BANKING ON DISRUPTION:

The rise of online lending and the FinTech fallout

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FOREWORD

Society has made significant progress owing to technology. The steam engine helped to transform manufacturing and transportation thereby heralding the Industrial Age. Electricity brought lighting and power to nearly every facet of life. Computing and internet transformed the exchange of information. All of these technologies have enabled innovations that have solved an array of problems people face and dramatically improved our quality of life.

Now, we are in the midst of a large scale shift from the internet economy to a Digital Consumer Economy. This economy is distinguished by connections between consumers, consumers and machines, and between machines themselves. Further, it is characterized by business models that ease the exchange of goods and services. In the near future, innovations created through the combination of emerging technologies (such as big data and analytics, cloud, mobility & pervasive computing, social media, AI and robotics) promise to transform many industries including banking, healthcare, energy, retail, government, and security. We believe these innovations will have three broad areas of impact. First, they will lead to changes in organizations' business models. Second, they will lead to the rise of new firms. Finally, and most importantly, they will have a direct impact on society, as people will have access to solutions that were unthinkable even a few years ago.

In this context, Tata Consultancy Services, a leading IT services, consulting and business solutions organisation and the Clayton Christensen Institute have collaborated to produce a series of articles and whitepapers that explore the future of industries through the lenses of a set of fundamental theories developed by Harvard Business School Professor Clayton Christensen. The theories offer if-then statements for how the world works—so executives and leaders who find themselves in different situations can leverage their knowledge of these theories to predict what actions will yield what results, in each circumstance. These theories include Disruption Theory, the Theory of Jobs to Be Done, and Modularity Theory. In the current era of technological change, the objective is to apply these theories in order to solve problems facing businesses and societies.

In the second of a four-part series on disruption in retail banking, this whitepaper explores trends in consumer lending through the lens of Disruption Theory. Access to credit is very important for economic growth and social progress. As new firms seek to meet that demand, it is natural that this space will see a large number of technology-enabled innovations. By applying the fundamental Theories of Disruption, this paper sheds light on the future of lending with regards to whether or not new firms will succeed in disrupting established ones. It also provides suggestions that will be useful for managers in their efforts to create new innovations in lending.

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EXECUTIVE SUMMARY

The lending business of banks is facing unprecedented competition. A recent study estimated that nearly $11 billion in bank profits is at risk over the next five years for the lending function. In this whitepaper, we examine the threat to incumbents through the lenses of the Theories of Disruptive Innovation. Our analysis reveals that entrants have indeed established a position in several lending products that are considered as low-end by banks. For example, entrants have achieved success in personal loans, small business finance and student loans. Such entrants pose a disruptive threat to banks. However, the current business model of entrants does not appear to be immediately scalable to the largest market segment in lending—mortgages. This does not mean that they will not attempt this in their own quest for growth. Additionally, there is no shortage in competition even in this segment. A separate category of non-bank lenders is attacking this segment with sustaining innovations that improve customer experience. Faced with this intense wave of competition, incumbent banks must leverage their strengths and move forward to embrace change. In doing so, they can choose from the following strategic alternatives. First, they can partner with entrants to leverage their low-cost business models and offer products that the banks could not profitably offer otherwise. Second, they can explore the option of working with entrants to specifically assist with critical back-end operations like originations and loan servicing, thus playing the role of utility providers of capital. Third, they bank can build a new, independent business unit to respond directly to the competition. As we have seen in countless industries, the potential for disruption should not be underestimated. Considering that these are early days for FinTech entrants in lending, incumbents should look to utilize the principles of Disruptive Innovation to seize the initiative and win.

INTRODUCTION

Over the last decade, financial technology—or FinTech—has been at the center of discussions on disruption in banking as the consumer banking industry has faced competition from inside and outside the industry. Often when a new entity gains a little momentum in challenging the incumbent banks it is tagged as "disruptive". However, tagging everything that poses a challenge to incumbents as "disruptive" is likely a rather shallow and misguided analysis.

In the modern world of consumer banking, there are two basic types of services: lending and payments transactions. This paper specifically examines lending, with a targeted focus on consumer lending in the U.S. The entities that we take into account for our discussion are:

1. Incumbents: large, traditional banks
2. Entrants: online banks and technology firms focused on a banking function

Our Approach

Rather than take a strictly analytical tack, this analysis utilizes a two-pronged approach: we carefully use data to build the current scenario and frame the context of the situation, and then use theory to predict future outcomes. This is unique in that while we use data to understand the present situation, we do not extrapolate the data to look at the future. Our belief is that data is a good way to understand a current or historical snapshot, but a good theoretical framework produces a much more reliable and accurate picture of the future.

While useful, data is merely an output of a process or function. Predicting the future by looking at patterns of outputs is only correlative—not causal. To predict the output with a high degree of confidence, it is important to understand the function itself and how the function behaves under different circumstances. In other words, while data may be correlative, the function producing the data is causal. Understanding the function (or the causal mechanism) is a much better way of predicting the future. An example of this would be success rates of marketing campaigns driven primarily by demographics. With a data-driven approach, the majority of these campaigns reach a mere 30% of the total addressable market.[1] A causal approach, however, focuses on the intent of the consumer and will likely yield much more reliable results. Good causal theory helps to build and sustain enterprises in multiple ways, by:

- Understanding the needs of an enterprise's customer based on a given circumstance
- Identifying potential non consumption of the firm's products or services and the competitive set
- Adapting the business model to cater to nonconsumption
- Helping to draft an approach for different phases of a firm (interdependent vs. modular)
- Keeping the organization flexible in terms of resources, processes and priorities to avoid disruption
- Understanding which theories are applicable under which circumstances

There are, however, limitations to theory. For instance, theory may not be able to predict accurately the timeframe in which future events unfold, how quickly disruption will progress, or the areas of origin for future disruptors.

Still, the causal nature of theory makes it a powerful tool to visualize the future based on the current circumstance. Good theory is constantly evolving through the analysis of anomalies and outliers, which only strengthens the theory's underlying functions.

In this paper, we utilize three theories to predict whether incumbent companies in the banking industry, specifically lending, are likely to lose significant market share to new entrants over time. These frameworks are:

1. Theory of Interdependence and Modularity
2. Theory of Jobs to Be Done
3. Theory of Disruptive Innovation

These theories have been developed and refined by Harvard Business School Professor Clayton Christensen who coined the term *Disruptive Innovation* more than two decades ago. Together, the theories put forward the causal analysis of why and how leading firms are often toppled by comparatively smaller competitors.

