FINANCE INNOVATIONS

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Abstract

Financial innovation, especially the application of information and communication technologies, has already revolutionised the financial industry and will continue to do so in the future. The general definition of innovations explains that they appear when new ideas, solutions and instruments are implemented in order to change the conditions of business entity and to improve its situation. The concept of "financial innovation" can be defined as making and promoting new financial products and services, developing new processes to facilitate financial activities, to interact with customers and to design new structures for financial institutions.

***Keywords:** Finance Innovation, Model, Literature Review*
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1. Introduction

Digital financial innovation is a broad concept that includes advancements that change the way financial institutions and other financial services can better serve consumers through technological advancements. The financial innovations provide mechanism to finance innovative technological projects when traditional sources of funds are unavailable due to high investment risk. Innovation exists to complete inherently incomplete markets. In an incomplete market, not all states of nature can be spanned, and as a result, parties are not able to move funds freely across time and space, nor to manage risk.

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Literature Review

There are a lot of Literatures about financial innovation, including academic studies and empirical studies. In earlier time, Greenbaum and Haywood(c1973) reviewed the history of American financial market and argued that the growth of wealth is the determinant of demand of financial innovation. In other words, the fast development of economy caused financial innovation to develop at a high speed. Besides, there are four famous theories of the innovation motive, including constraint-induced financial innovation theory of W.L.Silber, transaction cost innovation theory of Hicks and Niehans, regulation innovation theory of Davies and Silla, and circumvention innovation theory of Kane.(Xuan L., Shihong Z., 2010)

The method of innovation is to develop ideas, refine them into a useful form, and bring them to fruition in the market where they will achieve increased efficiencies (Morris, 2008). Innovation is important because in this knowledge era, many companies see it as a strong contributor and means for generating business and profitable growth that will improve an organization's performance and competitiveness (Potters, 2009).

Few recent studies have reviewed the literature on Internet and mobile banking or payments (Dahlberg et al., 2008, Moser, 2015, Ngai and Gunasekaran, 2007, Yousafzai, 2012). New financial services have led to a significant increase in the volume of domestic and international business, and the emergence of new business models (Estelami, 2012, Sandor, 2012).

There are relatively few empirical studies on financial innovation considering how prevalent the talk about its importance is. The majority of studies on financial innovation is of a descriptive nature, and most often deals with issues like the effects of regulation and technological change on innovation, or the profitability of specific innovations, but little is said about the direct effect of innovation on the measurements of output. Frame and White (2002) define financial innovation as "something new that reduces costs, reduces risks or provides an improved product/service/instrument that better satisfies participants' demands…" within a financial system. Innovations can emerge due to technological changes, as well as a response to increased risk or to new regulations. (Vargas, A., 2009)

Methodology

In the research and development of this paper a combination of qualitative and quantitative methodology has been implemented. To achieve the object of this paper, the financial innovations data has been collected.

Analysis and discussion

Empirical assessments of innovations in financial markets have started with research in the 1980s and 1990s. In the 19th century the investment banks together with

the new accounting methods were established to evaluate the profitability of railroad companies and to provide them sources of funds. Next, in the 20th century, the private equity companies emerged to analyze and finance high-tech investment project. In Merton Miller's (1986) view on financial innovation, the period from the mid- 1960s to mid-1980s was a unique one in American financial history. (INNOVISIO Journal, 2012) At the beginning of the 21st century, the new form of investment companies are evolving - the pharmaceutical corporations analyzing and funding the bio-tech innovative solutions. These are only a few examples of the new financial developments and their evolution, proving to be essential for the technological and economic progress. (Błach, J., 2011)

Technological innovation holds great promise for the provision of financial services, with the potential to increase market access, the range of product offerings, and convenience while also lowering costs to clients.

Financial system innovations can affect the financial sector as a whole, relate to changes in business structures, to the establishment of new types of financial intermediaries, or to changes in the legal and supervisory framework. Process innovations cover the introduction of new business processes leading to increased efficiency & market expansion.

Process innovation is usually aimed at increasing the efficiency in the production process, and it is often associated with technological change. In the previous years, the internet has been the focus of developments in the financial industry. In banking per se, ATMs, mobile banking, and online money transfers were already significant steps towards automation during the time they were rolled out – but no one saw this new giant coming. With cash available 24/7 at the touch of a button, the days of waiting for the bank to open became ancient history. Likewise, credit and debit card usage has eclipsed cash, bringing yet another financial innovation in short time.

Product innovations are new products or services created to meet market needs, thus constituting a client-focused kind of financial innovation. Product innovations help the intermediaries to differentiate themselves from their competitors, by providing solutions to unattended needs of the customers. Product innovations include the introduction of new credit, deposit, insurance, leasing, hire purchase, and other financial products

The ten competitive technology-driven influencers for 2020: (PwC, 2019)
➢ FinTech will drive the new business model;
➢ The sharing economy will be embedded in every part of the financial system;
➢ Blockchain will shake things up;
➢ Digital becomes mainstream;
➢ "Customer intelligence" will be the most important predictor of revenue growth and profitability;

➢ Advances in robotics and artificial intelligent will start a wave of 're-shoring' and localization;
➢ The public cloud will become the dominant infrastructure model;
➢ Cyber-security will be one of the top risks facing financial institutions;
➢ Asia will emerge as a key center of technology-driven innovation;
➢ Regulators will turn to technology.

From opening accounts to insurance underwriting and credit profiling, FinTech startups are piggybacking on the various services of traditional banks and flipping the conventional business models in the financial industry. FinTech can be characterized as the movement to bring transformative and disruptive innovation to financial services through the application of new and emerging technologies which address consumer needs through automation. Due to factors including consolidation in the financial services industry and regulatory constraints, financial services firms may find themselves constrained from being able to focus their energies on innovation initiatives. Fintech is the new gold rush for investors, growing from 10% in 2016, to a staggering $23.2 billion, with China and USA leading the market. This boost is powered by the growing capabilities of machine learning and artificial intelligence.

