Fintech Supervisory Sandbox (FSS)

Article Information

Article Publishing Date:
9 December 2017

Author: Philip Keller
E-Mail: philip.keller@stern.nyu.edu

Keywords

Fintech Supervisory Sandbox (FSS)
Hong Kong Monetary Authority (HKMA)
Authorized Institution (AI)

Executive Summary

With Fintech's emerging integration into the financial sector, regulators and institutions are confronted with a highly challenging ecosystem that requires accountability, yet must consider unknown risks associated with new digital developments, strong peer group competition and customer protection. While traditionally, the role of regulators has been to create policy and perform regulatory work, Fintech has accelerated the need for regulators to expand their traditional approval to incubation frameworks. Traditionally, financial center hubs that attract money through single large transactions or efficiency with customer protection are not enough to entice the next-generation of financial marketplace players. Regulatory sandboxes are thought to be platforms to help both ideate and develop new methodologies for institutions and regulators to confront this digital challenge. The Hong Kong Monetary Authority (HKMA) has launched a regulatory Sandbox. This paper focuses on the HKMA Sandbox, the conflicts amongst the different players and thoughts on how to guide the forum to a new level where all the needs of its constituents can be met.

Introduction

Fintech[1], has shown a strong increase in demand in recent years in the financial services industry. Much of the innovation has stemmed from technology developed first in other sectors and has been co-opted into the financial sector by interested actors. Technology improvements in portable devices, including mobile phones, have opened new possibilities for the financial services industry to develop Fintech products for their customer base; some innovations are adopted for reasons of operational efficiency, some for competitiveness and others for consumer demand. However, unless there is an evolution in the regulatory framework that takes these changes into account, collaboration between technology players and the financial sector will be narrow and limited.

Regulators were quick to act and to adopt an ecosystem model that allows for safe "try-fail-succeed" endeavors. With the overriding aim of projecting an air of stability and security to world markets, regulators created these ecosystems to develop fintech prototypes in "normal" market conditions without causing dramatic impact to customers and the market. This paper focuses on the Hong Kong Monetary Authority's (HKMA) Fintech Sandbox for Hong Kong's finance industry and how it needs to evolve to maximize value for all concerned.

Regulators seem to prefer using additional vehicles such as innovation hubs and accelerators to enhance the prestige of the ecosystems that they regulate. With the aim of providing transparency, fairness and security to the markets, unproven technologies are fraught with risk and cause concern amongst various stakeholders. Thus, an innovator in the financial services sector need to walk a tight line between the need to adopt and perfect untested technologies whilst addressing the concerns of the regulators; a journey often described as 'mission impossible'. Innovation requires freedom and risk taking to thrive; the antithesis of the traditional regulatory mindset. Leading financial companies tend to follow rather than make big bets in unproven technologies. These conflicts will be explored thoroughly in this paper.

[1] Fintech refers to the application of information technology and financial services, including such areas as digital payment and remittance, financial product investment and distribution platforms, peer-to-peer financing platforms, cybersecurity and data security technology, big data and data analytics, and distributed ledger application to new asset classes and processes (CB1/PL/FA, 2017).

How did the HKMA Fintech Supervisory Sandbox (FSS) come about?

In as early as March 2015, the Government of The Hong Kong S.A.R. (Government) established a Steering Group ("SG") for Financial Technologies (The Government of The Hong Kong S.A.R., 2015). The SG became the de facto entity in Hong Kong to encourage Authorized Institutions' ("AIs") use of Hong Kong to prototype and establish new business initiatives in fintech. Soon thereafter fintech subjects started to surface in discussions at the Hong Kong Legislative Council (Legco) where members (Legco, 2015) began to state their future aspiration goals for Hong Kong as a financial center.

The SG's recommendations[2] came in early 2016 and provided the necessary understanding to create a platform where ecosystem members, being AFI's, technology companies and limited numbers of customers can engage and prototype. The Cybersecurity Fortification Initiative (CFI), launched in May 2016 (The Hong Kong Monetary Authority (HKMA), 2016), highlighted that any up and coming digital innovation progress must include cybersecurity safety features.

Subsequently this led to the creation of the HKMA-Applied Science and Technology Research Institute (ASTRI) Fintech Innovation Hub[3] which came to life in September 2016. The objective of ASTRI was providing a "neutral place" for technology and financial sector companies to meet, collaborate and innovate. Simultaneously, the HKMA rolled out the FSS platform[4]. Both initiatives, ASTRI and FSS platforms, are the Hong Kong supervisory approach enabling innovation within Fintech space. The motivation for HKMA to create this new space lies clearly in the fact that global financial centers compete for high transaction volumes and service excellence. Service excellence includes efficiency, stability and low costs. As indicated in the introduction, the element of technology is a factor that needs consideration to meet the goal of high efficiency in markets; but high volumes at low cost needs to be analyzed for risk and the disruptive nature of new technology.

