Artificial Intelligence in FinTech:

Understanding Stakeholders Perception on Innovation, Disruption, and Transformation in Finance

Farida S. Rasiwala, Symbiosis International University, India

Bindya Kohli, Symbiosis International University, India

ABSTRACT

The recent increase of robo-advisory services (RAs) in various financial domains has caused a threatening alarm to the traditional fund and wealth management industry. There has been a remarkable growth in RAs' assets under management (AUM) due to their ability to provide better expected return by being competitive on pricing, transparency, and services. The research paper is designed to explore the various experts in the financial industry (which includes VP and AVPs of investment bank, managers and senior executive at bank, IT professionals and executives, and FinTech entrepreneurs and CEOs) and perceive the digital disruption that is going to affect the traditional financial services industry. Secondly, it is to explore the various strategies that are being adopted by the financial service providers to withstand competition from the disruption caused by FinTech challengers. Moreover, the purpose of this research paper is also to understand the extent and effect of the disruption as well as the strategies adopted by financial industry players to face these disruptions from FinTech.

KEYWORDS

Disruptive Innovation, Emerging Markets, Financial Services Industry, FinTech, Robo Advisory Services

INTRODUCTION

According a report published by Forbes at the end of 2015, it was concluded: *"The banking industry is ripe for change with the rise of fintech start-ups, the growing popularity of blockchain technology, and the dominance of millennial* (Sorrentino, 2015)." Fintech are termed a game changers as they are revolutionizing the way financial services are now provided to its customers with more convenience, transparency and low costs being its primary differentiators (Arner, Barberis, & Buckley, 2015; Chuen, Lee, & Teo, 2015). Fintech challengers includes some of the new age innovation that includes crypto currencies and blockchain, Robo advisory services backed by AI (artificial intelligence), equity crowd funding, peer-to-peer (P2P) lending and mobile payment systems (Philippon, 2016).

Robo-advisory services are gaining attention in financial decision making. In a digitally fast-paced world, almost everything is headed towards automation, be it net-banking platforms, digital transactions, online shopping, online cab services etc (Singh and Kaur, 2017). In essence, automation

has become inevitable to today's modern lifestyle. It is observed that automation has touched almost every business sector, and is now taking teeth on financial decision-making (Abraham et al., 2019). A third era of evolution is experienced by the fintech sector Fintech 3.0 – Recently Fintech start-ups as well as established banking and AUM companies have change the dimension and started providing financial products and services directly to the customers. (Arner et. al, 2015).

Robo-advisory services industry is at a nascent stage, especially in developing economies like India. The total amount of Assets Under Management (AUM) in the Robo-advisory segment equals to USD 980,541million in 2019 globally, while the average AUM per user in the Robo-advisory segment amounts to USD 21,421 in 2019 ''Statistics, Market Report, 2019''. Globally, wealth managers were responsible for USD 74 trillion in Assets Under Management (AUM) in 2014. BI (Business Insider) Intelligence forecasts that Robo-advisors will manage around 10% of total global Assets Under Management (AUM) by 2020. This equates to around $8 trillion (''Business insider Market Report'', 2019). Hence RAs have unable to more effective and efficient financial solution, which can be verified by a lack of new entry and competition (Philippon, 2016).

There has been a lot of predication made about financial services industry being disruptive by Fintech in the media; however we sensed that digital solution offered by fintech will not be able to make a smooth shift and change the industry in profound ways (Mills & McCarthy, 2017). Since Robo-advisors are a class of financial advisors with minimal to no human intervention, there are certain concerns that plague an investor when availing these services and platforms (Best Robo Advisor, 2019; Phoon and Koh, 2017). Moreover, there may be times when investors would prefer to consult with someone, especially during bearish phase in the market. The human consultation enables the investor to converse about their emotional and behavioral concerns with advisors who are looking after their portfolios. Lack of the ability to consult and voice their views, may make investor insecure and biased during time of distress. Behavioral biases are inaccurate and potentially harmful to investors' behaviors by erroneous decision. Robo-advisory service was initially launched in the United States of America (USA), one of the market reports reveal that only 20% investors are aware about these services and the level of adoption is significantly low, as low as 3%. In this day and age, when we discuss the exploration of information technology in various fields, including financial markets, one of the major concerns remains to be low adoption of new services and platforms by investors. The adoption of Robo-advisory services is significantly low in developed countries even-though other demographic factors favor adoption and use of such services and platforms, where-as the scenario is different when it comes to developing nations like India (Cedrell and Issa, 2018).

There is ample literature available which traces the growth, usage, problems, acceptance and development of Robo-advisory services in developed nations while not much literature is available in the Indian context. One of the key issues at the core of every banking and non-banking professional, academician, practitioner, and policy debate about the banking and fintech sector: is to assess whether these new Fintech startups will eventually disrupt and outgrow the traditional banking institutions. They are yet assess if Fintech's disruptive impact would be in the same way as digital media and platform has disrupted traditional publishing and advertising or, alternatively, affect banks' profitability, in the same way as it is currently with online education eroding higher education industry profits. In fact, Industry observers and practitioners believe that fintech's disruptive impact would be particularly large in emerging markets such as Indian (Diemers, Lamaa, Salamat, Steffens, 2015; World Bank, 2015).

One of the primary reasons to conduct a qualitative research on this area was to explore the level of disruption and its effect on the traditional banking institution in Indian markets so that we can sensitize about this disruption and the executives in the financial services industry could make more informed decisions on how to face Fintech challengers. Our research in the area of financial disruptions attempt to make a significant contribution to the existing theories of disruption

(Christensen & Raynor, 2003) and substitution (Ghemawat, 2006) and identify the strategies for collaborative response towards potential disruptions to the banks' mainstream business. We proposed to identify strategies that enable collaborative ecosystem in a way addressing the need of bank and fintech.We intend to focus on digitalization in the financial service industry and with a literature review on rise of fintech and theories of substitution and disruption. The literature review is intentionally kept very brief because the purpose of this research paper is to orient the reader about the evolving of Fintech, rather than develop hypotheses / propositions. After a brief literature review we have discussed research methodology in detail as this required an in depth understanding of participants and the objective. Next, we present and discuss our results, followed by conclusion.

BACKGROUND

Fintech Research

In simple term Fintech can be defined as innovative financial services or financial products delivered via technology. According to PwC (2016), fintech is defined as "the segment that is at the intersection of the financial services and technology sectors where technology-focused start-ups and new market entrants innovate the products and services currently provided by the traditional financial services industry". According to the author, Catalini, Halaburda,King, and Vergne (2017) fintech is defined as "a movement toward the digitization, decentralization, and disintermediation of economic transactions, powered by information technologies such as peer-to-peer networking, big data analytics, machine learning, blockchain technology, and open APIs."