DATA OBSERVATIONS

Trends in Modern Lending

Lending is facing stiff competition from the FinTech space. Loan statistics from March 2011 to December 2016 reveal interesting insights into consumer lending (automobiles, real estate and home repair, medical and educational expenses, personal debt and personal taxes, vacations, and other expenditures) and small business lending.[2] Three key trends were observed across both categories:

1. Loans of higher dollar value (>$500,000) are growing as a percentage of total loans
2. Loans of smaller value (<$500,000) have remained at the same level or decreased as a percentage of total loans
3. Lenders are increasingly stepping away from high-risk loans

These observations point to two potential causes. First, the cost of servicing a smaller loan is the same as that of a larger loan, making smaller loans less profitable and therefore less desirable. Second, increased regulation has encouraged banks to maintain low-risk loans and low-risk investments in order to free up more deployable capital, effectively making them more risk-averse. Let us explore each cause in greater detail:

1. Low profitability for small loans

According to a study by the Bank Administration Institute, the net profitability of servicing a $100,000 loan was anywhere between "negative $450 to positive $250".[3] While considering the fact that a majority of these costs are one-time and would reduce over a period of time (like origination cost, underwriting cost, etc.) regulatory overhead would make it difficult for banks to focus their resources on a low-profitability product. These fixed costs remain more or less the same irrespective of the size of a loan, which is why from a bank's perspective it makes perfect sense to move away from smaller loans and instead focus on larger, more profitable loans.

2. Regulations are making banks more risk-averse, impacting earnings

Since the most recent financial crisis era beginning in 2008, regulators have dedicated themselves to strengthening the liquidity status of banks during crisis. To that end, the increased capital adequacy requirements, also known as regulatory capital, have forced banks to focus on low-risk borrowers, typically with FICO scores >715. In addition, the increased allocations towards regulatory capital have left banks with lower capital to deploy towards assets, thereby impacting their return on equity (ROE).

If a bank chooses to generate capital without impacting its assets, it may opt for one or more options such as raising lending rates, attracting deposits (while at the same time cutting down on its yields on deposits), raising service fees, driving more efficiency to cut down operating costs (move more business online, close branches, automate manual processes, etc.) or reducing exposure to high and moderate risk assets to keep the regulatory capital commitments under control.

Figure 1. Banks moving away from small unsecured loans

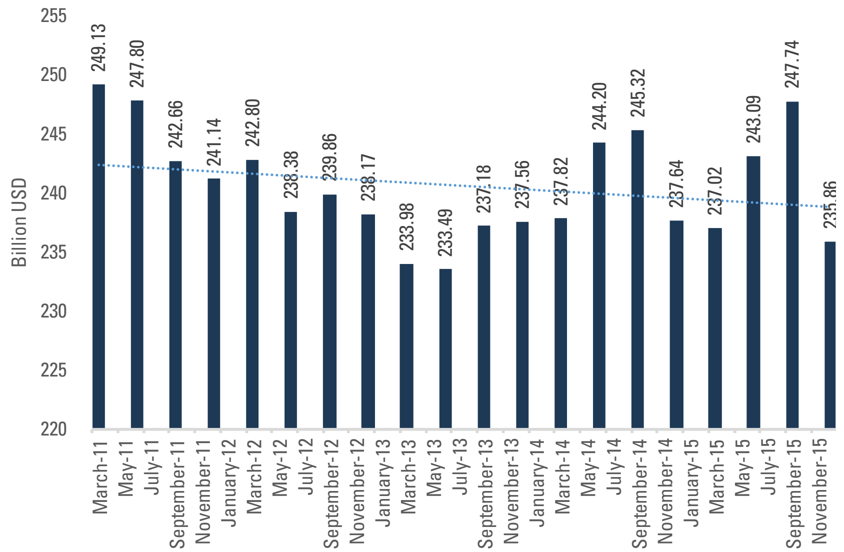
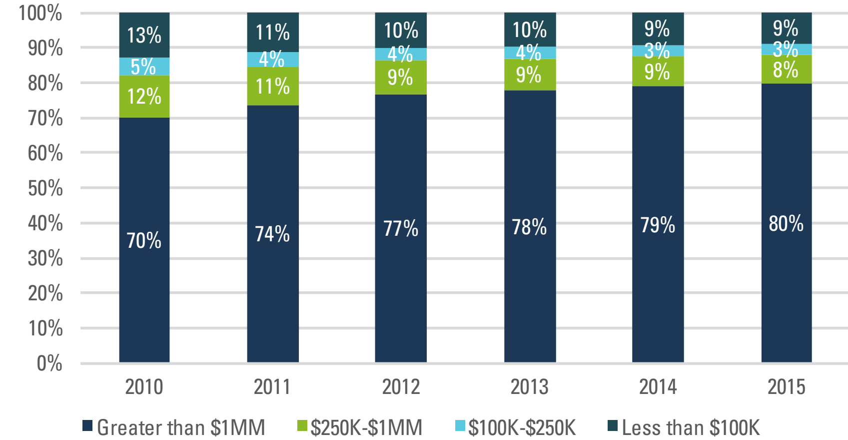


Figure 2. Banks moving away from small business loans



Amount of currently outstanding commercial and industrial loans held in domestic offices

However, these alternatives pose significant challenges. For example, if a bank attempts to attract deposits, it will likely encounter difficulty in motivating customers to park their money in a bank account. In a near-zero interest rate environment, there are a number of alternative instruments to park and/or grow money like prepaid cards, fee-free checking accounts and mobile wallets, like PayPal and Venmo.

In other words, due to divergent motivations between customers and banks in addition to tightening regulations, banks are left with little choice but to focus on larger, safer prime loans.

Trend Impact

The combined impact of these two factors—low profitability of small loans and increased regulation—has created a segment of the population that banks are unmotivated to serve. As a result, the near prime and low-end prime customer base is largely underserved. In addition, banks continue to shy away from unsecured loans as they increase a bank's commitments to regulatory capital. A combination of these factors opens up the doors for new entrants who are willing and able to serve those who are no longer a priority for banks.

With this opportunity, new entrants have indeed flooded the market. According to the 2015 Small Business Credit Survey by the Federal Reserve Bank of New York, while banks maintain dominance as a credit source overall, "online lending is a noteworthy source for employer firms with less than $1 million in revenues."[4] This was even more significant in the micro-business categories (less than $100,000 annual revenue) where nearly 30% of survey participants said they had used an online lender as a source of funding. The reason for this was that, first, small businesses with less than $1 million annual revenue had difficulty obtaining credit from a bank. Nearly 63% of all micro-businesses and 55% of firms with annual revenue between $100,000 and $1 million received less financing than they originally requested. Second, such businesses applied for credit, not based on existing business relationships, but on the perceived chances of getting

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approved and the cost of the funding. This was in contrast to the higher tiers of the market where a relationship with the financial institution or the lender improved their chances of approval.

The prominent entrants competing with banks today are online lenders. These are technology platforms that use crowdsourcing and act as brokers between individuals (retail and accredited) and financial institutions willing to fund loan requests (part or whole) from other individuals. Some of the first movers in this space came into existence in 2007. The first two for-profit players were Prosper and Lending Club. Other crowdsourcing platforms like Kiva started as early as 2004,[5] but were targeted more towards philanthropic and social causes. Unlike incumbent banks in the lending business, these online lenders enjoyed a significant cost advantage in their operations. This was due to their use of technology, the fact that they did not have to adhere to the same regulations as banks, and their proprietary credit models.

