to prohibit) companies from sharing customer information with other companies, or require that providers protect consumer data and confidentiality (Bangladesh, China, Ghana, India, Indonesia, Pakistan, Zambia). India’s proposed regulatory framework would require providers in the P2P lending industry to be responsible for data confidentiality. Consumer advocates argue that such restrictions help protect against the misuse of consumer data, particularly since digital credit customers may not fully understand what data they are agreeing to provide when applying for a loan (Chen & Faz, 2015; Loots, Nordin, Mason, Addai, & Ncube, 2016), or how those data will be used. Even if consumers are told how their personal data may be used, CGAP found that users may still be willing to sacrifice confidentiality to access loans (Chen & Faz, 2015; Mazer, Carta, & Kaffenberger, 2014).

Recent efforts to regulate data management within the FinTech sector are viewed as disjointed (Costa et al., 2016). In general, few countries have an established regulatory framework for data privacy (Chen & Faz, 2015; Costa et al., 2016; ITU, 2016). Because data management and privacy regulations are not well-established in most countries, it is not clear how these regulations will fare in addressing the main concerns with digital credit products (Chen & Faz, 2015). As consumers’ access to social media and online retailers increase, companies will have access to more data which will influence forward-looking predictions, products provided, and algorithms for interacting with consumers (EY, 2014). For example in India, after the demonetization announcement in November 2016 the use of digital payment providers increased (the use of Paytm, a digital wallet product, has tripled since November), which may lead to increased online data points that digital credit products can use in their algorithms and an increased uptake of digital credit (Banik & Padalka, 2016; Variyar, 2016). Because the number of consumer online data points is expected to continue increasing, some groups are calling for a regulatory focus on the responsible use of data by service providers, rather than regulations that require initial customer notice of data usage and consent requirements (Loots et al., 2016).

Product Disclosure

Product disclosure and transparency regulations target credit providers' sharing of product terms, conditions, obligations, fees, procedures, and/or mechanisms with customers (AFI, 2015). Concerns related to product disclosure apply to all forms of credit as well as other financial products. EPAR's 2016 review of DFS consumer protection regulations identified 17 countries with regulations that require DFS providers to disclose charges to customers in writing, verbally, or both. Disclosure and transparency regulations fulfill the goal of consumer protection by helping customers understand their rights and obligations with DFS (Malady, 2016). Adequate disclosure of fees and terms can also foster competition on fees, interest rates and other product margins if consumers can easily compare services (ITU, 2016).

Disclosure and transparency regulations aim to improve consumers' knowledge of digital credit products in order to make smart, informed financial decisions, and can empower customers to compare services and choose the most favorable product (AFI, 2015; Blechman, 2016). AFI (2015) lists product disclosure as a main consumer protection issue requiring better regulation, arguing that digital credit providers insufficiently disclose key details of loan products. An example is providers who only disclose product terms and details online, even when the majority of their customers use the product on a feature phone platform. Similarly, advertising for digital credit products can mislead customers; for example, some products use advertising billboards to state the minimum interest rate without providing the whole range (ITU, 2016). Some argue that product disclosure is particularly relevant for digital credit since these products tend to be more sophisticated and complex than payment and transfer mobile money services (Mazer & Rowan, 2016).

We identified six regulatory documents that lay out disclosure and transparency rules for digital credit products. In three countries (China, Kenya, Zambia), digital credit regulations require providers to disclose costs of conducting transactions to consumers. In two countries (China, Zambia), regulations also mandate disclosing explanations of service and transaction models; warnings of the risks associated with product use; and rights, responsibilities, and roles of all parties involved. One country stipulates the information—such as a clearly defined term of effectiveness, the producer's obligations, and the consumer's obligations—that must be included in a contract between providers and consumers (Tanzania). For P2P lending, product disclosure regulation in China requires providers to supply information about borrowers and their financial projects to lenders, as well as posting information on the volume of transactions and bad lending rates on the product website. The Consultation Paper on Peer-to-Peer Lending in India proposes operational transparency, disclosures to both lenders and borrowers, and prohibitions against promising assured or extraordinary returns (RBI, 2016).

Some evidence suggests that regulating disclosure and transparency is more effective than setting rate caps for expanding DFS to reach populations most in need of financial tools, including rural and poor customers (Helms & Reille, 2004; Mbengue, 2013; van de Walle, 2016). A case from Zambia provides an example of how disclosure contributes to competition and lower rates. In 2011 the Bank of Zambia published comparative interest rates in print media, which allegedly fostered greater competition among non-bank financial institutions. Between 2011 and 2012 average interest rates for the non-bank financial institution sector in Zambia fell from 57.7% to 50.9% (Bank of Zambia, 2012). In the case of MFIs, critics of rate cap regulation contend that an increase in transparency in MFI product terms world-wide is associated with lowering rates (Mbengue, 2013).

We found no critiques of—or arguments against—product disclosure regulations. Results from AFI's Consumer Empowerment and Market Conduct survey of financial regulators in 14 countries state that limited disclosure of costs was the most pressing market conduct issue (AFI, 2015). When consumers do not fully understand the fees and risks of DFS products, they may choose an inappropriate product for their anticipated use or budget, or be

more vulnerable to predatory providers (EPAR, 2016). Eighteen of 22 countries included in EPAR’s review of DFS consumer protection have regulations that mandate transparent communication of costs associated with DFS, including 12 mandating that DFS Terms & Conditions include explicit mention of charges (e.g., fees, rates, taxes, penalties). Six countries have regulations mandating regulator reviews of provider Terms & Conditions (EPAR, 2016).

Customer Redress

Customer redress—providing avenues for customers to lodge complaints and hold providers accountable—is another common regulatory issue across all financial products. Customer redress mechanisms are important for providers to support consumers in using and understanding their products, thereby building trust (ITU, 2016; Malady, 2016). Although such mechanisms have been well established for consumers of traditional financial services, the demographics of DFS users are typically different (e.g., lower education levels, low-income levels, less experience with financial products and technology), and having effective recourse channels tailored to these consumer is critical for protecting DFS consumers and establishing trust for such products (AFI, 2015; ITU, 2016; McKee, Kaftenberger, & Zimmerman, 2015).

A 2016 CGAP brief finds that having a poor or non-existent recourse mechanism was one of the five most common and consequential consumer risks faced by users of DFS impeding adoption; the other four consumer risks are network downtime and service unreliability, insufficient ATM liquidity, complex user interfaces, and fraud targeted towards recipients (Baur & Zimmerman, 2016). More specific to digital credit products, AFI (2015) notes the need for information regarding consumer recourse options to be accessible via all channels through which digital credit operates (i.e., internet, mobile app, and feature phone). Additionally, AFI advocates for clear directions for consumers about which institution to contact for redress when digital credit products are released by a partnership between banks and other non-bank institutions (for example, M-Shwari in Kenya—a partnership between Commercial Bank of Africa and Safaricom, a mobile network operator (MNO)). Ten of 22 countries included in EPAR’s review of DFS consumer protection had regulations mandating mechanisms for consumers to report complaints (EPAR, 2016).

Various regulations explicitly address consumer recourse for firms providing DFS products. One policy from China mentions dispute resolution mechanisms for internet finance (explicitly including digital credit) and three that propose establishing redress mechanisms (India, Ghana, Pakistan). China requires any firm licensed to provide internet finance to establish an online dispute resolution mechanism to address consumers’ concerns, though the text of the regulation does not address redress mechanisms across multiple channels (Weihaun, Arner, & Buckley, 2015). The proposed guidelines for P2P lending in India recommend mandating P2P lending platforms develop proper grievance redress mechanisms (RBI, 2016). The regulation in Pakistan requires that providers process complaints within 24 hours, that the provider must track all customer complaints, and that the provider must provide an update to consumers on the status of the complaint resolution process (State Bank of Pakistan, 2011).

We found no literature documenting drawbacks to implementing regulations that provide avenues for customer redress. In digital credit products that operate in multiple industries, however, such as mobile money-based products (finance and telecommunications) it may not always be clear where a customer with a complaint should go for recourse (EPAR, 2016). Cooperation among industries may therefore be needed to properly track and address all complaints (*Ibid.*).

Consumer Over-indebtedness

The potential for consumers to encounter repayment difficulties is common to all credit sources. But relatively low barriers to entry and rapid expansion rates may make it particularly difficult to keep track of borrowing

through digital credit (Mazer, 2016). As a result, consumer borrowing across multiple digital credit products and debt recycling is a concern (Minnaar, 2011; Buckley & Malady, 2014; AFI, 2015). As regulators and financial inclusion advocates have recognized challenges unique to digital lending, steps are being taken to minimize over-indebtedness for digital borrowers (AFI, 2015).

In Kenya, digital credit borrowers with outstanding delinquent loans have been blacklisted by credit regulators (van de Walle, 2016). Recognizing the additional challenges posed by digital credit, some regulators argue it is prudent to continuously monitor not only levels of consumer debt, but also to review the digital credit portfolios of lenders (AFI, 2015).

In another approach, Indonesia and China have set maximum limits on the amount that an individual or business can borrow on P2P lending platforms. In China, this regulation applies to the several thousand P2P companies already in existence, some of whom have been facing financial difficulties (Bo, 2016). In Indonesia, over-indebtedness restrictions are combined with rules attempting to address more systemic market risks (Bank of Indonesia, 2016).

Addressing consumer-indebtedness is meant as a benefit to the consumer (AFI, 2015; Buckley & Malady, 2014). Regulations addressing over-indebtedness, however, can also be seen as restrictive (Meagher, 2005; Tuffin, 2009). Lending limits and restrictions can help protect consumer welfare, but may also stifle some productive activities or exclude riskier borrowers, as critics argued in response to indebtedness limits in South Africa's Consumer Credit Bill (Meagher, 2005).

Rates and Pricing

Digital credit products are characterized by higher interest rates than some other credit options (Chen & Mazer, 2016), and controlling excessively high rates is a concern for regulators (AFI, 2015). While high rates may be due to a variety of factors such as the costs of providing small loans or the risk of lending to previously unbanked populations (Hwang & Tellez, 2016), regulations aim to target pricing, fees, or interest rates that may be so high as to harm consumers (ITU, 2016). An earlier EPAR review of Digital Financial Services (DFS) consumer protection regulations in 22 countries, found nine with regulations aiming to prevent anti-competitive pricing in DFS (EPAR, 2016). Most of these pricing regulations are vague (Brazil, Colombia, Indonesia, Nigeria, Sierra Leone, Tanzania, and Uganda), but two (Bangladesh, Egypt) lay out clearer rules for acceptable charges. Additionally, one regulation (from India) specifically caps fees on mobile money transactions. However, none of the regulations identified in this EPAR (2016) report are specific to digital credit or lending.

Within the more specific context of digital credit, regulations that limit loan rates and fees seek to prevent over-indebtedness and reduce debt stress on the part of consumers (AFI, 2015). We identified one country with current regulations interpreted by some sources as restricting rates in digital credit markets. Kenya's Banking Amendment Bill limits interest rates for banks and financial institutions (Central Bank of Kenya, 2015). This regulation prohibits banks and financial institutions from charging an interest rate that is more than four percentage points above the Central Bank Rate (CBR) on loans. The stated goal of the regulation is to promote transparency and protect consumers within the Kenyan credit markets (Satchu, 2016).

However, it is unclear whether the Kenyan rate cap policy applies to digital credit because the regulation does not mention digital credit or DFS lending specifically, and it is unclear which companies are considered "financial institutions" under the Bill. Under some interpretations, savings cooperatives and microfinance companies are exempt from the law (The Economist, 2016), but Kenya's Equity Bank interprets the law as including digital credit products (Odero, 2016). Perhaps as a result of this ambiguity, enforcement of the policy for digital credit products in Kenya to date appears to have been limited. Kenya has a broad market for digital

credit, with at least 18 Kenyan digital credit products identified in a 2017 EPAR review. But of the products that list annual percentage rate (APR) amounts (9 out of 18), four would have to lower their rates to a maximum of 14 percent (based on the current CBR of 10 percent) if the Kenyan rate cap regulation were found to apply to digital credit products (Table 3).

Table 3. Maximum APRs of Many Kenyan Digital Credit Products Exceed “Excessive Rates” Standards for Financial Institutions

Product Name	APR*
Eazzy Loan	14%
Eazzy Loan Plus	14%
Get Bucks	77%
KCB M-Pesa	14%
M-Pepea	15%
Pesa na Peta	520%
Pesa Pata	30%
PesaZetu	10%
Saida	10%

Source: Adapted from EPAR, 2017.

* In some cases EPAR calculated these APRs based on extrapolating daily/monthly/weekly interest rates, and it is not clear whether these types of interest rates are subject to the Kenya Central Bank rate caps. All Kenya products and calculations are listed in full in Appendix F.

Elsewhere regulations that cap interest rates have been more broadly criticized for stifling innovation and preventing financially-inclusive business models from appearing in emerging markets (Helms & Reille, 2004; Mbengue, 2013; van de Walle, 2016). For example, Mbengue (2013) argues that: “if ceilings are set too low, financial service providers find it difficult to recover costs and are likely to grow more slowly, reduce service delivery in rural areas and other costlier markets, become less transparent about the total cost of loans, and even exit the market entirely.” In the past, interest rate ceilings have been criticized for limiting the growth of microfinance institutions (MFIs) in developing countries (Helms & Reille, 2004; Mbengue, 2013). Though the professed goal of interest rate ceilings is to protect consumers, critics argue there is little evidence that rate caps are effective at reducing consumer risk (Mbengue, 2013).

Systemic Risk

According to USAID, systemic risk in a financial system is defined as “risk that could cause collapse of, or significant damage to, the financial system or a risk which results in adverse public perception, possibly leading to lack of confidence and worst case scenario, a ‘run’ on the system” (USAID, 2010).

We identified five broad approaches to regulating providers to reduce systemic risk: establishing licensing and reporting standards (to address the lack of accountability), prohibiting certain types of internet or mobile lending, establishing regulatory sandboxes (to balance the need to contain systemic risk with the interest in allowing room for innovation to take place), establishing capital requirements (to address liquidity), and establishing governance requirements (addresses organizational governance standards and financial risks). While other international and national systemic risk regulations and guidelines may exist and potentially apply to digital credit, we only include regulations that both 1) were recently created or planned and 2) specifically mention both online/internet/mobile/digital products and lending/loan/credit services.

