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Emergence of FinTech and the LASIC Principles¹

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Abstract

Financial technology (FinTech) has been receiving much attention lately. For instance, global investments in FinTech ventures (covering sectors from remittances, loans to payments) have grown 3 times from US\$ 4.05 billion in 2013 to US\$ 12.21 billion in 2014 (Accenture, 2015). Although the development of FinTech is still in early stages, they will define and shape the future of the financial industry. Even though there are large amounts of funds entering the market, not all FinTech ventures will be successful; various factors (both internal and external) are crucial. We identify some of these factors which we term the LASIC (Low margin, Asset light, Scalable, Innovative, and Compliance easy) principles. We start by explaining the LASIC principles and then use them to discuss two examples of successful FinTech firms (Alibaba and M-PESA). FinTech will bring about lower business costs and profit margins; we will also discuss the benefits of investing for financial inclusion in the final section of this paper. In order to remain sustainable and profitable, enterprises will need to expand their business by embracing financial inclusion. There is an estimated 38% of the world population that has no formal bank accounts and another 40% that is underserved by banks, providing a huge potential market for financial institutions.

Keywords: FinTech, LASIC, Alibaba, M-PESA, Financial Inclusion

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1. Introduction

FinTech refers to innovative financial services or products delivered via technology. With advancements in technology (such as mobile and internet) coupled with their global widespread adoption, consumers expectations are changing. Many companies or startups are working on FinTech related products and major disruptions in financial services are looming.

In the West, we saw advancement in a decentralised internet protocol for money with cryptocurrencies; this allows for low transaction costs and cheap international transfers. Many new FinTech startups are Bitcoin or blockchain related, venture capital investment into such startups nearly doubled from \$133 million USD in Q4 2014 to \$229 million USD in Q1 2015. We also saw an advent in other non-payment related FinTech services such as Lending Club which provides peer-to-peer lending.

Giants such as Apple and Google are also jumping on the mobile payment bandwagon with the introduction of Apple Pay and Google Pay. Google has moved into the payment business and has begun to work closely with Verizon, AT&T and T-Mobile to have the Google Wallet payments app pre-installed on Android phones sold by these carriers. Similar to other payment companies, it is also acquiring technology and intellectual property from the carriers' joint-venture, Softcard (formerly Isis Mobile Wallet) payments as announced on Feb 23, 2015. Neither Google nor the telcos were able to fully take off without co-operating with each other and they have come to realize the advantages of working together. Apple Pay has launched the Near Field Communications (NFC)-capable terminals and chip-and-PIN payment systems that improve user experience.

This phenomenon is not restricted to western countries. In the East, giants in the internet industry such as Alibaba and Tencent are rising to become providers of banking services with branchless banks such as Ant Financial and WeBank. These technologies not only enhances the financial sector but also allows wider access to the banking and financial services. FinTech services are booming in China with numerous peer-to-peer lending providers. As of the first half of 2015, there are 2028 P2P platforms in China which has made 683.5 billion RMB in loans with 208.7 billion RMB outstanding (Lee, 2015c).

FinTech products and services are continuously being invented; given that the industry is in its early stages. This gave rise to a boom of FinTech startups in the major technology hubs such as the Silicon Valley and London. The amount of investment in FinTech companies grew by 201% globally in 2014, this is compared to a 63% growth in overall venture capital funding in the same year (Accenture, 2015). However, not every funded startup succeeds. In this fast moving industry where regulations are constantly changing and network externalities play an important role, there are many factors which would contribute to the success of a FinTech company. In this paper, we outline several key success factors which we term the LASIC principles. The five factors are: Low margin, Asset light, Scalable, Innovative, and Compliance easy.

The LASIC principles may provide an answer to creating sustainable businesses with the social objective of improving income and wealth inequality. With our case studies, we demonstrate that the performance of LASIC businesses face the least resistance from the social media and are

encouraged by governments. This improves profitability with support from the masses and government in both the financial and social aspects.

1.1. Plan of the paper

In the next section, we first lay the foundation for our analysis with the LASIC principles which outlines five important attributes for successful FinTech businesses. We then use these principles to discuss two successful FinTech firms, Alibaba and M-PESA.

We conclude by discussing the benefits of investing for financial inclusion. LASIC businesses should concentrate on serving the unbanked and underbanked as technology substantially lower business costs and open new opportunities.

2. The LASIC Principles

The LASIC principle defines five important attributes of business models which can successfully harness financial technology to achieve the objective of creating a sustainable social business for financial inclusion. The five attributes are: 1. Low margin, 2. Asset light, 3. Scalable, 4. Innovative, 5. Compliance Easy.

2.1. Low Profit Margin

Low profit margin is a key characteristic of successful FinTech businesses. In a world of wide-spread internet access where information and services are readily available for free, users have low willingness to pay for service providers of any kind (such as video streaming or internet games). High network effects exhibited in such technologies require an initial phase of critical mass accumulation. This is a costly process which requires much marketing efforts. Once critical mass is built, monetization becomes possible through channels such as advertising, subscription fees or consumer data analysis. Constant efforts need to be made to ensure lock-in of users through the reinforcement of network externalities and the increase of switching costs. Profit margins will remain low at the user level. The idea is to obtain a large mass of users and attain profitability through low margins and high demand. Alternatively, the subsequent buildup of big consumer data can be monetized either through third parties or by creating new products. One such example is Alipay which utilizes consumer spending behavior to extend credit to worthy customers identified through big data analytics.

