

## **Technology and Small Business Lending: A Case Study**

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*Community banks are more able than their larger, more bureaucratic competitors to meet clients' unique demands. This adaptability is evident in their growing market share in small business and agricultural lending, which often require distinctly structured loans. Community banks are active in the communities they serve and, therefore, have a deeper understanding of client needs. Smaller community banks do not have the vast resources to market and develop financial technologies often offered by their larger, big-bank competitors. The purpose of this paper is to determine how technology usage impacts small business lending and profitability at community banks.*

### **INTRODUCTION**

Community Financial Services Bank, better known as CFSB is a community bank located in western Kentucky. The bank boasts \$1 billion in assets, a benchmark passed during the first quarter of 2018. The bank is run by President and Chief Executive Officer (CEO), Betsy Flynn and her team. CFSB believes that it does not have customers, but clients. That mentality fuels the bank to push forward with cutting edge technological advances that will improve upon their client's experience. CFSB's presence in the community is growing; they serve the community in multiple locations, with plans to expand. Through technology, they service a client base not only limited to their geographical region, but beyond. Their

presence is not centralized only in brick and mortar locations. They are active participants in the community. This relationship-based approach to banking is a leading reason why CFSB is growing at such a high rate. CFSB is highly involved with millennials. They have even gone so far as to sponsor Murray State University's basketball arena. This shows students and members of the community that CFSB is active and contemporary. It also shows just how proud CFSB is of its community.

CFSB is the forerunner in technology not only among community banks in the region, but also compared to large national banks that have locations in the region. The bank not only matches large national banking customer technologies but sometimes surpasses them with technologies such as Live Teller Machines (LTMs), an improved version of the popular Automated Teller Machine (ATM). In addition to LTMs, CFSB offers online banking, mobile banking, and a 24/7 automated phone line where a customer can receive their account information. The bank strives to keep technological maintenance in house to better control system errors and the problems that arise from those system errors. CFSB, a community bank in an agricultural community, surpasses national competitors in the same area in regards to technologies employed.

CFSB's official market is the 100-mile radius from their corporate offices in Benton, KY; however, they actually have a larger reach. CFSB serves clients in various other states surrounding Kentucky, such as Tennessee, Illinois, and others further away such as Missouri and Florida. Even after many of their clients move out of the local area, they still opt to bank with CFSB. Key reasons for this include customers' confidence in CFSB's team as well as the advancements and continuous efforts that are being made. Overall, CFSB is able to create a positive customer experience that builds loyalty.

Before analyzing exactly how technology has changed the way CFSB operates, data collected from FedFis shows the historical trends and financial characteristics of the bank. In the financial world, there are a multitude of ways to measure and examine a financial institution's earnings performance. Return on average equity, was calculated through net income after taxes divided by average shareholder equity and used for its ability as an "internal performance measure of shareholder value" (Beyond RO, 2010). CFSB's historical trend in their return on average equity over the past ten years can be seen in Figure 1. When comparing CFSB to the overall industry average (figure 2) data shows that CFSB outperformed competitors, even in times of economic turmoil. During the Great Recession, banks nationwide saw their return on average equity decline during the beginning of this time, but CFSB managed to maintain and even increase their return on average equity during this crisis. In September 2016, CFSB held a strong Return on Average Equity value of 12.12% while the 23 other banks in the geographic area, including some of CFSB's direct competitors, only held an average of 10.04%.

In the field of banking, it must be recognized that return on average equity does have face limitations as a measure of performance. This is partially because of the immunity to the effects of risk and leverage that the return on equity holds (Beyond ROE, 2010). The net interest margin can augment the insights gained from return on equity "because it functions as "a proxy for the income generation capacity of the intermediation function of banks." (Beyond ROE, 2010)

As seen in figure 3, the overall net interest margin has recently decreased. It should be acknowledged that this change could be caused by CFSB's shift from being in the 250 to 500 million asset peer group in 2009 to the 1 billion asset peer group in 2010. This change in peer groups found CFSB to be ranking in the 67th percentile of its newest peer group, despite a decrease in the net interest margin. When CFSB was still in its smaller peer group, they ranked within the 74th percentile in September 2009. No matter the peer group that CFSB has been in, they have consistently ranked in the top tier amongst peers.