The traditional banking institutions are forced to remodel a part of their businesses to adapt to the changes caused by the digitalization revolutions. The fintech firms are creating challenges for the traditional banking institutions and they are leading the way with new innovations using behavioral and big data analytics. There is a remarkable shift in the need and preference of customer and they are demanding more flexibility, one stop digital solutions and more personalized investment propositions such as Goal Based Investing (GBI). GBI is concept where the individual is placed at the center of the investment decision-making process has and by doing so, the financial industry has changes. (Sironi, 2016). Traditionally there have always been information asymmetries between customers, professional bankers and advisors which gave the wealth management professional advisor an edge over and it was reflected in the fees charged by them. There initial focus of wealth management organizations was on short-term cost/income ratio optimizations instead of their customers' long-term interest. (Sironi, 2016). Dan Schutzer (2015) has conducted research on the use of artificial intelligence in financial services. According to the author, soon, robo advisors would become a necessity to continuously sort, classify and analyze the data as Artificial Intelligence (AI) can compute large data with a lot of ease.AI can make it feasible to extend the financial advisory services to masses at a lower cost.

Robo-advisors were first introduced in the US in 2008. According to a report from A.T. Kearney(US) published in the year 2015 claims that robo advisory services will penetrate deep into the US market and it will be used more frequently used over the next three to five years among American investors. The adoption rate of robo-advisory amongst the American investors will also increase with an increase of total invested assets in dollars within robo-advisory 1.7% in 2017 to 5.6% in 2020. (AT Kearney, 2015). The report has also identified some of typical characteristics of customer who are more prone towards robo-advisory services in near future: These are users are most likely to have experience in investments and they tend to be tech savvy. Most of the investor using robo advisory service for managing the portfolio (investments) is also wealthy and risk-takers. (Epperson, Hedges, Singh and Gabel, 2015).

MAIN FOCUS OF THE ARTICLE

Issues, Controversies, Problems

Substitution and Disruption

As the research paper focuses on extend and effect of Fintech in the traditional financial ecosystem, we intend to analyze how FinTech would sustain competitive advantage in the face of substitution (Ghemawat, 2006) and disruptive innovation theory (Christensen & Raynor, 2003; Christensen, Raynor, & McDonald, 2015). According to Christensen & Raynor in his research paper has explained about completive success of any firm in the marketplace is often threatened by substitution, or when the resource such as brand, reputation proprietary knowledge is displaced. Therefore a firm may employ various possible strategic response to survive in the market and this responses may include the following: *Migrating*- it may choose not to respond to such market threats or it may decide to migrate and (redeploy the resources to less susceptible to substitution threat); *harvesting*- sometimes a firm may choose to shift its focus and deploy all its existing resources to sustain its position instead of building them up. *defending* – Otherwise firm can focus on its core capabilities and that either increases customers' willingness to pay higher price, or it may focus of bring down the costs drastically or sometimes both in the existing business to survive in the market; *straddling* Most firm may work hard t establish a foothold in both the existing and new market (Ghemawat, 2006). As mentioned by Ghemawat in his research paper, the concept of disruption is closely associated to substitution (Ghemawat, 2006). The term "Disruption" is described as a process whereby a new entrant is able to successfully challenge the well-established incumbents (Christensen et al., 2015). Most well established firm is facing the dilemma which is captured by Christensen and Raynor: whether to maintain the status quo and exisiting customers or to radically change the business Christensen and Raynor (2003). As mentioned, there is a clear distinction between *sustaining innovations* and *disruptive innovations* made by the theory of disruption. Sustaining Innovations primarily focuses on existing customers and it can be done either by incremental improvements or radical breakthroughs, yet both of these strategies would enable the firms to sell better products with higher margins to the customers (Christensen, 2003; Christensen et al., 2015). Disruptive innovations, by contrast, essentially focuses on tapping a new market segment or low-end customer base and they excel in providing 'good enough' solutions to its customer that either fast, cheap, more flexible, and less complex than the mainstream customers. Many a times these good enough solution or products are considered to be inferior quality by mainstream customers, but they may be attractive to a new segment of customers.

Once the disruptive technology gains a momentum in these markets, it tries to improve it process, products and service to gain acceptance of the masses. This improvement cycle continues till the previously good enough solution improves enough to meet with the expectation of more demanding mainstream customers. Once these customers adopt the technology in large volumes and accept the lower prices, this allows disruptors to displace the incumbents with its new path breaking innovation in the market. Such Disruptions may sometimes paralyze industry leaders, because most incumbents' organizational capabilities, resource allocation processes and reward systems are geared toward supporting sustaining innovations and they hardly pay attention to such disruptive innovation. (Christensen & Raynor, 2003). Some of misconceptions about Disruption are clarified by Christensen et al. (2015). He say that disruption is a slow process that takes a lot of time, especially in case of complete substitution, if in case it happens at all, it may take decades to substitute the incumbents' completely. It is only because of this, we believe, most incumbents often overlook disruptors, in sipite of having all the necessary resources and capabilities to defend their established positions. This may eventually erode incumbents' margins and ultimately profits.

Most Disruptive innovation are able to substitute the well established firm in the market place is because of their unique business models that are quite different from those of incumbents. However it is not necessary that Success is an inherent feature of disruptive innovation theory: some disruptive innovations will succeed, while others will fail. Finally, we would like to draw the attention to the

popular slogan "disrupt or be disrupted". It may be misleading in some cases and we would suggest the incumbents should not overreact to disruption by divesting their profitable established businesses but at the same time should not overlook the disruptors.

Research Design

We intend to do a qualitative research design. To find out valuable insights from our participants we have adopted In-depth, semi structured interviews methodology to collect data. An extensively conducted literature review proves that there is no far-reaching literature yet to deduct patterns Robo-advisory services in Indian Context. Hence, the qualitative research method by means of expert interviews is suitable to gain new insights on the impact of Robo-advice. Semi-structured interview is the most appropriate method to collect primary data to as open ended question enable researcher to obtain get detailed information and in-depth understanding about the topic.

Selection of Participants

The participants selected for the research are experts in the broad area of BFSI, IT, FINTECH and NBFCs in Indian sector who have exposure to Robo-advisory services in varied capacities. The different experts from the financial ecosystem which essentially included 15 Banker and 10 Non banker/Fintech Entrepreneurs in Delhi NCR. Once we interviewed the individuals, we further requested them to share referrals from their business network, of those who are best suited for this research. Some of the referrals were given by visiting faculty teaching at the institute of the researchers. The primary inclusion criteria are that the experts should have worked to build or participated or consulted for building Robo-advisory solutions within a BFSI, IT, FINTECH or NBFCs. There were few experts who frankly expressed that they will not be able to answer our research questions as they lack expert insight in the area of study.

