

# P2P Lending Review, Analysis and Overview of Lendoiit Blockchain Platform

Spyridon Arvanitis

**Abstract**—Peer-to-peer (P2P) lending allows primarily unsecured personal loans to be made between any two or more parties rather than requesting a loan strictly through a financial institution. In a decentralized P2P lending system, using digital blockchain technology and the global reach of the Internet, lending can be done between any interested users without any financial institution involved, and provide better terms for borrowers and lenders. The use of Smart Contracts, unique self-executing archives of transactions, is supported by decentralized blockchain authentication, reducing overhead to operate a lending platform. One such platform, Lendoiit, exemplifies this system. On its website, a borrower can enter their information, upload verifiable documents, and enter their requested loan amount. Lendoiit uses multiple verification sources to assign a quality score, a form of credit rating, to that request. Lenders offer bids for interest and repayment, spreading the risk rather than concentrating it, and reducing the overall interest rate in a reverse auction. Once the requested amount is gathered and accepted, the Lendoiit Smart Contract then issues payment notices, collects, updates itself, or if a payment is missed, can add penalties or report default for collection. P2P lending also allows cash-out and secondary market sales, creating other markets for profit-seeking. Growth in P2P lending has already been explosive, especially in the U.K. and China, but the industry is expected to grow even faster as more platforms and potential users take advantage of the decentralization that simplifies the entire process.

**Keywords**—Blockchain, Decentralization, Lending, Lendoiit, Peer-to-Peer.

## I. INTRODUCTION - BACKGROUND ON P2P LENDING

The global reach of digital technology has given rise, to among many other changes, the emergence of peer-to-peer lending as a viable large-scale business model. Peer-to-peer lending is the practice of developing and facilitating direct loans between individuals or businesses [1]. In the traditional model, a bank, credit union or some other financial institution would serve as an intermediary in order to allow the transaction to occur as objectively as possible. However, this meant that peer-to-peer (P2P) lending was subject to that third-party limitation which added costs and time to each transaction [2].

In decentralized P2P, the Internet and the widespread use of digital devices means that a third party is no longer necessary, or at least that the lower operating expenses of the facilitating

third party help reduce interest rates for borrowers and earnings for lenders. In the decentralized P2P system, procedures are also faster and lending can happen in hours or even minutes rather than days [3].

P2P lending is largely based on unsecured personal loans, though for larger amounts related to business transactions, collateral might be required. The system is thus a major benefit to people who cannot access bank loans easily, for lack of credit history or lack of collateral, and for those for whom banks are not available or accommodating enough [4]. For example, interest rates in Russia and Indian average 12-15%, while in Brazil the average is an astonishing 32%, similar to the rate of most microloans [5]. In P2P unsecured personal loans, interest rates and repayment terms are fluid, but even with no collateral attached, the average interest rate tends to be lower than the national average, but with shorter repayment periods than with traditional lending [6].

This “interest fluidity” advantage means that potential borrowers and lenders can come together to forge the best possible transaction regardless of nationality, national banking regulations, location, currency, or legal systems. Decentralized P2P lending creates a truly level playing field where any person can access loans at competitive rates [7].

The advantage decentralized P2P lending has for the average borrower is that it can also reduce interest rates because transactional costs are lower. In addition, credit checks and “Know Your Customer” (KYC) protocols can be carried out more quickly, and in many cases, with a more holistic view of the person’s capacity to repay. For lenders, the decentralized system can spread the risk to several lenders while maintaining a slightly higher average return, again due to the lower transactional cost [8]. With both sides able to receive better terms, P2P lending on decentralized platforms is already a multi-billion business model around the world [9], [10].

Another major advantage of decentralized P2P lending is that it can occur anywhere, at any time. Unlike traditional lending which is physically limited to a person’s location and the location of the financial institution, the new decentralized system grants access to anyone with a digital device and an Internet connection. Loans can be and are processed every hour of the day, across borders. Also, the use of cryptocurrencies creates alternatives that even out currency exchange rate differences so that loans can be made much faster and with less uncertainty about repayment options [2].

## II. BLOCKCHAIN TECHNOLOGY FOSTERS DECENTRALIZATION

It is through cryptocurrencies that decentralized P2P lending became truly possible, thanks to blockchain technology. A blockchain system is a digitally-based redesign of a ledger (archive) system. Blockchains rely on unique encrypted identifiers per file whose details are kept up-to-date on multiple devices rather than in a central repository. The data can be updated and correlated at any time, based on the unique file identifier and a unique transaction identifier [11].

