Moving Upwardly: Lessons from Mobile Payments in Kenya

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Developing norms

In the 1910s, every morning my great-grandfather would cycle across the small manor estate on which he was employed to turn on the recently-installed electricity generator which provided power to the owners. The house was likely among the earliest in the country and perhaps the world to have a regular supply of electricity.

Today, it is accepted that every house in the United Kingdom and most of the developed world should have an electricity supply. The same is true of most other inventions of the so-called 'second industrial revolution' that immensely improved the lives of people in the West during the course of the twentieth century: indoor plumbing, the internal combustion engine, washing machines, central heating, refrigerators, and telecommunications (see, for example, Gordon, 2012, pp. 4-7).

People in the West have also been the first to experience the numerous social changes and benefits that these technologies can bring, such as reductions in rates of disease, increases in leisure time, and improved communications. The patterns of usage and consumption of new technologies are also established here through concomitant changes in culture and the creation of new economies.

For the past two centuries, implementation and adoption of new technology has generally followed this pattern. Inventions and developments are pioneered in rich developed economies and adopted by the most affluent, before gradually diffusing themselves throughout the

Tout au long de l'histoire humaine, le développement technologique et économique a suivi le même schéma. Les inventions ont été initiées dans les économies riches et développées et adoptées par les personnes les plus influentes, avant d'atteindre peu à peu le reste de la société. Aujourd'hui cependant, des millions de personnes dans le monde en développement ont accès aux services financiers et réalisent des milliards de transactions chaque année à travers leur téléphone portable.

rest of society until they become accepted as a condition of a basic standard of welfare and social inclusion. Often, it is only then that these technologies are even considered ripe for implementation elsewhere using the same frameworks that were developed in the West. The developing world has had to wait decades for many of these innovations, and in many cases, it is still waiting.

Yet today, more people across the developing world have access to a mobile phone than to mains electricity. This remarkable fact has led a notable deviation from the trend outlined above. More surprisingly, this disruption has occurred in a sector not popularly associated with inclusivity: financial services. Millions of people across the developing world now have access to financial services and are conducting billions of transactions every year through their mobile phones. While the adoption of mobile payments has been relatively sluggish in the West, the developing world, and Africa in particular, have surged ahead in creating dynamic new economies and ways of doing business.

La montée de la finance mobile est un cas d'école pour l'industrie des services financiers au XXIe siècle. Comme l'exemple de M-PESA au Kenya le démontre, la réactivité est cruciale pour le succès d'un produit qui peut avoir un impact significatif

Commandments and consequences

This essay will argue that the rise of mobile finance is instructive for the broader financial services industry in the twenty-first century. Using the case of M-PESA in Kenya, I will show how financial solutions attuned and responsive to the needs of a society and an economy are the means of creating an ethical financial sector fit for the future. Access to financial services has improved the lives of millions of people in Kenya, but more importantly, the service has also allowed itself to be shaped by these lives.

As the example of M-PESA will demonstrate, a responsive stance is crucial to the success of a product that has had a significant positive social and economic impact, from aiding long-term planning, to fostering enterprise, to enhancing social cohesion. Disruptive technologies such as mobile payments can improve market competitiveness and productivity, while also remedying the historic lack of provision of financial services for poor and marginalised groups.

Moreover, such new technological and social developments call upon the financial services industry as a whole to re-evaluate itself and take a more responsive attitude to the needs and desires of changing societies. The most serious recent calamities and unethical practices in financial services have been perpetrated due to business practices which privilege the role of intermediation above the needs of the end users, society, and the economy. Too often, complex instruments and practices have been developed which are designed to benefit only their creators.

In turn, financial institutions have responded to these failures with numerous moral injunctions and charters aimed at remedying the mistakes of the past. Many hours et positif au niveau social et économique. Les services financiers sont au fond une industrie de l'intermédiation et de l'abstraction, mais pour agir éthiquement, ils doivent être conscients de leur rôle dans la satisfaction des besoins très réels des économies et des sociétés dont ils font partie.

have been spent devising corporate sustainability and responsibility frameworks based around concepts such as integrity, fairness, excellence, and respect. While such initiatives are undoubtedly noble, when they are removed from their social context, they become just as abstract – and therefore just as fallible – as the practices they were intended to address.