Sampling Strategy

The snowball sampling is used to target respondents from BFSI disciplines in order to gain understanding from the subject matter experts. The reason for using the snowball sampling is to have interviewees who possess relevant domain expertise, these included academicians specifically from behavioral economics background, financial practitioners, CEO/founders, vertical heads and business consultants, who have wide experience in either Artificial Intelligence, Behavioral Finance, Robo-advisory or digitalization domain across different sectors such as wealth management, digital strategy and information technology. Based on the research methodology followed by Miles and Huberman (1994), we also used a very similar Snowball sampling technique for collecting data. To make it purposeful we initially identified the specific interviewees who were stakeholders in the financial ecosystem and had good knowledge and experience in the fintech innovation area.

The participants represented the wide spectrum of financial sector and they all came from diverse backgrounds, representing 15 senior executive investment bankers and AVPs and VPs in the financial sector, 5 Fintechs entrepreneurs and CEOs, 4 IT senior executives and strategist's at large technological companies Moreover, the analysis of these interview data enables us to identify similarities and differences in the participants' perceptions of the extent of disruption in the financial sector, especially– bankers and non-bankers (e.g., Fintech managers and entrepreneurs).

Data Collection

The interview with experts was conducted over the telephone. The telephonic interviews were selected owing to cost effectiveness and suitability from expert's perspective. The researcher has tried to include questions which could help discover the relevant information required to arrive at a definitive conclusion. Twenty-five participants from banking industry and investment banking sector were interviewed; each interview lasted on average 50 minutes, was transcribed. The researchers had semi-structured questionnaire which was used for conducting the interviews. The telephonic

interviews were conducted from the Delhi NCR and majority of the respondents were from Delhi NCR, India, some of the respondents also hailed from Mumbai, Pune, Bangalore and Hyderabad. The researchers first introduced themselves to the experts, a brief introduction of the expert was also sought, followed by which the purpose of the study was explained to the interviewee and once the purpose of the study was understood and agreed upon, only then detailed interviews were conducted.

The participants represented the wide spectrum of financial sector and they all came from diverse backgrounds, representing 15 senior executive investment bankers and AVPs and VPs in the financial sector, 5 Fintechs entrepreneurs and CEOs, 4 IT senior executives and strategist's at large technological companies. To ensure the purpose of research is not restricted to the banking sector we ensure that all the profiles were also diverse which included participants form corporate, commercial, investment to retail banks.

We also ensured that participants should have international experience across the region and so that they are well aware about the recent development of AI in the financial sector. We adopted In-depth focus interview to collect data and we choose a data set from diverse background so that we could validate the findings and understand their perspective. This technique of interviewing multiple profile respondents was suggested by Mollenkopf, Frankel, and Russo (2011) to support and validate the industry perspective and have an overview of financial ecosystem .Considering the participant experience and exposure in their respective sector, we had set of questions to be covered in each interview session of not less than 40 minutes. The details about the duration of each interview is mentioned as below in Table 2

Data Analysis

As the aim of this research is to gain an in-depth understanding about the experiences and perceptions of experts, a structured content analysis is taken into consideration as a data analysis technique, since it can provide valuable insights by doing a thorough analysis of texts. In content analysis, the researcher has an option to perform same methods, which are performed on even quantitative studies. (Long and Johnson, 2000). The content analysis proves beneficial only when it is reported in a systematic and understandable manner (Elo and Kyngäs, 2008). A latent analysis is being performed on the raw data collected from the interviews to draw meaningful conclusions.

This research has considered two important steps of qualitative content analysis i.e. the summarizing of data and structuring content analysis of data. The first step is carried out for summarizing the data by the way of transcription of each of the interviews, which reduces the chances of omission. The next step conducted was a structured content analysis of the expert's comments to the research questions. After this, the coding and categorization is performed to ascertain the broad themes which includes the following:

1. Disruptors in the financial sector and their business models;
2. Level of Competition, threat of substitution;
3. Technological capabilities and Omni-channel strategies for consumers;
4. Support provided by regulators and government;
5. Entrepreneurship and innovation; and
6. The Future of the two sectors (Finance and technology).

Our analysis reveals that most of the themes and issues pertaining to the perception of participants regarding the extent of disruption, especially between the two groups of respondents i.e. banker and non-bankers in the financial sector were covered in the above six themes, the analysis of the interview data focused on comparing the interviewees' responses to identify similarities and differences (Charmaz, 2000; Flick, 2014).We followed the data management technique recommended by Miles and Huberman (1994) and Roulston (2014) and presented the most relevant interview excerpts under each questions. It is sufficient to conclude that around 90% of the factors related to how Robo-advisors

Table 1. Demographics of the experts who participated in the interview

Characteristics	Numbers
Age	
20–30	2
30–40	22
40–50	21
50–60	5
>60	0
Gender	
Male	48
Female	2
Education	
Intermediate level	0
University degree	0
Master's degree	50
Others	0
Experience	
5–10 year	12
10–20 year 16	16
20–30 years 18	18
>30 years	4
Current position	
Entry level	0
Middle level	26
Top level	24

which can help in identify the extent of disruption emerged by the 39th interview. The research was deductive where it was concept driven.

Findings

Table 1 gives the characteristics about the experts whose interviews were conducted by the researchers. The important findings are that all the experts (50 in number) have a master's degree as far as their education is concerned. The experts are skewed for gender where only 2 female was the respondent out of the 50 interviews conducted.

Table 2 shows information about the participating individuals and the companies they are currently working at, along with the respective interview dates. The researcher ensured that confidentiality is maintained and only those respondents who agreed for their identity disclosure, their identity have been disclosed in Table 2.

The average duration of interview was 40.85 min where the least interview duration was with expert 3 which lasted for 17 min. The longest interview duration was with expert 28 which lasted for 60 min. Figure 1 shows the duration of each expert interview and most of the interview were between duration of 35 min to 42 min.