Since the exact same encrypted data is kept in multiple locations and is reconciled all at once, blockchain technology becomes a fail-safe digital third party for fintech (financial technology) uses. Blockchain technology was invented in 2008 as the basis for a digital currency (bitcoin), but its applications spread throughout communications and banking applications. By 2016, millions of dollars from venture capital firms had been poured and were increasingly pouring into the development of fintech platforms using blockchains [12].

In decentralized P2P lending, blockchains allow for secure record-keeping, but also for the creation of smart contracts. A smart contract is essentially a file that has self-executing code based on parameters [13]. For example, in P2P lending, a smart contract will have the initial loan amount and the repayment terms. If the loan is for \$1,000 with a repayment term of 12 months at \$100 a month, the smart contract will execute the payment requests, receive the payments, and adjust the due amount automatically. It will even add penalties if payments are late or missed. Using blockchain technology, the smart contract removes the need for a third party and reduces overhead costs. At the same time, smart contracts can embed smart compensation functions, such as adjusting credit ratings, deducting percentages for early loan repayment, or switching to higher yield currency automatically [13].

Peer-to-peer lending is not considered a typical financial institution (bank/credit union, insurer, or investor) so it does not conform to most banking regulations. One major difference is that loans are unsecured so that if a lender loses money on the loan, there is no coordinated remedy (as with banks, who get government protection for losses). Another area of potential concern is that the decentralized P2P lending system can be seen as a form of solicitation of securities. Under this paradigm, monies are requested to be used for investment that leads to profits, and such an arrangement requires a broker license and registration with the appropriate government agency, such as the Securities Exchange Commission (SEC) in the U.S. or the Financial Services Authority (FSA) in the U.K. However, court cases in the U.S., the U.K. and several other countries have established that P2P lending is a direct transaction and thus not subject to securities regulation [14].

## III. RISKS AND ADDITIONAL LOAN MARKETS

The risk associated with P2P lending, as with traditional lending, is borne primarily by the lender. When the lender hands over the agreed-upon amount, his or her gain is based on repayment, whereas the borrower's gain is immediate. In

traditional P2P lending, the borrower's biggest risk was that the lender's terms would change (higher interest rate, repayment sooner, etc.), but these considerations are gone with the current decentralized P2P lending system [15].

In order to reduce the major risk remaining, that of the lender, P2P lenders have increased the KYC function to provide greater detail of a borrower's "repayment quality," and implemented the use of syndicated loans. Instead of one person lending to another, a syndicated loan aggregates several people to provide the loan for one person, reducing the risk for each person while retaining the capacity to earn interest that is higher than what banks and credit unions offer to a typical depositor [2].

When a large number of loans is created, new markets and transactions arise to create profit niches. One of these profit niches is based on cashing out loans [6]. More common to real estate, cash-out refers to establishing a second loan on a property that already has a loan for lower amount, using the new (or total) value of the property for the second loan. For example, a person uses P2P to secure a \$25,000 loan using his Rolls-Royce sedan valued at \$100,000. That person could get a second P2P loan for \$50,000, pay off the first loan, and keep the cash difference, though still needing to pay the second loan.

Another niche is that of the secondary loan market. In this process, loans are bundled and sold at a fraction of their eventual value. The seller gets immediate cash, while the buyer gets the repayments and interest in the future [2]. For example, 100 loans that will eventually net \$1 million are sold for \$900,000 to a secondary loan buyer. The original lenders get a smaller return immediately, while the secondary loan buyer can eventually make \$100,000 on a \$900,000 investment. As loans are borrower-sensitive, loans made to better qualified candidates demand a higher price than those made to more credit-risky borrowers.

## IV. P2P LENDER OVERVIEW: LENDOIT (ALPHA VERSION)

In order to explore the decentralized P2P lending in more detail, the following overview will focus on Lendoit, a recent entry into the P2P lending fintech space and one that promises to make a mark on the industry due to its increased integration of technology to streamline lending to a greater degree.

Lendoit [16] created their platform with the idea of being as truly decentralized a P2P lending as possible. To accomplish this, the platform makes extensive use of blockchain technology, service provider integration, and smart contract/compensation capabilities to enhance the entire process. Loans are currently offered in any of the ERC20 currencies. These are currencies supported by the Ethereum blockchain platform that combines a decentralized transaction system along with a virtual smart contract creator [21].

The best way to understand how the technology and concept work together is to follow a typical loan process on Lendoit. Upon entering the website, a borrower reaches the loan form and enters his or her required data, the process takes about three minutes, according to the platform developers [16]. The process creates a Loan Smart Contract, a unique identifier for the person and the requested amount.