Financial services is, at heart, an industry of intermediation and abstraction, but if it is to act ethically, it must retain an awareness of its role of fulfilling the very real needs of the economies and societies of which it is part. New technologies, emerging economies, and changing behaviours from consumers and businesses afford an exciting new opportunity to establish and strengthen this more direct relationship. These opportunities may require both regulators and traditional financial institutions to reconceptualise their structures and purpose to better serve the needs of societies in both the developing and the developed world. I aim to argue that such a change is not only ethical, but also necessary.

Overstuffed mattresses

The atmosphere in Kenya in the run-up to the 2007 presidential elections was febrile. Opinion polls placed incumbent president Mwai Kibaki of the traditionally dominant Kikuyu ethnic group, behind challenger Raila Odinga who had succeeded in creating a broader coalition outside of his own Luo ethnic group. Rumours abounded that the head of Equity Bank, one of the largest banks in the country, was using the "common man's" money to bankroll Kibaki's campaign and that the institution was close to collapse.

Sylvesta, a security guard and shop owner living in a suburb of the capital Nairobi, feared that the instability could have a significant financial cost for him:

"Guys were telling me to take my money out of Equity. They were sure that it was going down.... Many had already taken their money out because they were scared. They were keeping the cash at home. I was scared to keep any of the cash at home.... They were fighting and looting all over." (Morawczynski, 2010, p. 172)

D'après les derniers chiffres de la Banque Mondiale, moins d'un quart de la population de la région a un compte bancaire. Dans les pays tels que le Soudan, le Sénégal et la République Démocratique du Congo, les chiffres sont si petits qu'ils sont négligeables. Globalement, on estime que 2. 5 milliards de personnes – environ la moitié de la population adulte mondiale – n'ont pas un accès régulier aux services financiers.

These concerns have been common for decades for people living in sub-Saharan Africa and elsewhere in the developing world. According to the latest figures from the World Bank, less than a quarter of the population of the region has access to a bank account (Demirgue-Kunt and Klapper, 2012). In countries such as Sudan, Senegal and the Democratic Republic of Congo, levels are so small as to be negligible. Globally, it is estimated that 2.5bn people – about half the world's adult population – does not have access to regular financial services. For reasons we will later explore, this situation should be rued both as an ethical failing and as a missed economic opportunity.

Even for people like Sylvesta who

M-PESA a été développé comme un produit fait sur mesure pour les besoins non satisfaits de son utilisateur tout en tenant compte de l'environnement socio-économique existant et des profils de comportement. Plus des trois quarts de la population du Kenya ont maintenant accès à un compte mobile et 80 % en sont des utilisateurs actifs. Des services payants similaires ont surgi sur de nombreux autres marchés, en Afrique et dans d'autres parties du monde. On estime que 255 systèmes de paiement mobiles existent à présent dans le monde avec 103.4 millions de comptes actifs.

do have access to a bank, there is a serious lack of trust in formal financial institutions, especially in unstable economic and political climates. Some savers pay negative interest rates in order to keep their money safe and accessing funds can be onerous. In Kenya, there are just 5.5 commercial bank branches and 10 ATMs for every 100,000 adults, and the situation is far worse for those living in remote rural areas (IMF, 2014).

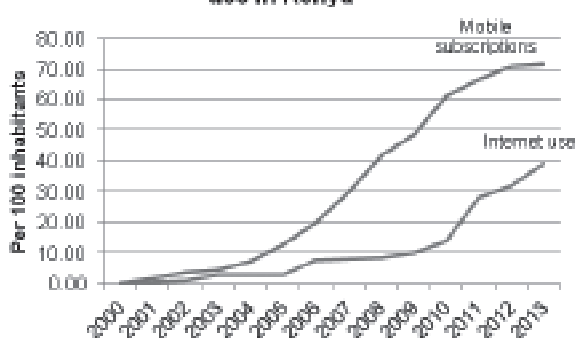
A call to action

According to classic economic theRather than risking his cash under the proverbial mattress, Sylvesta took advantage of the M-PESA mobile payments service that had been recently launched by Vodafone and its Kenyan subsidiary Safaricom. As far back as 2002, development researchers had noted the important role that mobile phones were playing in helping families to manage their finances over significant distances and there were reports of prepaid mobile credit being used as a proxy currency (McKerney et al, 2002). With increasing internal and external migration, families were searching for a way to retain not only social bonds but practical support mechanisms over long and short distances.