In the technology and Internet space, most users will expect information to be provided free. Most products or services in this industry exhibit large network effects; consumers benefit more from the product if many others also use it. From the perspective of the providers, there is a need to build a critical mass from the very beginning of the business. This will entail a period of high burn rate with low or no revenue period (usually by giving away the product for free), followed by exponential growth with multiple sources of revenue (such as advertising and selling complementary products or services). Over a long period of time, the initial margin will appear low but will increase over time as different sources of revenue are captured.

2.2. Asset Light

Asset light businesses are able to be innovative and scalable without incurring large fixed costs on assets. This will allow relatively low marginal costs which reinforces the first principle of “Low Profit Margin”. One can add on to an existing system (such as the mobile phone) that depreciates quickly but offer an alternative revenue source (such as an internet phone messaging service) at low marginal costs. By riding on existing infrastructure, fixed costs and initial setup costs can be minimized.

2.3. Scalability

Any FinTech business may start small but needs to be scalable in order to reap the full benefits of network externalities as describe in “Low Profit Margin”. One has to be mindful when developing technology that it needs to be able to increase in scale without drastically increasing costs or compromising the efficiency of the technology. As more business gets conducted online, the need for physical outlets is greatly reduced. This makes businesses easier to scale. However, developers need to be mindful and ensure that the technology itself is scalable. One such example is the Bitcoin protocol; although very innovative, the protocol’s implementation is hard to scale as it is unable to manage massive amount of transactions at an instantaneous speed. This is also hard to change because of the way the protocol was implemented.

2.4. Innovative

Successful FinTech businesses also need to be innovative both in its products and operations. With the increasingly widespread use of mobile phones and internet services, much innovation can be made in mobile technologies (such as contactless technologies) in the FinTech space. Some examples of such innovations will be described with the case studies in the following sections.

2.5 Ease of Compliance

Businesses that are not subject to high compliance regimes will be able to be innovative and requires lower capital requirement. While financial stability and consumer protection are important for a market to function, tight regulatory environment has its tradeoff. Besides the advantage of a “compliance easy” environment, businesses that receive subsidies or incentives aided by social, financial and economic inclusion agenda brought about by an anti-income/wealth inequality regime will have the added advantage. The main advantage of operating in a lightly regulated environment is that lesser resources are spend on compliance activities and encourages innovation.

3. Alibaba and Alipay

On the 19th of September 2014, Alibaba Group Holding Limited’s IPO (initial public offering) became made history by raising US\$ 25 billion. Two months later, it raised another US\$ 8 billion from six tranches of bond issues³, issued to re-finance its existing credit facilities. These bonds were rated “A+” by Standard & Poor’s and “A1” by Moody’s Investors Services, with ratings higher than that of other tech giants such as eBay, Baidu and Amazon, and on par with Oracle and Intel. Public fundraisings were achieved with group revenue as little as US\$ 8.46 billion and Gross Merchandise

³ with a coupon rate of 1.625%, 2.5%, 3.125% 3.6%, 4.5% for 3-year (USD1bil and USD300mil floaters), 5-year (USD2.25bil), 7-year (USD1.5bil), 10-year (USD2.25bil), 20-year (USD700mil) senior unsecured notes respectively

Volume (GMV) of US\$ 296 billion (Alibaba Group (2014)). The amount of cash in hand makes Alibaba a formidable force in acquisition and a challenge to financial institutions.

Alibaba started in 1999 with Alibaba.com, a business to business ecommerce portal. Since then, it has expanded to customer to business, customer to customer; with five web portals in China among other affiliates in the group. Two of Alibaba's subsidiaries TaoBao.com (淘宝网) and Tmall.com (天猫), ranked number 1 and 2 in e-commerce in China, have penetrated 87% and 69.7% of the Chinese Internet market respectively. Another subsidiary, the group discount store Juhuasuan (聚划算) has a penetration rate of 33.4%. It is second behind the market leader meituan.com (美团网) with a rate as high as 56.6%.

In 2013, the Alibaba group moved into internet finance through its third party online payment platform, Alipay. The launch of Yu'Ebao (余额宝), a financial product platform, marks the start of Alibaba's foray into finance. This was followed by a plethora of finance services including mutual funds, ETFs, crowdfunding, lending and insurance.

3.1. Alipay

Alipay was established in 2004 to address the issue of trust between buyers and sellers online for Alibaba. In this respect, it provides escrow services for all who transact within the Alibaba e-commerce business. As Alibaba expands globally and into logistics and infrastructure, Alipay can ride on its growing network and expand into financial services using technology and the internet.

In view of the impending restrictions placed on foreign ownership in relation to payment system in China in 2011, Alipay was divested by Alibaba and parked under Ant Financial Services. Even though Alibaba does not own Ant Financial, it is entitled to a payment if Alipay or its parent holds an IPO according to 12 August 2014 revision of the original agreement signed in 2011 (Alibaba Group, 2014 and 2015). Ant Financial Services Group is estimated to fetch a valuation of US\$ 50 billion with close to 190 million users and 45 million transactions a day at end 2014. As at June 2014, there were 600 million registered Alipay users, 188 million mobile MAUs (mobile app users), US\$ 71 billion mobile GMV, accounting for 87.2% of total mobile retail GMV in China as at June 2014 according to Alibaba's IPO prospectus (Alibaba, 2014). Alipay dominates internet payments in China, see figure below.