Table 2. Details of the experts interviewed

| Experts	Company	Designation
Mr.Manush Vadh(E01)	One of the retail brokerage firm	Financial Consultant
Expert 02 (E02)	One of the multinational corporations in consulting and technology services	Financial advisor
Expert 03 (E03)	One of the multinational corporations in consulting and technology services	Vice president Finance
Expert 04 (E04)	Global IT conglomerate (specializing in multiple fields including Fintech and AI)	Business Consultant
Expert 05 (E05)	Leading commercial bank	Assistant Manager
Expert 06 (E06)	Consultancy firm	Assistant program manager
Expert 07 (E07)	One of the leading providers of technology solutions to banks	Director - Artificial Intelligence Vertical
Expert 08 (E08)	Leading private sector bank	Automation lead
Expert 09 (E09)	Yes securities (India) Limited	Financial advisor
Expert 10 (E10)	Kotak wealth management	Kotak mahindra bank Strategy & investment advisor
Expert 11 (E11)	Virtusa consultancy services	Assistant manager operations
Expert 12 (E12)	MoneyFrog	CEO/Founder
Expert 13 (E13)	FundsIndia	Data operations manager
Mr. Tushar Sharma (E14)	Management consulting firm for data analytics	Digital AI consultant
Expert 15 (E15)	Leading finance institution of India	Software developer
Expert 16 (E16)	One of the leading multinational investment banks	Certified data scientist
Expert 17 (E17)	Established online investment websites	Software developer
Expert 18 (E18)	One of the financial companies that provides mutual fund investment	Business Consultant
Expert 19 (E19)	One of the largest stock broking firms in India Stock broker	Stock broker
Expert 20 (E20)	Housing finance company	Product manager
Expert 21 (E21)	Established online investment websites	Assistant vice president finance
Expert 22 (E22)	One of the pioneers in retail broking sector	Stock broker
Expert 23 (E23)	Leading firm offers diversified services of financial	Financial Planner
Expert 24 (E24)	Mutual fund investment online platform	Financial planner
Expert 25 (E25)	One of the multinationals in consultancy services	Product manager
Expert 26 (E26)	Leading financial planning firm	Senior financial advisor
Expert 27 (E27)	One of the leading Indian stock broking firm	Product manager
Expert 28 (E28)	Established online investment websites	Digital AI consultant
Expert 29 (E29)	Technology based firm providing financial services	Financial planner

Table 2. Continued

Experts	Company	Designation
Expert 30 (E30)	Leading developers of robotic automation	Business consultant
Expert 31 (E31)	One of the leading providers of technology solutions to banks	Digital AI consultant
Expert 32 (E32)	Mutual fund investment online platform	Product manager
Expert 33 (E33)	Leading firm offers diversified services of financial products	Manager Automations
Expert 34 (E34)	One of the leading providers of technology solutions to banks	Internal Auditor
Expert 35 (E35)	Founding member at Valuefy Investments Pvt Ltd	Fintech Entrepreneur
Expert 36 (E36)	Macquarie Pvt Ltd	AVP of Investment Bank
Expert 37 (E37)	Capgemini Ltd	General Manager of IT Company
Expert 38 (E38)	Online tax planning and tax filing startup-Quicko	Fintech Entrepreneur
Expert 39 (E39)	Bank of New York Mellon	AVP of Investment Bank
Expert 40 (E40)	One of the Large Technology Company in India	Senior IT manger
Expert 41 (E41)	Indian Bank (PSU bank)	Senior Executive at Indian Bank
Expert 42(E42)	Yes securities (India) Limited	HOD digital marketing/social media welfare at a bank.
Expert 43 (E43)	Syndicate Bank	HOD of delivery department of commercial bank
Expert 44 (E44)	Yes Bank	Head of Customer relationship department (operations) at a retail bank.
Expert 45 (E45)	Siemens India Pvt Ltd	IT head of Technology and development depart of a Bank.
Expert 46 (E46)	One of the leading providers of technology solutions to banks	Operation and IT head -Multinational Tech Company).
Expert 47 (E47)	HDFC Ltd	Associate Client service department of a bank
Expert 48 (E48)	RBL bank	Operation and IT head
Expert 49 (E49)	ICICI bank	Senior Associate at a commercial bank
Expert 50 (E50)	Valuefy	Fintech Entrepreneur of a new Venture

The following section represents the key themes which emerged from the analysis of transcripts done by the researchers.

Based on the responses and categorizing of related theme, we have organized our subsequent discussion of results around the following four core themes:

1. Competition and disruption from fintech;
2. Segments at risk of disruption;
3. Challenges in ecosystem development;
4. Complementarity of assets and capabilities;
5. Strategies to face disruption.

Figure 1.
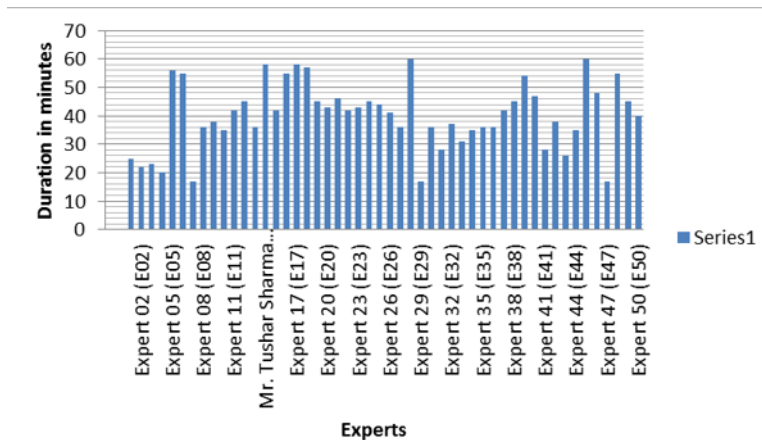
RESULTS AND DISCUSSION

Competition and Disruption From Fintech

We found out that the participants' perceptions on financial services industry in India varied considerably. Some of the participants believed that the financial service industry is highly dependent on the US markets, current economy and it is saturated, competitive and highly volatile due to its dependency on external factors. While others stated that the industry still has growth potential, particularly in the tier 2 cities, where the financial services is penetrating and targeting the masses from rural area. They were of the opinion that financial service sector in the region is still at a nascent stage despite of the favorable factors which includes young and educated people, rising levels of income and several financial literacy initiatives driven by governments.

The response for the question: whether fintech is disruptive to the traditional banking sector, was broadly classified into two categories. The first group was of the opinion that fintech innovations should not be considered as threat to financial service providers. Most of them believe that disruption has not yet arrived: "There is no disruption yet, banks need to open their APIs"."Fintech does not have to disrupt the market; it may stimulate it". The second, smaller, group of bankers could sense the fintech as disruption and a threat to the financial service industry: "*I can sense the disruption is there, the financial solutions backed with technology are there, believe me they are in a better position to serve the masses than banks as they are less regulated. They have the technology to provide better solutions than banks*." Of course we had the third group (fintech entrepreneurs) who has a very different opinion to this question. Possibly because they were able to assessed the state of disruption rather differently: "… *there is no disruption till now. The banks will not disappear because of heavy regulations. Rather banks should look at fintech innovations as an opportunity for bank-fintech collaboration*."