For the poor, small-scale money transfer was either prohibitively expensive or simply unavailable. Meanwhile, Kenya's adoption of mobile phones had been rapid (see Fig. 1), but off-the-shelf payment applications were engineered for developed markets and therefore inappropriate for the Kenyan environment. It was with this in mind that M-PESA was developed as a product bespoke to the unmet needs of its users, but also attuned to the existing socio-economic landscape and patterns of behaviour.

Compared to traditional financial institutions, registration for and use of M-PESA are relatively simple and cheap. Existing customers of Safaricom can register for the service with a single form of identification and deposit cash as an 'e-float' linked to

Fig. 1 - Mobile subscriptions and internet use in Kenya



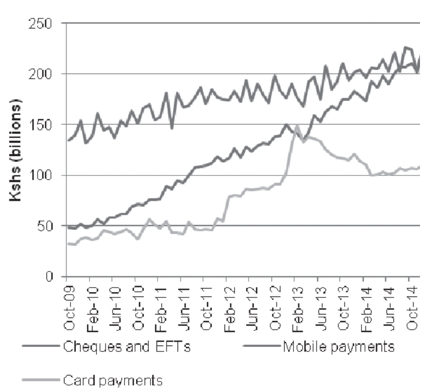
(Source: ITU, 2014)

Il est important de souligner l'impact réel que l'accès à ces services financiers peut apporter, car il n'est pas forcément évident pour tous ceux d'entre nous qui considèrent cet accès comme allant de soi.
Pour ceux qui ont quitté leur lieu d'origine pour aller travailler dans les villes, le transfert de fonds est un important moyen de conserver les liens familiaux et sociaux. L'accès aux services financiers permet aussi aux personnes de se prémunir face à un avenir incertain, spécialement ceux qui mènent une vie précaire et/ou qui ont des revenus irréguliers.

their SIM card. Depositing cash is free, but withdrawals incur a charge depending on the amount. Funds can be sent via SMS using the phone number of the intended recipient for a fee charged to the sender. To ensure the integrity of the system, all funds are held in trust in several commercial banks and are inaccessible to Safaricom save for the interest, some of which is donated to a charitable trust.

As the International Finance Corporation (2010) has noted it was this 'unique design of M-PESA and its ability to service its target customers' that has been one of the key factors behind its staggering success. More than three-quarters of the Kenyan population now have access to a mobile money account, of which 80% are active users (Financial Inclusion Insights, 2014). The amounts transferred on a monthly basis are already far outstripping card payments and are set to surpass EFTs and cheques soon (see Fig. 2).

Fig. 2 - Payment methods in Kenya



(Source: Central Bank of Kenya, 2014)

Moreover, similar payments services have sprung up in numerous other markets, both in Africa and other parts of the world. It is estimated that 255 mobile payment systems now exist worldwide with 103.4m active accounts (GSMA, 2015).

More than money

Such numbers are certainly impressive but it is important to pause to outline the very real impact that access to financial services can bring, as this is often not immediately apparent to those of us who take such access for granted. Perhaps most obviously, storing and transferring money through a financial intermediary is safer than the immediate alternative – handling hard currency. As Morawczynski (2011, pp. 117-146) has shown, the terrible violence and fear provoked by the 2007 Kenyan presidential election in fact gave rise to propitious circumstances for the development of mobile money.