Table 4. Regulatory Documents Reviewed that Address Digital Credit Systemic Risk, By Issue

Regulatory Document	Licensing and Reporting Requirements	Lending Prohibition	Regulatory Sandboxes	Capital Requirements	Governance Requirements
Regulatory Guidelines for Mobile Financial Services (Bangladesh)	✓				
Guidelines on the Promotion of the Healthy Development of Internet Finance (China)	✓				
Directive #24 Relating to the Issuance of Electronic Money and Electronic Money Institutions (Democratic Republic of Congo)		✓			
Guidelines for E-Money Issuers (Ghana)	✓	✓		✓	
FinTech Supervisory Sandbox (Hong Kong)			✓		
Consultation Paper on Peer-to-Peer Lending (India)	✓			✓	✓
Financial Service Authority Regulation No 77/POJK.01/2016 (Indonesia)	✓		✓	✓	✓
Mobile Money Guidelines (Lesotho)		✓			
Regulatory Sandbox Framework (Malaysia)			✓		
Guideline on Electronic Money (Malaysia)		✓			
Branchless Banking Regulations (Pakistan)	✓			✓	
FinTech Regulatory Sandbox Guidelines (Singapore)			✓		
Guidelines for Mobile Payments (Sri Lanka)		✓			
Regulatory Sandbox Framework (Thailand)			✓		
National Payment Systems Directive on Electronic Money Issuance (Zambia)	✓	✓		✓	
Total	7	6	5	5	2

Table 4 indicates which of the 20 recent regulatory documents related to digital/online lending/credit address issues of systemic risk. Other regulatory documents may address these issues in a broader sense. The most frequently addressed issue is licensing and reporting requirements (Bangladesh, China, India, Indonesia, Ghana, Pakistan, Zambia). We identified six regulations that appear to close off the market for digital credit or prohibit lending using e-money in six countries (Democratic Republic of Congo, Ghana, Lesotho, Malaysia, Sri Lanka, Zambia). Additionally, we found five regulatory documents that establish regulatory sandboxes within their respective jurisdictions (Hong Kong, Indonesia, Malaysia, Singapore, Thailand), though only the regulation from Indonesia included the regulatory sandbox framework while also addressing other issues. Capital requirements are included in five regulatory documents (India, Indonesia, Ghana, Pakistan, Zambia). Finally, we found two regulations that address governance requirements—Indonesia’s Financial Service Authority

Regulation No 77/POJK.01 (Bank of Indonesia, 2016) and India's Consultation Paper on Peer-to-Peer Lending (RBI, 2016), which recommends implementing governance requirements.

Licensing and Reporting Requirements

Clearly defined licensing and reporting requirements are important to increased accountability in DFS (EIU, 2016). Licensing requirements refer to efforts by regulators to monitor market activity through licensing and provider registration procedures. Reporting requirements refer to regulations outlining the information firms must provide to regulatory agencies over time. These requirements are particularly important for digital credit products as it is often not clear how to classify these products and their providers into existing regulatory frameworks. According to AFI (2015), regulatory arbitrage (taking advantage of gaps in regulation) is a prominent by-product of rapidly evolving markets for digital credit products. The authors suggest that, due to the variety of business models and partnerships between banks, MNOs, and other non-bank financial institutions, some digital credit providers may avoid certain prudential requirements through arbitrage. In some cases, regulatory oversight for DFS and digital credit is unclear due to a lack of well-defined supervisory authority. In addition, we find a general problem of accountability in the digital credit sector due to weak reporting requirements.

We found seven examples of regulatory documents requiring or proposing licensing, registration, or approval of digital credit providers by banking authorities (Bangladesh, China, Ghana, India, Indonesia, Pakistan, Zambia). In China, digital credit providers are required to register their websites with the Ministry of Industry and Information Technology. Elsewhere, digital credit providers are required to get a license or approval to conduct business (Bangladesh, Ghana, Indonesia, Pakistan, Zambia). In Bangladesh, DFS providers are required to be sponsored and led by a licensed commercial bank. In addition, the Bangladeshi regulation stipulates that DFS providers must provide the central bank with a list of their agents and any formal partnerships with MNOs or other non-bank institutions (Bangladesh Bank, 2015b). In Pakistan, branchless banking companies must apply through the State Bank to conduct business (State Bank of Pakistan, 2011). In India, proposed regulations would define P2P platforms as Non-Bank Financial Companies under the Reserve Bank of India Act, and stipulate that platforms may only register as intermediaries (RBI, 2016).

Ongoing reporting is a tool increasingly used by financial regulators to minimize systemic risk. A report prepared by the International Finance Corporation (IFC) concerning risk management in DFS highlights ongoing reporting and risk performance monitoring as a key component of proposed risk management frameworks (IFC, 2016). In Zambia, DFS providers are required to provide their commercial bank partners with the total value of electronic money on their product platforms at the end of every business day. In Ghana, e-money issuers are required to send a monthly report to the Bank of Ghana which includes various operational details such as the number of active accounts and agents and total value of e-money balances held in account. While these examples in Ghana and Zambia apply broadly to all e-money products and providers, each country permits e-money providers to provide credit as long as the e-money products partner with a licensed credit or financial institution (Bank of Ghana, 2015; AFI, 2015). In China, it has been noted that the lack of supervision in P2P causes considerable risks to the financial system; regulations issued in 2016 require P2P providers to be supervised daily by CBRC (Borst, 2015).

We found no regulations requiring digital credit providers to report positive or negative credit history to credit bureaus. Some countries (Kenya) have permitted non-bank credit providers to submit credit information to credit bureaus, other countries (Tanzania) only mention banks when discussing credit reporting requirements (AFI, 2015; Blechman, 2016). While Ghana's data privacy act stipulates that credit reporting bureaus must comply with data security requirements, it does not force any sort of relationship between providers and the bureaus (Ghana Data Protection Commission, 2012).

Lending Prohibitions

In contrast to other regulatory arrangements designed to allow or support the growth of the digital credit market, we found one regulation that appears to close the market to digital credit (Sri Lanka). Sri Lanka's Mobile Payment Guidelines specifically prohibit mobile payment service providers from offering any form of credit to account holders (Central Bank of Sri Lanka, 2011). Consequently, the only way for Sri Lankan customers to receive loans is via traditional financial institutions such as banks. Indeed, we were unable to identify any digital credit products—including P2P lending products—in Sri Lanka.

We found five additional regulations that prohibit e-money institutions from granting loans (Democratic Republic of Congo, Ghana, Lesotho, Malaysia, Zambia), though we only found literature that discusses how these prohibitions may affect the digital credit market for Zambia. The Democratic Republic of Congo's Directive #24 states that e-money institutions are not authorized to grant loans based on funds received or held for the purpose of issuing or distributing e-money (Catri, 2014). In January 2017, however, FINCA Microfinance Holding Company announced an agreement with the International Finance Corporation and The MasterCard Foundation to expand digital financial services, specifically credit services, to low-income populations and small businesses in the Democratic Republic of Congo (IFC, 2017). In Zambia, the National Payment Systems Directives on Electronic Money Issuance prohibit e-money providers from offering loans (Republic of Zambia, 2015), however AFI (2015) reports that e-money providers in Zambia can partner with licensed credit institutions to provide loans. Similarly, Guidelines for e-Money Issuers in Ghana states that e-money providers may only provide credit services if they are underwritten by a licensed financial institution (Bank of Ghana, 2015).

Regulatory Sandboxes

We found several examples of a unique regulatory tool, “regulatory sandboxes”, that do not directly regulate digital credit but may facilitate product development. A regulatory sandbox is a well-defined space and time period defined by financial regulatory authorities in which organizations are allowed to experiment with financial technology (FinTech) products, business models, delivery mechanisms, and services with minimal oversight (ADB, 2016). Regulatory sandboxes were first developed in the UK, and other countries (including Australia and the United States) have also implemented or proposed regulatory sandboxes for FinTech companies within their jurisdictions (Yeong, 2016; Witkowski, 2016).

We identified four countries and one jurisdiction that have announced guidelines for their own regulatory sandbox environments in the latter half of 2016 (Hong Kong (Hong Kong Monetary Authority, 2016), Indonesia (HPRP Lawyers, 2016), Malaysia (Baker McKenzie, 2016), Singapore (Monetary Authority of Singapore, 2016), and Thailand (Bank of Thailand, 2016)). All of the regulatory sandboxes identified have similar structures: FinTech companies are required to submit an application to the governing body in order to participate in the sandbox and once the application is reviewed and accepted, the company may participate in test scenarios. Three of the guidelines that we reviewed provide no specifics for these scenarios, such as the number of customers the products may serve and how long these test scenarios will last (Hong Kong, Indonesia, Thailand). One regulation did not provide information on customers but did state that each product's testing period will not extend 12 months unless the governing agency approves an extension (Malaysia). One country limited the number of customers served by each product to 50, and the operation to six months with the option to extend by one additional month (Singapore). In general, the guidelines aim to provide a basis for the regulatory sandbox and then state that regulatory agencies will refine the terms over time as they learn more through applications and test scenarios (Baker McKenzie, 2016).

The objective for establishing these regulatory sandboxes is to transform financial markets by encouraging innovative technology development within a controlled environment, where the regulating agency approves

and monitors all participating companies and also designates the approved timeframe for each product in the sandbox, allowing both the economy and consumers to be protected from large or long-term negative effects (Baker McKenzie, 2016). Because the regulatory sandboxes are relatively new, these countries are still in the early phase of accepting applications, and therefore there is limited information on how these countries' markets and regulatory environments are being affected. Singapore, for example, is not expected to launch the first sandbox products until mid-2017 (Yeong, 2016).

Capital Requirements

Minimum capital requirements attempt to control capital adequacy and lender solvency risks. Capital requirements control the ratio of firm equity to debt or the ratio of capital to risk-weighted assets (ITU, 2016). AFI (2015) argues that creating prudential regulations like capital or reserve requirements will support the introduction of digital credit and will help ensure a sustainable digital financial ecosystem. To the extent that digital credit products are unsecured and represent new loans from formerly unbanked populations (rather than a substitute product for existing loans), this represents additional risk in the financial system.

We identified five examples of minimum capital requirements aimed at controlling systemic risk for online or mobile lending products. These regulations set minimum capital at two points: first at the start of business operations (India, Indonesia, Pakistan, Zambia), and then for the continuing business operations (Ghana, India, Zambia). Regulations that set minimum capital requirements may vary by business model. The regulation from Indonesia and the proposed regulation from India address P2P lending platforms and the Pakistan, Ghanaian, and Zambian regulations focus on issuers of electronic money or branchless banking institutions. To the extent that these institutions are adding new loans to the system, capital requirements will help mitigate the increased risk exposure.

The Asian Development Bank (ADB) notes that a supportive approach to regulation is necessary for mobile money services to achieve scale (ADB, 2016). A critical challenge facing regulators is their need to find the right level of regulation; onerous capital requirements can restrict market entry and stifle financial services innovation, negatively affecting competition (Council on Foreign Relations, 2009; Harris et al., 2014).

Governance Requirements

Governance requirements are also related to the broader stability of the financial system (ITU, 2016). In this review, we consider governance requirements as the regulating authority's requirement that firms submit documentation of their organizational structures, specifically indicating who manages the investments (including years of experience and citizenship) and other factors related to the lending business. For example, board members with prior financial experience might promote financial stability in the system as a whole (Gibson, Lupo-Pasini, & Buckley, 2015). Arner et al. (2015) argue that good corporate governance is a key attribute necessary to build a robust financial system infrastructure. In a recent survey of 201 financial services executives regarding ethics and compliance standards, the Economist Intelligence Unit (EIU), found that 52 percent of respondents reported that having acceptable governance structures was a major concern for digital finance regulation (EIU, 2016).

Governance requirements potentially relate to digital credit because of how undefined the digital credit market is as a whole and especially within current regulatory frameworks, and because of the variety of digital credit business models and partnerships. While governance regulations are seen as prudent in the broader DFS environment (EIU, 2016), we found only two instances of governance requirements in digital credit-related regulations (India, Indonesia), one of which is a proposed regulation not yet enacted. Both regulations mention that at least a portion of the loan provider's board of directors must have experience in the financial industry, but they may be allowed to be foreign citizens (Bank of Indonesia, 2016; RBI, 2016). Under a proposed set of

governance regulations for India, cross-border transactions are prohibited, P2P lenders must have a brick-and-mortar location in India, the product must establish a “living will” stating the arrangement for the continuation of operations in case of product failure, management and operation personnel must be stationed in India, and funds should move directly from lender to borrower accounts (RBI, 2016).

Governance requirements are meant to reinforce responsible decision-making and investments in the financial industry, whether digital or non-digital (Bawaneh, 2011; ITU, 2016), but some research suggests that financial expertise does not necessarily translate into improved company monitoring. Güner, Malmendier, & Tate (2008) find that board members with financial expertise do not necessarily improve company value or profitability in large publicly traded US companies, but that they may improve access to credit for the firm. Specifically, the authors find that directors may pursue the interests of the financial institutions with which they hold affiliations rather than maximizing shareholder value of the firm for which they join the board.

Principles-Based Approaches to Regulation

Though we found no regulatory documents specific to digital credit and only 20 regulatory documents specifically mentioning digital/online/mobile lending/credit, these products could be subject to high-level regulatory documents or principles in the financial, telecommunications, technology, or competition sectors. In some countries regulators have taken a principles-based approach to guide activity (including in Hong Kong, India, Kenya, Nigeria, Saudi Arabia, Uganda, United Kingdom), and published general principles or customer rights for any provider in the financial sector (Black et al., 2007; Ford, 2010). In general, the principles-based approach, compared to more specific or detailed regulatory documents, runs a lower risk of being over- or under-inclusive in its regulation (Black et al., 2007; Ford, 2010). In this section, we briefly summarize some of the broader regulations which may apply to digital credit.