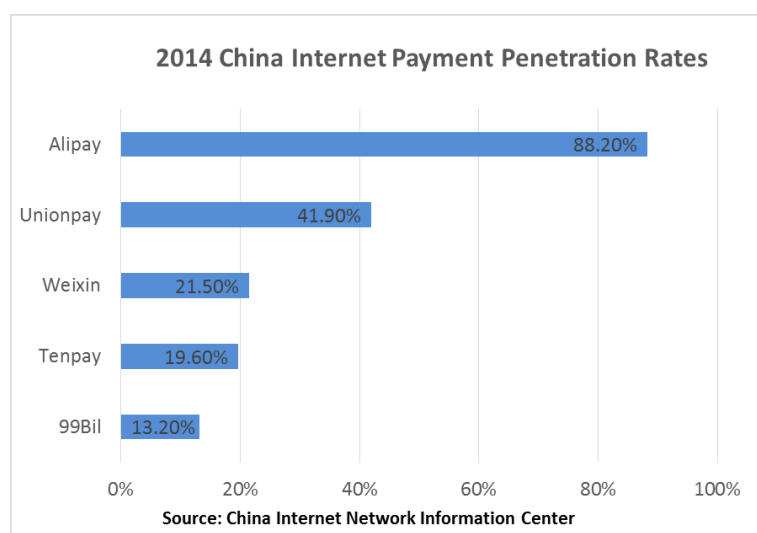


Figure 1: China Internet Payment Penetration Rates

Alipay has a well-established network in China for its mobile and internet payment services which make it a prime platform to launch internet financial services on. This combined with Alibaba's rapid expansion and foray into the global market, makes it a formidable force. Technology disruption is becoming more rapid, it took 7 years for Apple to become the world's largest music retailer; 1.5 years for Google to reduce the market capitalization of the world's top GPS companies with the Google Maps app; and just 9 months for Alipay to become the world's fourth largest money market fund (Lee, 2015b). The Alipay business model is a good example of how the LASIC principles can be applied. In the next sections, we will look at each principle and how it applies to Alipay.

3.2 Low Margin

Alibaba's extensive network of consumers and merchants was built up with its low cost, low margin model at the very beginning of the company. Merchants are not charged any setup or transaction fees on Taobao.com and were even given free storage for images. Revenue is generated through advertising and other merchant services. Consumers also need not pay to shop on Taobao.com, they can also enjoy different promotions on the web portal and earn points (which can be used to offset purchases) by participating in various activities. On top of this, many supplementary services are now offered via Alipay, one can buy movie or plane tickets, order takeaways, buy insurance, pay utility bills, and buy music online and even lottery tickets. This further enforces consumer stickiness giving them less reasons to use other portals.

Having established critical mass in the Chinese market, Ant Financial launched its first financial product in July 2013. Yu'e Bao, which offers an online money market fund, had around 578.93 billion yuan (around US\$ 93.25 billion) in assets at the end of 2014 (CNBC.com, 2015). The fund offers a return of around 4% annually on average. Comparatively its charges are low, management fee is 0.3%, custody fee is 0.08% and sales service fee is 0.25% (People.cn, 2014). This strategy of keeping fees low and returns high has attracted many Alipay users to put their spare funds into Yu'e Bao. In the aftermath of stock market volatility in 2015, a "I want stable happiness" campaign was launched by Yu'e Bao, attracting consumers back to the relatively low risk investment.

The success of Yu'e Bao paved the way for Ant Financial to expand its range to other financial offerings. For example, the entertainment investment fund, Yu Le Bao, allows one to invest in movies and TV shows. Ant financial also offers small business loans under RMB 1 million to business unable to secure loans from the banking system. Another subsidiary, Zhao Cai Bao, acts as a platform which allows small businesses and individuals to borrow from investors directly. Through its branchless banking arm MYBank (a conglomerate where Ant Financial owns a 30% stake), its lending business will see further expansion. Utilizing the group's data resources, Ant Financial also offers credit scoring services for consumers and small business owners through its subsidiary Sesame Credit. Data is collected from more than 300 million real-name registered users and 37 million small businesses that buy and sell using Alibaba's e-commerce platforms. It provides similar services by entities such as Equifax, Experian and TransUnion in the US. Accurate credit profiles can be established through consumption behavior on the e-commerce portals. (Bloomberg Business, 2014)

3.3 Asset Light

Alibaba’s online bank (MYBank) was officially launched in June 2015. The new bank is “not for the rich, but for the little guys,” said executive chairman Eric Jing (TechInAsia, 2015b). MYBank will concentrate on loans and offer loans up to RMB 5 million (around US\$800,000). MYBank will develop their business through inter-bank borrowing with traditional banks and financial organizations⁴. With no need for physical branches or counters, MYBank requires very little physical infrastructure investment and off-line risk management.

Other financial services offered by Ant Financial Services Group also rely very little on physical infrastructure. By doing business online through web portals and mobile phone apps, fixed costs are kept very low; there is also no need to add physical branches when the number of consumers increases. This compliments both the two of the LASIC principles, by keeping assets light, 1. Margins can be kept low and 2. The business can scale easily without the need to build physical branches.

3.4 Scalable

The Alibaba business model is very scalable. By eliminating the need for physical shops and costs low, it can scale as quickly as its ecommerce customers increase. Because of this, Alibaba was able to expand its network throughout China; there are 300 million registered users on Alipay as at April 2014. The volume of transactions on Alipay has also increase throughout the years with more users transacting on mobile phones.

