

Ravi Menon: Can the three musketeers click? Finance, technology, trust

Speech by Mr Ravi Menon, Managing Director of the Monetary Authority of Singapore, at the Bank of France Lecture, Paris, 14 May 2019.

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Mr François Villeroy de Galhau, Governor, Banque de France,
distinguished guests, ladies and gentlemen, good morning.

I thank Banque de France for the opportunity to share my thoughts at this Lecture.

Both France and Singapore are mature economies, enjoying a high per capita income but reaching the limits of growth through increases in factor inputs.

- ♦ If we are to continue growing and enrich the lives of our citizens, it must be through innovation.
- ♦ And if we are to spread the benefits of growth, innovation must be pervasive and not the exclusive preserve of the talented or well-endowed.

Innovation is not a zero-sum game. It thrives on diversity, collaboration, and openness.

- ♦ There is much we can learn from each other.
- ♦ France and Singapore have been deepening collaboration in areas such as finance, science, and technology.
- ♦ 2018 was designated as the France-Singapore Year of Innovation.

Today, I want to focus on innovation in financial services. Globally, the financial industry is facing slower economic growth, tighter regulation, and keener competition.

- ♦ To overcome these headwinds and contribute to the broader economy, the industry needs to harness technology, foster innovation, and transform itself.
- ♦ But how to do this, while maintaining the single most important commodity that underpins financial institutions – *trust*.

As Stephen Covey said: “*Strength lies in differences, not in similarities*”. This principle is embodied in the French novel “*The Three Musketeers*” by Alexandre Dumas.

- ♦ Set in the 17th century, the novel recounts the journey of D’Artagnan, who left for Paris to join the Musketeers of the Guard, and how he overcomes all adversities.
- ♦ Together with him are three musketeers with contrasting personalities:
 - ♦ Athos who is intelligent;
 - ♦ Porthos who is adventurous; and
 - ♦ Aramis who is true and faithful.
- ♦ But together they form a well-balanced trio that supports D’Artagnan on his journey.

The three musketeers today are Finance, Technology, and Trust, corresponding to Athos, Porthos, and Aramis. Society is D’Artagnan.

- ♦ Can the three modern musketeers work together to support Society?
- ♦ Can they complement one another? Can they click?

Finance – the Astute Musketeer Losing Appeal

Let me introduce the first musketeer – Finance.

Like Athos, Finance is wise but can be complicated, and to some extent, mysterious and non-accessible to many people. As a result, Finance – at least in its traditional form – is losing its appeal.

- ♦ Consumers find that banks' processes are too cumbersome to navigate.
- ♦ They are increasingly looking to technology firms for their needs.
- ♦ Some of them are even losing trust in the ability of banks to act in their interest.

Bill Gates once said: “*People need banking, not banks*”. It is a reminder that, to survive, Finance needs to be intuitive, innovative and customer-centric.

Technology – the Musketeer who can Transform Finance

This is where the second musketeer – Technology – comes in.

Technology is akin to Porthos, the fearless musketeer who is eager to try new ways for a better future. In a similar vein, Technology presents us opportunities to revitalise Finance:

- ♦ the opportunity to enhance customer experience;
- ♦ the opportunity to strengthen risk management; and
- ♦ the opportunity to improve cost efficiency.

Let me elaborate on each of these opportunities.

First, ***enhancing customer experience***. This has become a critical success factor in many industries, including finance. Why?

Basically, technology firms have reshaped the way businesses interact with customers.

- ♦ They have empowered customers and set higher bars for customer satisfaction.
- ♦ Whether they are established Big Tech firms or small FinTech start-ups, they pose a competitive challenge to financial institutions.

If I have to name one thing these technology firms do very well, much better than financial institutions, it would be that they are obsessively *customer-centric*.

Tech firms embed themselves in the customer journey and use data analytics to deeply understand customer needs.

- ♦ They then provide end-to-end solutions, often customised to individual circumstances.
- ♦ They have agile IT systems, efficient processes, and a culture that emphasises speed.
- ♦ Essentially, tech firms think of themselves not as being in a particular industry, but as *platforms*, upon which they provide access to the services their customers need.

Traditional banks tend to be largely product-centric.

- ♦ The credit card division tries to sell you unsecured credit, the wealth management division tries to sell you mutual funds, the lending division tries to sell you a mortgage.
- ♦ They start with the product and try to persuade the customer why their product is good for him.

- ♦ Many banks do not have a complete picture of their customers.
- ♦ They are weighed down by legacy IT systems and bureaucratic processes.

But several banks are stepping up to the challenge. Athos is learning from Porthos.

- ♦ Banks are investing heavily in technology to optimise their operations and enhance their systems.
- ♦ They are collaborating with technology firms to accelerate the pace of innovation.
- ♦ They are becoming more customer-centric.

These banks are using technology to provide *customised* solutions, *complete* solutions, and *seamless* solutions.

First, *customised* solutions to suit the individual needs and characteristics of the customer.

Some banks are experimenting with personalised products and services, not just based on what the customer asks for but by anticipating what the customer might need.