There was heterogeneity of responses from respondent, and this was expected because Fintech is relative new conception and there is still a lot of uncertainty associated with such innovation.

Segments at Risk of Disruption

Vertical Segments

One of the questions we posed to the participants was which segment of banking industry is more likely to be disrupted than others. There was consensus amongst the participant as most of them agreed that the financial products and services including consumer payments solutions, consumer

credits, simple saving products and current accounts are mostly to be disrupted by Fintech. As stated by retail senior banker stated: "*Retail customers of banks will be most affected by Fintech. For example, when paying bills or transfer the money, it's easier to use an application.*" Fintechs "*will not affect corporate banking services or private banking ones but it might affect some retail banking segments*" (Investment bank AVP).

Apart from Retail banking products and services, payment solutions as a segment - comprising of consumer payment services, merchant payment and new payment types has immense opportunities for Innovation. As suggested by General Manager of IT Company, "*payments are the biggest segment in which the fintechs are taking over. Banks will continue to provide loans and credit cards. The fintech can use their services for payments in which the bank will have to adapt to*". There are immense opportunities for Fintech startups and wider scope of digital disruption customer payment and distribution segment as the need and preference of customers are changing. With changing customer behavior towards traditional banking institution, innovative business models, platforms, and the new business structure are shaping the new financial industry. For instance, new and latest payment gateways/application, such as Goggle Pay/Phone pay/Paytm are slowly gaining popularity because of increase on ecommerce website and online shopping portals. To ensure that payment solution to sustain and grow, regulators and central banks have to play a vital in modernization, while Fintech entrepreneurs will have to find new and improved ways through partnerships and innovative products to deliver value to its customers (Hally, 2016).

Another segment where Fintech startups have a lot of potential to grow is crowd funding and Peer to Peer lending. These Startups offer some of the most innovative solutions for funding a new venture which is difficult to obtain financing from traditional channels. According to a report published by World Bank (2015), In India only 2% of startup firm receives funding which is amongst the lowest in the world, and it only due to lack of credit availability for Startup to expand its operation. As far as P2P lending in Indian market, it is still at a very nascent stage, but it will slowly gaining acceptances amongst the masses. According to our interviewees, "The way market dynamics are changing,P2P systems could be a potential threat to banking sector as most SME, entrepreneurs and innovators have faith in fintechs, because most banks provide funding against collateral and they follow very stringent filtration process while selecting/ supporting the start-ups" (Fintech Entrepreneur).

Hence we can conclude that Fintech startups in digital banking segment and consumer/merchant payment solutions is considered as sustaining innovations because they are targeting the same customers by providing a better solution at a lower but P2P lending and crowd funding are disruptive in nature .Moreover our finding are consistent with Neagu (2016) who also concluded in his research that there are three sectors in fintech would qualify as disruptive innovations in the financial ecosystem i.e. Peer to Peer (P2P) lending, robo-advisers and crowd funding.

Customer Segments

According to Dietz et al. (2016), A customer segment more sensitive to costs and wants to avail better solution at an affordable pricing by digital delivery and distribution is most susceptible to disruption. This customer segment primarily includes millennial and small & medium businesses. Our findings are in consistent with this argument. Most millennial are switching to alternative financial providers (e.g. digital wallets) as they offer more flexibility, more agility, innovation, customer experience and 24/7 convenient services. (Mesropyan, 2016).

In India, more than 40% of the population is aged 15-29 years which is essentially millennial segment who are tech savvy. Moreover, the traditional structures of banks, regulators, and legacy systems and banks mindsets make it difficult for the bank to compete with fintech. Hence, It is perceived that digital technologies would be at the core of every future banking business model in the next 5 years: According to our interviewee (AVP, Investment Bank) "*Banks need to adapt to the needs of the young generation who are mobile and social media savvy and are heavy users of*

different channels" Based on these findings, customer segment of Millennial can be can be regarded as disrupters, while the existing customers of banks can be seen as sustaining innovators.

Challenges in Ecosystem Development

The success factor of Fintech primarily depends on the availability, progress and development of important parts of the ecosystem (Adner & Kapoor, 2016), which includes regulators, consumers, and technology suppliers. Based on the excerpts of various participants in the financial ecosystem we may conclude that there are many obstacles in the way of fintech ecosystem development. As India heads towards cashless economy from cash base economy there are many obstacle which essential involve lack of trust amongst the customers in the digital financial system. Another major issue is the dearth of talented and skilled IT professional in India who can be the back bone of any fintech startup. As suggested by one of interviewee (Senior IT manger of Large Technology Company in India) "*Talents are immense in India but are distributed in an unbalanced manner*". "*Financial institutions do not appear to have the internal knowledge and expertise they will need to implement a "what do our customers want*?" He also pointed out lack of necessary skillset particularly in the area of block chain technologies is an important link which is missing to effectively operate digital solutions.

Based on the in-depth interview with the participants we are able to conclude that our findings are consistent with other research. According to a study conducted by Accenture in the year 2015, most CEO and managing directors of Banks find it difficult to match up their knowledge, skillset and experience when it comes to digitalization of the financial system. They somehow are not considered to be a good fit due to their lack of adequate knowledge and experience for the digital age.

According to majority of the participants, the most constrain which hamper the growth of fintech expansion in India is due to regulators or stringent regulation followed by the government of India. In sipite of technological expansion, India still follows a traditional way to manage the mandate of The KYC (know your customer). Moreover, the concept of digital signature is still struggling to get adequate attention for its users. "*Banks have developed their own Apps with very basic information and services but most of not understood the fintech in the right way to capitalize its potential*" (Global Head at Macquarie India Operations).

As our respondents pointed out aptly, "*innovation happens first and regulations happen next… there is a need for a new regulatory framework in order to invite innovation*"; "*regulators should definitely become more progressive and understand...people call it...the Facebook era so they have to adapt their regulations to allow for innovation and solutions that are aligned with the living and spending habits of their consumers*". Additionally, "*The laws are hindering innovation; there are a lot of laws preventing us from going digital. For example, there is a law that an Adhaar card must be [scanned] and identification must be made before giving him a loan or setting a new bank account*" (senior executive at a PSU bank).

To summarize the finding, we can assume that cash will be considered as a preferred mode of transaction due lack of fintech startups growing in the Indian financial systems. It is important to note that the lack of fintech expansion is due to lack of availability of funds to fintech entrepreneur, lack of talents to support the digital front and of course the regulatory barriers to fintech ecosystem development. It is interesting to note that none of our participants mentioned about lack of customer awareness as one of the barriers in the adoption of fintech solutions. However, according to a survey conducted by EY on Fintech Adoption Index (2018), one of the major findings was the lack of awareness about digital products offered by banking institution among the customers.