As of 12/31/17, CFSB's loan portfolio is primarily composed of residential real estate loans, which account for 35.24% of the total 881,071,000. Additionally, the bank services commercial real estate loans (29.75%), commercial loans (15.41%), individual loans (14.18%), agricultural loans (.79%), and other loan and leases (4.63%), see figure 4. Year over year analysis shows that CFSB's commercial real estate lending has been increasing while their residential lending is decreasing as seen in figure 5. If this increase continues CFSB may experience higher risk because, "CRE loans, tend to carry higher credit and concentration risk due to larger balances per account than consumer loans, with repayment often being dependent on the success of the borrower's business." (Balasubramnian et al., 2017).

Assets are a primary tool in the measurement of growth, size, and success among banks. CFSB has seen consistency in their growth as they just surpassed the \$1 billion mark, pushing them into peer group 2. As seen in figures 6, they have seen their overall loan portfolio grow 66% from 2013 to 2017 with 5.66% of that growth coming from the past year alone. This bank has experienced a 71% growth during this 4-year span in total earning assets, increasing from \$576,137 in 2013 to \$984,834 in 2017. There has been a 9.95% growth in the past year as total earning assets rose from \$895,672 to \$984,834. 89% of their 2017 total earning assets came from net loans and leases. Other notable assets came from securities and investments. Total investments have increased 124% from 2013 to 2017 with 61.13% of that growth coming in the past year. Total assets have risen by 66% as well over the 4-year span, growing from \$640,061 in 2013 to \$1,063,530 in 2017. The past year has seen a 10.93% growth in this category.

Total capital for CFSB doubled from 2006 to 2016, from \$40,240 to \$94,561 and grew more in 2017 as well. Within the past 10 years CFSB has had a tier one capital ratio (which regulators check to ensure capital sufficiency). It has been 10.57%-16.20%, with a 10.58% in 2017. A minimum of 3% tier one leverage ratio for a bank of CFSB's size is required, and CFSB was able to book a 9.06% tier one leverage ratio in 2017 and have not dipped below a 4.6% ratio in the past 10 years. The total assets for the leverage ratio were \$1,058,089,000. CFSB's total capital ratio was 11.47% for 2017.

A bank does not measure liquidity like other industries because a bank's balance sheet does not list items as "current assets" and "current liabilities." Through information provided by the president and CEO of CFSB, the bank has a current ratio of 1.72. The minimum current ratio a bank is allowed to have is a 1.33. CFSB makes up for its lower than average (2.00) liquidity ratio by ensuring that its reserves are above the minimum requirements asked of them. According to the president and CEO, the bank's balance sheet shows current deposits are \$961m.

## **THE COMMUNITY AND TECHNOLOGY**

One of the main goals of CFSB is to enhance the experience of each of their clients. CFSB's technology offerings are highly vetted. Before choosing to implement any technology, they ensure that it will fit the needs of their clientele and ensure that they make everything as concise and convenient to them as possible. They test the technology within their own team to certify that the technology they want to present to their clients will be easily understandable. After the specific piece of technology has been approved by the bank, they implement it for their clients. They use many different forms of technology to be able to help their clients, including the use of mobile and online banking, ATMs, and LTMs. By utilizing each of these types of technology, CFSB has been able to create an experience for their clients that is relatively easy compared to other banks. Clients are able to use the banking method most appropriate for their needs. CFSB does not simply rely on their technology to help their clientele; CFSB ensures that live tellers are available at any location to employ help to those who need it. Also, staff members of the bank are available and more than happy to sit down with each client to discuss their needs and even teach them about the technology they have available for them to use. CFSB has been able to meet the needs of customers through thorough beta testing of technology, offering multiple options to meet client's needs, and continuing to maintain a person-to-person environment to help clients learn to use the tools available.

CFSB prides itself on client satisfaction and relationships. They believe that the technologies they have implemented have strengthened relationships between their bank and the clients that have moved away in addition to bringing new customers to the bank. They still have their automated phone system where a client can call in for account information for people who may not enjoy mobile banking. They believe that their mobile banking, live teller machines, and online check depositing have retained clients as well as brought more clients in their doors. For clients who have moved away, they have many different forms of technology that facilitate a lasting relationship with the bank such as their online and mobile banking, online check cashing, and 7 day a week hours with a phone line that can be contacted any time during those hours.

“Local clients of all generations are enjoying our Live Teller Machines,” Andrew Murrell, Chief Information Officer, said during an interview. Clients of CFSB now have the option to use an updated version of an already popular banking technology, the Automated Teller Machine. The LTM has a screen where an offsite teller in a broadcasting location can appear to assist the client in any number of financial transactions. An LTM is not limited to the same functions that a classic ATM has, it goes beyond. At an LTM a client can do almost all normal transactions that a standard in-person teller can do.

