

University of Nevada, Reno

**A Case Study of FinTech in Banking;
A Comparison of the Developing and Developed World**

A thesis submitted in partial fulfillment
of the requirements for the degree of

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Program

by

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**BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION, FINANCE AND
ACCOUNTING**

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Abstract

With advances in financial technology (FinTech), startup firms search for ways to revolutionize all aspects of financial industries especially in the banking sector. New firms attempt to provide more affordable credit or more customized services to steal market share from traditional banks. Researchers have analyzed collaboration between FinTech firms and banks and have also examined the demographics and locations targeted by FinTech firms. This study analyzes the performance of the stock of two FinTech companies in both the developed (LendingClub) and developing worlds (Safaricom). Furthermore, it looks at the business environment risks faced by both companies. After using financial metrics to evaluate stock performance, Safaricom outperformed both the traditional bank proxy as well as LendingClub. Based on risks in the business environment, it was determined that both companies face a major risk due to regulation. Traditional banks, already operating in a heavily regulated environment, do not face the same threat.

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Introduction

The term “FinTech” refers to the category of companies focused on changing the financial world through new technologies (Menat, 2016). These areas of change can range from payment systems, to borrowing, lending, investing, and so forth. FinTech companies have seen a rise in popularity in the years since the financial crisis in 2008. For many, there is an underlying distrust of banks and a desire for better, individualized customer service. FinTech startups are trying to find their niche in supplying customers with services that large banks may be unable, or unwilling, to provide. Because of most FinTech firms’ size and proficiency in technology, they can provide lower-priced services through well-designed programs. The three main functions of banks include: (1) taking deposits and providing a safe place to store cash while paying interest; (2) facilitating payments (cash, card, transfer); and (3) lending money (Mead, 2016). FinTech firms can focus on portions of these functions while gaining market share and customer approval.

Many FinTech firms involved in banking and investing desire transparency. This adheres to the idea that the bank system is somewhat untrustworthy and lacks transparency. For this reason, trustworthiness and security are some of the most important characteristics FinTech firms can exhibit. One way that firms can embody these attributes is through adherence to regulation. With new technology comes a fear of cyber-crime and data abuse. Regulation is created to protect citizens from predatory or fraudulent financial practices. With so many new technologies and FinTech startups, regulation is crucial to financial protection of customers and clients. While regulation

can shrink profit margins, it is necessary for Fintech firms to embrace them and eventually use regulations to their advantage (Wendenburg, 2016).

Since the banking industry is global and applies to nearly all demographics, I wanted to examine how new banking-focused FinTech firms are modeling their operations around the world. To do this, I analyzed two companies, one in the United States and one in Kenya, to see the approaches used by companies in an area with a concrete financial regulatory structure and one with a less developed structure paired with a largely unbanked population. I looked at the business models of each company to determine the risks and advantages faced in their respective business environments and analyzed their stock performance over the past five years (2014-2019)

Literature Review

Banks have traditionally served as lenders and as a safe place to store cash to earn interest. Now, for several reasons, financial technology (FinTech) firms are beginning to change the way society views banking, money lending, investing, and purchasing (Menat, 2016). First, traditional banks have lost much of the public's confidence because of events like the recent Great Recession of 2008. According to the CCP Research Foundation, as of June 2015, the top 16 global banks had incurred \$306 billion in conduct-related costs since 2010 (Mead, 2016). Because of the distrust of banks, consumers are looking for more power over their money and FinTech firms have attempted to provide it. With their small size, flexibility, and superior technology, FinTech firms can create a customer-focused business model that traditional banks struggle to achieve (Mead, 2016). Also, millennials are now old enough to become customers of financial service providers. Their technological prowess allows for more innovation in the financial service industry than was previously possible due to uncertain public sentiment towards technology. Lastly, as FinTech firms improve their technology, they can provide services that cost less than what traditional banks charge and improve their customers' experience. By picking apart banking services and specializing in one facet, whether it be mobile banking or lending to underbanked demographics, FinTech firms can compete with banks that may suffer from the "jack of all trades, master of none" situation (Glas, Truszel, 2016).