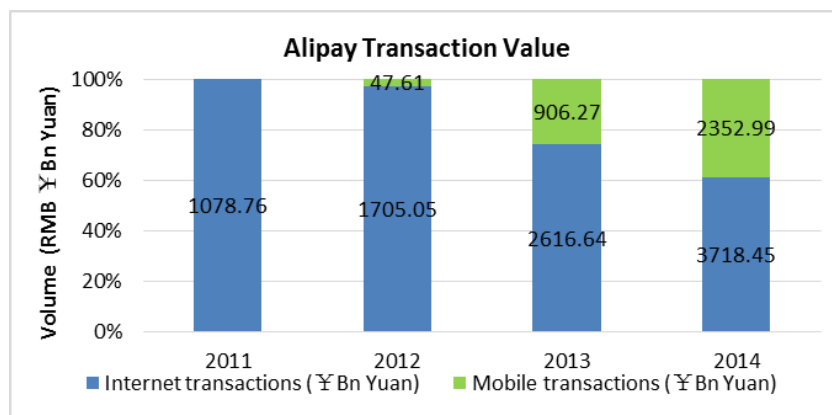


Figure 2: Transaction Value of Alipay

The reach of the ecommerce network beyond China relies on the availability of logistic networks. “The company is beefing up its international presence by partnering with embassies and countries to bring foreign products into China through Tmall Global, an international shopping platform under Tmall. It is also stepping up logistics investment to help Chinese merchants sell to global customers through its AliExpress website (Forbes, 2015)”.

3.5 Innovative

⁴ In 2015, the China Banking Regulatory Commission removed the loan-to-deposit ratio (LDR) requirement of the non-bank organizations. Internet banks are allowed lend through inter-bank borrowing as the source of loan funds, instead of the traditional way of getting deposits. To MYBank’s benefit, the inter-bank savings interest rates are expected to decrease with the further reduction of interest rate.

When EBay entered China in 2002, it did not believe that “Free is not a business model” and that it was unsustainable for Alibaba to do so. However after attempting to become the dominant ecommerce company in China for 4 years, EBay conceded defeat and exited China in 2006. In an era where most did not believe that free pricing works, Alibaba was innovative with its business model. This proved to be very much sustainable and spurred many profitable supplementary services for Alibaba. The need to gain critical mass is extremely important and the business model works. The introduction of Alipay in 2003 further reinforced consumer confidence and stickiness. By creating an escrow service through the Alipay platform, Alibaba was able give consumers the trust needed to continue buying on the web portals.

Recognizing the potential of Alipay, Alibaba innovated on expanding the range of payments which can be made on the platform. This improved consumers’ lives increasing the amount of online transactions as utility bills and mobile phone credits can be paid on the platform.

As Alipay usage grew, many consumers had excess credits left dormant on their Alipay accounts. This prompted the introduction of Yu’e Bao. The innovative money market fund had no minimum sum, withdrawals and deposits were instantaneous from Alipay accounts. This is made possible through the sheer size of the Alipay networks and funds.

Building on their extensive consumer databases, Alibaba was able to foray into another important area of financial technology: Data analysis. Sesame Credit’s data analytic services offer credit scoring using different pieces of information from the Alibaba network. This allows it to offer objective analysis and recommendations for its corporate customers, such as decision making, business model optimization and control. Data analytics also allows Alibaba to extend consumer credit without the need to offer credit cards. Lines of credit are extended to consumers on Alibaba’s web portals based on purchasing behavior and other information.

The Alibaba group continues to innovate by introducing new products. This approach is an important factor of its success. However, being innovative alone is not sufficient. Without the large network accumulated through its low margin and asset light business model, the business would not be able to scale even with much innovation.

3.6 Compliance Easy

Alibaba successfully listed in the US in 2014, making history as the world’s largest IPO. However, regulation did not allow internet businesses to have foreign shareholders. This was circumvented through the VIE (variable interest entity) structure. This structure is also known as the “Sina-model”, Sina being the first company to list in China with this operational structure. Other Chinese internet giants which listed in the US using the VIE structure includes Tencent and Baidu (Lee, 2015c). “Effectively the VIE structure means that equity holders have a somewhat indirect financial interest in the revenue and earnings stream and do not actually have a claim on the assets of the company in question” (Forbes, 2012). Although the use of VIE structure has not been explicitly approved by the Chinese government, it is most investors’ opinion that the Chinese government would be unlikely to take restrictive action against existing companies that were listed under the VIE structure due to the sheer number of companies and the massive amount of financial interest.

As the Chinese economy grew, inequality between the rich and poor also widened. This inequality is further encouraged by financial exclusion. Many in the rural areas had little access to banking services. Alibaba's services and the rapid growth of internet adoption have improved the lives of many in China. Many goods and services are now available to rural regions; and because of the need for transportation, infrastructure such as roads has also improved. The Chinese government recognizes this benefit and chose to regulate ecommerce with a light touch. In 2011, Alipay was one of the first companies to receive a third party payment license issued by the central bank.