LTMs and other technology features allow CFSB to stay relevant with the millennial generation who often open their first account in college. They will continue to use the online banking, phone hours, or LTM wherever their new careers may take them. By creating the face-to-face experience through technology, the teller window is extended well past the walls of the bank and the boundaries of the county. Jason Pittman, Calloway County Market President for CFSB, stated that he while actual numbers are not yet available, he is confident that there were new clients coming in and switching from large national banks to this community bank for the sole reason of use of the LTM.

Another program was just rolled out that will change a person’s automatic payments over to CFSB if they choose to open an account with them. By eliminating many of the obstacles to switching banks and offering products that are convenient and easy to use, people will be more attracted to CFSB. In addition, technologies like mobile and online banking have brought customers in the doors without a doubt according to Andrew Murrell, Chief Information Officer of CFSB. The bank’s assets have clearly risen since the implementation of the ATM, mobile banking app, and more client technologies which may not be directly attributed to the use of the aforementioned tools but the possibility cannot be ruled out.

## **MANAGEMENT AND TECHNOLOGY**

It is very evident by both CFSB’s data as well as the interview with their team that technology adoption is paramount in the contribution to their success over the course of time. As stated by President & CEO Betsy Flynn, CFSB uses technology in all planning but particularly in strategic planning which their team looks to improve every single year. Planning for technology is a major dimension of greater strategic planning. Their team meets with every department annually in September to discuss and forecast the technology needs, and they then budget accordingly for the next three years. This past year they even went as far as to maintain a separate strategic plan for the direction the technology is going in over the next few years.

An integral technological tool used in their bank is the Visio document. During our interview they also spoke highly of a resource that clients may never see but that greatly enhances their experience with CFSB in the video conferencing. The staff strives to assure all strategic team members are on the same page and this is often best conducted through meetings. Each banking center initially used first-generation video conferencing, but they have now transitioned to Cisco second-generation video conferencing. The net effect of this has been a great deal of travel time saved. To put this into an everyday example, say one of their teams has an hour-long meeting in Benton, KY and must travel from Murray, KY, about a 30-45 minute drive both ways. If six people sit in on this meeting, that takes at least six hours out of the day of potential interaction time with clients due to travel time. Implementing resources such as this video conference allows for more interaction, and ultimately enables the team to meet their end goal by bringing everyone together to plan.

Mrs. Betsy Flynn mentioned that many large corporations often want to drive to Western Kentucky to meet with her team because they simply have not yet matched the technology used by CFSB. Security and fraud is another big part of strategic planning and their security system installed by the IT team is cutting edge. It was emphasized multiple times that technology touches every single part of their strategic planning.

Technology at CFSB serves four main purposes: making banking easy on clients, making money, saving money, and protecting their business. Essentially everything they do daily falls into these categories. CFSB is preparing to make another very large investment in updating their antivirus. While this may seemingly be a small project and another to-do on the list, it is crucial that they adapt to evolving

threats. One bad happening could lead to major breaches which would be detrimental for both the staff and their clients. This is not an inexpensive venture, as this aspect of security in isolation will likely cost around \$30,000.

As far as long-term goals, Chief Information Officer Andrew Miller says there will be two banking centers opening in 2019 with most of their build-out taking place in 2018. He says that they usually start shopping for technology about nine months in advance to select PC's, surveillance, ATM's, LTM's, and other key items. The bank simply cannot open unless technology is in place as it should be. Many long-term goals, however, are daily processes that are taken step-by-step and decision-by-decision to assure their team stays on top of the game to best serve their clients. As previously mentioned, there is a strategic plan in place directly for technology. As needs arise, their team does not tarry. They begin addressing issues in a rapid and appropriate manner. Even in tedious planning processes, things can quickly change, and various responses are put into action as the needs arise. Information Security Officer Taylor Hicks speaks of the flexibility required to be successful in an ever-changing banking industry. The bank must have strategic plans in place but be flexible enough to keep up with market demands as technology developments become available.