M-PESA's initial marketing strategy focused squarely on the transference of remittances, with a rather direct tagline that encouraged people to 'send money home'. The company also employed an extensive network of agents across Kenya to encourage take-up of the service and facilitate withdrawals for rural customers. For those who have left their hometowns to work in the city, transferring funds is an important means by which familial and social bonds can be retained. Meanwhile, monies from family living in the city

M-PESA reflète et renforce les réseaux sociaux informels existants qui sont cruciaux pour la gestion financière dans les pays pauvres. De même que le service a été développé à travers une interaction symbiotique entre les besoins non satisfaits, les comportements existants et le projet, son développement ultérieur a également été modelé par la façon dont il a été utilisé par les clients.

can make up a significant proportion of the income of people in rural areas and can play a key role in enabling longer term decision-making such as capital investment in cash crops and equipment. From a macroeconomic perspective, remittances provide the security for investment in the efficient allocation of labour by enabling people to move to higher-paying jobs in distant locations (see Jack and Suri, 2009).

One of the most notable benefits of access to financial services is the ability to guard against uncertainty, especially for those with precarious livelihoods and/or irregular incomes in potentially unstable societies. As early as January 2009, surveys found that three-quarters of M-PESA users had used the service as a savings instrument, often in conjunction with other mechanisms (FSD Kenya, 2009).

The ability to save provides a valuable method by which people can mitigate the effects of unexpected shocks whether in the form of falls in income, political unrest, or health emergencies. Such facilities also prevent actions being taken that have longer term consequences, such as the liquidation of valuable physical assets during an emergency. A 2013 study in Kenya showed that simply providing a safe place for savings increased health savings by two-thirds with the potential for a marked improvement in health outcomes (Dupas and Robinson, 2013).

Savings can also help to enhance control and independence. As Dupas and Robinson (2009) have shown, there is significant demand for formal savings instruments among women in Kenya. This suggests that their informal methods of saving, such as cash, are often ineffective due, for example, to demands from spouses and other family members. Furthermore, the ability to easily check balances and payments enables independent budgeting and planning. As one Kenyan woman said of her husband: “He thinks I am texting...but really, I am checking my bank balance” (Morawczynski, 2011, p. 137)

Listen and learn

The flexibility of the M-PESA system and the fact that it is so intertwined with communications also enhances the function of networks of economy and society, such as the pooling of risk. M-PESA can help to formalise and enhance existing endogenous local microfinance organisations and networks, such as Rotating Savings and Credit Associations (ROSCAs) and Savings and Credit Association (ASCAs). These organisations have existed in Kenya for a number of years as means of pooling risk and resources, but M-PESA has helped to improve their flexibility, bolster their strength, and increase their scale.

The organic evolution of informal uses of M-PESA has been mirrored by a gradual expansion of formal services on offer through the

L'amélioration de l'accès aux services financiers est bienvenue pour sa capacité d'offrir de nouvelles possibilités, une meilleure sécurité, et plus de liberté aux habitants du monde en développement.
Les paiements mobiles peuvent jouer un rôle important, même s'il n'est que partiel, pour aider les gens à se prendre en charge.

platform. In expanding its marketing strategy Safaricom began to enrol a diverse list of partners to expand the range of services that could be offered through the platform. This includes traditional financial institutions, such as banks, MFIs and insurance firms, but also companies working in utilities, media, and retail, as well as the charitable sector. The system is now being used for everything from paying electricity bills to sending charitable funds to health clinics for vital surgical procedures.

The ability to access these services has not only opened them up to more users, but has also helped improve the services on offer. For example, by enhancing access to insurance products, such as health insurance, M-PESA has enabled insurers to shift to monthly premiums thereby making cover more affordable (Smith et al, 2010). In 2012, Safaricom finally launched a savings and loan product called M-SHWARI in partnership with the Commercial Bank of Kenya. Again, we see the ways that people naturally utilise their newfound access to technology systems leading the way in the development of new services by private companies.