Strategies to Face Disruption

Based on our in-depth interview with various participants, Five strategic responses have been identified which could be adopted by the banking sector to face the disruption:

1. First strategic response should be to continue with sustaining innovation and maintaining status quo as they have huge customers base to cater;
2. Secondly they should essentially should adopt incremental changes in the system and strengthen their own digitization capabilities and focus on efficiency innovation;
3. Next and most obvious response is to set up their own Fintech startup to target the millennial and focus on disruptive innovation as a strategy;
4. Lastly the most apt strategic responses are partnering / collaboration with Fintech to ensure competitive advantage of each other.

Strategies Examples of Illustrative Quotes

1. Maintaining status quo/ Pursuing sustaining innovations:
   a. "We have to upgrade ourselves. We have to understand more customers, specifically millennial to provide them what they like" (HOD digital marketing/social media welfare at a bank).
   b. "We are planning to keep working on our human talent. Technology is made by humans, so it is secondary. But, we also focus on issues such as security, fraud and hacking" (senior executive of Retail bank).
2. Deepening own digitalization capabilities (sustaining / efficiency innovations):
   a. "Three strategies are our focus for the next years: innovation, digitization and understanding the client's problem" (Head of global transaction services, products & trade at a retail bank).
   b. "Mobile banking is the way forward; online can add a lot of value" (AVP (Asset under Management (US) at an investment bank).
   c. "Physical branches will not disappear; physical and digital branches will co-exist" (Branch manager at a commercial bank).
   d. "[The bank] made full transition to digital banking platform (in the past years); need full functionality with mobile" (Head of Customer relationship department (operations) at a retail bank).
   e. "We are trying to outsource a lot of stuff, by getting companies that have technical and digital areas that are better than our IT section and which will implement it faster and in a more efficient way" (HOD of delivery department of commercial bank).
3. Setting up own fintech (a stand-alone organization) to pursue disruptive opportunities (straddling):
   a. "… the banks will be the FinTechs. I mean if TCS can have 460 developers… HSBC has 10,000 developers in India for software developed for HSBC all over the world. You think it's not easy for them to investigate FinTech technology?" (Vice president of Investment bank)
   b. Investing in fintech (e.g., acquisition) – acquiring capabilities "[We are] investing in Fintech companies to avoid losing market to fintech. Other banks have a risk of [losing] market share" (Managing Director (operations) Investment bank based in Australia).
   c. "Given the high penetration rate of mobile and low penetration [rate] of banking and credit cards in India, we are investing in Fintechs to ease the transactions for the population" (Senior Associate at a commercial bank).
4. Partnering / collaboration of bank with fintech:
   a. "We need to collaborate with financial institutions…Banks will not disappear because of heavy regulations. The only solution is to work with them to maintain compliance with the regulatory environment" (Fintech Entrepreneur of a new Venture).
   b. "Banks should collaborate with fintech start-ups" (Operation and IT head -Multinational Tech Company).
   c. "Fintechs will collaborate with us and we will work together to set solutions. It seems to be the case in most of the companies now" (Manager- Commercial segment of a bank).

d. "Fintechs will support banks and partner with them rather than replacing them" (Associate Client service department of a bank).

e. "Since banks need to benefit from fintech, and try to incorporate their technologies to regular banking, increased collaboration would be the solution" (IT head of Technology and development depart of a Bank).

CONCLUSION

In this study, we set out to investigate two related questions: the perceptions of participants in the financial industry of the effects of digital disruption in the sector and the strategies they have adopted in the face of fintech challengers. With respect to the first question, there does not appear to be a sense of urgency among the financial services providers, with some banks being in denial about the potential threat from NBFIs. On the other hand, many of our respondents are aware of the global industry developments; in the words of one investment banker, "fintech is a trend that is riskier not to monitor". We believe that the banking sector will be well advised to view its business through a disruptor's lens, challenge its own assumptions and identify the segments vulnerable to disruption theory and practice (Christensen et al., 2015; Lewis,2016). Moreover, financial institutions should make a strategic choice between taking a sustaining and efficiency path (e.g., improving remittances, offering better quality payment solutions at less cost), or taking a disruptive path (e.g., P2P lending, robot advisory, crowd funding). At the same time, Christensen et al. (2015) caution incumbents against overreacting to disruption that will affect their most profitable businesses, suggesting that established companies reinforce relationships with core customers while also focusing on creating new opportunities from the disruption.

The second key finding, also addressing the first research question, is that fintech innovations in emerging markets is likely to be disruptive in some customer segments (SMEs,millennials and the unbanked) and in selected financial services/products (crowd funding, P2P lending, wealth management and advisory). Our interviewees from both sectors, with few exceptions, see the future through a collaborative lens: "Fintechs could not succeed without the banks and banks also need fintech start-ups" (fintech CEO). "…We can and should integrate their banking solutions into our banking world" (senior manager for technology and service at a commercial bank). The future, in other words, is not as disruptive.

The third main finding, related to the second research question, is the role of regulatory authorities: according to one of our respondents, an entrepreneur, "more flexibility from the government side is needed". Regulators around the world, such as the Monetary Authority in Singapore, who are viewing the growth of fintech as an innovation enabler of the banking industry, recommend formulating policies to encourage the use of APIs that will benefit alternative financial services providers (Chhahira, 2016). Clearly, for India to become a world-class financial services provider, the regulatory regime needs to be upgraded.

For example, Ant Financial ($60B valuation) is leveraging AliBaba AliPay's scale to offer a full range of financial solutions in China (i.e., savings, SME lending, consumer loans, online insurance and P2P lending) (Meeker, 2016). GAFA (Google/Alphabet, Apple, Facebook and Amazon), combining big data, social networking and financial services, represent a very real threat to the financial services industry in the region, as financial solutions are an integral part of their corporate strategies. Amazon, which is expected to reach $1 trillion in market capitalization soon (cf. $300 billion for JP Morgan, the largest bank) will directly benefit from payment systems, as it has become one of the largest e-commerce platforms globally. The technology companies' recent initiative *Financial Innovation Now* (2016) leaves little doubt regarding these firms' key strategic priorities in financial services – payments, financial inclusion (i.e., targeting the under-banked) and financial applications (Packin & Lev-Aretz, 2016;Trieu, 2015). These represent a mix of efficiency and disruptive innovations. As argued by Chhahira (2016, p. 7), "GAFA are on a bigger agenda that will eventually impact

the traditional banking business". Their threat is more subversive, in that if customers start to use technology platforms for banking on a large scale, banks could be relegated to the role of utility providers. This trend has already started in digital media, and there is no reason to believe that the financial services industry will be immune to these shifts in consumer behavior.