The only technology they have really scaled back on is the Teller Cash Recyclers, also known as TCRs, that are useful for multiple tasks. CFSB has had these machines since 2012. There is one machine per two tellers that counts their cash and serves as a small-scale vault. As the TCRs have approached the end of their useful lives, CFSB has investigated replacing them through surveying employees and gathering information from those who have used them the most over the years. Managers were also part of the discussion, as they are the ones who must balance them. Andrew says that they have made the decision to scale back on these a bit. They will now primarily be used in high-volume areas such as the drive-through. As far as business being handled at the individual teller windows, they are transitioning to regular cash drawers. What they found through discussion and even surveillance is that the TCRs weren't adding any value, so they decided to pull back in that aspect. It is noteworthy that in this specific situation, their team used one aspect of technology (surveillance) to decide about the direction of a different aspect of technology (TCRs). This example also goes to show how much of an emphasis CFSB places on creating value for their clients. If an aspect of their bank is no longer serving their mission statement, they no longer continue to implement it. CFSB is a bank committed to creating value for their customers, team members, stockholders, and communities. They use all this previously described technology to make available numerous products and services to their customers. One of these services, for example, is Kasasa Checking, a revolution in checking, where customers can earn well above industry average interest for simple banking activities. Kasasa Checking is even used by clients located far out of the primary service area. This is just one practical example of how technology yields impactful results.

### **THIRD PARTY VENDORS AND TECHNOLOGY SERVICE PROVIDERS**

There are a lot of moving parts when operating a bank, and even though CFSB likes to run and maintain their equipment and software, it isn't realistic for them to build and maintain all the material that they use. Third-party vendors and services providers fulfill this need. Equipment that can be purchased from a third party and has a service contract, like computers, takes the burden off the bank because they do not have to spend time directly fixing it. An essential third-party technology vendor that is utilized is Jack Henry – a company that offers technology platforms designed to support growth, service, operational, and performance goals. Jack Henry provides security solutions that aid in the protection of clients' information. Security is a high priority, so technology that can ensure the protection of information is crucial. CFSB has:

A suite of monitoring tools is used that looks at all the activity on the network for internal purposes, so that we can see if anything suspicious is going on or if anyone has made their way into the system. Perimeter defenses are also utilized – antivirus, firewall, and IPS. (T. Hicks, personal communication, March 17, 2018).

Currently, the bank has not experienced any security breaches, and their strong view of security has allowed them to obtain large client accounts. Large companies often switch their business to CFSB, from national banks, because of the safety and services offered by the bank. According to Andrew Murrell, “Many large clients have switched to CFSB from large national banks because our technology is better than theirs.” (personal communication, March 17, 2018).

Aside from security, these vendors allow the bank to provide services that are more convenient for the customer. Applications like online and mobile banking provide an easier method for customers to interact with the bank and perform many of the same actions that were only able to be done by physically going to the bank in the past. While security and direct banking applications are designed for current customers, technology is also implemented to reduce the hassle of switching banks. As explained earlier, CFSB just rolled out a program that will change a person’s automatic payments over to CFSB if they choose to open an account with them.

Third-parties are also utilized to audit many internal operations, so not only is CFSB testing internally, but they also have external auditors examine the bank’s operations. This multi-faceted approach helps ensure that everything is functioning correctly and efficiently. Employing internal and external auditing methods is not cheap, and the bank estimates spending approximately \$250,000 a year for them. The cost is not viewed as a loss, but as a positive investment to ensure that people do not have to worry about their money and information.

Although third-parties provide benefits, they can also introduce risks for the business. CFSB is wholly aware of this and goes through a meticulous process to circumvent the dangers. A rigorous rating system was created that ranks the bank from high to low risk and criticality; higher criticality and risk means greater risk. Part of this system requires the vendor to provide documentation detailing their access to sensitive data, legal contracts (to search for sensitive data), insurance policies, security policies, and disaster recovery policies. CFSB will also search the potential vendors to see if they are prone to litigation and lawsuits. This information is used to select vendors. Even if a third-part is deemed acceptable, CFSB may require the vendor to submit the same materials on a yearly basis to continue to evaluate the acceptable level of criticality or risk. By doing so, CFSB can ensure that a third-party has not experienced any negative changes that would be detrimental to the bank.

One of the greatest challenges, when it comes to third-parties, is gathering all the material that is used to assign a rating to the business. This process can be complicated because of the vendors being hesitant to provide, or not understanding why they need to supply all the requested information. As a result, CFSB must explain to them why the materials are required. Often, it can be a challenge to find the right person to talk to that can provide the information. These are some of the difficulties for acquiring new vendors, but there are also challenges when dealing with current third-parties.