However as the industry matures, the government is likely to impose heavier regulations. In March 2015, Zhang Mao, minister of the State Administration for Industry and Commerce (SAIC) said in a parliamentary session that the government will regulate ecommerce more strictly in an upcoming clampdown on counterfeit products and poor customer service (TechInAsia, 2015a). The central bank has also imposed regulations in September 2015 on online payment processors such as limits on daily and annual transaction amounts (South China Morning Post, 2015)

Alibaba benefited much from light government regulation in its initial stages. This is an important element to its success. However as the industry matures, we see more government intervention. It is important to point out that being the first movers in the market is a key factor of success.

3.7. Summary: Alibaba and Alipay

The Yu'E Bao episode has shown that the combination of Internet, mobile and finance can drive market-based financial innovation. As the middle class broadens and the internet savvy demographic becomes more affluent, internet finance with low minimum investment thresholds are set to disrupt the industry. In particular, there were clear disruptions to the banking and insurance sectors with interest rate liberalization, liberalization of financial services, and liberalization of cross selling of products. This has been made possible because of Alibaba's e-commerce business and Alipay was initially established as a trust agent for buyers and sellers.

The Chinese story is significantly different from the model of financial inclusion in Africa (see next section), financial inclusion is driven by the socialist political system assisted by the political will of the ruling party. The innate desire to serve the rural area and the under privileged saw innovative Internet finance companies backed by e-commerce giants or social networks, servicing the underserved and the poor, providing access to markets, services and information. China and Alibaba has the potential to emerge as an important success story for branchless banking and financial inclusion. A new paradigm in China will likely unfold seeing a convergence of forces coming from banks and financial institutions which are forced to innovate.

4. Safaricom's M-PESA

M-PESA (pesa means money in Swahili) is a mobile money transfer service launched in 2007 and it has the widest coverage in urban and rural Kenya. It drives financial inclusion by providing money transfer services, local payments and international remittance services easily with a mobile device. M-PESA has since expanded to Tanzania, Afghanistan, South Africa, India and Eastern Europe with varying degrees of success.

The M-PESA service is provided by telecommunications service provider, Safaricom. As of 2014, Safaricom has a customer base of 21.5 million and 34% of airtime top-ups were made directly

through M-PESA. It has successfully penetrated 90% of Safaricom’s telecom customers. M-PESA accounts for 18% of Safaricom revenue (see chart below for revenues from 2008 to 2014) and its agents employ more than 140,000 workers. M-PESA has 81,025 agents, 122,000 merchants (24,137 active), and 19.3mil registered customers (12.2 million active).

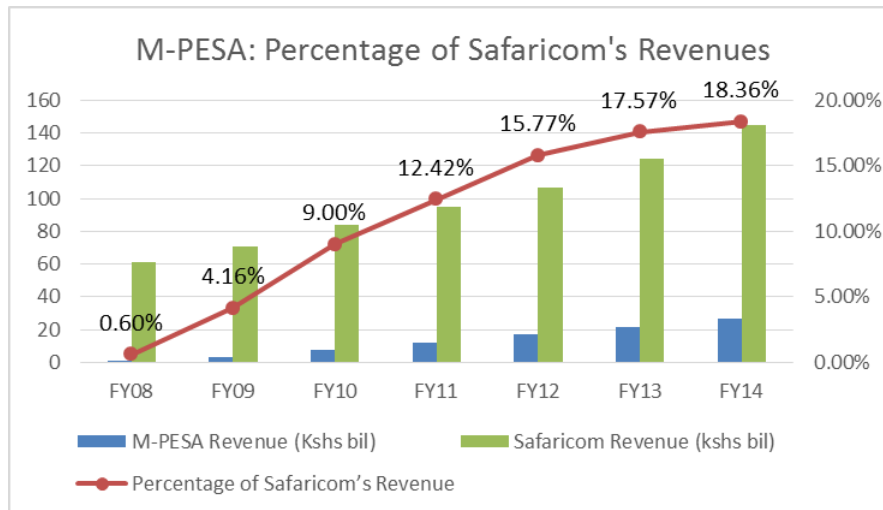


Figure 3: Revenue of M-PESA and Safaricom

Since its conception, M-PESA has expanded in to more than money transfer services. M-Shwari (a paperless banking platform with loan services by M-PESA) has 3.6 million active customers with 4 billion KShs (Kenya Shillings) in deposits and 1.2 billion KShs worth of loans issued per month with non-performing loans at only 2.7%. Other key services include Lipa Na M-PESA (cash payments for goods and services), Lipa Kodi (rental payment to landlords). There are various reasons behind M-PESA’s widespread adoption and success:

1. Safety – eliminates the risks associated with handling cash for both customers and merchants;
2. Reduce losses – eliminates losses associated with receiving fake currency;
3. Enhanced record keeping – transaction records are readily accessible;
4. Short and flexible settlement cycles – allows timely collection
5. Acceptance of low value transactions – as little as Kshs 10;
6. Lower costs – avoids high POS (Point of Sales) and remittance fees.

In the next sections, we look at how each of the LASIC principles applies to M-PESA’s business model.

4.1 Low Profit Margin

In the initial stages, M-PESA had to attract both customers and merchants to participate in their network. It faces a chicken and egg problem; merchants are only interested in networks with an established customer base and vice versa. Safaricom’s initial investment in its marketing efforts is estimated to be as high as US\$ 25 to US\$ 30 million in its first 2 years, (Mas and Radcliffe, 2010a).

Customers: M-PESA only charges its customer for “doing something” such as money transfer or withdrawal. There are no fees for registration, deposits; there is no minimum deposit and even the SMSs that are used to deliver the service are free of charge. M-PESA has also largely maintained

their transaction fees for the first 3 years, choosing to charge a fixed price for different range of amount transacted.

