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Blockchain Technology in Financial Services: A Comparative Analysis of Coin Base and Angel Broking

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Abstract

With its decentralized, secure, and transparent answers to long-standing business problems, blockchain technology has emerged as a revolutionary force in the banking sector. This paper examines the development of blockchain technology, its uses in the financial industry, and its relative benefits over established frameworks. With a focus on the conventional brokerage business Angel Broking and the cryptocurrency exchange platform Coin base, this study assesses how blockchain integration affects worldwide accessibility, security, decentralization, transparency, affordability, and efficiency. The report presents a thorough study of blockchain's potential to transform financial services and offers guidance to industry participants and policymakers that wish to capitalize on its advantages.

Keywords: Blockchain technology, coin base, angel broking

Introduction

One of the newest technologies on the market, blockchain is mostly recognized as the foundational technology of Bitcoin and is garnering significant interest from media, start-ups, and businesses. Blockchain has the power to revolutionize a number of industries and improve democratic, safe, transparent, and effective operations. Due to the digitization of records, large amounts of data are created every day, thus it is critical for all organizations to manage security risks and realize notable cost savings. This is where C-suite executives are becoming interested in Blockchain due to its claims of decentralized ownership, immutability, and cryptographic data security ^[1]. Since more people are becoming aware of this technology's potentially disruptive effects, several application cases are likewise being investigated across various industries.

Even though this technology is still in its infancy, financial players are the first to take advantage of it. According to a World Economic Forum report, numerous Blockchain prototypes will be tested by banks and authorities worldwide in 2017. With more than 90 central banks discussing blockchain technology worldwide, more than 2,500 patents filed in the last three years, and more than 80% of banks predicting to start blockchain and distributed ledger technology (DLT) projects by 2017, it seems clear that blockchain technology will soon become the standard in the financial services industry. Numerous businesses from a wide range of non-financial services sectors, including voting,

governance, energy management, retail, real estate, private transportation and ride-sharing, supply chain management, forecasting, insurance, cyber security, cloud storage, crowd funding, and transportation, are either developing or have already implemented their pilot blockchain use cases.

Blockchain

Blocks, chains, nodes, and master nodes make up a blockchain. The nodes control the blocks in the network. The process of adding blocks to the Blockchain is difficult and calls for the solution of mathematical puzzles. The hard math problems that need to be solved limit the blockchain network's infinite growth potential. Because hash codes are unique, hacking, cheating, or otherwise tampering with the blockchain network is nearly impossible ^[2]. Blockchain is a distributed ledger where each linked computer maintains a copy of the ledger. Because the network is made up of linked blocks that serve as transaction records, it is known as the Blockchain. The blockchain network is necessary for the concept and operation of cryptocurrencies.

A digital transactional ledger is called a blockchain. The name comes from its structure, where different data, called blocks, are joined together in a single list called a chain. Blockchains are used for much more than only recording financial transactions, such as Bitcoin transactions. Data is managed and stored by a blockchain, which makes network manipulation, hacking, and fraud difficult or impossible. A blockchain is an electronic ledger consisting of several

computer systems that replicate and share digital transaction records. The banking sector has long used modern technologies to ensure data and process security. The banking industry has already seen a rise in the use of blockchain. The advent of cryptocurrencies shows that blockchains enable the safe, trustworthy, and verifiable conduct of financial transactions.

Blockchain is a type of digital database that allows several machines to store certain operation records simultaneously. With this technology, digital information on contracts, transactions, and contact databases is kept in the form of a network of linked blocks [3]. The lack of clear and transparent

financial system regulations leaves businesses vulnerable to frequent errors and erroneous interpretations of information. Most of these issues are resolved by blockchain technology, which also significantly reduces financial risk. The significance of blockchain technology is getting greater recognition. It is surrounded by a small group of individuals attempting to determine how to use and leverage the benefits of this technology in their businesses. The primary objective of the establishment of banks was to bring people together and enable them to interact safely and effectively through trade and commerce.