Artificial Intelligence, machine learning, and Big Data are becoming central to FinTech solutions as firms look to new areas of financial services innovation. One area that is ripe for innovation is marketplace lending. New entrants into the financial services space, including FinTech firms and large, established technology companies ('BigTech'), could materially alter the universe of financial services providers. (FSB, 2019)

Fintech also includes the development and use of crypto-currencies such as bitcoin. That segment of FinTech may see the most headlines, the big money still lies in the traditional global banking industry and its multi-trillion-dollar market capitalization.

Bitcoin is a digital currency created in January 2009. It follows the ideas set out in a white paper by the mysterious Satoshi Nakamoto, whose true identity has yet to be verified. Bitcoin offers the promise of lower transaction fees than traditional online payment mechanisms and is operated by a decentralized authority, unlike government-issued currencies.

A blockchain is, in the simplest of terms, a time-stamped series of immutable record of data that is managed by cluster of computers not owned by any single entity. Each of these blocks of data (i.e. block) are secured and bound to each other using cryptographic principles (i.e. chain). Blockchain's applications, could transform large sectors of the business world, including financial transactions, supply chains, medical records and social improvement. But it's also an immature field, full of potential landmines: digital currencies have been dens for speculators and black marketers & agencies like the Securities and Exchange Commission threaten to regulate freewheeling cryptocurrency markets. (Brooks, S., 2018)

By allowing digital information to be distributed but not copied, blockchain technology created the backbone of a new type of internet. Originally devised for the digital currency, Bitcoin, (Buy Bitcoin) the tech community has now found other potential uses for the technology.

It is estimated that $655 billion will be spent on cybersecurity innovation between 2015 and 2020. (Buchy, J., 2016) Companies believe of the five attacks will be the biggest threat in the next 3 years: Zero-Day Attacks, Cloud-Data Leakage, Mobile Malware, Targeted Attacks & SQL Injections. That results in five areas of protection that companies are increasing their spending on: Network Defenses, Endpoint and Mobile Device Protections, Data in Motion Defenses, Data at Rest Defenses, Analysis & Correlation Tools.

Cyber-attacks have become a common phenomenon. These attacks and breaches happen on a daily basis, and can affect large corporations, causing damage that can sum up to hundreds of millions of dollars. In fact, over the past five years, cyber security breaches have increased by 67%, and ransom ware attacks now occur every 14 seconds. (Green, I., 2019)

To reduce the cost of cyber-security and minimize the risk of data breaches, it's recommend to: (Massachusetts Govrnment)

➢ Improving data governance programs and incident response;
➢ Appointing a Chief Information Security Officer (CISO);
➢ Developing an employee cyber-security training program;
➢ Implementing a business continuity program; &
➢ Investing in data loss prevention controls, such as encryption and endpoint security.

Advances in robotics and artificial intelligence are poised to disrupt several areas of financial services and capital markets, predicts PwC in its recent report, "Financial Services Technology 2020 and Beyond: Embracing Disruption." Artificial Intelligence is simulation of human intelligence processes by computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using the rules to reach approximate or definite conclusions) and self-correction. (https://tekoalymentorit.fi/) Artificial Intelligence in finance and banking is poised to transform how organizations manage their revenue, communicate with customers, and scale their investments.

Artificial Intelligence provides a faster, more accurate assessment of a potential borrower, at less cost, and accounts for a wider variety of factors, which leads to a better-informed, data-backed decision. Credit scoring provided by AI is based on more complex and sophisticated rules compared to those used in traditional credit scoring systems. It helps lenders distinguish between high default risk applicants and those who are credit-worthy but lack an extensive credit history.

The financial industry hasn't been averse to the rising popularity of cloud computing. The largest financial institutions have witnessed how cloud technology has affected some of its sectors such as insurance and banking and in a positive way.

The opportunities and emerging trends in financial services driving adoption of the cloud include: (Perry Y., 2019)

• Shortened time-to-market for new services through leveraging cloud-based, agile DevOps approaches.

• Breaking down silos and achieving greater operational efficiency, at lower costs and with minimal CAPEX investments.

• Conducting analytics in the cloud, for enhanced business intelligence, strategic planning, targeted marketing, and more.

• Customer-facing web apps and portals that streamline self-service, provide efficient channels for promoting new products and services, and generally enhance customer satisfaction and engagement.

Driven by competition from born-in-the-cloud, innovative FinTech companies as well as by consumer demand for more efficient, customer-centric services, financial institutions around the globe are embracing the cloud. As a highly-regulated sector that handles some of our most sensitive personal information, public cloud service providers have worked closely with finance industry players and regulators in order to effectively address security, governance, and compliance requirements.

According to the Cloud Security Alliance, the top three threats in the cloud are Insecure Interfaces and API's, Data Loss & Leakage, and Hardware Failure—which accounted for 29%, 25% and 10% of all cloud security outages respectively. Together, these form shared technology vulnerabilities. In a cloud provider platform being shared by different users there may be a possibility that information belonging to different customers resides on the same data server.

CONCLUSION

Innovation definitely creates business value. The value manifest itself in different form, e.g., there could be value from radical innovation leading to entirely new products as well as from incremental innovation leading to improvement in existing products. In the process of creating a new financial product, a financial engineer needs to acquire knowledge of optimization and financial modeling techniques beyond the basic theory of finance.

Financial innovation has been shown to increase the material wellbeing of economic players. Positive innovation has helped individuals and businesses to attain their economic goals more efficiently, enlarging their possibilities for mutually advantageous exchanges of goods and services.

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