Agents: Safaricom pays high commissions to retail outlets acting as its agents. In 2010, a store can earn around \$5.70 USD per day (if it conducts 60 transactions), this is twice the prevailing daily wage for a clerk in Kenya (Mas and Radcliffe, 2010b).

By keeping fees low and commission high, M-PESA fostered a well-developed network. Combined with the large marketing efforts in its initial years, this kept M-PESA's profit margins low but also helped to create the critical mass which is imperative to its success.

4.2 Asset Light

M-PESA utilizes existing retail stores as cash-in/cash-out agents, reducing infrastructure and deployment costs and provides greater convenience to its customers. The agent model is light on assets and does not require any brick and mortar investment. Money in M-PESA accounts are deposited at commercial banks and the interest earned is diverted to M-PESA Foundation (a not for profit organization focused on promoting education, health and environmental conservation). This eliminates the need for infrastructure required to manage cash deposits keeping M-PESA asset light.

4.3 Scalable

The agent system which M-PESA adopts also makes it scalable. The same system can be replicated across many regions with minimum costs. The M-PESA is built on the existing technology of mobile phone SMSs, this ride on telecommunications infrastructures which are established by telcos. As mobile phone adoption increase in the countries where it operates, its reach also extends. Both customers and agents only need a mobile phone to participate in the M-PESA network, there is no need to distribute bank cards or point of sales systems since the mobile phone is functionally equivalent (Mas and Radcliffe, 2010a). This technology allows M-PESA to expand its customer base quickly without incurring any large setup costs.

4.4 Innovative

M-PESA is the first to offer peer-to-peer payments through mobile phone SMS. Through this innovation, the reliance on cash is heavily reduced, M-PESA can be used to pay bills, save and withdraw money, pay for public transport, monthly insurance premiums, receive pension or social welfare payments, or receive loan disbursements and repay them electronically. Companies can also use M-PESA to pay salaries (Mas and Radcliffe, 2010b).

Partnering with Kenya's largest ATM service provider, PesaPoint, customers can now make withdrawals from their M-PESA accounts from any PesaPoint ATM and no bank card is required (Mas and Radcliffe, 2010b). Lipa Na M-PESA is a cashless merchant service which allows small and medium enterprises to effortlessly collect and manage cashless payments from M-PESA's significant customer base (Safaricom Limited, 2014). In 2012, a virtual banking platform M-Shwari was introduced, it allowed M-PESA users to operate savings accounts, earn interest on deposits and borrow money using their mobile phones (Community-Currency Knowledge Gateway (2015) and Consultative Group to Assist the Poor (CGAP) (2015)).

By using SIM (Subscriber Identification Module) card technology, M-PESA is able to offer its services through simple SMSs and does not require its customers to use smartphones. This innovation allowed it to gain widespread adoption in emerging economies like Kenya. By continuing to innovate beyond just payment services, M-PESA has retained its large user base and will continue to be a major player in mobile financial services.

4.5 Compliance Easy

M-PESA operates mainly in emerging and developing countries, governments recognize that such technologies can promote financial inclusion and choose to adopt a lighter regulatory treatment than traditional banks. The Central Bank of Kenya (CBK) Act (Mas and Radcliffe, 2010b) gives the CBK discretion to “formulate and implement such policies as best promote the establishment, regulation and supervision of efficient and effective payment, clearing and settlement systems”. In 2009, the CBK determined that mobile money is not a banking service but a low-value retail money transfer service, which put to rest questions about the legality of mobile money and reaffirming the government’s strong support for financial inclusion (Muthiora, 2015). National Payment Systems (NPS) regulations were officially issued in 2014 by the Kenya government. This allowed mobile phone operators to continue operating under their existing structures, creating minimum disruption to mobile money services (as long as roles and management are clearly separated) (Muthiora, 2015). NPS regulations also provide for detailed consumer protection, requiring service providers to have disclosure mechanisms and open channels for consumer redress; while maintaining the privacy and confidentiality of consumer data. It is compulsory in Kenya for citizens over 18 years of age to hold national identity cards, this helped to facilitate the KYC (know your customer) process for M-PESA.

With central bank support and clear regulations in place, consumers are more likely to trust and use mobile payment service providers. Identity card also made the KYC process easy. Support from the government is important for M-PESA’s success.

4.6 Summary: M-PESA

Unlike Alipay that built up its user base from e-commerce, M-PESA expanded its services from telecom service to financial services. It is known that customers are sticky and defaulting on phone bill payment will be a lot more inconvenient than defaulting on a loan payment. Given its large user base, M-PESA has successfully increased its margin by expanding its range of financial services from payments, lending, micro-insurance to other peripheral services. Utilizing an innovative approach to mobile money, M-PESA kept its business costs low and its operations scalable while keeping its prices affordable for its consumers. On top of that, it received much government support due to the very nature of the business which is to encourage financial inclusion. M-PESA’s business model exhibited the LASIC principles and how they can contribute to the success of a good fintech business.

5. Financial Inclusion

Being able to capitalize on the LASIC principles are insufficient for long term sustainability. Investing into financial inclusion and serving the underbanked and unbanked is key. Cost of doing business continues to escalate for mainstream financial firms because of capital adequacy requirements and compliance costs. On the other hand, revenues are stagnating as they concentrate on competing for clients at the top of the pyramid. Although only 30% of the world has access to full banking service,

much more own a smart mobile phone. The exponential growth of smartphone adoption has created an opportunity to offer financial services on this platform. This allows businesses to reach the 70% of the pyramid who are underserved by banks and unbanked. Financial technology can bring about financial inclusion with its lower costs and large networks.