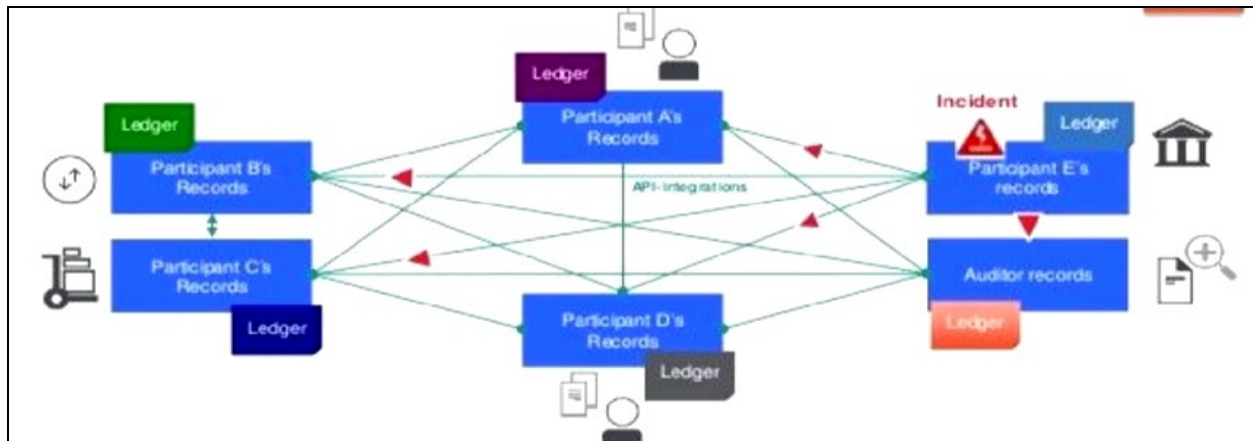


Fig 1: Need for Blockchain

Need for Blockchain

Every day, the global financial system handles trillions of dollars' worth of transactions while serving billions of people. These lofty goals come with a number of challenges that the finance industry has long had to overcome. These problems include the cost of having several stakeholders, delays, additional paperwork, and data breaches, which cause the company to suffer significant losses every year. Blockchain technology has the potential to fix many of the problems plaguing the global financial system. Furthermore, the existence of entities such as stock exchanges, brokers, and regulators drive up the cost of the current stock market. Stock exchanges that use a decentralized management style can see an increase in system efficacy. Blockchain allows for the creation of smart contracts, negating the need for outside regulators. As a result, equity markets are preparing to decentralize. Blockchain technology reduces costs by enabling secure, middleman-free execution of all forms of investor-company interactions.

The financial industry has long faced a number of challenges. Great technology advancements have solved a lot of problems, but some breakthroughs have created new ones [4]. Choosing the fintech solution that would be appropriate for financial service providers might be difficult because there are so many possibilities accessible nowadays. They search for an all-encompassing answer that can address all of the urgent issues as a result. Blockchain technology is being used in financial services, which is quite interesting and could solve important business problems. Because of centralization, the financial sector has to distribute a large amount of capital across multiple companies.

Accounting, database maintenance, central database procurement, value transfer systems, database security, labor costs, and intermediary commissions are all necessary investments for financial service providers. Because these assets are all recurring, financial service providers likewise need to budget for each one on a regular basis. The various extra costs might make a financial services system pricey.

- i). The main query that comes up is: Why adopt blockchain technology when there are already so many alternative databases on the market that are thriving? How much weight it has in comparison to the rival products. Let's first examine the issue with the current systems. They can be summed up like this:
Difficult to keep track of and assess the transfer of asset ownership inside a reliable corporate network.
- ii). Expensive, ineffective, and susceptible: Each of these elements severely impairs performance, which in turn ruins progress.

Solution offered by Blockchain

In contrast to older systems, blockchain is adaptable enough to take the lead in deployment in a volatile market. The greatest benefit that a blockchain offers is that every participant has access to a record that is kept in a ledger. It is a ledger that is frequently shared across several users, generating a shared database that is duplicated to these users and that they can only access if they possess the necessary access rights. It functions in a variety of ways, ensuring that provenance, consensus, immutability, and finality all come together to form a logical combination.