FinTech firms must also be cautious with regulations. Wendenburg notes that they will become obsolete if they do not strictly adhere to regulations at the federal and state level specifically in the United States (2016). Without regulatory trust, the FinTech

firms will be no better off than their bank counterparts. Wendenburg also explains that, while regulation may be a burden, it can also be FinTech's greatest asset. Banks are strictly limited by regulations in comparison to the new banking startups. This allows FinTech firms to enter new markets and reach untouched customer bases. "Only 50% of people worldwide have a savings account and just 20% have access to a loan product from a financial institution" (Gonzalez, 2016). Banks are often unable to touch these markets due to their regulatory restraints and risk averseness, providing ample opportunity for startups to gain market share.

While it may appear that FinTech firms are bringing the demise of helpless, outdated banks, this is not the case. There is still time for banks to react to this new threat to their market share. While they may potentially face a decrease in revenues of 29-35% in the long-term (Temelkov, 2018), they could also stand to increase revenues while growing market share. Although they risk losing revenues, it has been found that the growth in funding for FinTech startups is more likely to have a positive effect on bank stock prices than a negative effect (Li, et al., 2017). Temelkov believes that if banks decide to collaborate with FinTech firms, it could be beneficial to all parties involved. The banks would receive lower costs of business while reaching new demographics of clients, FinTech firms would enhance their brand, and customers would have better access to credit and banking services through improved mobile technologies. In Korn, Miller, and Polsky's *Banks and FinTech Report* (2016), they found that 81% of bank respondents were currently collaborating with FinTech firms while 86% of those not currently collaborating were planning to within the next two years. In the same report, the researchers found that the percentage of FinTech respondents and bank

respondents who saw each other as potential partners was 58% and 54%, respectively. Even more interesting, only 5% of bank respondents saw FinTech as a threat. This is indicative of a collaborative environment existing between banks and FinTech.

Banks possess a massive customer base and a huge amount of data on those customers. This provides them with benefits that many FinTech firms require to be successful; namely their long history and regulatory foundation (Nienaber, 2016). The need for these resources drives many FinTech firms to collaborate with banks instead of simply acting as a competitor. The technology that banks are mainly interested in relates to mobile banking technology, online service, and payment technology (Korn, Miller, Polsky, 2016). The push for these technologies is driven by the customer's desire to access banking services remotely from anywhere. While it may sound like FinTech and traditional banks are a perfect match, there are some pitfalls and risks involved with collaboration.

From the banking point of view, regulations may place restrictions on the percentage of equity a bank can purchase in a startup. Also, there are concerns from both sides regarding the business culture clash that may ensue with higher levels of collaboration (Korn, Miller, Polsky, 2016). Furthermore, cybersecurity risks pose a threat to both sides. Some smaller banks may have less sophisticated technology that deters FinTech firms from partnering with them. On the other hand, some FinTech firms may not be as concerned with security measures as larger banks are. Even though there are several risk factors inherent in partnerships between the two, there is agreement between many, though not all, banks and FinTech firms that collaboration is both beneficial and necessary.

FinTech advances differ dramatically based on location. In the developed world, FinTech takes a more innovative form focused on added value while in the developing world FinTech “address[es] pain points which are acutely felt in their respective countries” (Gnirck, Visser, 2016). In both, however, FinTech firms often attempt to serve customers which banks have been unable to reach. Gnirck and Visser also note that the three characteristics of a successful FinTech ecosystem include: “(1) FinTech startups and entrepreneurs, (2) investment capital to fund startup growth, and (3) an educated community”.

In Africa, and other areas where there are many isolated, rural villages, banks tend to not expand their physical branches. Until the last 15 years, this has made it nearly impossible to establish a meaningful financial framework necessary to help rural citizens improve their lives. FinTech firms have seen their opportunity arise with the emergence of mobile phone subscribers which has exploded from 0 to 900 million in the past 15 years in Africa (Joseph, 2016). While banks experience trouble reaching rural demographics through their branches, FinTech firms easily grant mobile banking services to anyone with a mobile phone. This is an important development considering smartphone adoption is expected to reach over 70% of emerging markets by 2020 (Joseph, 2016). One of the challenges in Africa, however, is overcoming the stigma that banking is solely for the rich. Bureaucracy in African banks can make it difficult for impoverished citizens to gain access to a bank account. This illustrates that in most cases in Africa, the key to accessing the unbanked population is through collaboration with mobile network operators rather than banks. In fact, FinTech firms in Africa “operate

separately from and are often in direct competition with banks” (International Finance Corporation, 2017).