- ♦ Commonwealth Bank of Australia's mobile app is using behavioural science to provide customers with financial management advice based on their spending patterns and financial goals.

Some banks are offering personalised interactions at every customer touchpoint.

- ♦ Royal Bank of Canada has enabled its customers to pay their bills on the mobile app via speech and voice recognition.

Second, *complete* solutions that are based on the total picture of the customer.

Today's customers are more sophisticated and want holistic solutions.

- ♦ In a survey of 10,000 tech-savvy customers, Accenture found that 80% of them want integrated solutions that address both their financial and non-financial needs.
- ♦ Financial needs are really driven by non-financial desires. People do not desire a housing loan or a fire insurance policy. People desire a house.

To provide complete, holistic solutions, you need comprehensive *customer data* and you need a deep understanding of the *customer* journey.

The *customer data* that most banks have are simply not sufficient to develop a good understanding of the financial situation or needs of their customers.

- ♦ Customers have multiple relationships, with deposits and loans, investments, insurance policies, and retirement plans, spread across many financial institutions.
- ♦ How many financial institutions advising a customer have a complete picture of the customer's balance sheet – all his assets and liabilities?

Some banks have started to offer aggregator services which consolidate financial information such as bank accounts, credit cards, loans, and investments from all the financial institutions serving their customers.

- ♦ This allows financial institutions to provide holistic financial planning.
- ♦ BBVA provides its corporate customers with a consolidated view of all their financial information from about 90 financial institutions.

Next, understanding the *customer journey*.

Some banks have begun to offer their corporate customers complete, end-to-end solutions, based on a keen understanding of their customers' work processes.

- ♦ United Overseas Bank in Singapore provides its corporate customers an integrated digital platform that enables the customer to:
 - ♦ generate purchase orders and invoices with a few clicks;
 - ♦ streamline its payroll process; and
 - ♦ get up-to-date views of its financials.

Some banks are positioning themselves as partners with their customers on their life journey, integrating their financial and non-financial needs.

- ♦ DBS Bank in Singapore provides its customers looking to buy a car an online portal that enables them to calculate their budget, find an affordable car, connect with the seller, get a car loan, and finally purchase a car insurance.

Third, banks are using technology to provide *seamless* solutions. This means resolving bottlenecks and providing customers with a frictionless experience.

This means using technology to resolve bottlenecks in processes to provide customers with a frictionless experience.

- ♦ Banks such as BBVA, Mitsubishi UFJ, and BNP Paribas are using blockchain technology for syndicated loans.
- ♦ It improves efficiency.
 - ♦ Each step of the loan process, from credit underwriting to credit administration, is documented in the distributed ledger, thereby eliminating the need for duplicative back office processing.
 - ♦ The loan process is shortened from about two weeks to two days.
- ♦ It also improves trust.
 - ♦ Every record in the distributed ledger has a user code and time stamp.
 - ♦ This creates an audit trail, leading to higher level of trust among the participants.

Let me share two initiatives from the Singapore financial sector, which show that achieving a seamless customer experience often requires *collaboration across institutions and interoperability across systems*.

The two key ingredients for a digital transaction are *identity* authentication and secure *payments*. The Singapore government worked closely with the industry to make the customer experience seamless in these two areas.

First, seamless identity authentication through *MyInfo*.

- ♦ MyInfo is a government digital service that enables Singapore residents to authorise third-parties to access their personal data residing across different government agencies through APIs.
- ♦ This means that, with the consent of the customer, banks can use the MyInfo service for more efficient KYC using government-verified personal data.

I can now open a bank account or obtain a credit card – online and instantly – when I give consent to my bank to access my data through MyInfo.

- ♦ Customers do not need to go through the tedious process of filling up forms and providing hardcopy documents to banks for verification. And they certainly don't need to go to the bank branch.
- ♦ Banks benefit from higher productivity and better risk management.

Second, secure and seamless payments through *PayNow*.

- ♦ PayNow was jointly developed by MAS and the banking industry.
- ♦ It enables individuals and businesses to transfer funds using just the personal ID number or mobile phone number or unique entity number of their recipients.
- ♦ It operates 24-by-7 and funds can be transferred directly from one bank account to another in real-time.
- ♦ I can now send money to my friend in just three clicks on my smart phone – all I need to know is his mobile number.

Business users of PayNow can generate a QR code containing their unique entity number.

- ♦ This means I can now pay my utilities provider, telephone company, or plumber by simply scanning their QR code using my smart phone and keying in the amount to be transferred.

Let me now move on to the second way in which Technology can benefit Finance – ***strengthening risk management***.

Risk management and compliance have become major cost drivers in financial institutions since the global financial crisis.

- ♦ Processes have become slower and more cumbersome.
- ♦ The answer does not lie in lowering regulatory requirements or risk management standards. We know from 2008 what that can lead to.
- ♦ Instead, financial institutions should harness technology to make risk management and compliance more efficient and effective.

Technology can improve the efficiency of risk management.

