How The Development Of Blockchain Technology Is Facilitating Peer To Peer Microlending

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Executive Summary

This report provides an overview of how blockchain can be integrated with micro-financing and peer-to-peer lending to financially improve the impoverished in the world. The paper begins with an overview of the concepts of micro-financing and peer-to-peer lending and their joint role in impact investing. Micro-financing is a financial service where foundations lend small amounts of money to impoverished individuals, who have low incomes and poor credit scores, to borrow from traditional financial institutions. Peer-to-peer lending is a service where private investors lend money with low interest rates to individuals. Although both services have impacted millions, they still face fundamental issues including high APRs, difficulty in scalability, lack of transparency, and high overhead costs that continue to limit their success.

This report also investigates the role of blockchain technology in the financial world. Blockchain is an open-sourced distributive ledger in which every transaction is made public by being stored and linked in the form of encrypted data blocks. The benefits of this technology include increased security, increased transparency, and lower costs. However, there are potential risks involved: lack of programming safeguards, inability to reverse a wrong transaction, and potential undiscovered vulnerabilities. Despite these risks, this report draws attention to the successes of existing companies who have integrated blockchain to micro-financing and peer-to-peer lending. Several startups, such as Modea, Factom, and Rootstock, are using blockchain to make their lending processes more transparent, secure, and efficient. In addition, software giants such as Microsoft have committed to a mission to make blockchain the driving force for effective lending. In conclusion, this report finds that the integration of blockchain can revolutionize micro-financing and peer-to-peer lending to create an effective and efficient system, making capital accessible to more borrowers.
I. Micro-financing

Microfinancing is a banking service in which financial institutions help individuals who are too impoverished to work with traditional financial institutions. Microfinancing allows these individuals to borrow a small amount of money, typically around 100 dollars, after going through a required business basics education. The loans are consistent with ethical lending practices and, for many, is a much needed alternative from the loan sharks charging the high interest rates that drive people back into poverty. In the realm of impact investing, microfinancing makes up an important share of the investments. According to a recent report by the CGAP, microfinancing makes up almost 72% of total impact investing AuM focused on developing countries, giving many in poverty a chance to become self-sufficient.

There are many foundations that currently are involved in micro-financing, one of the first being Kiva. According to CGAP, Kiva was founded in 2005 and has enabled over 1.5 million people to fund over 2 million borrowers. This has resulted in nearly 1 billion dollars lent and more than 97% repaid.

Although micro financing is a promising concept, there are some inherent drawbacks. Currently, many micro loans have high APR’s due to the high overhead in each transaction, for people in poverty even these rates are too much to pay. Many institutions that are currently in the space also struggle to properly scale and efficiently reach people who these loans the most. With other companies, it’s hard to trace where the loans are going; studies have shown that some women’s loans were going to their husbands while the women had to take on the credit risks.

II. Peer-to-peer lending

Peer-to-peer lending is an unsecure banking system in which borrowers take loans from private investors at an agreed interest rate. This is done by using a peer-to-peer online platform in which the loan-seeker has a profile outlining their credentials and objectives. The investors use the information from these profiles to make a decision on how much they should loan out and what they will set the interest rate to be. In theory, peer to peer lending is thought to be more effective because the borrower and the lender have a more personal connection which is supposed to mitigate the risk of defaulting on the loan, although this is rarely the case with most peer to peer transactions being done online in forums and facilitated lending websites. These peer-to-peer platforms are also sometimes used by micro financing companies to connect with potential borrowers.

Currently, there are a few companies that employ the peer-to-peer lending system. Examples of such companies would include SoFi, and Upstart. SoFi uses peer-to-peer lending to work with student loans and to help students finance their mortgages. Upstart is a company that looks beyond your credit scores when distributing loans; it considers education and experiences to see the borrower’s potential for growth.

While peer to peer lending is often thought to be a great way to get funding to individuals and small businesses, it suffers from many of the same issues that plague microfinancing. Many peer to peer lending institutions are currently struggling due to lack of transparency, improper regulation, and extremely high overhead costs.
III. How Microfinancing and Peer-to-Peer Lending Work Together

Microfinancing is an umbrella term that encompasses the multiple alternatives to traditional banking, one of which includes peer-to-peer lending. Microfinancing focuses more on the transactions between banking companies and individuals, while peer-to-peer lending focuses the direct exchanges between individuals. Also, while peer-to-peer lending places emphasis on making a profit off of loans, microfinancing is centered more around the borrowers’ benefit and providing them with opportunities. Microfinancing is also more heavily focused on providing banking to regions that don’t typically have such means.