While the initial intended scope of M-PESA may have been limited, its rapid expansion has been accompanied by an evolving ecosystem of usage, encompassing changes in both economic and social patterns of behaviour. As Johnson, Brown and Fouillet (2012, p. vi) have noted, M-PESA's "extensive use reveals the vast array of inter-personal transactions that Kenyans undertake and which are endemic to their financial lives. These transactions can be understood as embedded in social relationships." The flexible structure offered by M-PESA both mirrors and strengthens the existing informal social networks that are crucial to financial management in poor countries. Just as the service was developed through a symbiotic interplay between unmet need, existing behaviour and design, its subsequent development has also been shaped by the ways in which it has been utilised by its users.

A partial solution

OWhat then, can we learn from the example of M-PESA in Kenya? As we have seen, improving access to financial services should be welcomed for its ability to provide new opportunities, better security, and more freedoms to people in the developing world. The potential benefits for other developing countries are enormous and, as already noted, similar mobile payments services are now available to millions outside of Kenya. It is also easy to forget that 60 million adults are 'unbanked' in developed countries where lack of access to financial services can be an especially significant barrier to economic and social inclusion (Chaia et al, 2009).

However, it is not my intention to overstate the significance that mobile payments may have for the developing world, nor to portray it as a panacea. To put the counterargument crudely, mobile payments are of limited use to people without money. Indeed, there are salutary lessons in caution to be taken from the overenthusiastic embrace of microfinance in development policy and the subsequent backlash against it during the 1990s and 2000s. Too many irresponsible actors were allowed to join the market at the expense of the intended beneficiaries, leading to credit bubbles and extortionate interest rates (see, for example, Kazmin, 2010). Nevertheless, it seems fair to say that on the balance of the evidence so far, mobile payments can play an important if partial role in improving the lives of poor people and enabling them to help themselves.

Une industrie de services financiers éthiques ne doit pas faire de la charité, mais doit générer des effets bénéfiques pour la société. Le développement de M-PESA est éthique précisément car il n'est pas né de l'application aveugle de principes abstraits, mais d'une interaction simple directe et réfléchie avec la société kenyanne. Quoiqu'il en soit, sans cette relation, M-PESA n'aurait pas pu profiter d'un tel succès.

A case of virtue and vice?

For the purposes of this essay though, we must address a further question: how is the provision of mobile finance *ethical*, and what can financial services learn from it? To turn to the former question, if we were to consider mobile payments 'ethical' in the narrow sense of an action *which ought to be done*, there is a danger that such an assessment is crudely universalised. This would be to argue that we should 'beat our swords into ploughshares' as the Bible puts it, or more concretely, that all financial institutions should divert their investment towards mobile payments and other technologies that will benefit the poor.

Conversely, it would certainly be fair to argue that the decision of Safaricom to invest in M-PESA as a private company was not driven solely by an ethical desire to improve the lives of the poor. In this sense, the social and economic benefits presently being derived from M-PESA could be considered mere byproducts, or to use the economists' phrase, 'positive externalities', of a simple hard-nosed business decision.

However, I wish to argue for a version of ethics that is not based abstract reasoning. An ethical financial services industry is not one that donates to charity, but one that produces positive outcomes that *benefit societies*. The development of M-PESA is ethical precisely because it was born not of adherence to a set of abstract principles, but from a genuinely direct and reflexive relationship with Kenyan society. Moreover, as we have seen, without this relationship M-PESA could not have enjoyed nearly the same degree of success.

In the past, such concerns and arguments might have been easily dismissed, but changing societies and new technologies will soon make them impossible to ignore. Mobile payments, allied with other developments, such as peer-to-peer lending and cryptocurrencies, are part of a broader trend which will be highly disruptive to the deeply ingrained models of financial services. It won't have escaped the attention of readers that the company behind M-PESA is not a financial organisation but a telecommunications provider. In fact, there is little direct involvement of traditional financial institutions in the service, except to provide services through the platform and to guarantee the money on it.

Le cas de M-PESA montre que les consommateurs et les entreprises peuvent utiliser et manipuler les nouvelles possibilités offertes par la technologie changeante de façons diverses et inattendues.
Ces technologies et les comportements vont imposer une réévaluation continue de la fonction que les services financiers occupent dans une société et une économie en voie de globalisation. Une telle remise en question est non seulement vitale, mais nécessaire.