Financial institutions, globally and in India, are facing the technical challenge of frictionless integration of financial services into the digital life of their customers. We hypothesize that our participants' preference for partnering can be explained in the light of the three distinctive characteristics of the economy, of which modern banks and fintech are an integral part – digitization, disintermediation and decentralization. Specifically, these include high fixed (sunk) costs of production and marginal costs of reproduction of information goods (e.g., OS, apps, software), near zero communication and distribution costs, high human capital costs and network effects, among others. These factors, together with a need for providing frictionless experience for the tech-savvy consumer of a broad range of financial services, often underpinned by AI and big data analytics, may necessitate an ecosystem-like bank-fintech collaboration (Benkler, 2002; Moore, 2006).

Consequently, based on the empirical results of our study, a sensible strategic response to disruption is a hybrid platform embedded in a broader ecosystem. It involves offering financial services to customers through a single platform irrespective of the provider. Such a new banking platform that seamlessly bridges traditional (e.g. accounts, loans, deposits) and new disruptive financial services (e.g., P2P, crowd funding, robo-advisors), enables fintech companies to develop their own financial offerings and banks to perform the function of a core banking system running on top of their existing legacy systems (Schwab & Giraud, 2016; Soulé, 2016). Banks could position themselves as fintech enablers through an open API architecture instead of constraining a customer to do business with one bank's offering with no alternative to it. There is also hope that a hybrid platform will allow financial institutions not only to provide a better customer-centric experience to existing customers, but also to target new customer segments traditionally underserved by banks (i.e., start-ups, unbanked, digital natives) (Schwab & Guibaud, 2016). Fintechs, on the other hand, will benefit from the banks' complementary assets and capabilities, such as trust, scalability, access to customers and regulatory compliance.

REFERENCES

Adner, R., & Kapoor, R. (2010). Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations. *Strategic Management Journal*, *31*(3), 306–333. doi:10.1002/smj.821

Adner, R., & Kapoor, R. (2016). Right tech, wrong time: How to make sure your ecosystem is ready for the newest technology. *Harvard Business Review*, 60–67.

Allison, T. H., Davis, B. C., Short, J. C., & Webb, J. W. (2015). Crowd funding in a prosocial microlending environment: Examining the role of intrinsic versus extrinsic cues. *Entrepreneurship Theory and Practice*, *39*(1), 53–73. doi:10.1111/etap.12108

Alstyne, M., Parker, G., & Choudary, S. P. (2016, April). Pipelines, platforms, and the new rules of strategy. *Harvard Business Review*, ●●●, 5–11.

Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). *The evolution of Fintech: A new post-crisis paradigm?* (Research Paper No. 47). University of Hong Kong. Faculty of Law.

Baldry, A. C., Farrington, D. P., & Sorrentino, A. (2015). "Am I at risk of cyberbullying"? A narrative review and conceptual framework for research on risk of cyberbullying and cybervictimization: The risk and needs assessment approach. *Aggression and Violent Behavior*, *23*, 36–51. doi:10.1016/j.avb.2015.05.014

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120. doi:10.1177/014920639101700108

Benkler, Y. (2002). Coase's Penguin, or Linux and the nature of the firm. *The Yale Law Journal*, *112*(3), 369–395. doi:10.2307/1562247

Bruton, G., Khavul, S., Siegel, D., & Wright, M. (2015). New financial alternatives in seeding entrepreneurship:Microfinance, crowdfunding, and peerto- peer innovations. *Entrepreneurship Theory and Practice*, *39*(1), 9–26. doi:10.1111/etap.12143

Catalini, C., Halaburda, H., King, M., & Vergne, J. P. (2017). *Call for papers: The First Annual Toronto FinTech Conference*. Available from https://www. ivey.uwo.ca/scotiabank-digital-banking-lab/research/the-toronto-fintech-conference/

Charmaz, K. (2000). Constructivist and objectivist grounded theory. Handbook of Qualitative Research, 2, 509-535.

Chhahira, P. (2016). Fintech face off: How banks can deal with latest rivals. *Finacle Connect Magazine*. *The Fintech Revolution*, *8*(33), 10–14.

Chiu, I. H. Y. (2016). The disruptive implications of fintech-policy themes for financial regulators. *Journal of Technology Law & Policy*, *21*(1). Advance online publication. doi:10.2139/ssrn.2812667

Christensen, C., & Raynor, M. (2003). *The innovator's solution*. Harvard Business School Press.

Christensen, C. M., Raynor, M. E., & McDonald, R. (2015). Disruptive innovation. *Harvard Business Review*, *93*(12), 44–53.

Chuen, K., Lee, D., & Teo, E. (2015). Emergence of Fin-Tech and the LASIC principles. *Journal of Financial Perspectives*, *3*(3), 24–36.

Dey, A. (2016). Live and let live: Fintech and banks chant the collaboration mantra. *Finacle Connect Magazine*. *The Fintech Revolution*, *8*(33), 10–14.

Diemers, D., Lamaa, A., Salamat, J., & Steffens, T. (2015). *Developing a Fintech Ecosystem in the GCC*. Retrieved from http://www.strategyand.pwc.com/ media/file/Developing-a-FinTech-ecosystem-inthe-GCC.pdf

Dietz, M., Khanna, S., Olanrewaju, T., & Rajgopal, K. (2016, February). Cutting through the noise around financial technology. *McKinsey & Company Financial Services.* Available from https://www.mckinsey.com/industries/financial-services/our-insights/cutting-through-the-noise-around-financial-technology

Edwards, B. P. (2018). *The rise of automated investment advice: Can robo-advisers rescue the retail market*. Chi.-Kent L. Rev.

Eisenmann, T., Parker, G., & Van Alstyne, M. (2011). Platform envelopment. *Strategic Management Journal*, *32*(12), 1270–1285. doi:10.1002/smj.935

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, *62*(1), 107–115. doi:10.1111/j.1365-2648.2007.04569.x

Evans, B. (2016, December). *Mobile is eating the world*. Andreessen Horowitz presentation [Video file]. Retrieved from https://vimeo.com/195062332

Fein, M.L. (2015). *Robo-advisors: A closer look*. Academic Press.

Flick, U. (2014). *An introduction to qualitative research*. Sage Publications.

Ghemawat, P. (2006). *Strategy and the business landscape*. Academic Press.