The United States is also a FinTech powerhouse. The hotspots for startups in America are in Silicon Valley and New York City. Most banks are interested in collaboration with FinTech firms. This collaboration can take several forms as found by Polsky, Korn, and Miller. 63% of bank respondents working with FinTech firms did so in the form of a partnership, 50% used FinTech services as a third-party provider, and 10% reported a full acquisition of a FinTech firm. LendingClub, a peer-to-peer (P2P) lending platform based in the United States, has not partnered with banks and has instead competed with them directly. LendingClub has expanded its consumer lending activities in areas that have low bank branches per capita and has expanded the credit supply in such locations (Jagtiani, Lemieux, 2018).

Methodology

To compare the chosen companies, LendingClub and Safaricom, with traditional regional banks, I decided to use a bank exchange traded fund (ETF) as a proxy for the banking industry. An ETF is a type of security that allows an investor to place their money in a group of assets, an index, bonds, or even commodities. ETFs have prices that change throughout the day as the instrument is traded in a way that resembles shares of company stock (Chen, 2019). The ETF I have chosen is the SPDR S&P Regional Banking ETF (KRE). KRE contained 123 holdings as of 25 March 2019 and consists entirely of regional banks. Such holdings include banks like Sterling Bancorp, First Republic Bank, and Fifth Third Bancorp. Since it is solely comprised of regional banks, it allows for a more direct view of the industry in which companies like LendingClub compete instead of including larger banks that may not represent LendingClub's competitors.

To compare LendingClub and Safaricom with the banking ETFs discussed earlier, I have chosen two financial metrics: beta, and the Sharpe Ratio. The beta of each stock represents that stock's volatility in comparison to the volatility of the market (Kenton, 2019). The entire market, for instance the S&P 500, has a beta of 1.00. If an individual stock has a beta of 1.50, then for every 100% the market moves in either direction, the stock will move 150%. A negative beta illustrates that the given asset moves in the opposite direction of the market.

To find beta, I first calculated the monthly returns for each individual stock and ETF over a five-year period (2014-2019). I, then, calculated the monthly returns for SPY as a proxy for the market. The SPY is an ETF that tracks the entire S&P 500, making it

convenient to gather historical returns for the market. Next, I calculated the slope of the stock and ETF returns in relation to the SPY to find each beta. For Safaricom, however, since it is traded on the Nairobi Stock Exchange, I calculated its beta by using the Nairobi Stock Exchange All Stocks Index (NSEASI) as a proxy for the market the company operates in.

The Sharpe ratio measures risk-adjusted returns for an investment. Instead of comparing an investment with the market, as measured by beta, the Sharpe ratio uses a risk-free asset such as a U.S. Treasury Bill. For this metric, a higher ratio is better and represents the level of return received in relation to the additional risk taken on by the investor (Maverick, 2015).

To find the Sharpe ratio, I used the expected return of each stock and ETF calculated as the average annualized return for each stock over a 5-year period. This return is included in the table. After that, I subtracted the risk-free rate using a 3-month Treasury Bill return of 2.43%. Finally, I divided the difference by the annual standard deviation of each stock and ETF to find the Sharpe ratio.

The historical price data for LendingClub, SPY, and KRE were found on Yahoo! Finance while the data for Safaricom was retrieved from Reuters. Monthly prices were tracked from the period 1 April 2014 to 1 April 2019 except for LendingClub which only had price data available from 1 December 2014 to the present.

I also read both LendingClub and Safaricom's annual reports to determine the major risk factors facing the companies in their business environment. This helped to better understand the strategic motivations of both companies and their major

considerations for their future operations. I address the major risks outlined in their respective annual reports in each company's chapter.