Unexpected developments and unforeseen consequences

As M-PESA shows, providing new ways for people and businesses to transact with one another financially can generate new and unforeseen behaviours, economies, and cultures. In both the developed and developing world, consumers and businesses are likely to utilise and manipulate the new opportunities afforded by changing technology in diverse and unexpected ways. We can already see signs of emerging trends, from new behaviours on 'social money' apps such as Venmo, to borrowing and lending between ordinary businesses and individuals on peer-to-peer platforms, to changing procedures within corporations with direct access to SWIFT payment networks.

Indeed, it has even been argued that M-PESA e-floats can be considered a parallel currency, partially removed from the traditional fractional reserve banking framework (Kaminska, 2012). Over the coming years, new technology is likely to pose even more fundamental questions to orthodox structures within financial services and, in turn, new ethical issues will arise.

It would be foolhardy to try to predict the precise constellations that will be formed by these incipient trends even a few years hence. Nonetheless, it can be said with certainty that they will compel an ongoing reassessment of the function that financial services plays in an increasingly globalised society and economy. Such a reassessment is both vital and necessary. Unlike nearly every other area of developed economies, there has been little or no improvement in productivity in the financial sector for over a century (Phillipon, 2014). The challenge for the financial services industry is to create business models and behaviours that are ready and able to confront these issues as they arise.

For both established institutions and individuals working in financial services, there will be an inevitable temptation to see new trends as a threat and therefore to react defensively. For regulators too, there will be an understandable focus on the risks, such as the increased potential for money laundering and fraud. Indeed, one of the reasons for the slower uptake of M-PESA in other developing countries has been due to hesitance from existing financial institutions and regulators. These concerns are undoubtedly legitimate, but an excessive focus on them will merely lead to ossification and insularity.

Ready for change

At its heart, financial services is based on abstraction and intermediation, whether in the efficient allocation of capital or the pooling of economic resources. Too often in the past, these have become an end in themselves in the behaviour of both individuals and institutions, leading to unscrupulous and unethical behaviour. Yet the appropriate response

L'éthique est profondément enchâssée dans les réseaux et systèmes de la vie économique et sociale y compris les services financiers. C'est seulement à travers les interactions avec les autres au sein d'une communauté ou de la société que nous pouvons nous rendre compte de la réalité éthique dans son vrai sens en évaluant les conséquences de nos actions. Une industrie de services financiers éthique, prête à s'engager au service de l'avenir doit être ouverte et désireuse de tirer des enseignements de la société.

to excessively abstract practices is not to produce equally abstract values frameworks or charters. Such measures are at best impotent, and at worst, prone to misinterpretation and corruption.

M-PESA has succeeded in improving people's lives, because it wasn't guided by high-minded principles but by listening to and learning from Kenyan society. With new technology, financial institutions have an even greater opportunity to open themselves up to learning from society. Innovative services which are responsive to the needs and behaviours of a society and economy can produce positive outcomes for those within that society. Furthermore, they enhance and improve the functioning of society itself. It is in these instances that financial services is at its best and the principle applies just as much to the largest banking institutions in Europe or the US as it does to payments providers in the developing world.

Ultimately, we must not take a narrow and crude view of ethics as akin to personal virtuosity or sin. It is not simply the means by which we divine how to 'do the right thing', whether in abstract scenarios or real life. Undoubtedly, formalised rules and procedures have their place within any organisation, but if we are to encourage ethical behaviour from both organisations and individuals, we must not be beholden to abstract standards. Such a conception merely breeds ethical and intellectual immaturity by cutting off the possibility of learning from a rapidly changing world.

Ethics are deeply and profoundly embedded within networks and systems of economic and social life and this includes financial services. It is only through interactions with others within a community or a society that we can understand ethics in a very real sense by assessing the consequences of our actions. An ethical financial services industry ready and prepared for the future is one that is open and willing to learn from society.