The unbanked and the underserved pose exciting business opportunities for businesses that utilize FinTech to lower operating costs. There is scope for payment, remittance and credit businesses to lower transaction costs for consumers as well as operating costs for merchandise businesses. With the use of big data analytics it will become viable for businesses to offer short term microloans to credit-hungry consumers at the bottom of the pyramid by using other forms of information such as social media to provide credit scoring; through risk profiling using similar data, microinsurance will also become a viable business.

Companies attempting to work in this area should work within networks with large existing critical mass such as telecommunication services and e-commerce platforms. The success of such companies would increase the amount of economic inclusion in the world and decrease wealth inequality. Financial inclusion is not just a worthy cause but also opens a large pool of untapped demand for potential financial institutions.

5.1. The potential of Cryptocurrencies

One noteworthy technology which can be harnessed for financial inclusion is cryptocurrencies; a type of programmable digital money that relies on cryptography to ensure secure transfer for tokens and to make records of all transactions on a decentralized digital register. Bitcoin is the first of the modern day cryptocurrencies. Created in 2008 in a whitepaper by Satoshi Nakamoto, Bitcoin gives incentives to those who are willing to participate in solving a cryptography quiz. Participants (known as miners) engage in proof-of-work (the contest) and as a consequence, form a consensus of a chain of transaction records. These transactions are stored in a decentralized digital ledger called the blockchain. Instead of a centralized authority maintaining the records, everyone who is part of the network holds a copy. A majority of the network need to agree in order to change any record or ass new transactions to the ledger. Its decentralized nature means that it is hard for any single entity to control it. This feature has potential for uses in developing countries where governments and monetary policies are frequently unstable.

Many intermediary companies have sprung up over the years since the inception of Bitcoin. Notable to the financial inclusion effort, 56coins allow the transfer of bitcoins over SMS thus giving anyone with a mobile phone the ability to make remittances at low costs. As the technology develops, cryptocurrencies can open the door to a whole new economy of sharing and financial inclusion. Lee (2015) has described the different ways that cryptocurrency can change the financial world. It can allow the monetization of a person's social network (getgems.org); distribute music (Bitshares Music Foundation); allow for crowdfunding (Swarm, Counterparty, and Colored Coins); decentralize data storage (MaidSAFE, Storj) and also the issuance of shares through crypto-equity (Hyperledger).

6. Conclusion

The world of financial services is fast changing; consumers want more personalized services that increase convenience and yet retain security. Building on the idea of financial inclusion, we believe that the next big thing in financial services is about 'connectivity inclusion'. Connectivity inclusion is more than just financial inclusion; it is about being connected by smartphones, wearables and across all radio signals, (FST Media, 2015). It entails the amalgamation of social inclusion and financial inclusion. Connectivity inclusion can be made possible through the use of new and innovative technology which embraces social networks and lowers costs. For the world economy to see sustainable growth, inclusion is key. New disruptive businesses should aim to conform to the LASIC principles (and keep inclusion in mind) to ensure success.

Of the LASIC principles, compliance or regulation may not be within full control of the business. Businesses should work on products or services which could improve the economy and advocate such that it gains government support. It is important to recognize that there is a first mover advantage; if regulators recognize that the product is beneficial to the country (such as M-PESA) it would allow such technology to proceed without hindrance. They should ensure "development-led regulation" rather than "development lagged regulation". Governments can then choose to step in when the industry reaches maturity (such as what is happening in China now with Alipay).

For long term development to a much larger scale and other more complex financial services, regulation is essential and may prove to be a hindrance. India is a good example where telcos or start-ups offering financial services have to partner a bank due to regulation. As a result, only 4% of the population reports using remittance or bill payment services on their mobile phones. Know Your Customer (KYC), Counter Terrorism Financing (CTF) and other compliance requirements and the resulting costs (to consumers and the companies) may have made the business less viable.

If identification remains an issue, scalability remains unattainable. We suggest registration solutions that lie somewhere between (Subscriber Identity Module) SIM registration and due diligence done by the financial institutions. Once KYC requirements are easy to achieve or that an exempt status is given to small operators, the business can achieve scale with mass adoption. For example, Alipay can be easily downloaded into a mobile device by anyone but to use more complex functions, further compliance such as linking with a bank account, credit card or with further identification is required.

It is known that SIMs allows for end-to-end encryption and SIMs are controlled by MNOs (Mobile Network Operators). MNO-led solutions may offer full security but these technology companies lack the experience in the finance industry. Telcos may have to trade control of the SIM in exchange for more participation in the financial sector. In some countries, governments have given a push by using mobile money to pay salary and thus weeding out fraud such as ghost or dead workers.

However, regulation is only part of the equation; low marginal costs and having social/cultural appeal are both important factors. Initial conditions are also important, some innovators succeeded because they start out as a monopoly, such as Kenya's M-PESA. Similarly, Alipay seems to be untouchable because of its dominant role in serving the underserved.