Technology is arguably the most difficult part of the financial center renewal process. Technology can make both front and back office work more efficiently, which puts pressure on the industry to re-deploy the large workforce maintaining legacy systems in Hong Kong. The need to consider how to deal with legacy systems is a factor for the financial services ecosystem to consider. Evolution in Fintech products and increased flow in new niche market entrants drive motivation for financial service industry to engage in technology optimization and the renewal process. However, current incentive structures within large organizations struggle to support bold moves including strategic thinking to drive solutions with long term benefits. Suppose we look at project management approach large companies widely adopt; key drivers are Process, Technology and People. However, changing mindsets and attitudes are major challenges followed by corporate culture. The latter is usually by default a culture that maintains and delivers within set parameters and will not challenge its own role. This corporate culture pre-condition requires to be recognized and needs change to enable next generation platforms within financial service companies.

2 (The Government of The Hong Kong S.A.R., 2016)

3 (The Hong Kong Monetary Authority (HKMA), 2016)

4 (The Hong Kong Monetary Authority (HKMA), 2016)

Three-Tier versus Two-Tier Model Approach and Hong Kong's Challenge To Adopt A Three-Tier Model

The multi-tier approach outlined in the BIS Consultative Document on Sound Practice: Implications of fintech developments for banks and bank supervisors highlights the structure and dynamics of complexity that fintech brings into the ecosystem of banks and supervisors, but also the adopted tools to support fintech developments and providing adequate industry support.

The three-tier model can be used by financial centers that are governed by one entity in their entirety. There is a fundamental difference between the HKMA and other central banks. The HKMA is dedicated to managing the Exchange Fund yet other central banking functions have been carried out by commercial banks in the past. The objective of Hong Kong regulators is to maintain Hong Kong's status as a global financial center that meets international standards and applies necessary regulations. Hong Kong splits this task into two supervisors: The HKMA and the Securities and Futures Commission (SFC), whereby the HKMA is regulating and supervising Authorized Institutions (AI's) and the SFC is regulating and supervising non-AI Companies conducting SFC-regulated activities. Insurance and Non-Deposit taking institutions are separately managed. This split makes the pivotal approach to a three-tiered model outlined by the BIS unfeasible.

Graph 10: Jurisdictions' initiatives to facilitate innovation

	Innovation facilitators		
	Innovation hub	Accelerator	Regulatory sandbox
	A place to meet and exchange ideas	"Boot-camp" for start-ups, culminating in a pitch presentation	Testing in a controlled environment, with tailored policy options
Australia	ASIC	ASIC	ASIC
Belgium	NBB/FSMA		
ECB	SSM[31]		
France	ACPR/AMF	BDF	
Germany	BaFin		
Italy	BOI		
Hong Kong	HKMA		HKMA
Japan	BoJ/FSA		
Korea	FSC		FSC
Luxembourg	CSSF		
Netherlands	DNB/AFM		DNB/AFM
Singapore	MAS	MAS	MAS
Switzerland	FINMA		FINMA
UK	BOE/FCA	BOE	FCA[32]

Source: BCBS-FSB survey.

The HKMA stopped short of having a three-tier Fintech innovation model[5] which includes an accelerator for start-ups to pitch products. Using Graph 10, "Jurisdiction's initiatives to facilitate innovation"[6] as a ranking indicator on the level of support to the Fintech community, Hong Kong scores 'Medium' due to the lack of an accelerator that strengthens support for innovation.

According to the HKMA[7], as of September 15, 2017, there are a total of 22 cases of prototype trials of nine banks: including digital topics in biometric authentication, application programming interface (API) service, chatbots, soft token, notification service via social media platforms, and distributed ledger technologies. Among these 22 cases, 11 prototype cases have been completed and pushed into the market.

HKMA FSS operating Principles

The HKMA sets forth three main principles that need to be followed diligently and with care.

The HKMA circular[8] discusses the operating principles of the financial sandbox yet highlights that its intended use is for Authorized Institutions ("**AI**") only. It emphasizes that the FSS space must include policy-making requirements at all times. The HKMA is consistent in segregating its scope of work linked to the AI space. All non-AI companies that seek to operate in Fintech may need to conduct studies understanding the HKMA Code of Conduct and licensing requirements set forth by the Securities & Futures Commission (SFC) of Hong Kong. This dependency on established, naturally conservative, fast following AI's is the key that points to Hong Kong's' inability to be a hotbed of development of Fintech advances. There is some good work being done amongst AI's in Hong Kong, but none of it groundbreaking. These technologies include mobile payment services, biometric authentication, blockchain, robotics and augmented reality, but due to the concentrated number of AI's in Hong Kong, there is little pressure to compete for better solutions. In many ways, mediocrity is enough to survive.