References

Central Bank of Kenya (2014). 'KEPSS/RTGS Statistics'. Retrieved from https://www.centralbank.go.ke/index.php/nps-modernization/kepss-rtgs-statistics

Chaia, A., et al (2009). Half the world is unbanked. *Financial Access Initiative/McKinsey*. Retrieved from http://mckinseyonsociety.com/downloads/reports/Economic-Development/Half_the_world_is_unbanked.pdf

Demirgue-Kunt, A. and Klapper, L. (2012). 'Measuring Financial Inclusion: The Global Findex Database'. *World Bank*. Policy Research Working Paper 6025, 2012

Dupas, P., and Robinson, J. (2009, revised 2012). 'Savings constraints and microenterprise development: evidence from Kenya'. *National Bureau of Economic Research*. No. w14693

Dupas, P. and Robinson, J. (2013). Why Don't the Poor Save More? Evidence from Health Savings Experiments. *American Economic Review*. 103 (4), 1138–1171

Financial Inclusion Insights (2014). 'The FII Data Center: Fall 2013 Survey'. Retrieved from http://finclusion.org/datacenter/data-center/

FSD Kenya (2009). 'Mobile payments in Kenya: Findings from a survey of M-PESA agents and users'. FSD. Retrieved from http://www.fsdkenya.org/pdf_documents/11-02-14_Mobile_payments_in_Kenya.pdf

Gordon, R. J. (2012). 'Is US economic growth over? Faltering innovation confronts the six headwinds ()'. *National Bureau of Economic Research*. No. w18315

GSMA (2015). 2014 State of the Industry: Mobile Financial Services for the Unbanked. Retrieved from http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/03/SOTIR_2014.pdf

International Finance Corporation (2010). 'M-Money Channel Distribution Case – Kenya'. Retrieved from http://www.ifc.org/wps/wcm/connect/4e64a80049585fd9a13ab519583b6d16/tool+6.7.+case+study+-+m-pesa+kenya+.pdf

International Monetary Fund (2014). 'Financial Access Survey 2014'. Retrieved from http://fas.imf.org/Default.aspx

ITU (2015). 'ICT-Eye: Key ICT Data & Statistics'. Retrieved from http://www.itu.int/net4/itu-d/icteye/

Jack, W. and Suri, T. (2009). 'The economics of M-PESA'. *Massachusetts Institute of Technology*. Retrieved from http://www.mit.edu/~tavneet/M-PESA.pdf

Johnson, S., Brown, G. K., and Fouillet, C. (2012). 'The search for inclusion in Kenya's financial landscape: The Rift revealed'. FSD Kenya. Retrieved from http://www.fsdkenya.org/pdf_documents/12-03-29_Full_FinLandcapes_report.pdf.

Kaminska, I. (2012). 'More on M-Pesa and e-money', *Financial Times: FT Alphaville*, 20 July 2012. Retrieved from http://ftalphaville.ft.com/2012/07/20/1089571/more-on-m-pesa-and-e-money/

Kazmin, Amy (2010). 'Bangladesh joins microfinance backlash'. *Financial Times*, 7 December 2010. Retrieved from http://www.ft.com/cms/s/0/63757d46-0234-11e0-aa40-00144feabdc0.html

McKemey, K. et. al (2003). 'Innovative Demand Models for Telecommunications Services' Gamos Ltd: Final Technical Report'. Retrieved from http://www.telafrica.org/pdfs/FinalReport.pdf

Morawczynski, O. (2010). 'Examining the Adoption, Usage and Outcomes of Mobile Money Services: The Case of M-PESA in Kenya'. Retrieved from https://www.era.lib.ed.ac.uk/bitstream/handle/1842/5558/Morawczynski2011.pdf

Phillipon, T. (2014). 'Has the U.S. Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation', September 2014. Retrieved from http://pages.stern.nyu.edu/~tphilipp/papers/Finance_Efficiency.pdf

Smith, A. et al (2010), 'Kenya microinsurance landscape'.*The Centre for Financial Regulation and Inclusion*. Retrieved from http://cenfri.org/documents/microinsurance/2012/Kenya%20microinsurance%20diagnostic.pdf