LendingClub (LC)

Company Overview:

Incorporated in 2006, LendingClub has become the largest American online lending marketplace with US\$10.9 billion in loan originations for the year ended December 31, 2018. The company's mission is to extend affordable credit access to those who have not previously had access in the traditional credit-score driven environment. For investors, LendingClub attempts to offer rewarding investments with competitive risk-adjusted returns. In this way, the company acts as a market-maker, pairing borrowers with investors looking for a return on their unused cash. The infrastructure of the company is fully online and does not use physical branch locations. This model gives the company a significant advantage over traditional banks that often require a physical location to operate in an area.

LendingClub automates as much of its operations as possible. Using its proprietary technology platform, automation is achieved in business processes like credit application, data gathering, credit decisioning, and regulatory compliance (LendingClub, 2019). Through automation, LendingClub can spend more resources on focusing their business towards the needs of individual customers. A main advantage of their model, according to LendingClub, is that they can fix the issues with uniform rates of credit cards. Since credit cards have uniform rates, low-risk borrowers, who theoretically should be charged lower rates because of their creditworthiness, tend to subsidize high-risk borrowers who pay identical rates but deserve higher rates. If a company, such as

LendingClub, can cost-effectively analyze the creditworthiness of each borrower, then individuals should receive fair rates that represent their actual borrowing risk.

LendingClub employs fee-based revenue generation. For borrowers, they collect transaction fees both from the borrowers and the banks that originate the loans. On the investor side, the company receives fees for servicing and collection efforts. If a loan is held on LendingClub's balance sheet, they can also recognize gains on the sale of such items. For specific loans for education and patient finance, LendingClub is contractually obligated to purchase loans if they are unable to find a private investor to purchase the loan. This could become a substantial risk if LendingClub has fewer investors than borrowers and the company is required to place large amounts of loans on their balance sheet.

LendingClub allows investors to participate in their lending marketplace in several ways. Investor classes that partake in the marketplace can be both institutions and individual investors. Institutional investors, including hedge funds and insurance companies sometimes look for whole loans to purchase. LendingClub thus sells whole loan purchase agreements to these types of investors. The company also securitizes loans for investors to purchase (converts the loans into marketable securities for sale to third-parties). Furthermore, LendingClub offers CLUB certificates. These instruments are pass-through securities that trade over-the-counter and serve to collateralize unsecured personal loans. Since these certificates trade over-the-counter, it allows investors the opportunity to participate in the consumer credit market through a more liquid investment resembling a collateralized debt obligation.

LendingClub has significant technological advantages. As discussed earlier, their automation allows for streamlined and efficient operations. Furthermore, they have proprietary fraud detection technology that sifts through historical data using analytical tools to find fraudulent applications for cancellation. Every time a fraudulent application is identified, the flagged characteristics of the loan are added to the system to improve its ability for fraud detection. LendingClub also employs a data integrity and security technology system that follows well-established security standards for the industry to protect the confidentiality of investor and borrower information.

LendingClub increased its loan originations by just 3.72% from 2016 to 2017; however, the company saw a large loan origination increase of 21.08% from 2017 to 2018. Furthermore, they have been able to reduce their customer acquisition cost as a percentage of loan originations from 2.5% in 2016 to 2.47% in 2018. This shows that LendingClub is growing its loan originations in an efficient manner. Also, important to note, of their personal loan originations, 27% were of an A loan grade in 2018 compared to just 16% in 2016. This is an attempt by the company to tighten credit and shift toward a more creditworthy customer base.

Risks:

LendingClub engages in crucial partnerships with banks that originate loans facilitated by the lending marketplace. WebBank, a Utah-chartered industrial bank originates loans for unsecured personal and auto loans. LendingClub receives a transaction fee corresponding with WebBank's loan origination fee. LendingClub also pays WebBank a fee based on how many loans the bank originates for the online lending marketplace. While this is a profitable agreement for both parties, the contract does not

preclude WebBank from originating loans for competitors. If WebBank were to halt its partnership with LendingClub, the online lending company would certainly suffer. For instance, if the WebBank partnership ended, LendingClub would need to find a new partnership with a bank, obtain necessary state licenses, and perhaps slow down operations until a new partnership could be created.