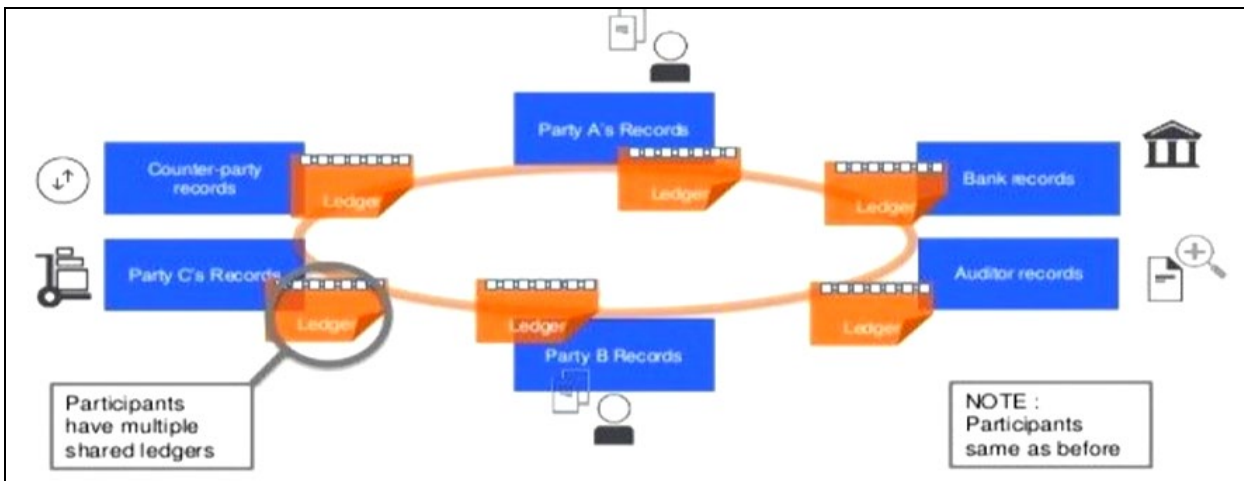


Fig 2: Solution offered by Blockchain

Tools and Strategies in Blockchain for Financial Services

Financial services are being revolutionized by a number of tools and methods brought by blockchain technology. These technologies are made to effectively and safely handle financial difficulties that arise in real time. Blockchain functions as a distributed ledger that records financial transactions in multiple copies. Accuracy and security are guaranteed since every transaction is entered into every copy of the ledger. Because blockchain is decentralized, it is

extremely safe because it would be extremely difficult to change or falsify any part of the ledger without also modifying every copy concurrently [5]. This promotes trust between business associates and facilitates secure and clear transactions. Blockchain also makes it easier to create and execute smart contracts, which are impenetrable software applications that automate business processes, boost productivity, and build trust.

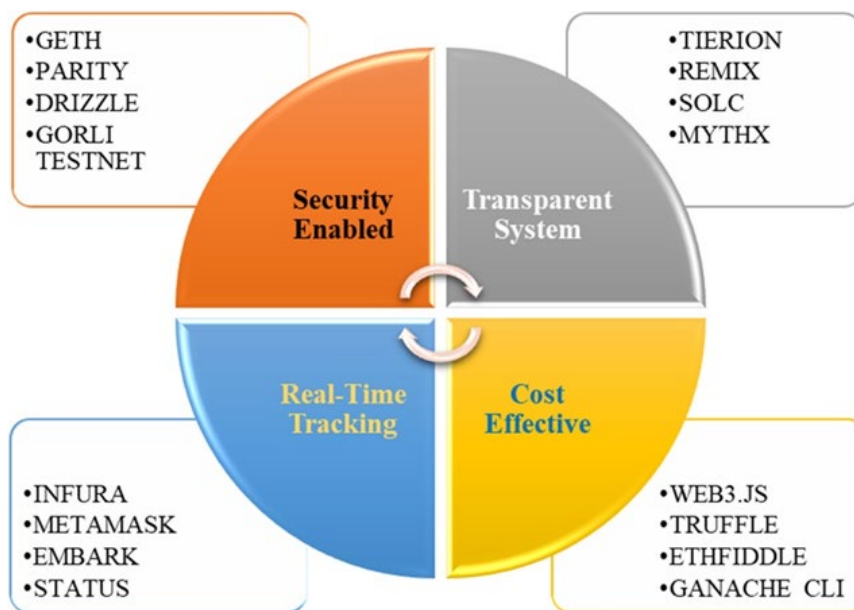


Fig 3: Several tools and methods in blockchain for financial

The issuing of digital securities is one prominent use of blockchain in finance, as it may be completed more quickly and effectively than with traditional securities. Benefits from these digital financial instruments include tokenized micro-economies, quick asset transfers, and fractionalized ownership of physical assets. Blockchain also makes governance systems more accountable and transparent, aligns stakeholder incentives better, and makes company processes more efficient. Additionally, the processing of insurance claims and identity verification are two financial procedures that blockchain technology may simplify. Blockchain's immutable ledger guarantees the confidentiality and integrity of transaction data, and smart contracts can automate claim evaluations, resulting in quicker claim resolutions. Blockchain applications in banking offer potential cost savings by doing

away with the need for centralized middlemen and supplying improved security measures. In addition, authorities are investigating how blockchain technology might be used to solve a number of issues and enhance efficiency and transparency in both the public and private sectors. Blockchain applications protect the privacy of the financial information of transaction stakeholders while ensuring transparency through the use of public and private keys [6]. Blockchain technology is predicted to fundamentally alter business activities in a number of industries, including financial services, as it develops. Financial institutions are currently looking into how they might use blockchain technology to solve regulatory concerns, find new product opportunities, and improve risk management procedures.