In conclusion, we discussed two successful alternative finance businesses models that exhibit the LASIC principles, the first is aided by its e-commerce company within the group and the second is aided by its large telecom user base. Although, the LASIC principles are necessary conditions to a successful FinTech business, they are not sufficient conditions. Unlike many other FinTech firms of

which many are not sustainable, the two businesses we discussed has one common trait: they have their roots in financial inclusion. This is especially important on two fronts, 1. It caters to a large untapped market with relatively low competition and 2. It is more likely to gain the support of the government and face lighter regulation.

References

- Accenture (2015), "The Future of Fintech and Banking: Digitally disrupted or reimagined?", <http://www.fintechinnovationlablondon.net/media/730274/Accenture-The-Future-of-Fintech-and-Banking-digitallydisrupted-or-reima-.pdf>
- Alibaba Group (2014), "Alibaba Group Holding Limited IPO Prospectus", Form F-I Registration Statement Under the Securities Act of 1933, Securities and Exchange Commission, <http://www.sec.gov/Archives/edgar/data/1577552/000119312514184994/d709111df1.htm>
- Alibaba Group (2015), Alibaba Group and Ant Financial Announce Completion of Restructuring , 10 February 2015, <http://www.alibabagroup.com/en/news/article?news=p150210>
- Bloomberg Business (2014), Alibaba Arm to Create \$163 Billion Loans Marketplace, Lulu Yilun Chen, 24 September 2014, <http://www.bloomberg.com/news/articles/2014-09-23/alibaba-arm-aims-to-create-163-billion-loans-marketplace>
- CNBC.com (2015), "How China's stock rout disrupted online funds, in a good way" by Leslie Shaffer, 16 Jul 2015, <http://www.cnbc.com/2015/07/16/how-chinas-rout-disrupted-online-funds-like-alibabas-yue-bao-in-a-good-way.html>
- Community-Currency Knowledge Gateway (2015), "M-Pesa", <http://community-currency.info/en/currencies/africa/m-pesa/>
- Consultative Group to Assist the Poor (CGAP) (2015), "Top 10 Things to Know About M-Shwari", Tamara Cook and Claudia McKay, 02 Apr. 2015, <http://www.cgap.org/blog/top-10-things-know-about-m-shwari>
- Forbes (2012), "Looking at Chinese VIE's", Richard Pearson, 18 October 2012, <http://www.forbes.com/sites/richardpearson/2012/10/18/looking-at-chinese-vies/>
- Forbes (2015), "Alibaba Steps Up Asia Logistics Presence With New SingPost Investment", Yue Wang, 7 July 2015, <http://www.forbes.com/sites/ywang/2015/07/07/alibaba-steps-up-asia-logistics-presence-with-new-singpost-investment/>
- FST Media (2015), "An interview with David Lee Kuo Chuen", 14 July 2015, <http://fst.net.au/knowledge-centre/interview-david-lee-kuo-chuen>
- Lee, David Kuo Chuen (2015a), "Handbook of Digital Currency: Bitcoin, Innovation, Financial Instruments, and Big Data", 1st Edition, ISBN-9780128021170, Academic Press
- Lee, David Kuo Chuen (2015b), "The Rise of Alternative Finance", Presented at the 6th Annual ASEAN Technology & Innovation, 23 July 2015, <http://www.smu.edu.sg/sites/default/files/skbife/pdf/ASEAN%20Technology%20and%20Innovation.pdf>
- Lee, David Kuo Chuen (2015c), "The Rise of Chinese Finance: The Game of Dian Fu", Presented at the Sim Kee Boon Institute for Financial Economics: Seminar Series, 17 Aug 2015,

<http://skbi.smu.edu.sg/sites/default/files/skbife/pdf/The%20Rise%20of%20Chinese%20Finance%20%E9%A2%A0%E8%A6%86.pdf>

Mas, Ignacio and Radcliffe, Dan (2010a), Bill & Melinda Gates Foundation, “Scaling mobile money”, September 2010, <http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2010/02/Scaling-mobile-money.pdf>

Mas, Ignacio and Radcliffe, Dan (2010b), Bill & Melinda Gates Foundation, “Mobile Payments go Viral: M-PESA in Kenya”, March 2010, http://siteresources.worldbank.org/AFRICAEXT/Resources/258643-1271798012256/M-PESA_Kenya.pdf

Muthiora, Brian (2015), “Enabling Mobile Money Policies in Kenya”, January 2015, http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/02/2015_MMU_Enabling-Mobile-Money-Policies-in-Kenya.pdf

People.cn (2014), “CCTV commentator shelling Yu'e Bao “parasites”, Alipay responses it”, Feb.2014, <http://media.people.com.cn/n/2014/0224/c40606-24441365.html>

Safaricom Limited (2014), “Annual report 2014”, http://www.safaricom.co.ke/annualreport_2014/public/downloads/Full%20Report.pdf

South China Morning Post (2015), China's booming e-commerce market faces challenges as regulators seek to restrict online payments, James Griffiths, 4 September 2015, <http://www.scmp.com/tech/e-commerce/article/1854684/chinas-booming-e-commerce-market-faces-challenges-regulators-seek>

TechInAsia (2015a), All eyes on Alibaba as China proposes tighter regulations on ecommerce sites, Steven Millward, 9 March 2015, <https://www.techinasia.com/china-stricter-ecommerce-regulations-affect-alibaba/>

TechInAsia (2015b), Alibaba launches online bank: ‘It’s for the little guys, not the rich’, Steven Millward, 25 June 2015, <https://www.techinasia.com/alibaba-launches-online-bank-mybank/>