Furthermore, risk from competitors is incredibly high. LendingClub acknowledges in their most recent 10-K that many of their competitors have superior financial resources, access to cheaper capital, and lower operating costs. If LendingClub does not sustain their innovative culture, they may lose customers to such competitors.

As noted earlier, LendingClub is obligated to purchase some of their customer's education loans if a private investor is not found. While these notes remain on the balance sheet, LendingClub is subject to default risk and interest rate risk. If a customer is not as creditworthy as the company had predicted, then LendingClub could face substantial losses on the loans or be exposed to undesirable debt restructuring agreements. To combat this risk, LendingClub needs to ensure that for every originated loan there is a corresponding investor willing to purchase it.

Lastly, LendingClub faces perhaps the most risk from uncertain regulations. Since the lending marketplace industry is still young, there is not a concrete regulatory framework yet in place. The Office of the Comptroller of the Currency (OCC), the Consumer Financial Protection Bureau (CFPB), and state and federal legislators, may decide that it is in the best interest of their constituents to place stricter regulations on companies like LendingClub. Such regulation could require increased security and credit risk measurement or restrict certain loan originations. Any of these could result in a

negative impact on LendingClub's operations and profit margin. Regulation could also positively affect LendingClub, as well. If the company can successfully operate in the future regulatory environment, they could gain the public's confidence as a trustworthy source of credit and as a viable alternative to the current credit score-driven system that most customers are accustomed to.

Stock Performance:

After using the price data from 1 December 2014 to 1 April 2019 and comparing it to the SPY for the same period, the beta for LendingClub was calculated at 1.5 as displayed in Table 1 below. The KRE ETF had a beta of 1.23 for the period 1 April 2014 to 1 April 2019. This suggests that LendingClub's stock is more volatile in comparison to the S&P 500 than the regional banking sector. Also, LendingClub's average annualized expected return over the period was calculated at -28.7218% with a beginning price of \$25.29 and an ending price of \$3.11 and a standard deviation of 51.41%. Since LendingClub's stock had a negative return, the Sharpe ratio cannot be interpreted and is therefore not applicable. On the other hand, KRE began the period with a price of \$35.27 and ended with a price of \$54.84 and had an average annualized expected return of 11.7846%. Based on this return, a risk-free rate of 2.43%, and a standard deviation of 21.8%, KRE's Sharpe Ratio was calculated at 0.43.

Metrics	LC	KRE
Beta	1.5	1.23
Sharpe Ratio	N/A	0.43
Expeced Return	-28.7218%	11.7846%

Table:1 LC v. KRE stock performance

Safaricom (SCOM)

Company Overview:

Safaricom is a Kenyan telecommunications company. It provides standard telecommunication services such as voice and data, internet, SMS (texting services), and M-Pesa. According to their 2017 annual report, M-Pesa was the company's largest growth driver that fiscal year. During that year 6,869 billion Kenyan shillings (US\$68.69 billion) were transacted through the M-Pesa app. Safaricom has 27 million registered users and 19 million active users of M-Pesa. M-Pesa is a mobile banking app (M stands for mobile; Pesa is the Swahili word for payment) that allows Safaricom users to bank and complete transactions with the help of their mobile phones. For instance, a farmer may receive 1,000 shillings for commodities sold. The farmer could then go to one of several convenient M-Pesa outlets located around the country. The M-Pesa agent who manages the M-Pesa outlet would take the 1,000 shillings and credit the farmer's account using the client's phone number. The cash received by Safaricom is then kept in checking accounts that are insured by the Deposit Protection Fund. The farmer would then receive a text with a notification of the successful deposit along with the new account balance. This has a huge impact on the portion of the Kenyan population that previously had no access to banking institutions. Since 95% of Kenyans have mobile phones, banking through a telecommunication company allows nearly the entire population to gain access to financial services that were previously unattainable (Safaricom, 2018).

