University of Exeter Business School

BEEM061 Assignment Part A

Fundamentals of Financial Technology

"The introduction of Bitcoin in January 2009 was the single most important FinTech development in history." Discuss this statement by comparing Bitcoin to previous advances and current trends in financial technology. Include examples of one or a few current FinTech companies

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Introduction

With the FinTech industry projected to be worth $1.5 Trillion by 2030 (Boston Consulting Group, 2023) understanding the key developments that have shaped the space is crucial. The idea that the introduction of Bitcoin is the single most important FinTech development is one that requires a high level of examination and discussion. This essay will evaluate this statement by comparing Bitcoin with previous and current developments in the FinTech industry. By providing a comprehensive analysis of Bitcoin's role in FinTech and evaluating the impact and legacy of this innovation this discussion will provide an understanding of whether Bitcoin is the most important FinTech development in history.

Historical context

Firstly, it is important to establish historical context for FinTech and what led to the development of Bitcoin. Before Bitcoins invention there had been other significant advances. One example of this was the setup of NASDAQ in 1971 which is a global electronic marketplace for buying and selling securities (Hayes, 2023). NASDAQ was a pioneer in online operations, quickly becoming home to companies such as Microsoft and Apple (Probasco, 2020). However, while the NASDAQ revolutionised the trading world and is considered a great FinTech innovation, the impact it had was focused on operational efficiency rather than decentralised finance which is a fundamental principle of Bitcoin. Another development that was helped pave the way is Adam Back's "Hashcash" which was created in 1997 (Hashcash, 2020). Hashcash was created as a proof-of-work (POW) system which was designed as a mechanism to control systematic abuse of un-metered internet resources such as emails (Back, 2002). While this idea was initially designed for a different purpose it ended up providing the foundation for Bitcoins POW mechanism (Ministries, 2023). The founding of Digicash in 1990 by David Chaum also helped pave the way for Bitcoin (European Commission, 2019). Digicash was one of the earliest electronic money companies utilising the digital currency "cyberbucks", this innovation has seen the company credited with helping provide the groundwork for the development of blockchain technology in the 2000s (Frankenfield, 2021). This model ultimately failed however as it lacked the decentralised nature that would be vital to Bitcoins design. These innovations demonstrate the trajectory of FinTech development which ultimately led to the creation of Bitcoin which was a brand-new technology that spearheaded a new age in FinTech.

The impact of Bitcoin in FinTech

The argument that Bitcoin is the single most important FinTech development in history does have merit. Upon its introduction in 2009 by Satoshi Nakamoto (Nakamoto, 2008) the era of digital currencies began. Bitcoin has helped redefine the financial world by providing a high level of security and decentralisation, these features alone have resulted in a high level of interest from financial institutions across the world (Pagidipati, 2023).

The technology that provides the foundation for Bitcoin technology, blockchain, has revolutionised data handling in a way that was previously inconceivable by introducing a decentralised ledger system which addresses the double-spending problem without a need for a central authority (Iansiti & Lakhani, 2017). Blockchain has not only changed the financial world but can also be seen to be at the forefront of change in other industries too. For example, during the pandemic vaccine providers created an intelligent vaccine tracking system which used blockchain to ensure flawless distribution of vaccines to people around the world (Srivastava, 2023).

Additionally, Bitcoin introduced a groundbreaking model in finance by offering a new alternative to fiat currencies. With fiat currency making up most of the currencies in the world, the key difference between the two lies in their essential characteristics. The key difference between the two is that Bitcoin is not controlled by a centralised entity unlike fiat currencies which are controlled by the central bank of a country (Abid et al., 2023). This feature of Bitcoin is proven to be more useful during periods of economic uncertainty as it is considered a potential safeguard against currency devaluation and inflation (Baur et al., 2018). Bitcoin has also become the catalyst for the creation of other blockchain applications and thousands of cryptocurrencies (Tretina, 2021) showing that its invention has started a transformative period in the FinTech industry. As previously mentioned, the interest in Bitcoin from financial institutions is still growing. BlackRock, the largest asset manager in the world, has recently launched a product called the iShares Bitcoin Trust (IBIT) (Canellis, 2024), the IBIT is a spot Bitcoin ETF which is traded on NASDAQ which is designed to provide a convenient and cost-effective way for investors to gain exposure to Bitcoins price without owning the cryptocurrency directly (BlackRock, 2024).

The use of Bitcoin and blockchain technology has caused the FinTech landscape to rapidly evolve. “Block” a company that is led by twitter co-founder Jack Dorsey (Financial Times, 2023) is a good example of this as they have integrated Bitcoin into their payment platform, CashApp. In the third quarter Block reported an increase in revenue from sales of Bitcoin of $660.8 million (Peterson, 2023). Not only does this integration represent a growing trend in FinTech but it also signifies the growing acceptance of the use of cryptocurrencies.