In 2007, when Lending Club and Prosper started their journey, the space was not very attractive for banks, which were uninterested in unsecured personal loans for customers with near prime credit scores. In the early days, a majority of these loans were being used for debt consolidation, credit card debt being the most common amongst these.

With this trend of credit card debt came an opportunity to expand into point of sale financing. The first areas targeted were those that were unsecured, were covered only by self-financing or credit cards, and had comparable loan sizes to the products being offered by the platforms. All this was done to make sure that the products being offered by the platforms fit consumers' needs without requiring too much change in behavior. By 2015, just eight years after Prosper entered the lending space, Prosper acquired American Healthcare Lending. Lending Club did the same; in 2014 it acquired Springstone Financials. Prior to being acquired, American Healthcare Lending and Springstone Financials provided patients financing for elective procedures that were not covered by insurance. These areas were dental, fertility, orthodontics, hair restoration, and weight loss. Springstone Financials also offered private student loans for grades K–12 for nearly 12,000 schools.

Since mid-2015, both Lending Club and Prosper have also started offering secured loans for small businesses. At Prosper, personal loans are positioned as small business loans, whereas Lending Club has created a separate category of products for small business owners. In early 2015, Lending Club piloted small business lines of credit with Alibaba, a China-based online retailer, and once it was successful, extended the product to all its customers.[6]

Of course, Lending Club and Prosper are not alone. Over the last decade there has been an upsurge in online platforms, some leveraging crowdsourcing and some sourcing capital from accredited investors and financial institutions. Today, there are more than 50 different online lenders in the U.S. (see Figure 3).

The Role of FinTech

We already see some entrants, like PayPal, Square, and Lending Club, offering banking services, but for now the services are limited to specific functions of the banking system. Each of these entrants is attempting to address one of the primary functions of a bank. In other words, while consumers used to have one place to fulfill all of their banking needs—storing money, making payments, requesting loans, etc.—today they have the option of addressing each need individually, thanks to FinTech entrants who specialize in a particular banking function. A recent study by Goldman Sachs predicted that across different categories of banking products, nearly 7% (almost $11 billion) of overall banking profits are at risk to be taken away by entrants in the lending space alone.[7]

However, the question we seek to answer is: which incumbents will be disrupted, by whom, and why? What are the indicators that differentiate a short-term fad from that of a long-term potential disruptor? How are consumers going to be affected? Are we going to see some of the large incumbent banks fade away as each of these players take away market share from them? Or are these entrants just startups that at some stage will merge with the incumbent banks?

Merely stealing market share from incumbents in areas that are not attractive should not be termed as disruption. Every niche player cannot be termed as a disruptor. For example, let us look at what is often called the "alternate" financial industry.[8] This includes payday loans, rent-to-own, and check cashers who bring in approximate annual revenues of $3.6 billion, $4.4 billion, and $7 billion, respectively.[9] This alternate financial industry has been able to address a niche—the unbanked—but has not really been a threat to the banking industry. While this may seem like a classic example of disruption—targeting low-end consumers and/or nonconsumption—the business models of such entities have not been scalable, thus disabling them from moving upmarket. At the same time, their products have failed to appeal to the most profitable customers of the banking industry, and banks have consciously chosen to sidestep this customer base due to reasons of profitability and risk. Thus, the niche has continued to exist over the years without posing any real threat to traditional banking.

In summary, as decreased profitability and mounting regulations have made it difficult for banks to offer small and high-risk loans, a customer base has been left that is largely underserved. Entrants have seized this opportunity by leveraging technology and low-cost business models to service this customer base profitably. But will they ultimately disrupt banks? In order to determine whether entrants have the ability to be disruptive to incumbent banks, or whether they will simply satisfy a niche that banks ignore, a theoretical analysis is needed.

Figure 3: Sample of online lenders offering a range of lending solutions

Consumer	Purchase Finance	Education Financing	Real Estate	Merchant Cash Advance	SMB Credit
Lending Club	Lending Club	Lending Club	Cozy	Swift Capital	Lending Club
Prosper	Affirm	SoFi	LendInvest	C2FO	Funding Circle
Kiva	Amazon.com	Upstart	Sequorum	Lighter Capital	OnDeck

THEORETICAL APPLICATION

Good theory provides a causal explanation of why different entities behave the way they do. In the case of incumbent banks and entrants, it can shed light on an incumbent's actions when faced with competition from a much smaller competitor. Because data is merely an output, it is better to plan and forecast based on a good causal theory than on historical data that at best may be correlated. In other words, consider causality to be the function of an action and data as the output of that function. Understanding the function to predict the future is much more reliable than predicting the future based on correlated data.

Interdependence and Modularity

The Theory of Interdependence and Modularity describes how parts of a service architecture interact. A service's architecture is interdependent if the way one part is designed, made, and delivered depends on the way other parts are designed, made, and delivered. This type of architecture results when an enterprise is unsure how a certain part should be built or used until it is delivered with other parts—that is to say, there is unpredictable interdependency across the interface. A modular architecture, on the other hand, has no unpredictable interdependencies in its design—its parts work together in understood, crisp, codified ways. In this way, different companies are able to provide products of each piece of the system, so long as they meet the defined specifications.

Today, incumbent banks employ a modular architecture, under the assumption that their products lack unpredictable interdependencies.[10] While they primarily focus their resources to enhance customer service in terms of speed and customization, the different elements of their value network, such as credit scoring, sourcing of capital, underwriting risk, loan servicing and associated technology, are typically outsourced. Each of these elements of the value chain come together seamlessly to produce the end product—the loan.

After the financial crisis, increased regulation and concerns of profitability caused banks to begin moving away from low-end segments of unsecured lending categories (personal loans, small business loans and student loans), creating an environment of artificial scarcity for small, unsecured credit products. With fewer products available, a space was created for entrants to enter the market. Entrants had a choice: should they develop an integrated or modular architecture? The Theory of Interdependence and Modularity explains that in situations like these, working with a modular approach to compete on speed and customization may not be the right approach for entrants. Because banks were no longer interested in serving the lowest tier of consumers, the priorities of these consumers shifted such that they were now interested in availability and qualification above all else, resulting in a change in the basis of competition. Whenever there is a change in the basis of competition, an integrated approach is needed to address the situation.