EPAR’s 2016 review (Technical Report #324) of consumer protection regulations in DFS in 22 low- and middle-income countries found that 14 have high-level regulations, acts, or guidelines focusing on consumer protection and competition that are not necessarily specific to DFS or the financial sector but which may apply to financial activities. Other countries include consumer protection regulations in documents regulating mobile money or electronic transactions, agent or branchless banking, customer service or dispute resolution, or payment systems and banking (Table 5). As this review only includes regulatory documents that specifically mention credit and lending products that are provided digitally, online, or through mobile technologies, many of these consumer protection regulations are excluded. Of the 22 countries reviewed in 2016, six countries (Democratic Republic of Congo, Ghana, Lesotho, Malaysia, Pakistan, and Zambia) had regulatory documents that fell within the scope of this review.

Table 5. Types of Regulatory Documents Addressing Consumer Protection Issues in Selected Countries in Latin America, Africa, and South and Southeast Asia

	Mobile Money/ Electronic Transactions	Agent/ Branchless Banking	Consumer Protection/ Competition	Customer Service or Dispute Resolution	Payment System or Banking	Other
Bangladesh	Yes	Yes		Yes		Yes
Brazil		Yes	Yes	Yes	Yes	Yes
Colombia	Yes		Yes			Yes
DRC	Yes					
Ecuador	Yes		Yes			
Egypt	Yes		Yes			
Ghana	Yes	Yes				Yes
India	Yes	Yes	Yes	Yes		Yes
Indonesia	Yes	Yes	Yes		Yes	
Kenya	Yes	Yes	Yes		Yes	Yes
Lesotho	Yes				Yes	
Malaysia	Yes				Yes	Yes
Nepal	Yes	Yes				Yes
Nigeria	Yes	Yes	Yes			
Pakistan		Yes		Yes	Yes	Yes
Peru	Yes		Yes		Yes	Yes
Rwanda	Yes	Yes	Yes			
Sierra Leone	Yes					
South Africa	Yes	Yes	Yes		Yes	
Tanzania	Yes	Yes	Yes		Yes	Yes
Uganda	Yes		Yes			
Zambia	Yes		Yes			
TOTAL	20	12	14	4	9	11

Source: EPAR Technical Report #324, 2016

We searched for additional examples of high-level regulatory documents potentially related to financial services including digital credit and found examples in five countries and one jurisdiction (Hong Kong, India, Kenya, Nigeria, Saudi Arabia, Uganda). Many of the documents focus on consumer protection in general or broadly for the financial sector (India, Kenya, Nigeria, Uganda, Saudi Arabia). For instance, Kenya’s *Consumer Protection Guidelines* (2014) were published by the country’s competition authority and apply to products and services in general, while India’s recent *Charter of Customer Rights for Banking* (2014) explicitly defines customer rights for providers of financial services.

A caveat to these high-level regulations is that some may still only cover one sector, while digital credit products may operate in multiple (and not always overlapping) sectors. Of the six examples we identified, three countries and one jurisdiction had published documents guiding banking practices (Hong Kong, India, Saudi Arabia, Uganda), and two have published broad guidelines for the mobile money industry (Nigeria, Uganda). Kenya’s consumer protection guidelines are not specific to any particular industry. Digital credit products that are completely internet-based may not be covered by overarching mobile money or banking guidelines, unless they are explicitly regulated by that sector (Blechman, 2016).

Conclusion

Digital credit and DFS lending regulations are a specific subset of the broader regulatory environment for financial services. The regulatory sphere for digital credit products is still nascent, though multiple groups are examining the regulatory issues specific to the industry (AFI, 2015; Arner et al., 2015; Chan & Faz, 2015; Jentzsch, 2016). We identified ten key regulatory issues in the literature that apply to digital credit (though all also apply to financial products and services more broadly), and we found 20 specific examples of regulatory

documents from Africa and Asia targeting different aspects of the online and mobile credit and lending industries addressing one or more of these issues. Existing regulations that do not specifically mention online/digital credit/lending may also be applied to address these digital credit regulatory issues, so a low number of regulatory documents does not mean a particular issue is not covered in country regulations—only that few new regulatory documents have emerged to address these potential challenges.

DFS and digital credit products are believed to require an overlapping regulatory framework (for example, coordinated regulations for both the telecommunications and financial sectors or different types of financial institutions) to properly address all consumer and market protection concerns (AFI, 2015; Arner et al., 2015; Malady, 2016). Many countries have high-level regulations, acts, or guidelines focusing on consumer protection, competition, mobile money or electronic transactions, agent or branchless banking, customer service or dispute resolution, or payment systems and banking. These documents represent overarching guidelines for consumer protection or financial practices, which could extend to products not specifically included in current regulations. However, it can be unclear if digital credit providers must also comply with regulations for formal banks and other financial institutions (Arner et al., 2015; van de Walle, 2016), as illustrated by the case of Kenya’s Banking Amendment Bill which includes a rate cap designed to prevent excessive interest rates on loans. As of February 2017, Equity Bank and some other digital credit providers had publicly altered rates of digital credit products to follow the law it remains unclear if it will be interpreted as covering digital credit providers, some of whom do not think they should be classified as “financial institutions” (Odero, 2016). The relevance of existing regulations to digital credit in a given country may require years of litigation to establish.

While we found 20 examples of regulatory documents addressing digital/online/mobile credit/lending, countries may develop additional regulations to address the unique features of digital credit. For example, more data management and privacy regulations that specifically address the unique nature of using alternative data as criteria for credit-worthiness and other financial decisions may be warranted. Existing regulations may be amended to more clearly specify whether different types of digital credit business models and providers are covered by the terms of the regulations. Additionally, as more is learned from regulatory sandboxes and information is collected on the digital credit market (e.g., the amount of new debt that is created by digital credit products; the number and types of new consumer groups that access digital credit products), regulations may be developed to address issues that have yet to be identified.

It is also unclear how digital credit will affect current loan platforms and lenders. Most research and commentary on digital credit has focused on the potential to create new loans for unbanked populations (AFI, 2015; Chen & Faz, 2015; FSD Africa, 2016), but digital credit products could also be a substitute for existing loans in the financial system. Published evidence on this subject is limited. MicroSave has attempted to use FinAccess Survey data to monitor the substitution of digital credit products for other loan products (MicroSave, 2017). The researchers found that in Kenya digital credit has begun to substitute for family, moneylender, and shop loans. Mobile bank account loans¹⁰ represented around 5.9 percent of credit products in 2016, while the use of shopkeeper credit has declined from 24.3 percent in 2009 to 9.9 percent of credit products in 2016 (MicroSave, 2017).

For digital credit regulators, the speed of growth in the industry is a major challenge (Arner et al., 2015). While multiple countries (Bangladesh, China, Ghana, India, Indonesia, Pakistan, Zambia) are attempting to license non-bank or internet-based financial companies, this is often only accomplished after companies are already operating and putting pressure on the financial system with a large number of products and borrowers.

¹⁰ Mobile bank account loans included those on the KCB M-Pesa, MCo-op Cash, and M-Shwari platforms. Other products had either not launched or were not tracked at the time of the survey.

For instance, in Asia the number of digital banking customers is projected to hit 900 million by 2020 (up from 380 million in 2012), and 900 million Asians are expected to have credit scores based at least partially on alternative data by 2017 (Arner et al., 2015). While certain countries and jurisdictions have created regulatory sandboxes (Hong Kong, Indonesia, Malaysia, Singapore, Thailand) to build up their FinTech (and potentially their digital credit) start-ups and regulate growth in the industry, others have imposed regulations after letting companies develop for a period of time (Kenya). Regardless of the approach, however, the pace of technological innovation ensures that regulators will have less time than in previous decades to understand and respond to the implications of emerging credit alternatives (Arner et al., 2015).

References

- Alliance for Financial Inclusion (AFI) (2015). Digitally Delivered Credit: Policy Guidance Note and Results from Regulators Survey. *Alliance for Financial Inclusion*. Retrieved 11 January 2017 from http://www.afi-global.org/sites/default/files/publications/guidelinenote-17_cemc_digitally_delivered.pdf
- AfricInvest (2016). Africa and the Global FinTech Revolution. Retrieved 20 January 2017 from <http://www.afsic.net/files/2016/12/Africa-and-the-Global-FinTech-Revolution.pdf>
- Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The Evolution of FinTech: A New Post-Crisis Paradigm? University of Hong Kong Faculty of Law Research Paper No. 2015/047. Retrieved 11 January 2017 from https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2676553
- Asian Development Bank (ADB) (2016). Financial Inclusion in the Digital Economy. Retrieved 20 January 2017 from <https://www.adb.org/sites/default/files/publication/200001/financial-inclusion-digital-economy.pdf>
- Baker McKenzie (2016). Bank Negara Malaysia Issues FinTech Regulatory Sandbox Paper. Retrieved 12 January 2017 from <http://www.bakermckenzie.com/en/insight/publications/2016/10/bank-negara-malaysia-issues-FinTech/>
- Bangladesh Bank (2015a). Guideline on ICT Security for Banks and Non-Bank Financial Institutions. Retrieved 11 January 2017 from https://www.bb.org.bd/aboutus/regulationguideline/brpd/guideline_v3_ict.pdf
- Bangladesh Bank (2015b). Regulatory Guidelines for Mobile Financial Services (MFS) in Bangladesh. Retrieved 15 January 2017 from https://www.bb.org.bd/aboutus/draftguinotification/guideline/mfs_final_v9.pdf
- Banik, N. & Padalka, M. S. (2016). India's Demonetization: Time for a Digital Economy. *The Diplomat*. Retrieved 21 February 2017 from <http://thediplomat.com/2016/12/indias-demonetization-time-for-a-digital-economy/>
- Bank of Ghana (2015). Guidelines for E-Money Issuers in Ghana. Retrieved 14 February 2017 from <https://www.bog.gov.gh/privatecontent/Banking/E-MONEY%20GUIDELINES-29-06-2015-UPDATED5.pdf>
- Bank of Indonesia (2016). Financial Service Authority Regulation No 77/POJK.01. Retrieved 20 January 2017 from <http://www.ojk.go.id/id/regulasi/otoritas-jasa-keuangan/peraturan-ojk/Pages/POJK-Nomor-77-POJK.01-2016.aspx>
- Bank of Thailand (2016). Consultative Paper on Regulatory Sandbox. Retrieved 15 January 2017 from https://www.bot.or.th/Thai/FinancialInstitutions/Documents/ConsultativePaper_RegulatorySandbox.pdf
- Bank Negara Malaysia (2008). Guideline on Electronic Money. Retrieved 11 February 2017 from http://www.bnm.gov.my/microsite/ps/gl_016_3.pdf
- Bank Negara Malaysia (2016). Financial technology regulatory sandbox framework [Press Release]. Retrieved 15 January 2017 from http://www.bnm.gov.my/index.php?ch=en_press&pg=en_press&ac=4273&lang=en

- Bank of Tanzania (2007). Electronic Payment Schemes Guidelines. Retrieved 17 February 2017 from http://www.bot.go.tz/PaymentSystem/Docs/e_Schemes%20Guidelines%20June%202007.pdf
- Bank of Tanzania (2014). The Banking and Financial Institutions (Disclosures). Retrieved 18 February 2017 from [http://www.bot.go.tz/BankingSupervision/documents/New%20Docs/The%20Banking%20and%20Financia%20Institutions%20\(Disclosures\)%20Regulations,%202014.pdf](http://www.bot.go.tz/BankingSupervision/documents/New%20Docs/The%20Banking%20and%20Financia%20Institutions%20(Disclosures)%20Regulations,%202014.pdf)
- Bank of Uganda (2013). Mobile Banking Guidelines. Retrieved 17 February 2017 from <http://ucc.co.ug/files/downloads/Mobile-Money-Guidelines-2013.pdf>
- Bank of Zambia (2011). The Natural Payment Systems Directives on Electronic Money Issuance. Retrieved 9 January 2017 from http://www.boz.zm/Publishing/58/58_CB%20Circular%20No.%20092015.pdf
- Bank of Zambia (2012). Monetary policy statement: July-December 2012. Retrieved 9 January 2017 from http://www.boz.zm/Publishing/66/66_Monetary%20Policy%20Statement%20Jul-Dec%202012.pdf
- Baur, S. & Zimmerman, J. (2016). 5 Consumer Risks in Digital Social Payments to the Poor. CGAP. Retrieved 9 April 2017 from <http://www.cgap.org/blog/5-consumer-risks-digital-social-payments-poor>
- Bawaneh, S. S. (2011). The effects of corporate governance requirements on Jordan banking sector. *International Journal of Business and Social Science*, 2(9). Retrieved 24 January 2017 from [http://ijbssnet.com/journals/Vol. 2 No. 9 \[Special Issue - May 2011\]/16.pdf](http://ijbssnet.com/journals/Vol. 2 No. 9 [Special Issue - May 2011]/16.pdf)
- Black, J., Hopper, M., & Band, C. (2007). Making a success of principles-based regulation. *Law and financial markets review*, 1(3), 191-206.
- Blechman, J. G. (2016). Mobile credit in Kenya and Tanzania: Emerging regulatory challenges in consumer protection, credit reporting and use of customer transactional data. *The African Journal of information and communication (AJIC)* issue 17, 2016, 61.
- Bo, X. (2016). China focus: China tightens control on P2P lending, Xinhua. Retrieved 15 January 2017 from http://news.xinhuanet.com/english/2016-08/24/c_135630643.htm
- Borst, N. (2015). China Sets the Rules for Internet Finance. *Federal Reserve Bank of San Francisco: Pacific Exchange Blog*. Retrieved 11 January 2017 from <http://www.frbsf.org/banking/asia-program/pacific-exchange-blog/china-sets-the-rules-for-internet-finance/>
- Buckley, R. & Malady, L. (2014). The New Regulatory Frontier: Building Consumer Demand for Digital Financial Services—Part I. 131 *BANKING L.J.* 834.
- Burns, S. (2016). Finance for All: The Success of the Market-Led Approach to Financial Development in the Developing World. Retrieved 24 January 2017 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2879930
- Castri, S. (2014). Enabling Mobile Money Policies in the Democratic Republic of Congo: Leadership, Pragmatism, and Participatory Approach to Creating a Competitive Market. Retrieved 14 February 2017 from <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/04/Enabling-Mobile-Money-Policies-in-the-Democratic-Republic-Of-Congo.pdf>