Gordon, D. M. (2011). The fusion of behavioral ecology and ecology. *Behav. Ecol.*, *22*(2), 225–230. doi:10.1093/beheco/arq172

Gurdgiev, C. (2016). *Is the rise of financial digital disruptors knocking traditional banks off the track?* Academic Press.

Hally, L. (2016). Fintech solutions for small businesses. In S. Chishti & J. Barberis (Eds.), *The fintech book:The financial technology handbook for investors, entrepreneurs and visionaries* (pp. 123–124). Wiley & Sons Ltd.

Iansiti, M., & Lakhani, K. R. (2017, January). The truth about Blockchain. *Harvard Business Review*, ●●●, 5–12.

Janssen, R., Kramer, B., & Boender, G. (2013). Life cycle investing: From target-date to Goal-Based Investing. *The Journal of Wealth Management*, *16*(1), 23–32. doi:10.3905/jwm.2013.16.1.023

Judge, T.A., & Robbins, S.P. (2017). *Essentials of Organizational Behavior*. Pearson Education.

Jung, D., Erdfelder, E., & Glaser, F. (2018). *Nudged to Financial Innovation Now. Recoding the Future of Commerce*. Available from https://financialinnovationnow.org

Khalil, I. (2016). The rapid growth of fintech: A revolution in the payments industry. *Entrepreneur*. Available from https://www.entrepreneur.com/article/280402

Lemieux, V. L. (2016). Trusting records: Is Blockchain technology the answer? *Records Management Journal*, *26*(2), 110–139. doi:10.1108/RMJ-12-2015-0042

Lewis, A. (2016, March 3). *Why most innovation in fintech is not disruptive enough*. Available at https://www.techinasia.com/talk/innovation-fintech-disruptive

Lindman, J., Rossi, M., & Tuunainen, V. K. (2017, January). *Opportunities and risks of Blockchain technologies in payments, a research agenda*. Paper presented at the 50th Hawaii International Conference on System Sciences, Waikoloa, HI. doi:10.24251/HICSS.2017.185

McKinsey & Company. (2016). A brave new world for global banking. *McKinsey Global Banking Annual Review*. Retrieved from https://www.mckinsey.com/industries/financial-services/our-insights/abrave-new-world-for-global-bankingtrendsreport

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Sage Publications.

Mills, K., & McCarthy, B. (2017). How banks can compete against an army of fintech start-ups. *Harvard Business Review*, 13–20.

Mollenkopf, D. A., Frankel, R., & Russo, I. (2011). Creating value through returns management: Exploring the marketing–operations interface. *Journal of Operations Management*, *29*(5), 391–403. doi:10.1016/j.jom.2010.11.004

Moore, J. (2006). Business ecosystems and the view from the firm. *Antitrust Bulletin*, *51*(1), 31–74. doi:10.1177/0003603X0605100103

Neagu, B. (2016, May). *How disruptive is fintech really?* Available from http://banknxt.com/56717/disruptive-fintech/

Noe, T., & Parker, G. (2005). Winner take all: Competition, strategy, and the structure of returns in the Internet economy. *Journal of Economics & Management Strategy*, *14*(1), 141–164. doi:10.1111/j.1430-9134.2005.00037.x

Packin, N. G., & Lev-Aretz, Y. (2016). Big data and social netbanks: Are you ready to replace your bank? *Houston Law Review*, *53*(5), 1213–1287.

Philippon, T. (2016, July). *The FinTech Opportunity* (Working Paper No. 22476). Department of Finance, National Bureau of Economic Research.

Pronin, E., Lin, D. Y., & Ross, L. (2002). The bias blind spot: Perceptions of bias in self versus others. *Personality and Social Psychology Bulletin*, *28*(3), 381. doi:10.1177/0146167202286008

PwC. (2016). *Financial services technology 2020 and beyond: Embracing disruption*. Retrieved from https://www.pwc.com/gx/en/financial-services/assets/pdf/technology2020-and-beyond.pdf

Roulston, K. (2014). Analyzing interview data. In U. Flick (Ed.), *Handbook of qualitative data analysis* (pp. 297–312). Sage Publications. doi:10.4135/9781446282243.n20

Saldaña, J. (2015). *The coding manual for qualitative researchers*. Sage Publications.

Schwab, F., & Guibaud, S. (2016). The rise of Bank-Tech: The beauty of a hybrid model for banks. In S. Chishti & J. Barberis (Eds.), The Fintech book:The financial technology handbook for investors,entrepreneurs and visionaries (pp. 245-247). West.

Soulé, M. (2016). Is Fintech eating the world of financial services, one API after another? *Digiworld Economic Journal*, *103*(3), 177–184.

Teece, D. (1986). Profiting from technological innovation: Implications for integration, collaborations, licensing and public policy. *Research Policy*, *15*(6), 285–306. doi:10.1016/0048-7333(86)90027-2

Trieu, H. N. (2015, December). *Will Google and Amazon enter financial services?* Available from https://medium.com/@Huynguyentrieu/willgoogle-and-amazon-enter-financial-services-183a368bd703#.ttja0nc9pvan

World Bank Group. (2015, June). *Improving the quality of financial intermediation in the Gulf cooperation council (GCC) countries.* Retrieved from http://documents.worldbank.org/curated/ en/665641467998781808/pdf/97222-WP-PUBLIC-Box391472B-GCC-Engagament-Note-Final.pdf

Zetzsche, D., Buckley, R., Arner, D., & Barberis, J. (2017). From FinTech to TechFin: The regulatory challenges of data-driven finance. *New York University Journal of Law and Business*.

Farida Rasiwala is in the field of Management education for the past 5 years and has multifaceted experience as a Researcher & Faculty in the area of Finance and Accounting. She is CFA level 1 certified with UGC Net in Management. She is pursuing her Ph.D is in the area of Finance from Symbiosis International University. Her research interests include Artificial Intelligence, Fintech Innovation, Behavioral Finance, Corporate Finance, Investment and Portfolio Management.

Bindya Kohli is working as an Associate Professor at Symbiosis School of Banking and Finance (SSBF), Pune since 2011. She held the position of Deputy Director at SSBF from April 2018 to June 2019. Prior to joining Symbiosis, she had worked in University of Jammu and some private Management institutes based out of Jammu. Her qualifications include PhD, MBA, MFC and UGC NET. She is also recognized as a PhD guide under the faculty of Management, Symbiosis International (Deemed University) and currently has 6 scholars pursuing their PhD under her. A passionate teacher, she is intrigued academically by psychological aspects of Investor Behavior and has authored papers in the areas of Behavioral Finance, Corporate Finance and Corporate Governance which have been published in indexed (Scopus) and other refereed journals and edited books. She has also presented papers at various International and National conferences and won the best paper award twice.