Figure 4: Business architecture of entrants versus incumbents

Interdependent Approach of Entrants – Each module has a performance dependency on the other

Modular Approach of Incumbents – Different modules come together along standard interfaces

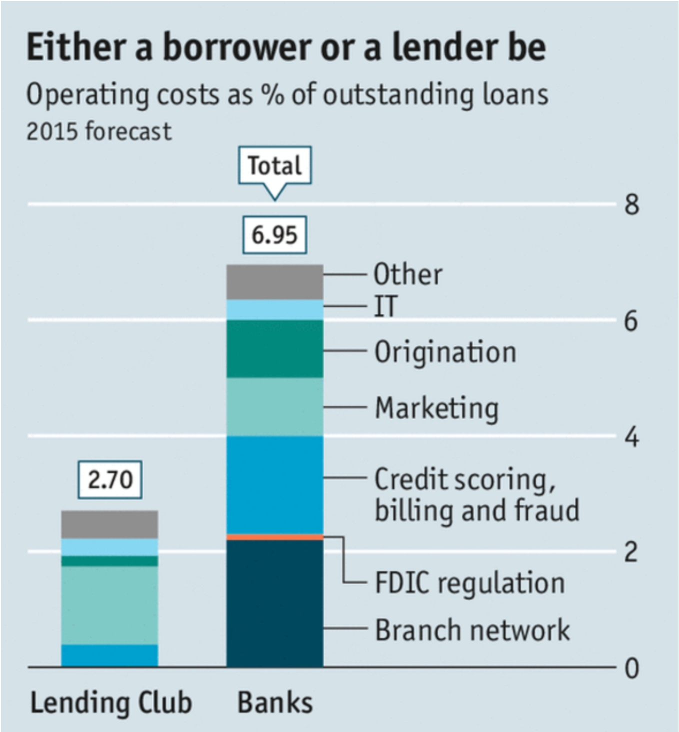
As it happens, an integrated approach is exactly what we have observed in the case of entrants. A majority of the big online lenders have all the elements of their value networks tightly integrated so as to churn out the best performance for the consumer. Generally, we see very few elements of the value network that are not proprietary. Different elements of the system like such as credit scoring, sourcing of capital, underwriting risk, loan servicing and associated technology are tightly integrated to provide the best performance for the consumer in terms of reliability and availability. For this reason, in the current context of servicing customers in an underserved market, the challengers in this space seem to be taking the right approach. Unlike the incumbent banks, whose modular environment prevents them from making changes to specific components without changing their entire system, entrants are more nimble. By keeping all of the elements of servicing the customer under their control, they seem to be better positioned to compete with banks.

To understand how an integrated approach benefits entrants, and penalizes incumbents, consider risk-scoring models. The majority of entrants understand that the traditional risk scoring models used by banks do not present a complete picture of a customer's risk profile. Hence to overcome this challenge, online lenders use a proprietary credit model that supplements the traditional credit score (FICO) with additional data.

Incumbents *could* attempt to enhance their risk scoring models and step away from FICO. However, as a result of their modular architecture, doing so would require changing all of the other elements in their value chain. This is because unless the new module is perfectly conformable to all the interfaces of participating elements of value network (that it interacts with), it may be difficult swap one module with another. Consequently, incumbents continue to rely on the status quo, even though they know that entrants' proprietary credit models provide a better risk profile of a consumer than their own, enabling them to acquire customers from the banks.

Still, regulation aside, incumbent banks are better equipped with resources, giving them a significant advantage over entrants. For example, the cost of funds for entrants is much higher when compared to a bank. In a near-zero interest rate environment, the deposits and support from government entities provides banks a much lower cost capital, whereas entrants must constantly work to keep the yield on the investments of lenders high in order to have a steady stream of investments. This also translates into cost of capital for the borrowers. As banks enjoy a lower cost of capital, they are better positioned to make loans at a cheaper cost than entrants. Along the same lines, in comparing the marketing costs of the two entities, marketing costs of entrants is 35 basis points higher than that of traditional banks.[11] In other words, entrants need to spend more to acquire customers compared to established banks.

Figure 5: Cost advantage of entrant vs. incumbent banks



Sources: McKinsey; Liberium via The Economist

Still, in spite of these resources, due to their modular architecture banks struggle to leverage them to drive change along their entire network. In summary, they are not in a position to use their resources to their fullest capacity, effectively leveling out the playing field.

Given the significant advantage of resources that banks have, online lenders should not have posed any challenge to them. However, because banks have chosen to leverage their resources to drive more efficiency in their business (by catering to most profitable customers more efficiently), entrants have been free to go after the underserved market. At the same time, banks' modular architecture has prevented them from utilizing their resources effectively, while also preventing them to compete with entrants' proprietary risk scoring models. It seems that entrants' integrated approach is serving them well, creating an environment where disruption seems all but inevitable.

Understanding the Job to Be Done

Jobs Theory, also known as "Jobs to Be Done," provides another dimension to judge the competitive landscape in consumer lending. Customers rarely make buying decisions around what the "average" customer may do; instead they often buy things because they find themselves with a problem they would like to solve. Conventional marketing techniques teach us to frame customers by attributes—using age ranges, race, marital status, and other categories that ultimately create products and entire categories too focused on what companies want to sell, rather than on what customers actually need. However, with an understanding of the "job" for which customers find themselves "hiring" a product or service, companies can more accurately develop and market products tailored to what customers are already trying to do, and can predict what customers will and will not purchase.

One of the key differentiating factors amongst enterprises that are successful in the longer run is their ability to understand the consumer better and create products that solve their consumers' jobs. Additionally, for entrants to be able to move upmarket and disrupt incumbent banks by diversifying their offerings, understanding their consumers' circumstances is essential. To that end, we conducted interviews with seven borrowers and ten investors over two months to determine if FinTech entrants are, in fact, addressing the jobs of consumers and investors.

Data from the interviews with consumers shows that a majority of entrants have failed to identify the different circumstances of their consumers and what they were trying to do when they borrowed money. While a majority of them performed well on the dimensions of speed and responsiveness (which was necessary only for the least demanding customers) they failed to adequately analyze the situation of the borrower. For instance, was the money borrowed used to put an end to something, or used as a means to achieve a larger goal over a period of time?

Lenders sometimes make the mistake of attempting to solve short-term problems when it is in their interest to think long-term. In instances like these, failing to understand their customers' jobs has allowed online lenders to miss crucial opportunities. For example, in an interview conducted in late September 2015, one interviewee described wanting to secure a mortgage but credit card debt stood in her way. During the interview, she explained that a series of life events had caused her credit card debt to rise so high that her monthly payments could not decrease the principal owed. Having already been rejected by the bank she and her husband never thought they would be able to receive a loan for a home until she saw an advertisement for an online lender. To her great surprise the lender accepted her personal loan request right away so that she could pay her credit card down. While this might have appeared as a success to the lender, using Jobs Theory, the lender could have identified that the real opportunity was not credit card debt but rather the mortgage. By focusing on the Job to Be Done of that consumer, the lender would have considered the Lifetime Value of a Consumer[12] rather than the mere profitability of the transaction. Unfortunately, the online lender failed to do this and instead focused on offering the personal loan at a quick speed and competitive price.