- Central Bank of Kenya (2012). Prudential Guidelines for Institutions Licensed Under the Banking Act. Retrieved 18 February 2017 from https://www.centralbank.go.ke/images/docs/legislation/prudential_guidelines_2006.pdf
- Central Bank of Kenya (2013). The National Payment System Regulations. Retrieved 18 February 2017 from <https://www.centralbank.go.ke/images/docs/NPS/npsdraftregulations.pdf>
- Central Bank of Kenya (2015). Banking Amendment Bill, 2015. Retrieved 11 January 2017 from <https://www.icpak.com/wp-content/uploads/2016/01/Banking-Amendment-Bill.pdf>
- Central Bank of Nigeria (2015a). Guidelines on Mobile Money Services in Nigeria. Retrieved 17 February 2017 from <https://www.cbn.gov.ng/out/2015/bpsd/guidelines%20on%20mobile%20money%20services%20in%20nigeria.pdf>
- Central Bank of Nigeria (2015b). Regulatory Framework for Mobile Money Services in Nigeria. Retrieved 17 February 2017 from <https://www.cbn.gov.ng/out/2015/bpsd/regulatory%20framework%20for%20mobile%20money%20services%20in%20nigeria.pdf>
- Central Bank of Sri Lanka (2011). Mobile Payments Guidelines No.2 of 2011 for Custodian Account Based Mobile Payment Services. Retrieved 13 January 2017 from http://www.cbsl.gov.lk/pics_n_docs/09_lr/docs/directions/psd/14_mobile_payment_2011_2e.pdf
- Central Bank of Lesotho (2013). Mobile Money Guidelines. Retrieved 12 February 2017 from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwje8K_I_JDSAhVpy1QKHwKVAZoQFggcMAA&url=http%3A%2F%2Fwww.centralbank.org.ls%2FNPS%2F_vti_cnf%2FMobile_Money_Guideline_2013.DOC.doc&usq=AFQjCNFnZYg-dtRoFHPEhM1Rz4PlwfArBQ&sig2=Vz75u9qF12w2k_VsTA2iRg
- Chan, G. & Faz, X. (2015). The Potential of Digital Data: How Far Can It Advance Financial Inclusion? *CGAP*. Retrieved 9 January 2017 from <http://www.cgap.org/sites/default/files/Focus-Note-The-Potential-of-Digital-Data-Jan-2015.pdf>
- Chen, G. & Mazer, R. (2016). Instant, Automated, Remote: The Key Attributes of Digital Credit. *CGAP*. Retrieved 18 December 2016 from <http://www.cgap.org/blog/instant-automated-remote-key-attributes-digital-credit>
- Cook, T. & McKay, C. (2015). How M-Shwari Works: The Story So Far. *CGAP*. Retrieved 01 December 2016 from <https://www.cgap.org/sites/default/files/Forum-How-M-Shwari-Works-Apr-2015.pdf>
- Costa, A., Deb, A. & Kubzansky, M. (2016). Big Data, Small Credit: The Digital Revolution and Its Impact on Emerging Market Consumers. *Omidyar Network*. Retrieved 9 January 2017 from http://www.mitpressjournals.org/doi/pdf/10.1162/inov_a_00240
- Council on Foreign Relations (2009). Reforming Capital Requirements for Financial Institutions. Retrieved 25 January 2017 from http://www.cfr.org/content/publications/attachments/Squam_Lake_Working_Paper2.pdf

- The Economist (2016). Kenya's Interest-Rate Cap: Ceiling Whacks. Retrieved 16 January 2017 from <http://www.economist.com/news/finance-and-economics/21706515-curbing-lending-rates-makes-good-politics-bad-economics-ceiling-whacks>
- The Economist Intelligence Unit (EIU) (2016). Digital Finance: Meeting ethics and compliance challenges in financial services. Retrieved 21 January 2017 from http://www.eiuperspectives.economist.com/sites/default/files/DigitalFinance_0.pdf
- EPAR (2016). DFS Consumer Protection Regulations. *EPAR Technical Report #324*. Evans School of Public Policy & Governance, University of Washington. Retrieved 17 December 2016 from https://evans.uw.edu/sites/default/files/EPAR_UW_324_DFS%20Consumer%20Protection_3.31.16.pdf
- EPAR (2017). Review of Digital Credit Offerings in India, Kenya, Nigeria, Tanzania, and Uganda. *EPAR Technical Report #351a*. Evans School of Public Policy & Governance, University of Washington. Working paper, available upon request.
- EY (2014). Big Data: Changing the Way Businesses Compete and Operate. Retrieved 21 February 2017 from http://www.ey.com/Publication/vwLUAssets/EY_-_Big_data:_changing_the_way_businesses_operate/%24FILE/EY-Insights-on-GRC-Big-data.pdf
- Fair Competition Commission (2014). The Standard Form (Consumer Contracts) Regulations, 2014. Retrieved 25 January 2017 from http://www.competition.or.tz/public_notes/Standard_%20Form_%20CONSUMER%20CONTRACTS_%20Regulations_2014.pdf
- Ford, C. (2010). Principles-based securities regulation in the wake of the global financial crisis. *McGill LJ*, 55, 257.
- Fortune (2016). Here are some of China's new rules on P2P Lending. *Fortune.com*. Retrieved 1 April 2017 from <http://fortune.com/2016/08/24/china-p2p-lending-regulation/>
- FSD Africa (2016). Credit on the Cusp: Strengthening credit markets for upward mobility in Africa. *FSD Africa*. Retrieved 20 January 2017 from http://www.fsdafrica.org/wp-content/uploads/2016/07/Executive-Summary-Credit-on-the-Cusp_3.pdf
- Ghana Data Protection Commission (2012). Data Privacy Act. Retrieved 11 February 2017 from [https://www.dataprotection.org.gh/sites/default/files/Data%20Protection%20Act%20,%202012%20\(Act%20843\).pdf](https://www.dataprotection.org.gh/sites/default/files/Data%20Protection%20Act%20,%202012%20(Act%20843).pdf)
- Gibson, E., Lupo-Pasini, F., & Buckley, R. P. (2015). Regulating Digital Financial Services Agents in Developing Countries to Promoted Financial Inclusion. *Sing. J. Legal Stud.*, 26.
- Güner, A. B., Malmendier, U., & Tate, G. (2008). Financial expertise of directors. *Journal of Financial Economics*, 88(2), 323-354.
- Harris, M., Opp, C. C., & Opp, M. M. (2014). Higher Capital Requirements, Safer Banks? Haas School of Business. Retrieved 25 January 2017 from <http://www.haas.berkeley.edu/groups/finance/Regulator74.pdf>

- Helms, B. & Reille, X. (2004). Interest Rate Ceilings and Microfinance: The Story So Far. *CGAP Occasional Paper Number 9*. Retrieved 16 January 2017 from <https://www.cgap.org/sites/default/files/CGAP-Occasional-Paper-Interest-Rate-Ceilings-and-Microfinance-The-Story-So-Far-Sep-2004.pdf>
- Hong Kong Monetary Authority (2016). FinTech Supervisory Sandbox. Retrieved 12 January 2017 from <http://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2016/20160906e1.pdf>
- HPRP Lawyers (2016). The OJK Has Issued an Indonesia Marketplace Lending (Peer-to-Peer Lending) Regulation (OJK Regulation No. 77/POJK.01/2016 concerning Information Technology Based Loan Services). Retrieved 12 January 2017 from <http://hprplawyers.com/the-ojk-has-issued-an-indonesia-marketplace-lending-peer-to-peer-lending-regulation-ojk-regulation-no-77poj-012016-concerning-information-technology-based-loan-services/>
- Hwang, B. (2016). Four Common Features of Emerging Digital Credit Offerings. *CGAP*. Retrieved 9 April 2017 from <http://www.cgap.org/blog/four-common-features-emerging-digital-credit-offerings>
- Hwang, B. & Tellez, C. (2016). The Proliferation of Digital Credit Deployments. *CGAP*. Retrieved 01 December 2016, from <http://www.cgap.org/publications/proliferation-digital-credit-deployments>
- International Financial Corporation (IFC) (2016). Digital Financial Services: Digital Financial Services and Risk Management. Retrieved 21 January 2017 from <https://www.ifc.org/wps/wcm/connect/06c7896a-47e1-40af-8213-af7f2672e68b/Digital+Financial+Services+and+Risk+Management+Handbook.pdf?MOD=AJPERES>
- International Financial Corporation (IFC) (2017). IFC, The MasterCard Foundation, and FINCA Support Expansion of Financial Inclusion in Democratic Republic of Congo. Retrieved 14 February 2017 from <http://ifcextapps.ifc.org/ifcext/pressroom/ifcpressroom.nsf/0/D1414FB32467BC2A852580AB00361016>
- International Telecommunications Union (ITU) (2016). Digital Financial Services: Regulating for Financial Inclusion. Retrieved 20 January 2017 from https://www.itu.int/en/ITU-D/Conferences/GSR/Documents/GSR2016/Digital_financial_inclusion_GDDFI.pdf
- The Initiative for Smallholder Finance (2016). Financial Inclusion Fit to Size: Customizing Digital Credit for Smallholder Farmers in Tanzania. Brief 14. Retrieved 16 November 2016 from http://dalberg.com/blog/wp-content/uploads/2016/11/financial_inclusion_fit_to_size_isf_briefing_14.pdf
- Jentzsch, N. (2016). Data Protection in the context of digital financial services and Big Data [Discussion Paper]. *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)*. Retrieved 9 January 2017 from http://www2.giz.de/wbf/4tDx9kw63gma/Datenschutz-Diskussionspapier_E_140416_Internet.pdf
- Karlan, D., Kendall, J., Mann, R., Pande, R., Suri, T., & Zinman, J. (2016). Research and Impacts of Digital Financial Services. *National Bureau of Economic Research*. Retrieved 19 January 2017 from http://epod.cid.harvard.edu/files/epod/files/researchandimpacts_digitalfinancialinclusion.pdf
- Lal, R., & Sachdev, I. (2015). *Mobile Money Services-Design and Development for Financial Inclusion* (Vol. 83). Working Paper 15. Retrieved 24 January 2017 from http://www.hbs.edu/faculty/Publication%20Files/15-083_e7db671b-12b2-47e7-9692-31808ee92bf1.pdf

- Loots, C., Nordin, K., Mason, G., Addai, A., & Ncube, N. (2017). Now you see me: how alternative data is unlocking new markets for financial services. *Insight2Impact*. Retrieved 9 January 2017 from http://www.i2ifacility.org/Publications/i2i_Client%20Insight%20Note_Now.pdf
- [Malady, L. \(2016\). Consumer Protection Issues for Digital Financial Services in Emerging Markets. *Banking & Finance Law Review*. Vol. 31 No. 2.](#)
- Mazer, R. (2016). 3 Steps Policy-Makers Can Take Now on Digital Credit. *CGAP*. Retrieved 25 January 2017, from <http://www.cgap.org/blog/3-steps-policy-makers-can-take-now-digital-credit>
- Mazer, R., Carta, J., & Kaffenberger, M. (2014). Informed Consent: How Do We Make It Work for Mobile Credit Scoring? *CGAP*. Retrieved 18 January 2017 from <http://www.cgap.org/sites/default/files/Working-Paper-Informed-Consent-in-Mobile-Credit-Scoring-Aug-2014.pdf>
- Mazer, R. & Rowan, P. (2016). Competition in Mobile Financial Services: Lessons from Kenya and Tanzania. *CGAP*. Retrieved 7 April 2017 from <http://www.cgap.org/sites/default/files/Working-Paper-Competition-in-MFS-Kenya-Tanzania-Jan-2016.pdf>
- McKee, K., Kaffenberger, M., & Zimmerman, J., (2015). Doing Digital Finance Right. *CGAP*. Retrieved 4 April 2017 from <http://www.cgap.org/publications/doing-digital-finance-right>
- Meagher, P. (2005). Microfinance regulation and supervision in South Africa. *Essays on Regulation and Supervision*, (6). Retrieved 20 January 2017 from <http://www.sadhan.net/Adls/DL1/RegSupr/MicrofinanceRegulationSupervisionSA.pdf>
- Mbengue, D. M. (2013). The worrying trend of interest rate caps in Africa. *CGAP*. Retrieved 16 January 2017 from <http://www.cgap.org/blog/worrying-trend-interest-rate-caps-africa>
- Medine, D. (2015). Making the case for privacy for the poor. *CGAP* blog post. Retrieved 20 January 2017 from <http://www.cgap.org/blog/making-case-privacy-poor>
- Minnaar, J. (2011). Over-Indebtedness: Roles and Responsibilities of All Actors. *CGAP*. Retrieved 20 January 2017 from <http://www.cgap.org/blog/over-indebtedness-roles-and-responsibilities-all-actors>
- Monetary Authority of Singapore (2016). FinTech Regulatory Sandbox Guidelines. Retrieved 12 January 2017 from <http://www.mas.gov.sg/~ /media/Smart%20Financial%20Centre/Sandbox/FinTech%20Regulatory%20Sandbox%20Guidelines.pdf>
- Murithi, J. & McCaffrey, M. (2015). Competition in the Kenyan Digital Finance Market: Digital Credit (Part 2 of 3). *Helix Institute of Digital Finance*. Retrieved 7 April 2017 from <http://www.helix-institute.com/blog/competition-kenyan-digital-finance-market-digital-credit-part-2-3>
- Odero, K. (2016). Equity Bank Is Now Offering Cheaper Mobile Loans In Compliance With Kenya's New Interest Rate Law. *iAfrikan*. Retrieved 16 January 2017 from <http://www.iafrikan.com/2016/09/15/equity-bank-is-now-offering-cheaper-mobile-loans-in-compliance-with-kenyas-new-interest-rate-law/>