Safaricom is owned by three major groups. 40% of the company is owned by Vodafone, a telecommunications conglomerate headquartered in London. 35% of the company is owned by the Kenyan government although prior to 2008, it was the majority shareholder (Riley, 2017). Lastly, the remaining 25% of the company is owned by local and international retail and institutional investors. With the Kenyan government's support of Safaricom and their mobile banking venture, M-Pesa could operate "on an experimental basis" without formal legislative approval (Riley, 2017). Since Safaricom created M-Pesa as one of the first mobile-money business tools, it had a significant first mover advantage that was enhanced by the government's support of the product. This is one of the reasons Safaricom has been able to sustain its massive 71.9% customer market share.

In Safaricom's 2017 annual report, the CEO noted that the Three Pillars of their strategy include: (1) putting the customer first, (2) delivering relevant products, (3) and optimizing operational excellence. The company is beginning to reach out to a new demographics with programs like BLAZE that target their youth customers. With customer analytical tools, they can both put the needs of their customer first while providing more relevant products. Lastly, they have continued to achieve operational excellence as illustrated by their 22% reduction in the cost of customer data. To further their operational excellence, they are also investing in 500 new sites around the country as well as a LTE network. Their current 2G network covers 95% of the population while their 3G network covers around 85%. In 2017, the company invested 38 billion Kenya shillings to improve their network coverage and quality. With such a strong

telecommunications network and 260,000 outlets, M-Pesa customers have access to their mobile banking nearly everywhere in the country.

Safaricom earns service revenue from the subscriptions of its customers. The largest portion of their total service revenue currently comes from their voice revenue, however, M-Pesa, as noted earlier continues to be its largest growth driver. Unlike LendingClub, Safaricom does not have to worry about connecting borrowers to investors. Instead Safaricom provides the platform, M-Pesa, and users transact with whomever they choose. If Safaricom can continue growing their customer base and receiving steady revenues from its data, voice, and SMS revenue, it should have a substantial free cash flow (FCF) with which to invest in network improvements. As of 2017, the CFO noted that the company had recorded 43.3% year-over-year growth in its FCF.

Risks:

To combat fraud, Safaricom requires that users present a valid government ID such as a Kenyan National ID card or a passport. Still, fraud is a concern for M-Pesa users as it is with the traditional banking system. If fraudsters can get an M-Pesa user's PIN they can do significant damage to that customer's bank account. While Safaricom is not in control of who users share their PIN with, they could let them know the importance of PIN secrecy when they create an account.

Cybersecurity is also an important risk. With so much confidential information held by Safaricom, it is important for them to mitigate the risk of cyber-attack both to decrease the negative impact on their clients and to build a trusting reputation with the Kenyan population. To combat this risk, Safaricom has a 24/7 Security Operations Center with robust cyber security controls. They have also received the ISO 27001

Information Security Certification, an independent confirmation that they have adequate control over the privacy of their clients' information.

Unlike LendingClub, Safaricom faces risks from terrorist activity inside Kenya. The terrorist activity can harm the entire Kenyan economy and results in physical security needs that may not be present in a country like the United States. Safaricom works closely with law enforcement authorities and proactively gathers intelligence through security surveillance and screening to protect their staff and physical assets.

Although Safaricom has a commanding customer market share, they still face competition risk. Because they operate in both the telecommunications industry as well as the mobile-banking industry, they must focus their attention on two fronts. This means that while battling their traditional competitors in their core business, they must also address potential competition from other FinTech startups. To do this, they remain focused on the needs of their customers while offering relevant products. Furthermore, they employ strategic partnerships to protect their market share.

Lastly, as is the case with most FinTech companies, the regulatory environment poses as a considerable risk. Unlike LendingClub, however, Safaricom must be wary of becoming too dominant in their industry. If the company becomes too dominant, the government could support a structural separation of Safaricom. The major regulators that Safaricom must comply with include the Communications Authority, the Competition Authority of Kenya, and the Central Bank of Kenya (CBK). To ensure that the company does not violate regulations, Safaricom maintains constructive relationships with regulators and engages in discussions on emerging legislation and regulation that would affect their business operations. Also, it should be noted that since the Kenya

government owns a large portion of ownership interest in Safaricom, legislation that negatively affects the company might be less likely.