Various Featured Services of Blockchain Technology in the Financial Domain

Blockchain technology is revolutionizing the banking industry by providing a number of feature services. These services include trade finance platforms, credit reporting, clearing and settlements, digital identity verification, and cross-border financial transactions. Financial organizations are saving money, lowering risks, and improving security by utilizing blockchain. Because blockchains are immutable, transactions are reliably recorded, fostering participant trust and expediting procedures.

The capacity of blockchain to facilitate international payments and money transfers is a key benefit for the financial industry. Blockchain technology improves efficiency and lowers transaction costs by automating procedures and minimizing the number of middlemen involved [7]. Additionally, blockchain makes regulatory compliance easier by offering encryption to protect data integrity and prevent fraud as well as real-time record updates.



Fig 4: Specific and typical services of blockchain in financial

One of the main components of blockchain technology is smart contracts, which automate contracts according to present parameters. They improve contractual performance, lower dispute resolution costs, and do away with the need for middlemen in peer-to-peer transactions. Financial organizations can work together thanks to blockchain, which lowers costs and optimizes capital.

Blockchain has the ability to transform capital markets by enabling quicker and less expensive asset issuance and exchange in addition to streamlining financial procedures. Blockchain improves trade efficiency and cooperation by substituting automated, transparent solutions for conventional paper-based methods. Additionally, by offering an unchangeable record of transactions and lowering the possibility of financial crimes, blockchain technology improves security [8]. Smart contracts reduce expenses and foster data trust by streamlining contract execution and enforcement. Overall, blockchain applications extend beyond cryptocurrencies to include various assets and transactions, offering transparency, security, and efficiency to the financial sector.

Blockchain Technology Applications in Finance Service

- i). **Fraud Prevention:** By utilizing its peer-to-peer network and anti-tampering features, blockchain technology provides a strong solution for combating fraud in financial transactions. Blockchain makes guarantee that verified information and transactions are exchanged quickly and securely because to its decentralized structure and cryptographic security. The efficiency of blockchain technology greatly benefits contracts, financial processes, and transactions, lowering the risk of fraud and improving risk management in the global financial system.
- ii). **Banks and Financial Institutions:** In an effort to enhance client services, lower costs, and eliminate fraud, banks and financial institutions are quickly implementing blockchain technology. Blockchain improves the accuracy, cost-effectiveness, and efficiency of transactions by speeding international money transfers [9]. The financial services industry has to use blockchain in order to provide standardized transaction management, peer-to-peer transactions, fast payment settlements, and cross-border payments.
- iii). **Credit Score Calculation:** By streamlining auditing procedures, guaranteeing compliance, and empowering lenders to evaluate creditworthiness using unchangeable transaction records, blockchain technology transforms credit score calculation. Blockchain fosters effective credit management and increases confidence in the financial services industry by upholding secrecy and transparency, which creates more secure and inclusive business networks.
- iv). **Privacy and Confidentiality Maintenance:** Blockchain improves financial transaction efficiency and transparency while preserving privacy and secrecy. Transaction processes are streamlined and security risks are reduced by its decentralized ledger and cryptographic security. Blockchain ensures secure and legitimate transactions by reducing processing times and the requirement for middlemen in financial operations by automating approval workflows and clearing computations.
- v). **Transaction Tracking:** Blockchain operates as a decentralized ledger to track transactions, help financial service providers with enhanced security, automated contracts, and speedier transactions. Financial institutions can improve risk management and transaction accuracy by using blockchain's efficiency to speed up money transfers, automate trade finance processes, and improve clearing and settlement procedures.
- vi). **Security and Transparency Assurance:** By providing protection against hacking and boosting trust in transaction contexts, blockchain technology guarantees security and transparency in financial services. Blockchain reduces security risks and increases stakeholder trust by using advanced cryptography and immutable ledgers. Blockchain's financial applications improve transaction performance, lower risks associated with credit and money management, and make new financial services and products possible.
- vii). **Boosting Stakeholder Confidence:** Because blockchain technology is transparent and safe, it increases stakeholder confidence in financial transactions. Blockchain technology can be used by financial organizations to speed up transaction

settlement, eliminate middlemen, and automate transactions [10]. Blockchain enhances reporting and compliance in banking operations by giving real-time access to immutable asset-level data, increasing stakeholder confidence and efficiency.

viii). **Client Affordability Improvement:** Blockchain holds promise to lower fraud risk, boost transparency, and enhance client affordability in the financial services industry. Blockchain technology reduces fraud concerns and improves financial sector transparency by providing traceable payments and transparent transactions. Applications of blockchain technology span a number of sectors, including voting, tax filing,

real estate, and identity management, providing safe and effective answers for a wide range of financial requirements.

ix). **International Payments:** The rapid, affordable, and secure transactions made possible by blockchain technology are revolutionizing international payments. Blockchain reduces transaction fees and the need for traditional money transfer methods by facilitating electronic money transfers, which has been adopted by major institutions. Blockchain applications are used in a wide range of industries and provide clear, effective solutions for international corporate operations and financial transactions.