- Ombija, S., & Chege, P. (2016). Time to Take Data Privacy Concerns Seriously in Digital Lending. CGAP. Retrieved 9 April 2017 from <https://www.cgap.org/blog/time-take-data-privacy-concerns-seriously-digital-lending>
- Parada, M. & Bull, G. (2014). In the Fast Lane: Innovations in Digital Finance. Ifc.org. Retrieved 6 January 2017 from <https://www.ifc.org/wps/wcm/connect/d2898b80440daa039453bc869243d457/In+The+Fast+Lane+-+Innovations+in+Digital+Finance+IFC.pdf?MOD=AJPERES>
- Pew Charitable Trusts (2012). State Payday Loan Regulation And Usage Rates: Small-Dollar Loans Project Report. Retrieved 12 January 2017 from <http://www.pewtrusts.org/en/projects/small-dollar-loans-research-project>
- Price Waterhouse Coopers, India (PwC). (2016). Non-Banking Finance Companies: The changing landscape. PwC. Retrieved 12 January 2017 from <https://www.pwc.in/assets/pdfs/publications/2016/non-banking-finance-companies-the-changing-landscape.pdf>
- Republic of Zambia (2015). The National Payments Systems Directives on Electronic Money Issuance. *Government Gazette*. Retrieved 14 February 2017 from <http://www.boz.zm/payment-systems/201506Directive-NationalPaymentSystemsDirectivesonElectronicMoneyIssuance.pdf>
- Satchu, S. (2016). Interest rate caps in Kenya—Eight reasons for mobile banking and crowdfunding remain optimistic. FSD Africa Blog. Retrieved 12 January 2017 from: <http://www.fsdafrica.org/knowledge-hub/blog/interest-rate-caps-in-kenya-8-reasons-for-mobile-bankers-to-remain-optimistic/>
- State Bank of Pakistan (2011). Branchless Banking Regulations: For Financial Institutions Desirous to Undertake Branchless Banking. *Banking Policy & Regulations Department*. Retrieved 14 February 2017 from <http://www.sbp.org.pk/bprd/2011/C9-Enclosure-2.pdf>
- Standing Committee on Finance (2012). The Micro Finance Institutions (Development and Regulation) Bill. Lok Sabha Secretariat. Retrieved 17 February 2017 from <http://www.prsindia.org/uploads/media/Micro%20Finance%20Institutions/SCR-%20Micro%20finance%20bill.pdf>
- Reserve Bank of India (RBI) (2016). Consultation Paper on Peer to Peer Lending. Retrieved 6 January 2017 from <https://rbidocs.rbi.org.in/rdocs/content/pdfs/CPERR280416.pdf>
- The Republic of Kenya (1998). The Kenya Information and Communications Act. Retrieved 18 February 2017 from https://www.unodc.org/res/cld/document/ken/1930/information-and-communications-act_html/Kenya_Information_and_Communications_Act_2_of_1998.pdf
- The Republic of Kenya (2010). The Competition Act. Retrieved 18 February 2017 from <http://www.kenyalaw.org/lex//actview.xql?actid=No.%2012%20of%202010>
- The Republic of Kenya (2012). The Consumer Protection Act. Retrieved 18 February 2017 from <http://kenyalaw.org/lex/rest//db/kenyalaw/Kenya/Legislation/English/Acts%20and%20Regulations/C/Consumer%20Protection%20Act%20No.%2046%20of%202012/docs/Consumer%20Protection%20Act%20No.%2046%20of%202012.pdf>

- The United Republic of Tanzania (2003). The Fair Competition Act. Retrieved 18 February 2017 from http://unctad.org/sections/ditc_ccpb/docs/ditc_ccpb_ncl_Tanzania_en.pdf
- The United Republic of Tanzania (2010). The Electronic and Postal Communications Act. Retrieved 18 February 2017 from https://www.researchictafrica.net/countries/tanzania/Electronic_and_Postal_Communications_Act_no_3_2010.pdf
- The United Republic of Tanzania (2015). The National Payment Systems Act. Retrieved 18 February 2017 from <http://parliament.go.tz/polis/uploads/bills/acts/1452062539-ActNo-4-2015-Book-1-10.pdf>
- Tuffin, J. (2009). Responsible lending laws: Essential development or overreaction. *Queensland U. Tech. L. & Just. J.*, 9, 280.
- USAID (2010). Mobile Financial Services Risk Matrix. Retrieved 21 January 2017 from <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/06/mobilefinancialservicesriskmatrix100723.pdf>
- Van de Walle, N. (2016). Digital Credit in Africa: are Nano loans safe for consumers? *Center for Financial Inclusion*. Retrieved 20 January 2017 from <https://cfi-blog.org/2016/09/22/digital-credit-in-africa-are-nano-loans-safe-for-consumers/>
- Variyar, M. (2016). Digital Lending Startups Feel the Heat After Demonetisation. *The Economic Times CIO*. Retrieved 17 January 2017 from <http://cio.economictimes.indiatimes.com/news/strategy-and-management/digital-lending-startups-feel-the-heat-after-demonetisation/55827219>
- Weihaun, Z., Arner, D., & Buckley, R. (2015). Regulation of Digital Financial Services in China: Last Mover Advantage? *Tsinghua China Law Review*. Retrieved 17 January 2017 from http://www.tsinghuachinalawreview.org/articles/PDF/TCLR_0801_Zhou.pdf
- Witkowski, R. (2016). U.S. House Bill Aims to Set Up ‘Sandbox’ for FinTech Innovation. *The Wall Street Journal*. Retrieved 25 January 2017 from <http://www.wsj.com/articles/u-s-house-bill-aims-to-set-up-sandbox-for-FinTech-innovation-1474539893>
- Yeong, W. (2016). MAS FinTech Regulatory Sandbox: A Definitive & Practical Guide to the Regulatory Sandbox. *Asia Law Network*. Retrieved 18 January 2017 from <http://learn.asialawnetwork.com/2016/11/01/a-definitive-and-practical-guide-to-the-regulatory-sandbox-in-singapore/>

Appendix A: Regulations by Country/Jurisdiction

Table A1. Summary of Current Digital Credit Regulations by Country/Jurisdiction

Country/ Jurisdiction	Regulation Name, Year, and Description	Regulatory Categories and Issues Covered
Bangladesh	<p><i>Regulatory Guidelines for Mobile Financial Services (2015)</i></p> <p>The Guidelines were adopted by the Bangladesh Bank to provide a regulatory framework for mobile financial services (MFS). MFS platforms are required to obtain approval to operate through the Bangladesh Bank and are required to be sponsored and led by licensed commercial banks. The Guidelines stipulate that commercial bank-led MFS platforms may have both banks and non-bank entities (such as MNOs) act as equity holders and that these platforms will be subject to majority equity ownership by a bank. The Guidelines stipulate that before MFS platforms are able to become operational, they must provide the Bangladesh Bank with Service Level Agreements between their MNOs and other technology partners, as well as lists with the names of their cash-distributing agents updated monthly.</p>	Systemic Risk: Reporting Requirements
	<p><i>Regulatory Guidelines for Mobile Financial Services (2015)</i></p> <p>The Guidelines outline the processes that mobile financial services (MFS) platforms shall follow to ensure transaction authentication and security. They establish that bank and non-bank MFS platforms must adhere to the Information and Communication Technology (ICT) Act of 2006 and the ICT Security Scheduled Banks and Financial Institutions of 2010 issued by Bangladesh Bank to address MFS issues. Specifically, the Guidelines call for confidentiality (transaction information may not be viewed by unauthorized persons), integrity (transaction information must remain intact and unaltered during transmission), authorization (proper permission is given to person transacting), and non-repudiation (transaction by user cannot be denied by him/her at a later time).</p>	Market Conduct: Data Management and Privacy
	<p><i>Guidelines for Information and Communication Technology (ICT) Security for Banks and Non-Bank Financial Institutions (NBFIs) (2015)</i></p> <p>The Guidelines establish minimum control requirements to which banks and non-bank financial institutions (NBFIs) must adhere. Among the prominent features of the Guidelines, an Information and Communication Technology (ICT) Steering Committee is to be formed of members from various departments within the organization, including members from: ICT, Human Resources, Legal, and other Business units. The Steering Committee is responsible for implementing an ICT Security Policy and Security Management approach. The Guidelines require that banks and NBFIs hire at least one ICT security professional that shall be located in a separate department or unit so as to treat security incidents with impartiality. Further, each individual within the ICT department shall have an approved job description. Other features of the regulation include the development of an annual audit system and security awareness and training. These Guidelines are enforced by Bangladesh Bank (Bangladesh’s Central Bank).</p>	Market Conduct: Data Management and Privacy
China	<p><i>China Banking Regulatory Commission Regulation on Peer-to-Peer Lending (2016)</i></p> <p>The China Banking Regulatory Commission (CBRC) regulation prohibits risky behaviors from P2P lending firms, such as pooling investors’ money for their own projects or guaranteeing returns to lenders. In addition, this regulation caps the maximum amount that individuals and businesses can borrow. The individual limit is 200,000 yuan (29,100 USD) for one platform and 1 million yuan (145,500 USD) across all platforms. The business limit is set at 1 million yuan for one platform and 5 million yuan (727,500 USD) across all platforms.</p>	Market Conduct: Consumer Over- Indebtedness

<p><i>China Banking Regulatory Commission Regulation on Peer-to-Peer Lending (2016)</i></p> <p>The Regulation requires the establishment of an industry-wide data statistics system that will contribute to future industry supervision. The characteristics of data system (procedures, privacy, and security measures) are not specifically noted in the regulation.</p>	<p>Market Conduct: Data Management and Privacy</p>
<p><i>China Banking Regulatory Commission Regulation on Peer-to-Peer Lending (2016)</i></p> <p>The Regulation states that industrial and commercial net lending institutions (P2P lending and crowdfunding businesses), in accordance with the 2015 Internet Finance Guidelines, shall disclose information about borrowers and financial projects to lenders. Additionally, P2P lending websites are required to post information on the volume of transactions and bad lending rates.</p>	<p>Market Conduct: Product Disclosure</p>
<p><i>China Banking Regulatory Commission Regulation on Peer-to-Peer Lending (2016)</i></p> <p>The Regulation states that a borrower is allowed to have a loan up to 200,000 yuan on one P2P platform, and up to 1 million yuan across all P2P platforms.</p>	<p>Market Conduct: Consumer Over-indebtedness</p>
<p><i>Guidelines on the Promotion of the Healthy Development of Internet Finance (2015)</i></p> <p>The Guidelines are a coordinated effort between China’s primary regulating authorities—the People’s Bank of China, the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission, and the China Insurance Regulatory Commission — “to encourage innovation and support the steady development of internet finance.” The Guidelines outline the government’s support for developing the market for DFS products as well as providers’ responsibilities to ensure the healthy development of digital finance in mainland China. Specific to lending, the Guidelines firmly establish the CBRC as the supervisory authority for online borrowing and lending. Any business that engages in financial business shall register their website with the Ministry of Industry and Information Technology. The Guidelines state that the Ministry of Public Security will be the institution that pursues internet-related financial crimes.</p>	<p>Systemic Risk: Reporting Requirements</p>
<p><i>Guidelines on the Promotion of the Healthy Development of Internet Finance (2015)</i></p> <p>The Guidelines broadly promote innovation within the digital financial services sector, encouraging cooperation between financial investors and technology firms, and encouraging the development of a national credit information infrastructure. The Guidelines call for the support of large data storage, network, and security maintenance. The Guidelines also encourage practitioners to establish a credit information sharing platform. The Guidelines stipulate that practitioners shall not illegally trade or disclose personal information of clients. The regulating authorities for contraventions of this provision are the People’s Bank of China, the China Banking Regulatory Commission, the China Securities Regulatory Commission, the China Insurance Regulatory Commission, the Ministry of Industry and Information Technology, the Ministry of Public Security, and the National Internet Information Office. The Guidelines state that support shall be given to qualified credit intermediary organizations to carry out internet business credit rating services and to enhance market transparency.</p>	<p>Market Conduct: Data Management and Privacy</p>
<p><i>Guidelines on the Promotion of the Healthy Development of Internet Finance (2015)</i></p> <p>The Guidelines stipulate that internet finance providers (including those who grant loans) shall disclose information about the transaction model, the rights and obligations of participants, and adequate warnings on the risks involved. Practitioners shall</p>	<p>Market Conduct: Product Disclosure</p>

	disclose their transaction models and the underlying risks to investors. On the consumer side, research and development of adequate consumer education of internet finance options is required as well as full disclosure of contract terms.	
	<i>Guideline on the Promotion of the Healthy Development of Internet Finance (2015)</i> The Guidelines stipulate the establishment of an online dispute resolution mechanism for internet finance concerns. The China Bank Regulatory Commission is the supervising authority of internet finance.	Market Conduct: Customer Redress
Democratic Republic of Congo	<i>Directive #24 Relating to the Issuance of Electronic Money and Electronic Money Institutions (2011)</i> Article 19 stipulates that e-money institutions are not authorized to grant loans based on funds received or held for the purpose of issuing or distributing e-money.	Systemic Risk: Lending Prohibition
Ghana	<i>Guidelines for E-Money Issuers in Ghana (2015)</i> Guidelines stipulate that any financial institution regulated under Act 673 that wishes to engage in e-money transactions shall apply to the Bank of Ghana for authorization. Guidelines stipulate that e-money issuers shall issue a monthly report to the Bank and that the report is to include: 1) # of active e-money accounts, 2) volumes and values of all e-money transactions during the period, 3) the number and types of active agent locations in its network, 4) value of e-money balances, 5) value of all float accounts, and 6) # of client complaints received and resolved during the period.	Systemic Risk: Licensing and Reporting Requirements
	<i>Guidelines for E-Money Issuers in Ghana (2015)</i> Guidelines stipulate that at the time of licensing the e-money issuer shall maintain a minimum paid-up capital that is set by the Bank from time to time.	Systemic Risk: Capital Requirements
	<i>Guidelines for E-Money Issuers in Ghana (2015)</i> Guidelines stipulate that all e-money issuers shall ensure that they have systems in place that provide adequate data protection and data integrity. E-money institutions shall provide clear, sufficient, and timely information on the benefits, risk, and terms of any product or service offered in an objective and accessible form.	Market Conduct: Data Privacy and Transparency
	<i>Guidelines for E-Money Issuers in Ghana (2015)</i> Guidelines stipulate that e-money issuers shall provide adequate systems and processes for handling complaints and for customer redress.	Market Conduct: Customer Redress
	<i>Guidelines for E-Money Issuers in Ghana (2015)</i> The Guidelines state that e-money products under-written by a duly licensed financial institution are permitted to provide credit services. If an e-money product is not under-written by a licensed financial institution, all lending or investment activity is prohibited.	Systemic Risk: Lending Prohibition