The borrower must then upload required documents, mainly identification (driver's license, passport, military I.D., etc.) in accordance with local regulations (national laws to avoid money laundering) and KYC protocols. Lendit then sends this information to multiple verification providers to reduce the potential for fraud and provide a more holistic profile of the borrower. Verification could take less than a minute up to a few hours, depending on the amount of information supplied [16]. The resulting score also takes into account social media profiles, professional organizations, verifiable background information on websites, etc. that can enhance the KYC process and provide a greater sense of comfort for potential lenders.

The borrower's ultimate score will be a combination of international verification providers (Bloom, FriendlyScore, Lenno, etc.) and local providers, ensuring a greater breadth and depth of information. Lendit is hoping to make this ultimate score a standard for the P2P lending industry, a goal it shares with nearly every such platform [22]. By providing more information, borrowers with lower credit scores can benefit from "personalization," making them more attractive to potential lenders [2].

Once the information is verified and a score has been assigned, the loan request is "listed" or published on the Lendit platform. Lenders interested in funding the borrower's request make out what is called a "lender's tender," an offer detailing amount and interest rate [16]. This reverse auction feature helps borrowers get a lower interest than they could from most traditional lenders, and because multiple offers can be combined (making this a syndicated loan), lenders can reduce their overall risk [3]. A feature of decentralized P2P lending is that nearly every borrower request is anonymous, i.e., potential lenders rely solely on the person's public and provided information, reducing the risk of bias against a borrower [16].

Once the borrower agrees to certain offers, the amount of funds is aggregated and the borrower can download the funds, triggering execution of the Smart Loan Contract (SLC) under the agreed-upon terms [16]. The SLC auto-executes from that point on, issuing payment reminders, collecting payments, remitting said payments to the proper account(s), and collecting the Lendit fees. Non-payments or default are also handled by the SLC, applying penalties (late fees, higher interest rate, whatever was agreed to) and notifying verification providers of the tardiness or default. In essence, the SLC becomes a single-person credit bureau, what Lendit calls a Smart Reputation Contract, creating a real-time profile accessible to anyone who uses the P2P lending environment [2].

When the time for a payment is near, the borrower receives a notice and can proceed to pay from their digital wallet, through the Lendit platform. Interest rates tend to rise if payment is late and these are automatically applied to subsequent payments. Pre-payment of the entire loan amount is encouraged, but not required. If a scheduled payment exceeds 60 days past-due, the loan is automatically in default [16]. When a loan defaults, Collectors make offers to recover the funds. This is in essence a cash-out arrangement with the Collector buying the debt to minimize lender loss and maximize their own profit [8].

Lenders can withdraw their funds in the same currency as they were paid in, without having to wait for the entire loan to be repaid in full. However, the interest rate is provided in Lendit Tokens at the current exchange rate when the payment is made [16]. Each payment made by the borrower and each withdrawal by the lender is recorded as part of the blockchain of the loan, so each transaction where currency changes hands leaves a permanent record shared throughout the Ethereum network. As the information about a borrower and lender grows in P2P lending, reputation scores can rise or fall based on recorded actions, not whim or bias [6].

Lendit has a built-in plan to reduce the last major risk of P2P lending, namely borrower default, through the creation of a Smart Compensation Fund Contract. Each loan made through Lendit assigns a small payment to the Smart Compensation Fund that can help cover losses in cases of default. Over time, it is expected that the volume of loans will allow the Smart Compensation Fund to serve as a guarantor for lenders, reducing or even eliminating the last major risk in the system [16].

From the process, Lendit takes a small fee in Lendit Tokens. This fee arrangement has two purposes: to cover operational and growth costs, and develop Lendit Tokens into a high-value digital currency [2].

## V. GROWTH AND PROSPECTS

Blockchain technology is a decade old (as of this writing), and P2P lending became widespread in the U.K. first [4]. Growth prospects in the U.K., according to Kocianski [17] are better than in the U.S. because of competition and better regulations to support P2P lending. A projection chart for the U.K., Figure 1, shows a market with extremely favorable numbers:

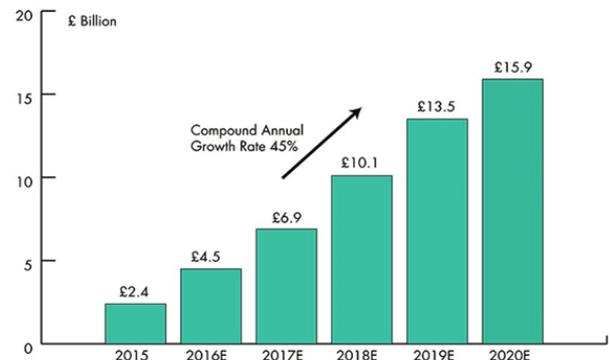


Fig. 1. U.K. P2P Lending Projections, 2015-2020 [17]