Table 1: Difference between Coin base and Angel Broking in Terms of Blockchain Technology

	Coin Base	Angel Broking
Focus and Services	Coin base is primarily a cryptocurrency exchange platform that allows users to buy, sell, and store various cryptocurrencies like Bitcoin, Ethereum, and others. It focuses solely on digital assets and provides services related to cryptocurrencies, such as trading, staking, earning interest, and more.	Angel Broking is a traditional brokerage firm that offers a wide range of financial services, including stock trading, commodity trading, mutual funds, and more. While it may offer research or investment products related to blockchain technology, its primary focus is on traditional financial assets rather than cryptocurrencies.
Asset Class	Coin base deals exclusively with cryptocurrencies and digital assets. It operates on blockchain technology, which underpins the entire cryptocurrency ecosystem.	Angel Broking primarily deals with traditional financial assets such as stocks, commodities, mutual funds, and derivatives. While it may offer access to blockchain-related stocks or investment products, its core offerings are not directly tied to blockchain technology.
Regulation and Compliance	As a cryptocurrency exchange, Coin base operates in a relatively new and evolving regulatory environment, with specific regulations governing cryptocurrency exchanges and financial services. Compliance with these regulations is crucial for Coin base’s operations.	Being a traditional brokerage firm, Angel Broking operates within the established regulatory framework of the financial industry. It adheres to regulations set by regulatory bodies governing stock exchanges, securities markets, and financial intermediaries.
User Base and Market Reach	Coin base caters to users and investors interested in cryptocurrencies and blockchain technology. It has a global user base and operates in multiple countries, providing access to a wide range of cryptocurrencies.	Angel Broking primarily targets investors interested in traditional financial assets such as stocks, mutual funds, and commodities. It has a significant presence in the Indian market and serves clients looking to invest in Indian securities and financial instruments.

Advantages of Using Blockchain in Coin Base Compared to Angel Broking

1. Security

- By utilizing blockchain technology, Coin base provides improved security by means of cryptographic methods and decentralization, hence mitigating the likelihood of fraudulent activities and data breaches.
- Because it relies on centralized databases and conventional security procedures, Angel Broking, which does not use blockchain, may be more susceptible to security risks.

2. Transparency

- Coin base offers transparent and unchangeable transaction records on the blockchain, guaranteeing responsibility and trust among users.
- Without blockchain, Angel Broking might not have the same level of openness, raising questions about the platform's dependability and data integrity.

3. Decentralization

- Coin base operates on a decentralized blockchain network, reducing dependency on centralised entities and enhancing user control over their assets.

- Angel Broking, being centralized, may be subject to risks associated with single points of failure and possible manipulation by central authorities.

4. Global Accessibility

- Coin base provides global access to cryptocurrencies, allowing users to transact across borders without intermediaries or restrictions.
- Angel Broking's reliance on traditional financial infrastructure may limit accessibility for users in certain regions or countries due to regulatory hurdles and infrastructure limitations.

5. Lower Costs

- Coin base leverages blockchain's efficiency to offer lower transaction fees and operational costs compared to traditional brokerage platforms like Angel Broking.
- On the other hand, Angel Broking's lack of blockchain integration may result in higher transaction fees and operational expenses, which could negatively affect users' profitability and cost-effectiveness.

6. Efficiency

- Compared to traditional brokerage platforms like Angel Broking, Coin base offers lower transaction fees and operating costs by utilizing blockchain's efficiency.
- Angel Broking's dependence on outdated technology could cause fund transfers and transaction processing to lag, which would impair efficiency and customer experience.

Conclusion

Blockchain technology's decentralized structure, cryptographic security, efficiency, and transparency are completely changing the financial services sector. Smart contracts, identity verification, and supply chain management have all made use of it. Increased security, transparency, decentralization, worldwide access, reduced costs, and quicker processing times are just a few of the advantages of blockchain technology as demonstrated by Coin base, a cryptocurrency trading platform. Nevertheless, there are drawbacks to blockchain as well, including interoperability, scalability, and compliance issues. To be widely adopted and integrated into mainstream economic strategies, these issues must be resolved. All things considered, blockchain has enormous potential to improve financial services' efficiency, security, and creativity.

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