	<p><i>Data Protection Act (2012)</i></p> <p>The Act requires data controllers and processors to register with the Data Protection Commission, and maintain standards for the security and privacy of consumer data. The Act gives consumers permission to request details about automated data-decisions companies make about them, and explicitly covers credit bureaus.</p>	Market Conduct: Data Management & Privacy
Hong Kong	<p><i>FinTech Supervisory Sandbox (2016)</i></p> <p>The proposed Sandbox, launched by the Hong Kong Monetary Authority, is intended to facilitate the pilot trials of FinTech and other technology initiatives of authorized institutions (AIs) before they are launched on a fuller scale. The supervisory flexible arrangement will enable FinTech companies to conduct live tests of initiatives before their formal launch. This will enable FinTech companies to gather data and user feedback on their new products or services more easily in a regulated environment, so that refinements can be made as appropriate. The Hong Kong Monetary Authority will refine the terms over time.</p>	Systemic Risk: Regulatory Sandboxes
India	<p><i>Consultation Paper on Peer-to-Peer Lending (2016)</i></p> <p>If India were to develop this proposed regulatory framework, the following potential regulations would address data management and privacy: require the platforms to ensure confidentiality for customer data and data security; and develop risk management systems.</p>	Market Conduct: Data Management & Privacy
	<p><i>Consultation Paper on Peer-to-Peer Lending (2016)</i></p> <p>If India were to develop this proposed regulatory framework, the following potential regulations would address product disclosure: mandate operational transparency, adequate measures for data confidentiality, and disclosures to both lenders and borrowers; and prohibit platforms from promising assured or extraordinary returns.</p>	Market Conduct: Product Disclosure
	<p><i>Consultation Paper on Peer-to-Peer Lending (2016)</i></p> <p>If India were to develop this proposed regulatory framework, the following potential regulations would address customer redress: apply NBFC regulations regarding recovery practice to P2P platforms; mandate that platforms develop proper grievance redress mechanisms; and require regular, detailed reporting to the Reserve Bank of India.</p>	Market Conduct: Customer Redress
	<p><i>Consultation Paper on Peer-to-Peer Lending (2016)</i></p> <p>If India were to develop this proposed regulatory framework, the following potential regulations would address capital requirements: require a minimum capital of 2 Crore Rupees; and prescribe a leverage ratio to prevent indiscriminate leveraging.</p>	Systemic Risk: Capital Requirements
	<p><i>Consultation Paper on Peer-to-Peer Lending (2016)</i></p> <p>If India were to develop this proposed regulatory framework, the following potential regulations would address governance requirements: prohibit cross-border transactions relating to residents and non-residents; suggest that a portion of board members must have a financial sector background; require P2P lenders to have a brick and mortar place of business in India; require each platform to have a “living will” or alternative arrangement for the continuation of operations in the case of platform failure; require that funds move directly from the lender’s to borrower’s bank account to prevent money laundering; and require management and operational personnel be stationed in India.</p>	Systemic Risk: Governance Requirements

	<p><i>Consultation Paper on Peer-to-Peer Lending (2016)</i></p> <p>If India were to develop this proposed regulatory framework, the following potential regulations would address reporting requirements: define P2P platforms as Non-Bank Financial Companies under section 451(f)(iii) of the RBI Act; and state that platforms may only be registered as an intermediaries (i.e., platforms would only be permitted to bring borrowers and lenders together, without reflecting monetary exchanges in the balance sheet).</p>	Systemic Risk: Reporting Requirements
Indonesia	<p><i>Financial Service Authority Regulation No 77/POJK.01 (2016)</i></p> <p>The Regulation updates the conditions necessary to become licensed to engage in Information-Based Financial Services (IBFS). The Regulation identifies P2P lending as a sub-category of online-based (or internet-based) lending. The regulation, in effect as of January 2017, is enforced by the Otoritas Jasa Keuangan (OJK, the Financial Services Authority of Indonesia). Prior to this regulation, providers of IBFS were not required to obtain licensing from the OJK. The Regulation requires business licenses be obtained from the OJK. The regulation also requires borrowers to be Indonesian citizens and lenders to be anyone licensed for the provision of these services, regardless of nationality.</p>	Systemic Risk: Reporting Requirements
	<p><i>Financial Service Authority Regulation No 77/POJK.01 (2016)</i></p> <p>The Regulation requires a foreign ownership maximum for an Information-Based Service Provider of eighty-five percent of company value, and an initial capital minimum of one billion Rupiah at time of registration and two billion five hundred million Rupiah at time of licensing.</p>	Market Conduct: Capital Requirements
	<p><i>Financial Service Authority Regulation No 77/POJK.01 (2016)</i></p> <p>The Regulation establishes that service providers must not share customer data and personal information with third parties. Service providers must regularly report data protection concerns and user complaints to the Otoritas Jasa Keuangan (OJK, Financial Services Authority of Indonesia).</p>	Market Conduct: Data Protection and Privacy
	<p><i>Financial Service Authority Regulation No 77/POJK.01 (2016)</i></p> <p>The Regulation which seeks to regulate the Indonesian P2P lending market. In addition to requirements for licensing, disclosure, and reporting requirements, this Regulation sets specific limits for borrowers. Individuals may only borrow two billion Rupiah (150,000 USD) from a single provider. All loans must be listed in IDR.</p>	Market Conduct: Consumer Over-indebtedness
	<p><i>Financial Service Authority Regulation No 77/POJK.01 (2016)</i></p> <p>The Regulation states that “a provider must have at least one Director and one Commissioner. Each member of the Board of Directors (BOD) must have experience in a financial industry business of one year or more. The members of BOD may be foreign citizens.”</p>	Systemic Risk: Governance Requirements
	<p><i>Financial Service Authority Regulation No 77/POJK.01 (2016)</i></p> <p>The Regulation encourages stakeholders to develop their business models and test their products through the adoption of the “regulatory sandbox” approach. This sandbox is intended to control and supervise P2P lending practices in Indonesia. The Otoritas Jasa Keuangan (OJK, Financial Services Authority of Indonesia) requires Providers to submit applications for registration and licenses to operate as P2P platforms.</p>	Systemic Risk: Regulatory Sandboxes

Kenya	<i>Banking Amendment Bill (2015)</i>	The Bill amends the Banking Act of 2010 and sets an interest rate floor and ceiling for banks and financial institutions. The Bill prohibits banks and financial institutions from paying depositors less than 70 percent of the Central Bank Rate (CBR) on their savings and from charging more than four percentage points above the CBR. If an institution violates these limits, the Bill establishes a minimum fine of one million Kenyan Shillings payable by the contravening institution or imprisonment of not less than one year for the Chief Executive Officer of the institution.	Market Conduct: Rates and Pricing
	<i>Banking Amendment Bill (2015)</i>	The Bill requires that banks or financial investors disclose all charges and terms relating to loan.	Market Conduct: Product Disclosure
Lesotho	<i>Mobile Money Guidelines (2013)</i>	Guidelines stipulate that e-money issuers are prohibited from using the money collected for lending or credit extension.	Systemic Risk: Lending Prohibition
Malaysia	<i>Financial Technology Regulatory Sandbox Framework (2016)</i>	The regulatory sandbox's goals are to foster innovations that: "i. improve the accessibility, efficiency, security, and quality of financial services; ii. enhance the efficiency and effectiveness of Malaysian financial institutions' management of risks; or iii. address gaps in or open up new opportunities for financing or investments in the Malaysian economy." Applicants to the sandbox must demonstrate that their product is ready for testing and show understanding of and commitment to manage risks during testing. The Bank Negara Malaysia will inform applicants of acceptance to the sandbox within 15 business days of application.	Systemic Risk: Regulatory Sandboxes
	<i>Guideline on Electronic Money (2008)</i>	Guidelines stipulate that e-money issuers are prohibited from using money collected for lending or credit extension.	Systemic Risk: Lending Prohibition
Pakistan	<i>Branchless Banking Regulations (2011)</i>	Outlines a flexible approach to data management, where minimum security requirements are linked to the account level of the customer, and the technology channel the provider is using. Specifies that client data and PIN information should be protected by the provider, and that the provider has a duty to inform the customer about how to secure their data.	Market Conduct: Data Management & Privacy
	<i>Branchless Banking Regulations (2011)</i>	Financial institutions offering branchless banking services must provide a complaint redress system, and process complaints within 24 hours. Providers must track all complaints and inform customers of the status of their complaint.	Market Conduct: Customer Redress

	<p><i>Branchless Banking Regulations (2011)</i></p> <p>The regulation stipulates that financial institutions who want to provide branchless banking services must comply with minimum capital requirements.</p>	Systemic Risk: Capital Requirements
	<p><i>Branchless Banking Regulations (2011)</i></p> <p>Financial institutions apply through the State Bank of Pakistan to receive authorization to provide branchless banking services.</p>	Systemic Risk: Licensing and Reporting Requirements
Singapore	<p><i>FinTech Regulatory Sandbox Guidelines (2016)</i></p> <p>The Guidelines, issued by the Monetary Authority of Singapore (MAS) aims to “provide an environment where if an experiment fails, its impact on consumers and on financial stability will be limited.” The Guidelines were drafted to encourage both innovation and safety within the FinTech sector. FinTech firms that wish to experiment in a regulatory sandbox must submit an application through MAS that explains: how the product is innovative; what problem the product addresses; the intention to launch the product to a broader audience after the sandbox period expires; the test scenarios and desired outcomes of the sandbox trial; the boundary conditions; the potential risks and how to mitigate them; and the exit and transition strategy for the product when the sandbox period is done. For firms whose application is approved, MAS will relax certain standards for the period of the sandbox such as minimum cash balances, board composition, and license fees.</p>	Systemic Risk: Regulatory Sandboxes
Sri Lanka	<p><i>Guidelines for Mobile Payments (2011)</i></p> <p>Specifies that licensed financial service providers are prohibited from issuing credit.</p>	Systemic Risk: Regulatory Sandboxes
Tanzania	<p><i>Standard Form (Consumer Contracts) Regulation (2014)</i></p> <p>The regulation stipulates the types of information that must be included in a contract between the provider of a good or service and the consumer. Business to business contracts are exempted from the regulation. The Fair Competition Commission, the competition authority within Tanzania, implements the regulation and investigates any unfair terms or consumer complaints.</p>	Market Conduct: Product Disclosure
Thailand	<p><i>Consultation Paper on FinTech Regulatory Sandbox Guidelines (2016)</i></p> <p>Draft guidelines for a regulatory sandbox framework that will allow FinTech companies to experiment with lending, payment, and money transfer services for a period of up to one year. Applications should start to be accepted in the first quarter of 2017 with commercial banks getting first access, then non-bank financial firms and technology companies. Smaller startups have been advised to join incubator or accelerator programs. “Participants will be guided on how to develop products and services that comply with regulations, enabling them to quickly receive licenses.”</p>	Systemic Risk: Regulatory Sandboxes
Zambia	<p><i>National Payments Systems Directives on Electronic Money Issuance (2015)</i></p> <p>Restricts all e-money institutions other than commercial banks from making or granting loans or credit.</p>	Systemic Risk: Lending Prohibition

	<p><i>National Payments Systems Directives on Electronic Money Issuance (2015)</i></p> <p>The Directives outline the requirements necessary for issuers of electronic-money (e-money) to obtain a license. The Directives reinforce the oversight of all e-money issuance by the Bank of Zambia (Zambia’s Central Bank). According to the Directives, any firm that intends to engage in e-money transactions is required to apply to the Bank of Zambia for authorization or designation.</p>	<p>Systemic Risk: Reporting Requirements</p>
	<p><i>National Payments Systems Directives on Electronic Money Issuance (2015)</i></p> <p>The Directives state that minimum initial capital requirements will be prescribed by the Bank and continuing capital shall be no less than two percent of either the current amount of outstanding e-money liabilities or the average outstanding liabilities, whichever is greater. The Directives stipulate that e-money issuers shall neither outsource the distribution of e-money to agents nor extend credit.</p>	<p>Systemic Risk: Capital Requirements</p>
	<p><i>National Payments Systems Directives on Electronic Money Issuance (2015)</i></p> <p>The Directives stipulate that data integrity of transactions will be maintained and protected and that the confidentiality of all customer and transaction information be maintained. The Directives also stipulate that identification, authorization, and authentication of transactions are based on international standards.</p>	<p>Market Conduct: Data Management and Privacy</p>
	<p><i>National Payments Systems Directives on Electronic Money Issuance (2015)</i></p> <p>The Directives require that e-money issuers (including those that partner with banks to extend credit) provide their customers with an understanding of the services being offered, an awareness of the inherent risks of using e-money services, and information on the associated costs of transacting before engaging in e-money activities. The Directives further stipulate that any person in breach of the regulations is subject to a substantial fine and an imprisonment term up to three years, or both.</p>	<p>Market Conduct: Product Disclosure</p>

Appendix B: Summary of Digital Credit Regulatory Documents in India, Kenya, Nigeria, Tanzania, Uganda

Table B1. Current Digital Credit Regulatory Documents Identified in India

Regulation Issue	Summary of Current Regulatory Documents Identified in India
Data Management and Privacy	If India were to develop a regulatory framework as advised by the <i>Consultation Paper on Peer-to-Peer Lending (2016)</i> , the following potential regulations would address data management and privacy: require the platforms to ensure confidentiality for customer data and data security; and develop risk management systems.
Product Disclosure	If India were to develop a regulatory framework as advised by the <i>Consultation Paper on Peer-to-Peer Lending (2016)</i> , the following potential regulations would address product disclosure: mandate operational transparency, adequate measures for data confidentiality, and disclosures to both lenders and borrowers; and prohibit platforms from promising assured or extraordinary returns.
Customer Redress	If India were to develop a regulatory framework as advised by the <i>Consultation Paper on Peer-to-Peer Lending (2016)</i> , the following potential regulations would address customer redress: apply NBFC regulations regarding recovery practice to P2P platforms; mandate that platforms develop proper grievance redress mechanisms; and require regular, detailed reporting to the Reserve Bank of India.
Consumer Over-Indebtedness	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in India.
Rates and Pricing	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in India.
Licensing and Reporting Requirements	If India were to develop a regulatory framework as advised by the <i>Consultation Paper on Peer-to-Peer Lending (2016)</i> , the following potential regulations would address reporting requirements: define P2P platforms as Non-Bank Financial Companies under section 451(f)(iii) of the RBI Act; and state that platforms may only be registered as an intermediaries (i.e., platforms would only be permitted to bring borrowers and lenders together, without reflecting monetary exchanges in the balance sheet).
Lending Prohibition	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in India.
Regulatory Sandboxes	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in India.
Capital Requirements	If India were to develop a regulatory framework as advised by the <i>Consultation Paper on Peer-to-Peer Lending (2016)</i> , the following potential regulations would address capital requirements: require a minimum capital of 2 Crore Rupees; and prescribe a leverage ratio to prevent indiscriminate leveraging
Governance Requirements	If India were to develop a regulatory framework as advised by the <i>Consultation Paper on Peer-to-Peer Lending (2016)</i> , the following potential regulations would address governance requirements: prohibit cross-border transactions relating to residents and non-residents; suggest that a portion of board members must have a financial sector background; require P2P lenders to have a brick and mortar place of business in India; require each platform to have a “living will” or alternative arrangement for the continuation of operations in the case of platform failure; require that funds move directly from the lender’s to borrower’s bank account to prevent money laundering; and require management and operational personnel be stationed in India.