Global numbers, combining four major P2P lender markets (U.K., U.S., China, and Australia) are shown in Figure 2:

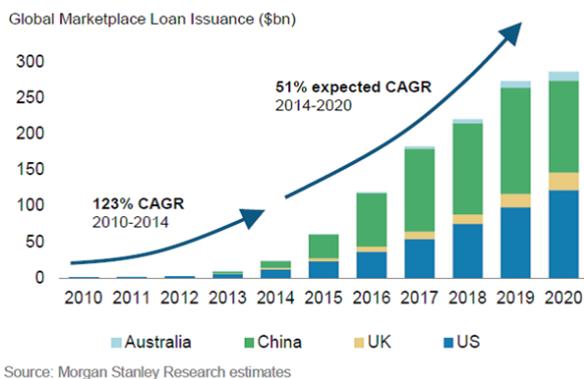


Fig. 2. Projected P2P Lending Growth, 2010-2020 [18]

China is an unusual case because P2P lending has quickly become a parallel system to the banking industry (Industry 2015). Since nearly every bank in China is nationalized, loans are difficult to secure and quite costly. P2P lending has facilitated entrepreneurial growth and personal investment opportunities for millions of Chinese people [19].

However, a clearer picture of the explosive growth of P2P lending, and an alert to how much faster the industry can grow as it adopts greater degrees of decentralization, comes from [20]. Their graph, presented below as Figure 3, shows what the global P2P lending market was in 2015, with a projection of what it could be in 2025:

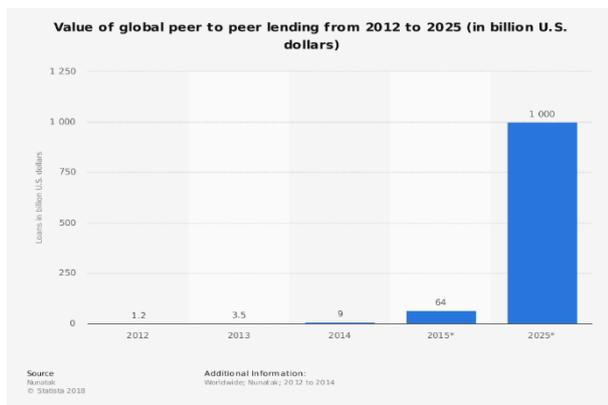


Fig. 3. Global P2P Lending Value, Projected to 2025

While graphs can conceal or reveal depending on their construction of parameters, this graph highlights an undeniable fact about P2P lending: it has shown, and will increasingly show, phenomenal growth in the coming decade. It will do so because of five critical factors:

1) It answers a need for fluid capital. Decentralized P2P lending pays no attention to borders or the need for costly bank intervention.

2) It allows for more people to become investors. The use of P2P lending allows people with less disposable income the chance to put their money into a higher yield system than simply opening a savings account, with a faster turnaround time than stocks or bonds [2].

3) It reduces costs and risks for borrowers and lenders. This facilitates economic transactions and incentivizes growth.

4) It reduces inequality in accessing funding. The

combination of shared information and anonymity places everyone at the level they have earned, regardless of nationality, race, gender or any other potential bias pitfall so common to traditional banking [4].

5) It becomes part of “a second Internet,” one built on privacy and security. This new Internet is safer, more flexible, more attuned to personal needs than the first version, whose goal was to facilitate research [2]. With over 3.6 billion users and another billion expected by 2022, a new Internet is here and P2P lending is at its core.

Decentralized P2P lending is not going to disappear: it can't, so long as people wish to use the digital environment to exchange information. As to how it will impact personal finances and economic growth that is yet to be settled. But one thing is certain: the impact is already being felt around the world, and will become readily apparent soon.

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**S. Arvanitis** holds a BS in Economic Science from University of Piraeus, Greece and a PgC in Financial Studies by the University of Athens, Greece. He is candidate for MSc in Digital Currency from the University of Nicosia, Cyprus and MSc in Information Technology from the Hellenic Open University, Greece. He worked in Major Greek bank and at the present is Manager of Piraeus Bank Greece Product Development Dep. for web and mobile banking services.

He has published technology and leadership oriented articles: "MOOCs for Financial Sector Customers" (Sep. 20, 2017, International Journal of Modern Education Research, American Association for Science and Technology). "Does leadership matter?" Review of different classical approaches" (May 2, 2017, International Journal of Research in Management & Technology (IJRMT)). "e-Learning programs as loyalty investments for financial corporations" (June 2, 2009, British Journal of Educational Technology).