After interviewing the group of investors, it became clear that there were two types, each with a different Job to Be Done: those who knew very little about the financial markets and investing, and others who were highly knowledgeable in the field of investing. According to low-end investors in the first group, it seems that entrants have been relatively successful in understanding their job. Interviewees revealed that they are interested in investing in medium-risk, medium-return loans. In terms of risk and yields, these types of investments fall somewhere in between holding money in a savings account (with yields next to zero) and investing in mutual funds and other high-risk instruments. As one of the only players offering these types of opportunities to investors, entrants have been successful in fulfilling this job for this segment of investors.

While offering medium risk, medium return investments may appeal to the low end of the investor base, more seasoned investors describe having a different Job to Be Done. Because they already have experience investing, they look to online lending platforms as an opportunity to validate their knowledge. In this way, entrants are fulfilling that Job to Be Done. However, because this segment of investors is seeking out opportunities to apply their skills, being limited to personal loans—what entrants currently offer—will not quench their thirst for long. The most demanding investors are looking for more diversification into loan categories (auto loans, student loans, mortgages, and small business loans), as opposed to opportunities of investing solely in the personal loan space. In order to move upmarket, entrants need to think on the dimensions of control and sophistication as they attempt to solve jobs for more demanding investors.

As entrants are currently catering to the underserved customer base, the current parameters of speed, reliability, and availability may align well with the least demanding customers, even if entrants are struggling to understand the complexity of their consumers' jobs. At the same time, it seems they are adequately fulfilling the jobs of their low-end investors, and to some extent, their high-end investors. However, to successfully move upmarket by offering a variety of new types loans, entrants will need to understand the Jobs to Be Done of their consumers—something they have yet to accomplish. Only then will entrants be able to differentiate their products and services from incumbents and other competitors.

Disruptive Innovation

Disruptive Innovation describes the process by which technology enables new entrants to provide goods and services that are less expensive and more accessible, eventually enabling entrants to disrupt well-established competitors. Though often misunderstood, disruption is a positive force that brings about innovations that more people can access and afford.

Consider Apple's personal computers. In the early 1980's minicomputers dominated the computer industry. While they were undoubtedly better than their mainframe predecessors, they were large (nearly six feet tall and 1500 lbs.), expensive, and complicated, thus making their capabilities accessible to a select few. Then, a relatively unknown company, Apple Inc., started selling inferior computers marketed as toys for children. The toys were no match for the minicomputers in terms of performance, but they were "good enough" for customers who could not afford or operate a minicomputer. Over time, the toy computer improved and eventually became competitive with the minicomputer—but in a convenient, accessible package of a personal computer. In doing so, Apple disrupted minicomputers, making computing more available to a larger population.

Ironically, disruption is actually made possible by the actions of incumbent businesses, who are simply doing what they are incentivized to do—create products and services for their most profitable customers. Looking through the lenses of profitability and traditional growth, it makes perfect sense for a firm to invest its resources in areas that are most profitable and defend its high-end customer base. After all, when products and services improve, it is the most demanding customers who are willing to pay a premium for the increased performance of the product.

Criteria for Disruptive Innovation

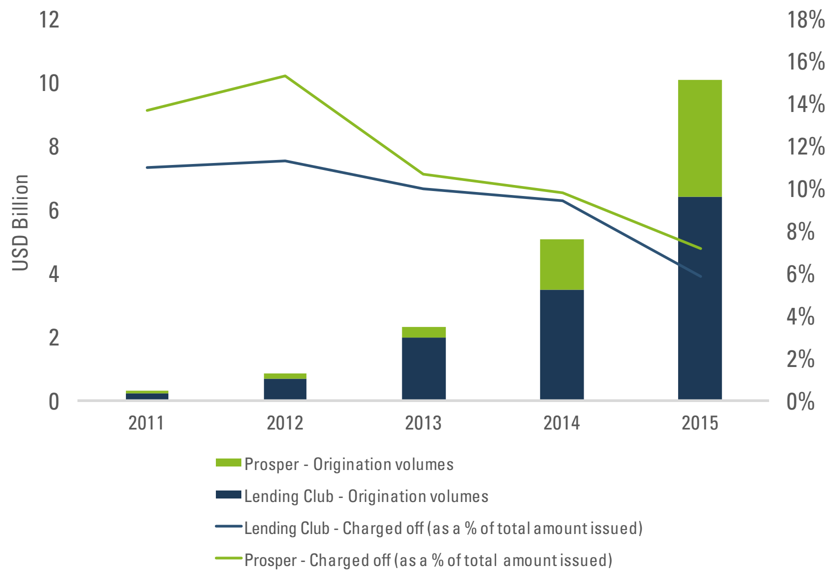
What differentiates disruptors is that they target low-end consumers who are least profitable, and/or nonconsumers who were previously unable to afford or use the product or service. Additionally, their approach in challenging the incumbent is distinct. In most cases, potential disruptors avoid head-to-head competition with industry incumbents, instead choosing a more covert attack—a slow move upmarket that takes incumbents by surprise, while also taking away market share. Because the incumbent is blinded by the motivations of profitability, it continues to focus on the most profitable segments of customers, leaving the lowest tiers of the market to the disruptor.

When gauging whether an innovation is disruptive relative to something else, there are seven key questions to consider, each of which will be explored with regards to lending.

1. Is the innovation **simpler to use, more convenient, or more affordable** than existing offerings in a given market?

In the case of entrants in the lending space, proprietary credit-risk scoring models serve this function. Based on the entrants' annual default rates of their unsecured loans, it is clear that they are in fact successful in delivering their value proposition. Figure 6 illustrates how the top two online lenders in the U.S. have consistently kept default rates under control, while at the same time grown loan volumes.

Figure 6. Charge-offs as a percentage of origination volumes



The importance of one of the supplementary data points (trend of repayment of credit) has been highlighted in one of the Transunion white papers. The paper points out that "Conventional scores offer only a 'snapshot' of consumer credit profiles at one point in time."[13] As credit models are not causal and only correlated, a credit model that takes into account more data points has a better chance of arriving at an accurate risk profile. By accurately profiling the credit risk of a borrower, the technology not only makes credit products accessible but also more affordable at lower interest rates.

When we look at the stack of credit products based on the reducing level of risk levels and associated dollar value, we find that today the products offered by the entrants are still at the lower end of the stack. For the highest tier of the stack—mortgages—lenders use the same scores to assess the ability and intent of the borrower to repay. While other factors are taken into account (like loan to value ratio for mortgages) the ability of the borrower to repay is one of the key deciding factors. Thus the underlying technological core of the entrants can surely be extended to the upper ends of the spectrum. The question is: would the current data points that constitute a credit model be sufficient and acceptable to the mortgage lender? However, just because the technological core is extensible does not mean that the entrants would be able to move upmarket. Some of the other questions posed by the Disruptive Innovation shall provide an explanation why.