<p>Other Example Regulations (Related to either mobile/online products or credit/lending service. These do not fit the purview of this paper, but are provided as an example of other similar but unrelated regulations.)</p>	<p>The <i>Micro Finance Institutions (Development and Regulation) Bill (2012)</i> provides a statutory framework for the promotion, development, regulation, and growth of MFIs. Because this Bill does not explicitly regulation mobile/online products, we have included these Guidelines in this Appendix but have not referenced it throughout the report; however, the Bill does mention that a policy environment should be developed to oversee mobile banking. The objectives of the Bill are to: establish regulations for MFIS; create the constitutions for the Micro Finance Development Council, as well as state and district councils; establish the Reserve Bank of India (RBI) as the regulating agency; prohibit MFIs from providing services without first registering with RBI; and prohibit MFIs from restructuring their activities without first gaining approval from RBI.</p> <p>Other more general finance, telecommunications, and competition regulations may also apply to digital credit.</p>
<p>References Reserve Bank of India, 2016; Standing Committee on Finance, 2012</p>	

Table B2. Current Digital Credit Regulatory Documents Identified in Kenya

Regulation Issue	Summary of Current Regulatory Documents Identified in Kenya
Data Management and Privacy	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Product Disclosure	Section 31A of Kenya’s <i>Banking Amendment Act of 2015</i> requires that any bank or financial institution disclose all loan charges and terms to borrower before granting a loan.
Customer Redress	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Consumer Over-Indebtedness	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Rates and Pricing	To protect consumers, Section 33B of Kenya’s <i>Banking Amendment Act of 2015</i> establishes an interest rate ceiling and floor. The ceiling caps interest charged to borrowers at four percentage points above the central bank rate and the floor (paid to savers) is set at 70 percent of said rate. If the regulation is found to apply to digital credit products, we identified seven Kenyan products that would have to lower their rates to conform to this regulation (See Table 2).
Licensing and Reporting Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Lending Prohibition	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Regulatory Sandboxes	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Capital Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Governance Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Kenya.
Other Example Regulations (Related to either mobile/online products or credit/lending service. These do not fit the purview of this paper, but are provided as an example of other similar but unrelated regulations.)	<p>The <i>Kenya Information and Communications (Consumer Protection) Regulations</i> (1998, revised in 2012) establishes the Communication Commission of Kenya. Because there is no mention of credit and lending services, we have included these Regulations in this Appendix but have not referenced it throughout the report. The objective of the established Commission is to license and regulate postal, information, and communication services.</p> <p>The <i>Competition Act</i> (2010) promotes competition in the national economy and protects consumers from unfair market conduct. Because there is no mention of mobile, online, or digital products, we have included this Act in this Appendix but have not referenced it throughout the report. The objectives of the Act are to: increase efficiency in the supply of goods and services; promote innovation; maximize efficient allocation of resources; protect consumers; encourage an environment that is conducive to investments; capture national obligations in competition; create national competition laws and policies that are in line with international best practices; and promote competitiveness in world markets.</p> <p>The <i>Consumer Protection Act</i> (2012) intends to promote and advance the social and economic welfare of Kenyan consumers. Because there is no mention of mobile, online, or digital products,</p>

we have included this Act in this Appendix but have not referenced it throughout the report. The objectives of the Act are to: establish a legal framework for the consumer market; reduce disadvantages consumers may face when accessing goods in the market; promote ethical business practices; protect consumers from unfair market conduct; improve customer awareness; promote consumer confidence and empowerment; provide a system for consensual dispute resolution; and provide effective customer redress systems.

The *Prudential Guidelines for Institutions Licensed Under the Banking Act* (2012) provides guidelines for licensing new institutions. Because there is no mention of online, mobile, or digital products, we have included this Act in this Appendix but have not referenced it throughout the report. The purpose of the Act is to provide clear guidelines, information, and the conditions that institutions must meet to secure a license and conduct business as a bank, financial institution, or mortgage finance company.

The *National Payment System Regulations* (2013) provide authorization and oversight for electronic money transfers and payments. Because there is no mention of credit and lending services, we have included these Regulations in this Appendix but have not referenced it throughout the report. The purpose of the Regulations is to: authorize electronic retail payment providers; authorize electronic retail transfers; facilitate these services without compromising the safety of the national payment system; establish standards for consumer protection; and oversee the appointment and registration of agents and cash merchants.

Other more general finance, telecommunications, and competition regulations may also apply to digital credit.

References

Blechman, 2016; Central Bank of Kenya, 2012; Central Bank of Kenya, 2013; Central Bank of Kenya, 2016; Odero, 2016; The Economist, 2016; The Republic of Kenya, 1998; The Republic of Kenya, 2010; The Republic of Kenya, 2012;

Table B3. Current Digital Credit Regulatory Documents Identified in Nigeria

Regulation Issue	Summary of Current Regulatory Documents Identified in Nigeria
Data Management and Privacy	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Product Disclosure	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Customer Redress	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Consumer Over-Indebtedness	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Rates and Pricing	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Licensing and Reporting Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Lending Prohibition	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Regulatory Sandboxes	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Capital Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Governance Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Nigeria.
Other Example Regulations (Related to either mobile/online products or credit/lending service. These do not fit the purview of this paper, but are provided as an example of other similar but unrelated regulations.)	<p>The <i>Guidelines on Mobile Money Services in Nigeria</i> (2015) address mobile banking issues and state that payments are the intended mobile services that the Guidelines oversee. Because there is no mention of credit and lending services, we have included these Guidelines in this Appendix but have not referenced it throughout the report. The objectives of the Guidelines are to: ensure that the development of the mobile money market is structured and orderly; specify minimum technical and business requirements; and promote safety and effectiveness.</p> <p>The <i>Regulatory Framework for Mobile Money Services in Nigeria</i> (2015) addresses business rules that govern the operation of mobile payment services. Because there is no mention of credit and lending services, we have included this regulation in this Appendix but have not referenced it throughout the report. The objectives of the regulation are to: state provisions that encourage an enabling environment for mobile payment services to be adopted; ensure that the development of the mobile money market is structured and orderly; specify minimum technical and business requirements; provide broad guidelines that cover initiation to completion process for mobile payment services; and promote safety and effectiveness.</p> <p>Other more general finance, telecommunications, and competition regulations may also apply to digital credit.</p>
References	Central Bank of Nigeria, 2015a; Central Bank of Nigeria, 2015b

Table B4. Current Digital Credit Regulatory Documents Identified in Tanzania

Regulation Issue	Summary of Current Regulatory Documents Identified in Tanzania
Data Management and Privacy	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Product Disclosure	The <i>Standard Form (Consumer Contracts) Regulations (2014)</i> , under the Fair Competition Act, allows the Fair Competition Commission to review and enforce standards around transparency and price disclosure. This relates to standard form contracts for businesses, and could potentially be applied to digital credit and lenders in the market. The regulation does not currently state that it applies oversight to the digital credit market, but CGAP recommends that this regulation be applied to coordinate consumer protection risks across authorities.
Customer Redress	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Consumer Over-Indebtedness	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Rates and Pricing	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Licensing and Reporting Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Lending Prohibitions	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Regulatory Sandboxes	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Capital Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Governance Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Tanzania.
Other Example Regulations (Related to either mobile/online products or credit/lending service. These do not fit the purview of this paper, but are provided as an example of other similar but unrelated regulations.)	<p>The <i>Fair Competition Act (2003)</i> intends to promote and protect effective competition and to protect consumers from unfair market conduct. Because there is no mention of mobile, online, or digital products, we have included this Act in this Appendix but have not referenced it throughout the report. The objectives of the Act are to: increase efficiency in the supply of goods and services; promote innovation; maximize an efficient allocation of resources; and protect consumers.</p> <p>The <i>Electronic Payment Scheme Guidelines (2007)</i> address electronic payment schemes provided by any bank and non-bank financial institutions. Because there is no mention of credit and lending services, we have included these Guidelines in this Appendix but have not referenced it throughout the report. The purpose of the Guidelines is to: provide guidance for managing risk; encourage institutions to review the Basel Committee on Banking Supervision’s papers (Risk Management Principles for Electronic Banking; Management and Supervision of Cross-Border Electronic Banking Activities); and state that institutions are expected to comply with other prudential and best banking principles.</p> <p>The <i>Electronic and Postal Communications Regulations (2010)</i> provides a comprehensive regulatory regime for electronic and communications service providers. Because this is aimed at regulating Telecommunication companies with no mention of credit and lending services, we have included these Regulations in this Appendix but have not referenced it throughout the report. The objectives of Sections 4 and 7 of the Regulations are to: state that the Authority has</p>

power to issue licenses and regulate electronic communication systems; and the Authority can reject applications if the provider does not submit proper documentation and reports.

The *Banking and Financial Institutions (Disclosures)* (2014). Because there is no mention of online, mobile, or digital products, we have included these Regulations in this Appendix but have not referenced it throughout the report. The objectives of the Regulations are to: ensure a level of transparency from all banks and financial institutions; promote public confidence in the banking sector; and provide financial information to enhance market discipline.

The *National Payment Systems Act, Section 51* (2015) establishes provisions for the regulation and supervision of payment systems, including electronic money providers. Because there is no mention of credit and lending services, we have included this Act in this Appendix but have not referenced it throughout the report. The objective of Section 51 of the Act is to prescribe consumer protection requirements to payment system providers.

Other more general finance, telecommunications, and competition regulations may also apply to digital credit.

References

Bank of Tanzania, 2007; Bank of Tanzania, 2014; Blechman, 2016; Fair Competition Commission, 2014; Mazer, 2016; The United Republic of Tanzania, 2003; The United Republic of Tanzania, 2010; The United Republic of Tanzania, 2015

Table B5. Current Digital Credit Regulatory Documents Identified in Uganda

Regulation Issue	Summary of Current Regulatory Documents Identified in Uganda
Data Management and Privacy	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Product Disclosure	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Customer Redress	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Consumer Over-Indebtedness	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Rates and Pricing	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Licensing and Reporting Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Lending Prohibition	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Regulatory Sandboxes	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Capital Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Governance Requirements	We did not identify any suggested or existing regulations that specifically address this issue for digital credit in Uganda.
Other Example Regulations (Related to either mobile/online products or credit/lending service. These do not fit the purview of this paper, but are provided as an example of other similar but unrelated regulations.)	<p>The <i>Mobile Money Guidelines</i> (2013) address mobile banking issues in Uganda and state that deposits and payments are the intended mobile services that the Guidelines oversee. Because there is no mention of credit and lending services, we have included these Guidelines in this Appendix but have not referenced it throughout the report. The objectives of the Guidelines are to: provide clarity on mobile banking; outline the approval procedure for new mobile banking products; list the rules and responsibilities of engaged parties; foster consumer protection practices; enhance competition; and promote financial inclusion.</p> <p>Other more general finance, telecommunications, and competition regulations may also apply to digital credit.</p>
References	Bank of Uganda, 2013

Appendix C: Regulatory Language of Relevant Documents

Regulatory Document	Language Used in Document to Identify as Digital Credit	Page # Where Language is Found	Supporting Grey Lit Language	Link for Where Language is Found
Regulatory Guidelines for Mobile Financial Services (Bangladesh)	Bangladesh Bank is issuing these regulatory guidelines for Mobile phone based Financial Services (MFS) platforms in Bangladesh with a view to providing an orderly, enabling and competitive environment for utilizing this new window of opportunity of innovatively extending the outreach of financial services.	Page 1, Section 0.0 of Introduction		
Guideline on Information and Communication Technology Security For Banks and NBFIs (Bangladesh)	<p>In many enterprises, ICT related risk is considered to be a component of operational risk. However, even strategic risk can have an ICT component itself, especially where ICT is the key enabler of new business initiatives. The same applies for credit risk, where poor ICT security can lead to lower credit ratings.</p> <p>Services provided by banks through mobile shall comply with security principles and practices for the authentication of transactions mandated by the regulatory body.</p>	<p>Page 15, ICT Risk Management</p> <p>Page 42, Section 9.4 Mobile Financial Services</p>		
Regulatory Guidelines for Mobile Financial Services (2015) (Bangladesh)	“... the primary role of the MFS platforms will be as Payment Services Providers (PSPs), with secondary engagements in deposit taking, loan disbursement and recovery, insurance premium collection etc. as duly authorized agents of banks, NBFIs, MFIs, insurance companies etc. concerned.”	Page 1, Regulatory Guidelines for MFS, Bangladesh, Section 4.0		
Guidelines on the Promotion of the Healthy Development of Internet Finance (China)	Promote the healthy development of Internet finance, improve the quality and efficiency of financial services, deepen financial reform, promote the development of financial innovation, expand the financial industry to open to the outside world and build a multi-level financial system. As a new thing, Internet finance needs both market-driven, to encourage innovation, also need policy help, promote development.	PBoC: Information Office on Promoting Internet Finance (Website where document is found)		http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/2813898/index.html