Stock Performance:

Safaricom's beta when compared to the NSEASI was approximately -0.016 as displayed in Table 2 below. The company's stock greatly outperformed its index with an annualized average return of 20.237% compared to a -0.131% return from the NSEASI. When compared with the KRE metrics (referenced in the LendingClub chapter), it had a much larger average annualized return as well as a lower beta in the NSEASI. This illustrates that it is a less volatile investment than both LendingClub and the KRE. Safaricom had a Sharpe ratio of .846 calculated with a standard deviation of 21.0361% and the same 3-month Treasury bill rate of 2.43%. This implies that its risk-adjusted returns were also superior to that of the KRE ETF.

Metrics	SCOM	KRE
Beta	-0.016	1.23
Sharpe Ratio	0.846	0.43
Expeced Return	20.237%	11.7846%

Table 2: SCOM v. KRE stock performance

Conclusion

After using the price data from 1 December 2014 to 1 April 2019 and comparing it to the SPY for the same period, the beta for LendingClub was calculated at 1.5. The KRE ETF had a beta of 1.23 for the period 1 April 2014 to 1 April 2019. Safaricom's beta when compared to the NSEASI was -0.016. This suggests that LendingClub's stock is more volatile in comparison to the S&P 500 than the regional banking sector. Safaricom, however, has a lower volatility than both the KRE and LendingClub.

LendingClub's average annualized expected return over the period was calculated at -28.7218%. Since LendingClub's stock had a negative return, the Sharpe ratio cannot be interpreted and is therefore not applicable. On the other hand, KRE had an average annualized expected return of 11.7846%. Based on this return, a risk-free rate of 2.43%, and a standard deviation of 21.8%, KRE's Sharpe Ratio was calculated at 0.43. Safaricom's stock greatly outperformed its index with an annualized average return of 20.237% compared to a -0.131% return from the NSEASI. Safaricom had a Sharpe ratio of .846 calculated with a standard deviation of 21.0361% and the same 3-month Treasury bill rate of 2.43%. This implies that its risk-adjusted returns were superior to that of the KRE ETF.

In terms of business model risks, both LendingClub and Safaricom have considerable risk due to potential changes in their regulatory environment. Banks have an established regulatory environment which gives them an advantage over FinTech startups. Safaricom, however, is partially owned by the Kenyan government which perhaps shields it somewhat from negative regulations. Also, with its substantial market share and growing investments to better service customer needs, its risks from

competitors currently appears to be low. LendingClub, on the other hand, has substantial risk from competitors especially when dealing with their bank partners. If their partners leave to work with competitors, LendingClub could face considerable problems.

LendingClub has also had previous run-ins with the SEC which could lower the public's confidence in the company. For these reasons, it appears that Safaricom's environment is more conducive to large-scale success, while LendingClub may be stunted by its competitive environment. All the while, banks, while heavily restricted, still have the safety of their concrete regulatory environment.

As FinTech continues to grow in the banking sector, it is important to understand the strategies of startups from both a traditional bank perspective and the perspective of startups themselves. By understanding the risks and advantages that affect both sides in different parts of the world, the two can decide the best way to continue operations into the future. It is also important to understand the demographic differences that determine the successes and failures of financial service companies around the world. Having this knowledge of global business environments can greatly benefit leaders in the traditional banks and the FinTech startups.

Since FinTech in banking is still relatively new when compared to traditional banking institutions, the legislative environment is not fully formed. This provides some limitations for research because without concrete legislation, future predictions for the regulatory framework of the industry are still somewhat speculative. As more legislation is passed to guide and control FinTech banking startups, further research can be conducted to determine the effects of such regulations on the profitability and going concern of the companies. Also, further research could be done with other countries and

their companies to analyze FinTech firms' successes and strategies more extensively around the world. Still, other research could look at the companies solely from an investor's perspective. A study like this could choose the best FinTech firms for an optimized portfolio to recommend to interested investors based on several risk, return, and volatility metrics.