2. Is the innovation **not as good as** existing options as judged by historical measures of performance?

Disruptive Innovations usually do not bring the products and services in established markets. Instead they re-define the trajectory by offering products that are not as good but perform well on other aspects like speed, convenience, affordability and accessibility.

Given the cost advantage that they have in terms of cost of funds, banks have an upper hand when compared with the products of entrants. The best loans from entrants (or the loans to prime customers) are priced anywhere between six and fourteen percent (for a tenure of maximum tenure of five years).[14] On the other hand, given the advantage that the banks have, they can offer the same products to customers anywhere between six and seven percent.[15] If we consider cost of funds or interest rates to be the traditional measure of performance, we see that entrants clearly do not have better products. However the products of entrants compete on the basis of access and affordability. By leveraging the technological core and their business model, they are able to offer loans to consumers who traditionally are not very attractive to the incumbent banks. The rapid adoption and the growth of the industry is an indicator that although they are not the best in the category, these products are good enough for the target customer base.

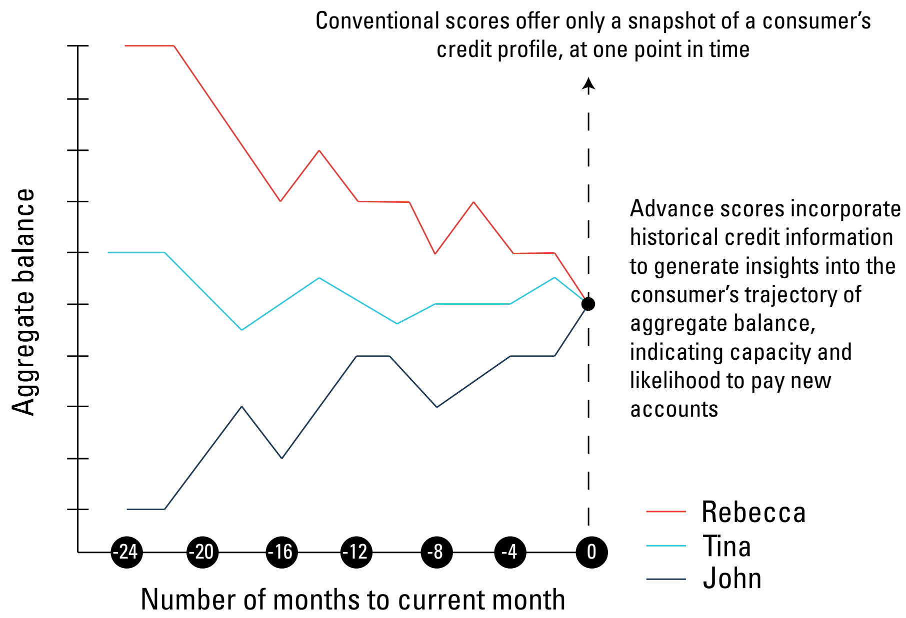
3. Does the innovation contain an **extensible core**: a technology that enables its value proposition to move upmarket?

An important distinction between disruptors and established firms is their extensible or technological core, which supports the value proposition of simplicity, convenience and/or affordability. Oftentimes, this component is not a device or gadget, but rather a process or methodology. This is the case with steel mini-mills utilizing a process to produce steel from scrap, Wal-Mart's strategy of cycling inventory, or Toyota's innovative production system.

> An important distinction between disruptors and established firms is their extensible or technological core, which supports the value proposition of simplicity, convenience and/or affordability.

In the case of FinTech entrants, the technological core is the underlying credit scoring model, which enables easier access to credit for a consumer group that banks are less motivated to serve. In a time when banks are becoming increasingly risk averse, the role of a credit model to accurately profile consumers is critical. An accurate risk profile is key to providing credit at competitive interest rates—and the entrant's proprietary credit scoring model does precisely that. It opens up a market for entrants that banks are not motivated to address because of their risk appetite and profitability.

Figure 7: Example of a conventional credit scoring model



Source: TransUnion

4. Is the technology paired with an **innovative business model** that allows it to be sustainable with its new value proposition?

Potential disruptors have an innovative business model that incumbents cannot replicate. As explained in *Reinventing Your Business Model*, business models have four key elements:

1. Customer Value Proposition – An offering that allows the customer to do a job better than any of its nearest competitors

2. Profit Formula – Defines how a company makes profits and determines its cost structure

3. Resources – People, products and relationships that the company can leverage to deliver the value proposition. Examples include: suppliers, customers, employees, technology, physical location etc.

4. Processes – The processes and metrics that the company utilizes to deliver the value proposition to the customer. Examples include: manufacturing, sales, research and development etc.[16]

Figure 8. Analysis of entrant business model

Value Proposition	Resources
Provide access to credit near-prime customers at competitive prices	• Network of borrowers • Network of investors • People and technology platform to run business
Profit Formula	**Processes**
Revenue: Borrowers: fee for originating the loan Lenders: fee for connecting borrowers and lenders Expenses: cost of running the technology supporting the business	• Credit risk profiling for borrowers • Loan servicing

With Disruptive Innovations, the profit formula and the underlying cost structure are vastly different from that of an incumbent, leaving the incumbent both disinterested and unable to respond to the competition. For example, the majority of FinTech entrants make money by connecting borrowers with lenders and charging a fee for their services. The fee income may look small when compared to the interest income of a traditional bank, however, most entrants enjoy a 400-450 basis point cost advantage when compared to a bank.[17, 18] This difference in cost structure causes two things. First, the small profit margin causes incumbent banks to be largely unmotivated to dedicate resources to the segment. Second, even if a bank is motivated, it cannot respond to the competition within its existing business model, as the cost structures would not support the revenue stream. So, in other words, an incumbent bank cannot effectively respond without changing its own business model—a complex and daunting undertaking.

The circumstances in which a business model must change include: 1) when there is a need to compete with a potential disruptor, 2) when the value proposition is not attractive enough for the consumer, 3) when the profit formula, processes, and resources are not aligned to deliver the value proposition efficiently, and 4) when the new business is at risk of being influenced by the core business.

In the case of incumbent banks, the third and fourth conditions—unaligned business model components and threats of core business influence—check out. The profit formula of entrants cannot be replicated under the current cost structure of a bank, and new business may very quickly find itself in an environment where its success is measured by the metrics of the core business. For these reasons, incumbents should not brush aside entrants as short-term technology fads. Instead, for them to remain relevant and co-exist with the entrants, their business models must change. To that end, some incumbents have responded by investing in new business and strategic investors (both external and internal) and developing operational partnerships without any strategic interest or investment.

However, not all forms of competition call for a change in a company's business model. In fact, when faced with competition, successful companies have been able to continue creating new products and services that address a Job to Be Done without changing their business models. For example, Costco's business model allows it to add on different value propositions for its customers. Costco makes the majority of its revenue through membership fees, rather than margin on the sale of products.[19] This means the business model is delinked to the value proposition of customers as it acts as a platform or exchange for companies to sell products and services. In doing so, the business model can be leveraged to deliver different value propositions to customers without impacting its profit formula, resources, or processes.