There can be a discrepancy between how much effort a third party wants to put into the services offered to CFSB and what the bank wants. This can lead to vendors not providing adequate service or quickly offering solutions to problems that do not actually fix the issue. One of the ways CFSB tries to manage this problem is by employing knowledgeable staff that can verify what the vendor is telling them; however, having enough expertise to check an external party’s work is a challenge.

An emerging third-party trend is called threat intelligence sharing. This trend will help institutions bolster their cyber threat intelligence capability by sharing information with each other (Barnum, 2012). Banks from all over are constantly facing new attacks, and these attacks normally differ for each bank. Instead of constantly being reactive to the attacks, threat sharing allows the banks to communicate with one another about the incursion. This allows the banks to block any of the indicators of an attack and reduce or prevent the damage. This collaboration between institutions to share vital information is important because an attack on one can have negative effects on others.

## CONCLUSION

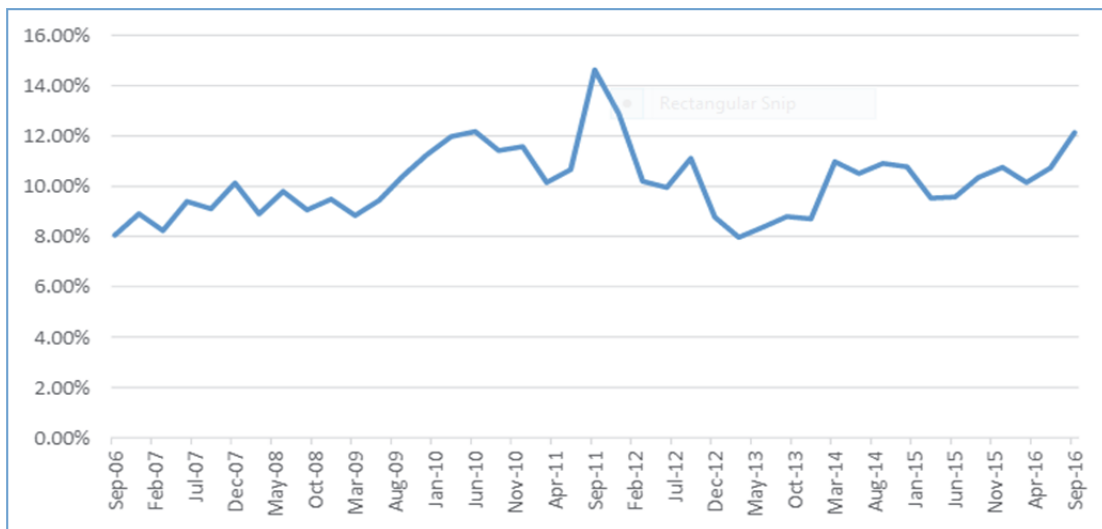
CFSB leads the community and local branches in client technologies. They hold client relationships in the upmost regard and strive to provide technologies to make those relationships easier for the customer. Their fast growing asset base and strong brand loyalty should continue as the bank expands the offering of Live Teller Machines throughout the community while keeping client security at the utmost importance.

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## APPENDIX

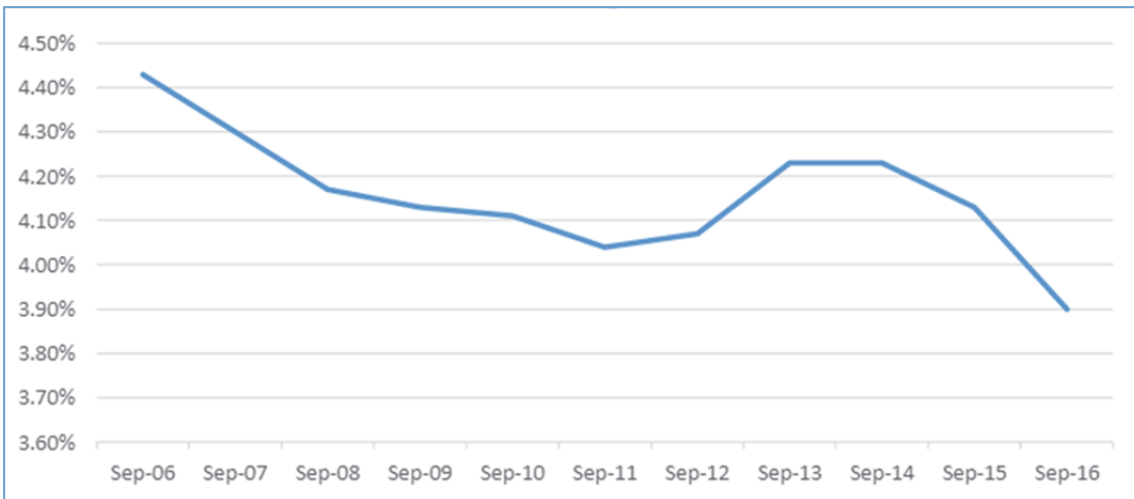
**FIGURE 1**  
**RETURN ON AVERAGE EQUITY FOR CFSB**