5 (Bank For International Settlements (BIS), 2017)

6 (Bank For International Settlements (BIS), 2017)

7 (The Hong Kong Monetary Authority (HKMA), 2017)

8 (The Hong Kong Monetary Authority (HKMA), 2016)

AI's and their partnering technology companies can access the FSS space without separate membership arrangements[9]. Prototyping can happen within FSS space only and shall involve a small group of test subjects defined as staff members, focus groups or selected customers[10]. By enabling prototyping, the authority requires AI's to consider measures allowing HKMA to understand the scope and lifecycle of proposed prototypes with a clear understanding of the technologies and services involved. It may mean that the authority requires a "White Paper" prior the start date of the prototyping. The level of detail required for a "White Paper" is significant and needs efforts that surpass the capabilities of most startups in their initial stage. Applying this to AI space, it will move the focus of corporates to proven, known solutions that can be applied rather quickly. This will contrast efforts within the innovation space further towards buying solutions that are off-the-shelf. Some of the best ideas exist in companies that are not well funded.

HKMA's more traditional, cautious and proven-solution approach, which may include the writing of white papers prior to prototyping models, is not only out of sync with startup culture, it is behind the means of many startups and is largely seen (by them) as bureaucratic. Steps like this discourage startups from bringing their ideas to Hong Kong and to take them to other jurisdictions which are more start up friendly.

To the outside observer, after discussing the issues around fintech startups in Hong Kong, one might draw the conclusion that the local policy does not appreciate alternative models and the issues faced by startups. The closest rival, Singapore, has progressed by increasing connectivity between entrepreneurs, AI's and regulators through various initiatives.

The Circular[11] further outlines the requirement on customer protection measures to be segregated among selection and understanding of risks including a level of voluntary participation. The HKMA seeks clear descriptions of the complaint escalation process with compensation structure for prototype delivery failures and an option for test subjects to leave the prototyping space anytime. The clarity of adopted escalation triage helps to address concerns for early adopters yet it remains debatable if AI's can produce a space that not only validates a process or hypothesis for new products but one that excites and can rapidly scale beyond existing customer base.

The evolution of the FSS is highlighted further in its latest press release[12] on HKMA's launch of additional initiatives widening the scope of support to next-generation platforms within AI ecosystem. The main features of its latest efforts are focusing on payments, communication between AFI's and the HKMA, complete digital AI platforms, Application Programming Interfaces (API's) connecting technology companies to AI ecosystem, Cross-border integration systems on Distributed Ledger Technology (DLT) and fostering talent development in Fintech. These efforts are in line with fast-paced developments for innovation and common rapid prototyping approaches within technology industry.

HKMA FSS – When innovation matters

The fintech space is an ecosystem that is motivated by factors that are similar to other business segments: profit and return on investment. It covers more than just those areas of development that are common to most of the world's top sandboxes; mobile payment services, biometric authentication, blockchain, software robotics and augmented reality; but it's not about what could be next generation processes and tools, but rather about how AI's capture customer behavior including requirements and embed it into new products suiting customer needs. This is a challenge with fintech products for AI's as it is not only about adopting new technologies and having the right people to deliver them. The concern about delivering products with its core functions to quickly enable adoption is too short sighted. Fintech is about big data and this requires customer centric approach with specific care towards user privacy. Fintech will enable viral growth of customer base; however, privacy concerns require additional thoughts for AI's.

9 (The Hong Kong Monetary Authority (HKMA), 2017)

10 (The Hong Kong Monetary Authority (HKMA), 2016)

11 (The Hong Kong Monetary Authority (HKMA), 2016)

12 (The Hong Kong Monetary Authority (HKMA), 2017)

Fixing any shortfalls on privacy protection will be proven costly and may be underestimated. Based on the description of the current status of play in HK, one might reasonably conclude that fintech is not recognized as a standalone business but rather as an enabler, a module to solve for automation problems, efficiency and cost reduction or process improvement project. This is the key point where the HKMA is wrong in its approach, by treating fintech as a 'silo' enabler, it does not recognize the need for other factors that any business ecosystem needs to survive.

This thought process for outsourcing and offshoring to third-party vendors will lead to modular holding structures with strong product silos. What surfaces from the latest and encouraging efforts of market supervisors is the demand for due diligence prior to any product launch to gauge solid assessment towards risk, competency and target client adequacy. The question raised is to what extent the Authority will be using fintech tools to enhance their own effectiveness to supervise and develop the next generation of policies. Channeling business into silos and modules will help to reduce friction between AI's and supervisors to a great extent, but innovation may slip towards a biased and decidedly targeted approach. Technology development should be market driven and challenge existing norms with its pre-conditioned rule books.