5. Does the business model exist within a **value network** that allows all participants—suppliers, distributors, customers, etc.—to benefit?

A value network is defined as "the context within which a firm establishes a cost structure and operating process and works with suppliers and channel partners in order to respond profitably to the common needs of a class of customers."[20] Disruptive Innovations survive only within cohesive value networks in which all stakeholders benefit from the new innovation.

Within lending, the entrant value network may appear deceptively similar to the value network of banks, with both networks containing investors and borrowers. However, while bank investors are passive depositors who simply hold money in a bank account, entrant investors are active participants in the loan funding process. Entrant borrowers are also distinct, as they tend to not easily qualify as borrowers with banks. This new network addresses the value proposition for each party: the entrant borrower gains access to credit and the investor gets a new asset class in which to invest. In short, both entrant stakeholders benefit from the new arrangement.

6. Does the innovation **target nonconsumers or people over-served** by existing products/services?

A disruptor never picks a direct fight with the incumbent. Instead, they start by targeting one of two groups: 1) less profitable customers who are unattractive to incumbents, or 2) nonconsumers, i.e. people who cannot afford/access existing offerings and whose only alternative is nothing at all.

This criterion bodes quite well for lending entrants. The majority of FinTech entrants today have products specifically targeted at a customer base that is inherently unattractive to incumbents. As discussed earlier, these are near-prime customers from whom banks have moved away due to the reasons of profitability and risk.

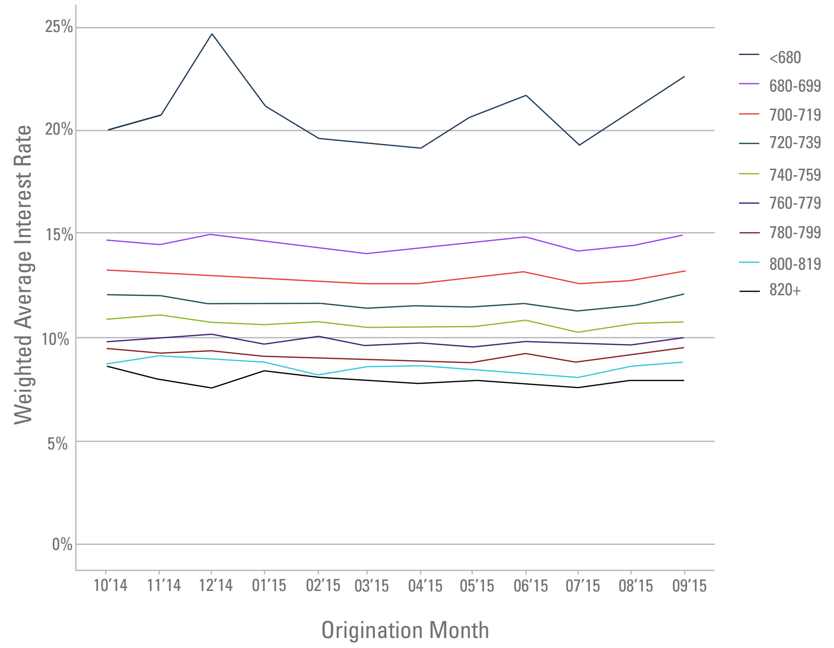
7. Are incumbents generally motivated to **ignore the new innovation** at the outset?

Due to reasons of profitability and risk, as banks vacate the low-risk and small-value loans, entrants are making their way into these segments.

As entrants try to move into this space, the competition that they face is from nonbank mortgage lenders. Some of the prominent names in this space are Quicken Financials, PennyMac Financial Services and Freedom Mortgage. While the majority of these are originators, there is a different group of service providers for servicing mortgages. Some of the players in the loans servicing category are Ocwen Financials and Nationstar. Not only do these non-bank players outpace the banks on loan origination volumes, faced by heavy regulations and compliance, they are also able to maintain a decent portfolio quality by lending to near-prime borrowers.[21] The available data reveals that the average credit score of the customer base that these non-bank lenders address has constantly hovered just below the prime category (unlike in 2008 which was sub-prime).

With increasing regulatory and compliance costs, banks have continued to move away from the below-prime consumer base to larger loan categories (such as Jumbo loans in the mortgage category). The mortgage originations and servicing of banks today is shifting more towards the prime customer base.[22] These are customers who would have a lower debt-to-income ratio and an excellent credit score. Generally, such customers fulfill all the criteria laid down by CFPB for a Qualified Mortgage and enjoy the lowest rates on their mortgages. Alternatively, non-bank lenders are more focused towards the near prime customer base (with credit scores ranging from 650–750), which is largely underserved by the banks primarily due to risk.

Figure 9. Credit profile of entrants' borrowers and associated interest rates



RECOMMENDATIONS

After evaluating the threat that entrants pose to incumbent banks through different theoretical frameworks—namely the Theories of Interdependence and Modularity, Jobs to Be Done, and Disruptive Innovation—it appears that entrants are, in fact, poised to be disruptive, so long as they continue to address their consumers' jobs as they move upmarket.

While many incumbents will shy away from competing for the low-end customer base, enabling disruption to occur, there are those prepared to defend their market share. However, our research indicates that it may be difficult for incumbents to respond adequately, with existing business models proving restrictive. Some will try to respond by reinventing their business models, but they will be late, and the impact will be limited.

This leaves incumbents with three options:

Option 1: Partner with entrants

In this strategy, the incumbent partners with the disruptor as a strategic investor. The primary objective is to leverage the business model of the entrant as a platform to drive growth by keeping it independent of the incumbent's core business. In this circumstance, the incumbent recognizes that its existing business model may not be fruitful in driving the new customer value proposition in the long run. By keeping the new business unit separate, however, the new business model not only competes with potential disruptors, but also drives the next phase of growth for the incumbent.

An example of this is when BancAlliance, an alliance of small community banks, began partnering with Lending Club to offer consumer loans in early 2015.[23] Later that year, JP Morgan Chase announced its partnership with OnDeck Capital to offer small business loans.[24]

Option 2: Enter into an operations-only partnership with disruptors

The incumbent's strategy in this case is to have no investment or strategic interest in the disruptor's business, but instead, partner with the disruptor to facilitate back-end operations to generate revenue. At the same time, the incumbent also has its own channels from which it caters to its customers. An incumbent who chooses this strategy has two objectives in mind. First, it intends to grow along with the entrants by facilitating the back-office operations for them. Second, it aims to compete with other, large incumbents by partnering with entrants. Some of the examples in this space are Web Bank and Cross River Bank, which help entrants originate their loans before they are securitized and sold to investors.