References

- Chen, J. (2019). Exchange-traded fund (ETF). *Investopedia*. Retrieved from <https://www.investopedia.com/terms/e/etf.asp>
- Glas, A., & Truszel, M. (2016). Current trends in FinTech. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp.13-15). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- Gnirck, M., Visser, G. (2016). Singapore, the FinTech hub for Southeast Asia. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp. 58-60). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- Gonzalez, R. (2016). Lending (capital) in the 21st century. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp. 25-27). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- International Finance Corporation. (2017). *How FinTech is reaching the poor in Africa and Asia: A start-up perspective*. Washington, DC: Alexander, A., Shi, L., Solomon, B.
- Jagtiani, J. Lemieux, C. (2018). Do FinTech lenders penetrate areas that are underserved by traditional banks? *Journal of Economics and Business*, 100, 43-54. doi: 10.1016/j.jeconbus.2018.03.001
- Joseph, S. (2016). The not so little engine that can. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors,*

- entrepreneurs, and visionaries* (pp. 66-68). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- Li, Y., Spigt R., & Swinkels L. (2017). The impact of FinTech start-ups on incumbent banks' share prices. *Financial Innovation*, 3(1), 1-16.
<https://doi.org/10.1186/s40854-017-0076-7>
- Kenton, W. (2019). Beta definition. *Investopedia*. Retrieved from
<https://www.investopedia.com/terms/b/beta.asp>
- LendingClub Corporation. (2019). 2017 10-K form. Retrieved from
<https://ir.lendingclub.com/Docs>
- Maverick, J. B. (2015). What is a good Sharpe ratio? *Investopedia*. Retrieved from
<https://www.investopedia.com/ask/answers/010815/what-good-sharpe-ratio.asp>
- Mead, W. (2016). Banking and the e-book moment. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp.6-9). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- Menat, R. Why we're so excited about FinTech. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp.10-12). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- Nienaber, R. (2016). Banks need to think collaboration rather than competition. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp.20-21). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906

- Ollinga, M. (2018, Mar 27). M-Pesa fraud cases on the rise on Eldoret. *Standard Digital*.
- Polsky, B. S., Korn, B. S., Miller, C. D. (2016, Oct 31). Growing together: collaboration between regional and community banks and FinTech. *Manatt.com*. Retrieved Oct. 15, 2018, from <https://www.manatt.com/Insights/White-Papers/2016/Growing-Together-Collaboration-Between-Regional-a>.
- Popper, N. (2018, Sept 28). LendingClub founder, ousted in 2016, settles fraud charges. *New York Times Company*.
- Riley, T.A., Kulathunga, A. (2017). *Bringing e-money to the poor: Successes and failures*. Washington, DC: World Bank Group. doi: 10.1596/978-1-4648-0462-5
- Safaricom PLC. (2018). 2017 annual report. Retrieved from <https://www.safaricom.co.ke/investor-relation/financials/reports/annual-reports>
- Temelkov, Z. (2018). FinTech firms opportunity or threat for banks. *International Journal of Information, Business and Management*, 10(1), 137-143. Retrieved from Advanced Technologies & Aerospace Database
- Van der Kleij, E. (2016). Tech giants becoming non-bank banks. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp.31-33). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- Wakeham, B. (2016). The next big innovation in FinTech—identity. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp.28-30). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906

- Wack, K. (2018, Apr 26). Government accuses LendingClub of misleading borrowers. *American Banker*.
- Waupsh, J. (2016). *Bankruption: how community banking can survive FinTech*. Hoboken, NJ: John Wiley & Sons.
- Wendenburg, J. C. (2016). Global compliance is key. In S. Chrishti, & J. Barberis (Eds.), *The FINTECH book: The financial technology handbook for investors, entrepreneurs, and visionaries* (pp. 22-24). West Sussex, UK: John Wiley & Sons Incorporated. doi: 10.1002/9781119218906
- Wonglimpiyarat, J. (2017). FinTech banking industry: a systemic approach. *Foresight*, 19(6) (pp. 590-603). doi: 10.1108/FS-07-2017-0026