Fintech does require a degree of innovation freedom and appetite for risk. However, the approach of most of Hong Kong's AI's is that of low-risk, 'late to the party' type innovation. One only needs to look at China to see the grand bargain made between technology companies with the Chinese Central Government: innovate and build technology, but remember to give us a key to control it for the sake of social stability and control.

How is Fintech different from other non-Fintech innovation? Motivation, Limits, Risk and Regulation.

To begin, one should explore the definition that is attached to Fintech by HKMA regulators. In Hong Kong, the purpose of the fintech industry is to develop ecosystem efficiency, processes and security. The truth of the matter is that the motivations for developing technologies in the fintech space, which in many cases have been used earlier in other non-fintech spaces, are similar to non-fintech spaces: profit, risk and return on investment. The HKMA makes four fatal mistakes in hitting its goal as a world financial innovation center: it fails to understand the basic attributes of the fintech environment; it overlays overly bureaucratic requirements (white papers) which discourage fintech innovators from working here; its two tier structure omits the crucial accelerator stage; and finally, by limiting use of the FSS to AI's it naturally creates a monopoly where there is little incentive to innovate. As a final aside, there is nothing to encourage AI's to get rid of their legacy systems and workforces. Market forces cannot do their work.

The agility of the technology sector towards innovation is not yet part of the AI DNA and will certainly require disruption in the AI ecosystem. It means that AI's rethink their legacy systems and develop an end-to-end platform that can scale with scarce resources. An optimal world would mean complete digitalization of workflow with products that can be compared by outcomes rather than track record. Supervisors should cater towards this innovation freedom by enabling their own thought process and best practices for building tools and capabilities for next generation supervisory efficiency. This may mean investing in their own innovation centers that build on nurturing academic talents across disciplines. It could also mean that Supervisors challenge existing AI members' approach towards risk footprints and may enable a re-think towards how supervisors channel economic policy decisions through monetary adjustments to their economies.

Real innovation lies in an authority's approach that generates a platform that can compete with other financial markets in their pursuit of innovation and which balances the need for security and stability with those untried, entrepreneurial aspects of the fintech world. It is the try-fail-succeed approach favored by fintech champion jurisdictions such as Singapore that offers the extraordinary competitive edge, while meeting regulators' requirements to move beyond the existing norm and innovate through to a successful tomorrow.

Bibliography

The Government of The Hong Kong S.A.R. (2015, March 30). *Press Releases*. Retrieved from info.gov.hk: http://www.info.gov.hk/gia/general/201503/30/P201503300535.htm

Legco. (2015, June 10). *Official Record of Proceedings*. Retrieved from Legco: http://www.legco.gov.hk/yr14-15/english/counmtg/hansard/cm20150610-translate-e.pdf

CB1/PL/FA. (2017, April 18). *Panel on Financial Affairs*. Retrieved from Legislative Council: http://www.legco.gov.hk/yr16-17/english/panels/fa/papers/fa20170418cb1-777-4-e.pdf

The Government of The Hong Kong S.A.R. (2016, February 26). *Press Release*. Retrieved from info.gov.hi: http://www.info.gov.hk/gia/general/201602/26/P201602260497.htm

The Hong Kong Monetary Authority (HKMA). (2016, September 6). *Financial Infrastructure*. Retrieved from HKMA: http://www.hkma.gov.hk/media/eng/doc/key-functions/finanical-infrastructure/20160906e1-ai.pdf

The Hong Kong Monetary Authority (HKMA). (2016, September 6). *Guidelines and Circular*. Retrieved from hkma.gov.hk: http://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2016/20160906e1.pdf

The Hong Kong Monetary Authority (HKMA). (2016, May 24). *Cybersecurity Fortification Initiative*. Retrieved from hkma.gov.hk: http://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2016/20160524e1.pdf

The Hong Kong Monetary Authority (HKMA). (2017, September 25). e-Mail, HKMA Fintech Supervisory Sandbox. Hong Kong: e-mail.

Bank For International Settlements (BIS). (2017, August). *Sound Practices: Implications of fintech developments for banks and bank supervisors*. Retrieved from publications: http://www.bis.org/bcbs/publ/d415.pdf

The Hong Kong Monetary Authority (HKMA). (2016, September 6). *Guidlines and Circular*. Retrieved from Fintech Supervisory Sandbox (FSS): http://www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2016/20160906e1.pdf

The Hong Kong Monetary Authority (HKMA). (2017, September 29). *A New Era of Smart Banking*. Retrieved September 29, 2017, from http://www.hkma.gov.hk/eng/key-information/press-releases/2017/20170929-3.shtml

Fintech News Hong Kong. (2017, June 26). *Fintech News Hong Kong*. Retrieved from Fintech in Hong Kong 2017 Startup and Ecosystem Report and Infographic: http://fintechnews.hk/1503/various/fintech-in-hong-kong-startup-and-ecosystem-report-and-infographic/