An operational partnership is beneficial to both parties involved. The entrant benefits from the bank's national charter and avoids huge compliance costs that it otherwise would have to bear to obtain a non-bank lender license in each state. The entrant platform also benefits by leveraging the bank's national reach to originate the loans to customers across US and then securitizes it. The incumbent benefits from increased efficiency in comparison to traditional lending through brick and mortar branches. The national access of the online lending platform means that the bank can indirectly service customers nationwide without any significant investments in bank branches or technology. The customer acquisition costs are also negligible as the entrant who runs the online platforms bears that responsibility. In this way, the bank can effectively compete not only with disruptors, but also with other large national banks without any significant investments in expanding and maintaining its branch network.

Incumbents in operational partnerships employ fundamentally different business models as compared to other traditional banks. These models are born from the bank's objective to fund online lending growth. In order to do so, the process and profit formula must change. A majority of incumbents who choose this strategy make money through short-term lending and fees as opposed to holding loans on books and earning interest from them.

> Operational partnerships demonstrate how reinventing an incumbent's business model is possible without impacting the value proposition to existing customers.

In addition to catering to online lenders, having a commercial banking license allows these banks to serve customers through traditional channels such as their branch network, as well as online. Because expanding their branch network would push them towards a cost structure of a traditional bank (that has not attempted to adjust its business model in order to compete with entrants), banks that forge operational partnerships choose not to expand them. In this way, operational partnerships demonstrate how reinventing an incumbent's business model is possible without impacting the value proposition to existing customers.

Option 3: Build a new business model to compete directly with entrants

In contrast to Options 1 and 2, incumbents who choose this strategy work independently of entrants and build their own autonomous business units to compete in the new competitive space. For instance, in the latter half of 2015, Goldman Sachs announced it would create its own peer-to-peer lending platform to offer consumer loans.[25] In this case the bank chose to address a completely new value proposition and created a new business model to address it. Despite being an investment bank, the underlying reasons for this move were similar to Option 1. Faced with the increased competition in the core business (from larger investment banks and from smaller boutique banks), the company decided to create an autonomous business unit that would target the next phase of growth. This unit would target a completely new value proposition (consumer loans versus advising large corporations) for a customer base that the existing businesses could not offer. It is because of these reasons that the different building blocks of the new business—profit formula, cost structure and resources—had to be built from the very beginning and were kept separate from the core business. In the same way, when faced with competition from entrants, large incumbent banks can choose this as an alternative competitive strategy.

However, new business units can very quickly transition into sustaining innovations that simply reinforce the original business model by continuing to target the same customer base while ignoring the new customer base. For example, if a bank creates an online platform to issue loans faster but the decision-making rules remain the same, the business model is more likely to become a sustaining innovation that is used as a means to enhance the current offerings of the bank. In the examples cited in Options 1 and 2, all four elements remain the same except for a new resource—technology. Instead, a true reinvention of a business model calls for each of the four components of the business model to change.

CONCLUSION

In summary, an analysis of Interdependence and Modularity Theory, Jobs to Be Done, and Disruptive Innovation suggests that the disruption of incumbent banks is inevitable at certain tiers of the market, while in other cases entrants will simply take away market share from banks by increasing efficiency. In both instances, an integrated architecture works in entrants' favor. Unlike incumbents, entrants benefit from proprietary risk-scoring models. At the same time, incumbents' modular architecture prevents them from using their resources to their fullest capacity.

Banks will continue to move away from smaller, riskier loan categories due to tightening regulations and motivations of profitability, enabling lower tiers of the market to be disrupted by entrants. At this level, entrants are successfully solving consumers' Job to Be Done, as they are providing small loans that customers would otherwise not qualify for due to their risk profile. There is certainly room for improvement, though. As the space becomes more crowded with similar players, entrants must differentiate their products by understanding the jobs of consumers. In other words, they must seek to understand the outcome that the customer is seeking, and determine what role the customer's request plays in that. Is it the end, or a means to an end? Understanding customer jobs will be vital as entrants attempt to move upmarket.

Looking through the lenses of disruption, the entrants seem to be doing everything right. They have a technological core that is scalable and supports the value proposition of simplicity and accessibility for customers. They have chosen to compete in a market that is less attractive to incumbents. And, finally, their business model is difficult for incumbents to replicate. However, our analysis reveals that there may be barriers to upmarket movement, which is primarily due to limitations of their business model and the kind of competition that they face.

At the highest tier of the market—real estate—entrants are simply taking away market share from banks by being more efficient in terms of servicing their customers. This is made possible since entrants are able to leverage technology to create low-cost business models to service their customers profitably. Still, it is not too late for incumbents to fight back. If they improve their processes and technologies, they may be able to defend their market share. On the other hand, entrants need to employ an innovative business model to effectively take on this space.

But not all banks are sitting idly by. Some are responding to the challenge by leveraging the low-cost business models of the disruptors to drive more efficiency in their business. They are using entrants as business units that are outside of their core business in order to offer products and services more profitably than they could have through their core business alone. However, if banks continue to leverage the business models of disruptors to create products for the most profitable customers, they will enable entrants to continue targeting the lowest tier of the market, potentially creating a situation in which they may one day be disrupted. Other banks are taking a back seat and assuming the role of a utility provider. By linking their growth to the growth of entrants, they actually compete with larger banks indirectly by helping their competitors.

If disruption continues at this pace and banks continue to lose their customer base to entrants, it is likely that the lending portfolios of some of the largest banks will become significantly smaller over the next decade. Those that do survive may be pushed to the background and reduced to the role of utility providers, with entrants owning all front-end customer functions. The majority of the money would be made at the front-end by entrants because they are key to delivering the value proposition to the customers.

Faced with almost certain disruption of their lending services, banks have a choice: be the utility providers of the future or leverage their resources to create new business models that compete head-to-head with entrants. To accomplish the latter, a bank must reinvent its business model and distance it from the influence of the core business. As the value proposition of the new business model starts appealing to new customer groups, the core business fades away over time and the new business model takes over.

So, while disruption is making products and services affordable and more accessible to the consumers, incumbent banks are faced with a choice. Will they be the utility providers of capital of tomorrow, or reinvent their business models to co-exist and compete with entrants?

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[13] The majority of credit models are based on historical data and are built on the theory that credit handling patterns of the past are a good indicator of the future. We believe that this is a flawed theory that success of the past guarantees, success in the future. On the other hand to dig into the causal reasons of every borrower, calls for huge investments in resources. Hence more the number of data points that a credit model takes into account the better the credit model.

[14] The range was arrived at by looking around some of the popular peer to peer lending websites and also responses from Job interviews.

[15] The range was arrived at by adding the current United States prime rate (3.5%) and the average net interest margin of all banks US (nearly 3%)

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The Clayton Christensen Institute for Disruptive Innovation is a nonprofit, nonpartisan think tank dedicated to improving the world through Disruptive Innovation. Founded on the theories of Harvard professor Clayton M. Christensen, the Institute offers a unique framework for understanding many of society's most pressing problems. Its mission is ambitious but clear: work to shape and elevate the conversation surrounding these issues through rigorous research and public outreach.

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