Regulatory Document	Language Used in Document to Identify as Digital Credit	Page # Where Language is Found	Supporting Grey Lit Language	Link for Where Language is Found
Banking Regulations Commission (China)	As a kind of Internet finance, P2P network lending has played an active role in alleviating the financing difficulties of small and micro enterprises and meeting the demand of private capital investment. But in recent years, the risk of online banking industry has accumulated, the outbreak of a series of risk events, serious damage to the legitimate rights and interests of investors, the Internet financial industry reputation and healthy development of a greater negative impact on financial security and social stability.	Implementation Scheme of Special Rectification of P2P Network's Loan Risk		http://www.gov.cn/xinwen/2016-10/13/content_5118615.htm
Directive #24 (Congo, Dem. Rep.)	This Directive applies to: authorized Credit Institutions as referred to in Articles 2 and 3 of Act 003/2002 dated February 2, 2002 relating to the activity and supervision of Credit Institutions, to organizations referred to in Article 4 of the aforementioned Act, and to Microfinance Institutions authorized by the Central Bank to issue electronic money; and Electronic money institutions as defined in Article 1, Point 5, of this Directive. Electronic money institutions are not authorized to grant loans based on funds received or held for the purpose of issuing or distributing electronic money.	Article 3, Directive #24 Article 19, Directive #24		
Data Privacy Act (Ghana)	Where the data controller is a credit bureau within the meaning of the Credit Reporting Act, 2007 (Act 726) a request for information by a data subject shall in addition to the requirements specified under the Credit Reporting Act, be subject to this section.	Page 22: Data Protection Act, 2012	In Ghana there is a new Data Privacy Commission under the Ghana Data Protection Act 2012. This Commission was “established to protect privacy by regulation of the processing of information and by providing a process for collecting, using and disclosing personal information.” This type of authority could coordinate with financial and telecommunications authorities to monitor data privacy in digital credit products.	http://www.cgap.org/blog/3-steps-policy-makers-can-take-now-digital-credit

Regulatory Document	Language Used in Document to Identify as Digital Credit	Page # Where Language is Found	Supporting Grey Lit Language	Link for Where Language is Found
Guidelines for E-Money Issuers in Ghana (Ghana)	<p>E-money systems may be used for the following:</p> <p>h) Credit products under-written by a duly licensed registered financial institution</p> <p>Dedicated EMIs shall not engage in any of the following activities:</p> <p>b) Any lending or investment activity other than that required under Paragraph 11 above:</p>	<p>Paragraph 11: Permissible Transactions</p> <p>Paragraph 22: Permitted and Prohibited Activities</p>		
FinTech Supervisory Sandbox (Hong Kong)	The fintech sector has come to include a wide range of technologies, from small lenders to those that use homegrown algorithms to process quick and cheap lending decisions for small companies, to innovation by banks on how they conduct due diligence on deals.		Hong Kong to create fintech 'sandbox' allowing bank experiments: Financial Times	https://www.ft.com/content/38a662ee-740f-11e6-bf48-b372cdb1043a
Consultation Paper on Peer-to-Peer Lending (India)	<p>P2P lending is a form of crowd-funding used to raise loans which are paid back with interest. It can be defined as the use of an online platform that matches lenders with borrowers in order to provide unsecured loans.</p> <p>In India, there are many online P2P lending platforms. Some of these are involved in the business targeted at micro finance activities with the stated primary goal being social impact and providing easier access of credit to small entrepreneurs. They provide web-based platform to bring the lenders and the borrowers together.</p>	<p>Page 4, Section 1.6, P2P Lending</p> <p>Page 7, Section 3, P2P Lending in India</p>		
Financial Service Authority Regulation No 77/POJK.01/2016 (Indonesia)	Indonesia's financial services authority (OJK) has issued regulations relating to FinTech. The regulations lay out minimum capital requirements, interest rate provision and education and consumer protection rules.		Indonesia's Financial Services Authority Issues Its First FinTech Regulations: The National Law Reviews	https://www.ft.com/content/38a662ee-740f-11e6-bf48-b372cdb1043a

Regulatory Document	Language Used in Document to Identify as Digital Credit	Page # Where Language is Found	Supporting Grey Lit Language	Link for Where Language is Found
Banking (Amendment) Bill, 2015 (Kenya)	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;		The law is also unclear on app-based lenders like Tala (formerly Mkopo Rahisi) and Branch, which also use M-Pesa to disburse loans and collect payments. Equity Bank is likely to capitalize on this situation to boost its customer base. The bank operates Equitel as a Mobile Virtual Network Operator (MVNO), giving them an advantage over other commercial banks that have to use proprietary platforms like M-Pesa and Orange Money to disburse their cash.	http://www.iafrikan.com/2016/09/15/equity-bank-is-now-offering-cheaper-mobile-loans-in-compliance-with-kenyas-new-interest-rate-law/
Mobile Money Guideline, 2013 (Lesotho)	An issuer of mobile money shall not:- ii) use the money collected to extend loans; iii) extend credit, or pay interest or profit on the mobile money balances, or anything other activity that would add to the monetary value of the mobile money;	Mobile Money Guideline, Section 9: Prohibition		
Regulatory Sandbox Framework (Malaysia)	Advances in financial technology (fintech) have led to the introduction of new business models and solutions that have contributed to improvements in customer value and experience as well as financial institutions' efficiency and risk management. A sandbox is therefore not suitable for proposed product, service or solution that is already appropriately addressed under prevailing laws and regulations.	Page 1		

Regulatory Document	Language Used in Document to Identify as Digital Credit	Page # Where Language is Found	Supporting Grey Lit Language	Link for Where Language is Found
Guideline on Electronic Money (Malaysia)	An issuer of e-money shall not:- ii) use the money collected to extend loans to any other persons; iii) extend credit to the user, or pay interest or profit on the e-money balance, or anything else that would add to the monetary value of the e-money;	Guideline on Electronic Money, Section 13.1: Prohibition		
Branchless Banking Regulations (Pakistan)	To serve as a set of minimum standards of data & network security, customer protection and risk management to be followed by the Banks desirous to offer mobile banking services. FIs, particularly MFBs may use branchless banking accounts as a means to disburse loan amounts to their borrowers having branchless banking accounts. The same accounts may be used by customers to repay their loan installments.	Page 1, Section 1.2: Objectives Page 6, Section 3.2: Permissible Activities		
Guidelines for Mobile Payments (Sri Lanka)	The licensed service provider shall not: grant any form of credit to e-money holder;	Page 4 of Guidelines No. 2		

Regulatory Document	Language Used in Document to Identify as Digital Credit	Page # Where Language is Found	Supporting Grey Lit Language	Link for Where Language is Found
FinTech Regulatory Sandbox Guidelines (Singapore)	<p>The proposal should contain the necessary supporting information (ANNEX B) to depict how the Sandbox evaluation criteria listed below can be fulfilled:</p> <p>The FinTech solution is technologically innovative or applied in an innovative way;</p> <p>The FinTech solution addresses a significant problem or issue, or brings benefits to consumers or the industry;</p> <p>The Applicant has the intention and ability to deploy the FinTech solution in Singapore on a broader scale after exiting from the Sandbox;</p> <p>The test scenarios and outcomes of the Sandbox should be clearly defined, and the Applicant should report to MAS on the test progress based on an agreed schedule;</p> <p>The appropriate boundary conditions should be clearly defined, for the Sandbox to be meaningfully executed while sufficiently protecting the interests of consumers and maintaining the safety and soundness of the industry;</p> <p>Major foreseeable risks arising from the FinTech solution should be assessed and mitigated; and</p> <p>An acceptable exit and transition strategy should be clearly defined in the event that the FinTech solution has to be discontinued, or can proceed to be deployed on a broader scale after exiting from the Sandbox.</p>	Pages 7-8		
Standard Form (Consumer Contracts) Regulation (Tanzania)			<p>“In Tanzania, “The Standard Form (Consumer Contracts) Regulations, 2014” enables the Fair Competition Commission to review and enforce standards of transparency and price disclosure for standard form contracts, which could be applied to all digital lenders in a market” (CGAP)</p>	<p>http://www.cgap.org/blog/3-steps-policy-makers-can-take-now-digital-credit</p>

Regulatory Document	Language Used in Document to Identify as Digital Credit	Page # Where Language is Found	Supporting Grey Lit Language	Link for Where Language is Found
Regulatory Sandbox Framework (Thailand)	English version not found		<ul style="list-style-type: none"> •Financial institutions •Companies within financial business group of financial institutions •Non-financial institutions under the supervision of the BOT (e.g. business operators providing personal loans under supervision, nanofinance, etc.) •FinTech firms •Technology firms 	http://www.bakermckenzie.com/-/media/files/insight/publications/2016/10/fintech-update/al_bangkok_fintechsandbox_oct16.pdf?la=en
Directives on Electronic Money Issuance (Zambia)	Authorized a number of institutions to issue electronic money (e-money) in Zambia. Provide(s) guidance and reinforce(s) its oversight to all e-money issuers.	Cover letter		

Appendix D: Search Strings

Search String	Google			Google Scholar		
	Number of Results	Number Reviewed	Relevant Non-Duplicate Results	Number of Results	Number Reviewed	Relevant Non-Duplicate Results
("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "instant lending" OR "digital financial services") AND ("policy" OR "regulation" OR "law" OR "guideline")	9,360	50	6	33	33	6
("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" OR "mobile lending") AND (customer OR consumer) AND (protection OR experience) AND (regulation OR guideline OR law OR strategy OR supervision OR market)	433,000	50	4	382	50	0
"[Country]" AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "instant lending") AND ("institution OR regulator") AND ("industry")	1,280	200	0	2	2	0
"[Country]" AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "instant lending") AND (regulation OR law OR supervision OR guideline)	14,554	400	17	11	11	0
"[Country]" AND ("regulator" OR "institution") AND (customer OR consumer) AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "instant lending")	3,305	300	5	4	4	0
"[Institution]" AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" OR "mobile lending") AND (customer OR consumer) AND (protection OR experience) AND (regulation OR guideline OR law OR strategy OR supervision OR market)	29,679	350	13	96	96	0
"[Model]" AND "[Country]" AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "instant lending" OR "digital financial services") AND (regulation OR law OR supervision OR guideline)	345	203	1	2	1	0
"[Model]" AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "digital financial services") AND (regulation)	16,111	80	1	28	27	6
"[Product]" AND (regulation OR law OR supervision OR guideline)	73,200	100	1	278	67	0
"[Region]" AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR	1,949	150	0	3	3	0

"instant loan" OR "instant lending") AND ("institution OR regulator") AND ("industry")						
"[Region]" AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "instant lending") AND (regulation OR law OR supervision OR guideline)	6,934	200	2	6	55	0
"[Region]" AND ("regulator" OR "institution") AND (customer OR consumer) AND ("digital credit" OR "mobile credit" OR "digital loans" OR "mobile loans" OR "digital lending" or "mobile lending" OR "instant loan" OR "instant lending")	2,511	150	0	1	1	0
(mobile OR online OR digital OR internet OR phone) AND (lend* OR loan* OR credit) AND (regulat* OR policy OR guideline OR law OR supervis*)	1,240,000,000	60	2	19,900	50	0
(mobile OR online OR digital OR internet OR phone) AND (lend* OR loan* OR credit) AND (regulat* OR policy OR guideline OR law OR supervis*) AND [Region/Country]	625,890,000	600	4	387,200	600	4
"Regulation for Digital Credit in Brazil"	32,300,000	50	5	30,900	50	0
"Regulation for digital credit in Latin America"	5,540,000	50	2	36,500	50	0
Total		2,993	63		1,100	16

Appendix E: Review Framework Categories

Literature Review Framework:

Source Information

- Title, Year, Citation, Link
- # of Citations (if available)
- Government/Non-Government Source

Regulatory Issues

- Digital Credit
- Loan Terms and Rates
- Data Management and Privacy
- Customer Redress
- Disclosure and Transparency
- Additional Consumer Protection Issues
- Additional Competition and Market Issues
- Interoperability
- Broader DFS Issues Related to Digital Credit

Regulations Review Framework:

Source Information

- Country/Jurisdiction
- Source websites
- Bank/Telecom/Financial/Other Regulator

Regulation Information

- Title, Year, Enacted/Planned
- Legislation/Guideline
- Applicability: Digital Credit, DFS, Other Credit
- Type of Regulation: Loan Term Restrictions, Competition, Technology, Mobile Money, Consumer Practices, Other
- Impact of Non-compliance
- Coverage: Regulation Applies to Banks, MNO's, Borrowers
- Information Submission Requirements
- Regulatory Issues Covered

Institution Information

- Name, Founding Year
- Monitoring Responsibility: Finance, Telecommunications, Market Competition

Appendix F: Kenyan Product APR Calculations

Provider Name	Product Name	Reported Interest Rate Min	Reported Interest Rate Max	Interest Rate Timeframe: Daily, Weekly, Monthly, or Yearly	Standardized APR Min	Standardized APR Max
Equitel	Eazzy Loan		14.00%	Per annum		14.00%
Equitel	Eazzy Loan Plus		14.00%	Per annum		14.00%
Get Bucks	Get Bucks		77.00%	Per annum		77.00%
KCB Bank Kenya	KCB M-Pesa	1.16%	1.16%	Per month	13.92%	13.92%
Raven Ltd.	M-Pepea	10.00%	15.00%	Not specified	10.00%	15.00%
AVLC Group	Pesa na Pesa	10.00%	10.00%	Per week	520.00%	520.00%
Paddy Micro Invest.	Pesa Pata	30.00%	30.00%	Not specified	30.00%	30.00%
PesaZetu	PesaZetu	6.00%	10.00%	Not specified	6.00%	10.00%
Greenshoe Capital	Saida	7.50%	10.00%	Not specified	7.50%	10.00%

Source: Product Websites

Note: If the timeframe was not specified, interest rates were assumed to be annual. This table only lists Kenyan products with reported interest rate information.