When using peer-to-peer lending and microfinancing, the borrower is relieved from the high interests posed by banks and extensive credit-checks, and the investor is able to make an income from the interest rates they set up on their loans.

Through microfinancing and peer-to-peer lending, lenders are able to make a huge social impact in communities. Entrepreneurs and other individuals who lack the capital to sustain their small business are able to create a profitable venture. Often this small source of support helps individuals make a living and provide for their family and household.

IV. Introduction to Blockchain Technology

Fintech is an extremely broad financial services sector that includes anything utilizing technology; prominent examples include cryptocurrency, insurance, and machine learning based banking apps. Blockchain is arguably the most disruptive technology in the financial sector to date.

Blockchain was developed in 2009 by Satoshi Nakamoto, a pseudonym for a person that has not yet been identified. The idea of blockchain is a distributed, replicated ledger in the form of series of data blocks; the blocks are not stored together and each block has a timestamp and a link to the previous block. Continuously, each block stores and updates records of who owns what.

A block of data must be assembled so that when it is input into an encryption algorithm, a hash function, the output adheres to a set of predefined rules. After verification, the block of data is added to a line of previous blocks. Together, this is called a public ledger, and this allows for all previous encrypted data blocks to be visible to all users. Because of how hash functions work inputs cannot be purposefully designed to ensure a correct output. The immense difficulty of verification renders the ledger “immutable”, or safeguarded from tampering.

The implication develops a new, decentralized model of data tracking. Instead of passing all data through a central server, data is passed through a peer-to-peer server and is verified by the network itself, allowing each member the ability to verify and prove ownership at any given time.
V. Implications & Application

In theory, because it does not rely on central organization, it is not as susceptible to manipulation or hacks, as every transaction is available for public scrutiny. The ability of blockchain technology to efficiently and accurately record transactions between two parties has far reaching implications for every major industry, not just financial services. Blockchain has the potential to secure your identity, usher in the age of digital voting, and even marginalize the role of intermediaries for lending, investing, and money management.

Blockchain is an especially valuable technology that can be used in the world of impact investing and microfinance. The blocks of data in the ledger are each an assembled list of transactions. When each block is verified, all transactions specified by the block are confirmed and the balances updated. The distributive ledger helps facilitate a lower cost, more profitable peer-to-peer lending network which is enforced through smart contracts, increasing transparency, eliminating middlemen, and helpfully verifying borrower’s and lender’s identities.

The value of blockchain tokens are volatile, but companies developing blockchain technology are less so, as blockchain is a developing technology with significant applications in simplifying microlending, along with many other related fields. Blockchain mitigates risk of errors or manipulation in accounting due to the immutability of the public ledger, streamlining credit calculation and auditing. Current risks in blockchain are majorly comprised of underdeveloped programming safeguards. Due to the nature of blockchain, transactions to wrong contacts are irreversible once confirmed: Because transactions are processed in blocks, reversing a single transaction would require invalidating other transactions in the same block, exacerbating possible phishing problems. Furthermore, due development speed, many undiscovered vulnerabilities serve as possible routes of attack, for example, as ethereum contracts have been manipulated to pay out inappropriately. In terms of microfinance, a network attack might freeze assets and prevent access to basic necessities. Attacks on large institutions such as Mt.Gox have casted doubt on security and have been major setbacks to adoption in a system highly dependent on trust. Due diligence research into platform vulnerability precedence, company engineering protocols, and public auditing of codebases would mitigate a majority of stated risks.

Blockchain greatly reduces the cost of microfinancing, making it more profitable for companies, and even individuals, to use such service, solving one of the biggest problems with microfinancing today. This technology has the ability to not only increase the amount that people are willing to lend to others, but also increase the trust that the investors have in their investments. Facilitating the increase in microlending indubitably has the ability to bring many out of poverty and give over 2 billion unbanked or underbanked people access to resources and seed funding.
VI. Companies Applying Blockchain Within Microfinance Systems

Moeda is a new tech startup using blockchain technology to revolutionize the way that people can lend and borrow in microfinancing. “Moeda offers simple peer-to-peer payments and a peer-to-peer remittance network to help drive entrepreneurs toward their goals and allows underbanked entrepreneurs access to fast payment, ecosystem, and personal business loans”. Moeda partners with local credit cooperatives in rural areas, utilizing blockchain for greater efficiency and transaction history reliability to reduce fees to affordable rates. Especially when customers are dispersed, a decentralized network is more efficient. Apart from reducing costs, Moeda has also been able to fix identity on the web using the blockchain, solving yet another issue that has plagued micro-financing. Although this startup is still working on their scalability and getting widespread adoption by consumers, governments, and traditional financial institutions while justifying risk with the advancements in blockchain technology, their groundbreaking progress so far has clearly opened up the impact investing space to benefit from new improvements in technology.