**FIGURE 2**  
**RETURN ON AVERAGE EQUITY FOR ALL U.S. BANKS**

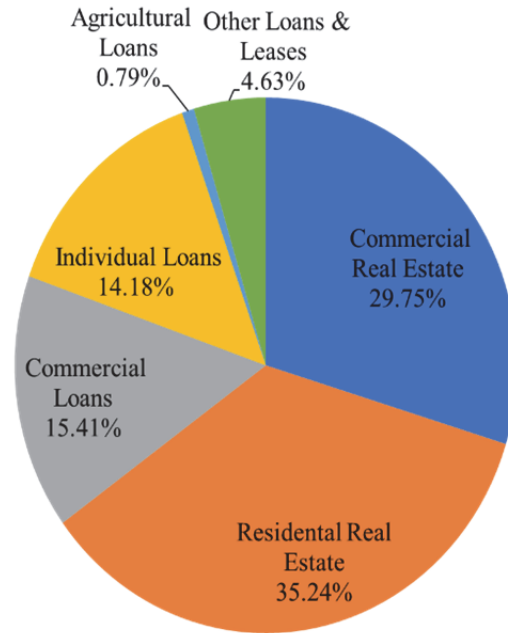


**FIGURE 3**  
**NET INTEREST MARGIN FOR CFSB**

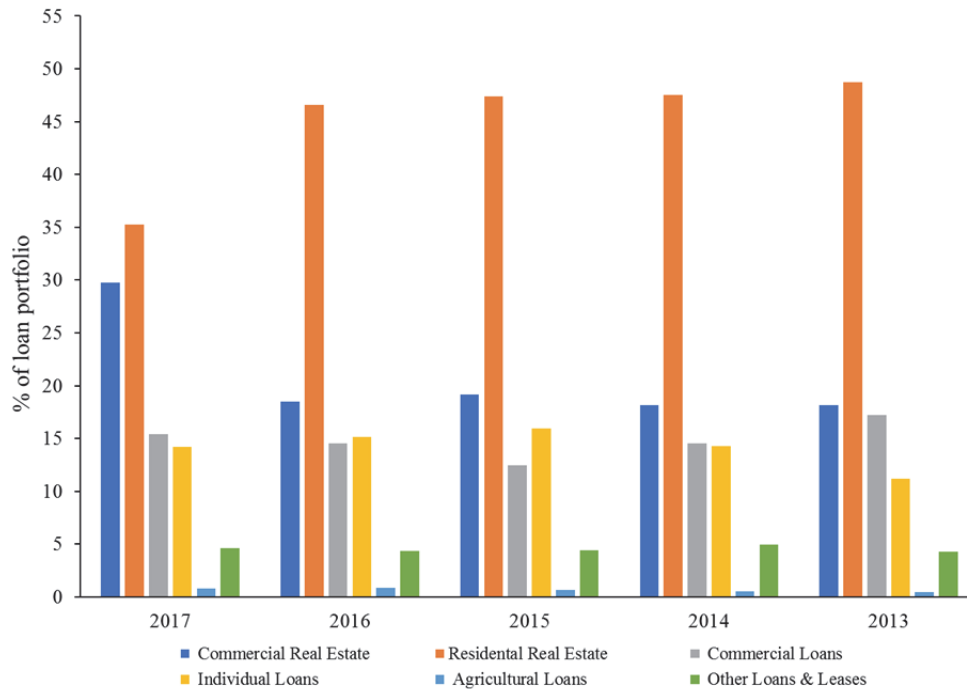




**FIGURE 4**  
**COMPOSITION OF CFSB'S LOAN PORTFOLIO**



**FIGURE 5**  
**COMPOSITION OF CFSB'S LOAN PORTFOLIO OVER TIME**



**FIGURE 6**  
**ASSET GROWTH**

Asset Growth, 2013-2017