However, while Bitcoin gains more traction it is important to acknowledge its challenges. One such challenge is its environmental impact due to the energy-intensive mining process. It was found that to mining a single bitcoin would take 1,449 kWh to complete which is the equivalent of 50 days of power for the average US household (Gonzalez, 2022). Another challenge posed to Bitcoin is regulation which an issue that has been debated extensively in the last few years with countries adopting different approaches to the problem, one example is China who in 2021 implemented a ban on cryptocurrency (Griffith & Clancey-Shang, 2023).

Despite these challenges, the impact of Bitcoin on the FinTech industry is undeniable and has created the foundation for a digital and decentralised future. This makes a strong case for whether Bitcoin is the single most important development in FinTech.

Artificial intelligence and Machine Learning in FinTech

Aside from blockchain and bitcoin, artificial intelligence (AI) and machine learning (ML) are also considered by many to be the most significant development in FinTech. Both ML and AI have facilitated the development of advanced analytics, enhanced personalisation of products and improved decision making (Bharadiya, 2023). One example of this is algorithmic trading. The use of AI and ML in this way has become widely adopted within the financial sector, this can be seen in firms such as the Man group who are an investment management business (Man, 2023). The use of algorithmic trading in this way is rapidly changing the way that trading desks work by giving firms access to millions of data points thus enhancing their decision making (Bain, 2023).

Another way in which AI is enhancing the finance industry can be seen in risk assessment. The use of AI in this way allows for improved risk assessment as AI can process an extremely high level of information, these models also adapt to changing environments thus improving the risk management (Bluestock, 2023). An example of this in industry can be seen by loan company "Upstart" who market their use of AI in risk management by stating "Traditional credit scores leave people behind. We use artificial intelligence to expand access to reasonably priced credit" (Katja Langenbucher & Corcoran, 2021). By using AI in this way Upstart have been able to provide fair loan approvals and has seen an improvement in key business areas (Drury, 2023).

Additionally, Neobanks like Monzo are making use of AI and ML to provide personalised-finance services. Monzo can provide a high level of customer service by using machine learning to respond to customer queries and complaints thus improving the speed in which they receive help (Conrad, 2019). The use of AI in this way is supported by Andreas Braun, a director of AI and data science at PWC who stated that smart banks will leverage AI to analyse personal spending and suggest suitable products when communicating with customers (England, 2022).

AI and ML have become central to the operations and strategic direction for companies that operate in the FinTech space. Because of their central role, they are reshaping the industry in a way that rivals that of the introduction of Bitcoin.

Comparison analysis

The introduction of Bitcoin was an indisputable moment for the FinTech world, but the impact must be examined in relation to other significant innovations in the space. While introducing a decentralised approach to currency and changing financial security the impact that the introduction of Bitcoin has had is different to other developments in the space such as AI and ML. As previously mentioned, AI and ML has been used in companies like Upstart, Monzo and Man group all for different purposes. The use of this technology has become critical for capturing the linear and nonlinear behaviour of finance variables thus leading to widespread application of (Ahmed et al., 2022). To further this point, the use of AI and ML by Neobanks has allowed them to challenge the traditional banking model and disrupt a market that is full of large public and private banks (Goyal, 2023). With businesses utilising this development in this way the operational efficiency, decision making, accessibility and customisation of financial services is improved.

In comparison, the influence of Bitcoin, while revolutionary, focuses on offering an alternative financial system and disrupting the established notion of currency. With the number of companies using Bitcoin for investment, operational and transactional purposes increasing (Deloitte, 2022) the impacts of this development are substantial. Without a doubt, the contribution that Bitcoin has made to the decentralisation of finance is immense. It is also important to note that blockchain technology has a wider range of applications than Bitcoin such as maintaining a transparent system of record (Marr, 2021) and in the future may very well become the most significant development in FinTech. However, when looking at day-to-day transformation and broadening financial inclusion, AI and ML have already changed the industry in an enormous way (Leong Choi-Meng et al., 2023).

Conclusion

In conclusion, when evaluating Bitcoins role as the most significant development in FinTech, it is a significant milestone. The introduction of Bitcoin ushered in a new era of decentralised finance and blockchain technology. However, the statement that it alone is the single most important advancement falls short due to innovations in other areas of FinTech, such as AI and ML which have significantly changed the financial world. Therefore, while Bitcoins introduction is a revolutionary chapter in the FinTech space, it is not the single most important as this industry is home to multiple ground-breaking developments, each of which can be considered equal to Bitcoin.

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