MOEDA connects investors to entrepreneurs by relying on banks. While loan providers transfer money through blockchain technology, this form of money isn’t easily accessible to borrowers. Banks address this problem by using the funds MOEDA collects to distribute the money to borrowers in the form of fiat currency. If MOEDA didn’t involve a third party, it would be difficult to use blockchains to transfer loans to borrowers as most of these borrowers don’t have access to much technology or the internet. Even though banks allow MOEDA to connect to a specific demographic of borrowers, there are some drawbacks with relying on these institutions. Blockchain makes all transactions clearly visible to investors. Involving a bank prevents the investors from knowing where the money goes after the banks distribute their loans. Relying on banks could also mean that there would be more intensive credit checks, and this could make it harder for individuals to receive loans. Also, because MOEDA is dealing smaller loans, it takes a longer time for banks to process such a high volume of paperwork.

Brazil was a good place for Moeda to start in because Brazil’s banking industry is ready for rapid innovation in the mobile financial technology. Although Brazil’s banking giants account for about 80%, the domestic market are nonetheless vulnerable to entrepreneurs launching new financial products to meet consumer and business demand. Brazil is also an attractive market for digital baking because of the large unbanked population, uneven access to credit and high internet and smartphone adoption rates. About 40% of Brazil’s population is unbanked and 50% of small to medium size businesses do not have access to credit. This was the perfect opportunity for Moeda to jump in. There is room for a change to the way people are processing payments, credit and funding. Just in Brazil, there are almost 250 homegrown fintech start-ups up from 54 two years ago.

Some other places that Moeda could potentially start up include other countries in Latin America. Looking at the graph below, we can see that the entirety of the region of South America/Latin America, about 65% do not use semi-formal or formal financial services. In this sense, Latin America provides a great opportunity for Fintech companies to address this market through an adoption of mobile technology. In 2016, the region had 450 million smartphones and this number is supposed to increase by 76% within the next three years, this means that people in Latin America have access to the technology needed for blockchain facilitated microlending.
To make the process of peer-peer microlending more transparent, another startup, Factom, is using blockchain technology to trace funds. Specifically, by maintaining a reliable record of financial transactions related to The Water Project, a charitable organization in western Kenya. Although Factom leverages blockchain to promote decentralization, its usage is limited to few partner organizations. Similarly, Rootstock is geared more towards banking rather than philanthropy. We need a solution that incorporates both these advantageous qualities while solving the problem of accessible and transparent peer-to-peer lending. Such a solution will require network effects and commitment to the community to succeed in the field of microlending.

It is not just the small companies that have quickly embraced blockchain, technology giants such as Microsoft have also leveraged blockchain for microfinancing. Microsoft’s efforts within microfinancing have manifested in a mission to advance the technology for MFIs (Microfinance Institutions) with industry wide solutions like the MifosTM platform. Microsoft has found that advancements within blockchain and technology have led to a powerful shift in the effectiveness of MFI’s since the early 2000’s. “Surveys by the Consultative Group to Assist the Poor (CGAP) show that the share of MFIs leveraging technology to manage their operations grew from less than 50 percent in 2004 to roughly 72 percent in 2009”. Microsoft plans to continue to expand on and grow micro financing technologies, focusing on transparency, innovation, and accessibility to get measurable social and business results. Although there are currently numerous flaws within microfinancing that greatly hinder its effectiveness, developing technology like blockchain promises to remove many of the barriers and inefficiencies, such as high overhead and costly middlemen, to make small loan payments accessible and impactful. Microsoft’s hopes to unite MFIs, stakeholders, as well as funders and technology providers under their vision where technology is the driving force behind effective microfinancing.
VII Conclusion

The implications and applications of blockchain technology are vast and far reaching. Blockchain promises transactions not only privacy but also transparency, not only accuracy but also efficiency and immutability. Fintech and blockchain have already become disruptive forces in the financial sector, already eliminating middlemen and streamlining processes, especially in the area of microlending. The further development and integration of this technology into microfinance promises to fix a broken system, allowing peer to peer lending to efficiently and effectively help the unbanked and underbanked masses who need them the most.
Works Cited