- ♦ JP Morgan is using machine learning to review loan contracts. This reduces the review time from 360,000 man-hours to seconds. It also minimises human errors.
- ♦ OCBC Bank in Singapore is using machine learning to monitor customer transactions real-time and across multiple channels. This allows the bank to identify fraudulent fund transfers and take more timely actions to recover the funds.

Technology can make risk management less passive and more predictive by harnessing the informational value of data.

- ♦ Ping An Insurance has developed a system that detects whether a banking customer is lying about the reason for borrowing money.
 - ♦ It is based on subtle changes in customers' facial expressions, with the analytical algorithm based on 30,000 videos of real lending cases.
 - ♦ According to Ping An, this has helped to reduce credit losses by 60%.
- ♦ Blackrock and Rhodium are using data analytics to assess the risks of climate change to assets such as mortgage backed securities under different scenarios.

We have not tapped on the full potential of new technologies.

- ♦ Research by IBM has found that quantum computing algorithms can compute the risk of an investment portfolio near real-time.
- ♦ This is a significant reduction from the present Monte Carlo simulation approach which can take days.

The third big opportunity that Technology offers Finance is ***improving cost-efficiency***.

This is particularly relevant for banks – saddled with the high costs of maintaining extensive branch networks and deterred from entering new markets or reaching underserved segments of the population because the cost of setting up branches is too high.

Technology is changing this in two ways.

First, the use of digital platforms to quickly and cheaply acquire customers.

- ♦ The ubiquity of the Internet combined with the proliferation of the smart phone has helped to slash the cost of acquiring a customer.
- ♦ According to research by Oliver Wyman, it costs about \$30 to acquire an online banking customer compared to \$150 using offline channels.
- ♦ Basically, the smart phone is replacing the bank branch.

Non-bank players have led the way in digital banking.

In the UK, we have seen a proliferation of so-called “neo-banks” – basically non-bank start-ups who have obtained licenses to do banking business without physical branches.

- ♦ Starling has opened 520,000 personal accounts since getting a banking license in 2016.
- ♦ Monzo has opened 1.6 million accounts, adding 30,000 each week.
 - ♦ Monzo’s customers can connect their accounts to 600 different apps and services, and create rules to integrate banking into their daily lives.
 - ♦ For example, users can create a rule that automatically logs calories to the health app on their mobile phone whenever they purchase coffee.

But banks can also play the same game, and more of them are doing it.

DBS Bank from Singapore launched a “digi-bank” in India two years ago and has already garnered 2.5 million customers.

- ♦ Digibank is using artificial intelligence to learn customers’ spending habits and will prompt them if they are overspending, or provide relevant marketing offers such as coffee vouchers for a caffeine-lover.
- ♦ Maybe we should combine the DBS Bank app and the Monzo app to achieve a more balanced intake of coffee!

United Overseas Bank from Singapore has just launched in Thailand a digital-only bank TMRW (pronounced “tomorrow”) aimed at millennials.

- ♦ It comes complete with an “engagement lab” using behavioural insights to study customer’s banking habits and needs.
- ♦ TMRW’s mobile app features a game designed to encourage their customers to save more.

In Hong Kong, the regulator has given out licenses to 8 virtual banks to acquire and deliver banking services through the Internet.

- ♦ The take-up numbers are interesting; they indicate the competition emerging in the space of digital banking.
- ♦ Out of the 8 virtual banks, 5 are non-banks but 3 are backed by banks.

But the second and potentially more powerful way in which technology is helping to drive down the cost of financial intermediation is through *partnerships* between financial institutions and FinTech firms.

- ♦ Soc-Gén is working with TagPay to provide mobile banking in Africa through a cloud-based platform that is compatible with any mobile phone.
- ♦ AXA is working with MicroEnsure to offer simple and affordable insurance products to customers across Asia and Africa.

By helping to reduce customer acquisition costs, these collaborations have helped to serve a larger social purpose – enhancing financial inclusion and expanding opportunity. But there is a lot more we need to do.

- ♦ There are about 1.7 billion adults globally who are unbanked.
- ♦ In the ten ASEAN countries of Southeast Asia, half the adult population is unbanked.
- ♦ This is a shame. The ASEAN countries have a burgeoning middle class and increasingly modern infrastructure, yet so many do not have access to a bank account, secure and affordable payments, or insurance protection.
- ♦ Banks and insurers face high costs in reaching out to customers in remote areas.

We need to take collaboration between financial institutions and FinTech firms to a much broader level – through platforms for innovation and inclusion.

This is why the MAS, the ASEAN Bankers Association, and the World Bank's International Finance Corporation have teamed up to establish the ASEAN Financial Innovation Network, or AFIN in short.

AFIN aims to bring banks and FinTech firms from across the world to develop innovative solutions to penetrate hard-to-reach markets in a cost efficient way.

- ♦ Last year, AFIN launched the API eXchange – the world's first cross-border, open architecture platform to enhance financial inclusion.
- ♦ The API eXchange is a cloud-based platform that does two things:
 - ♦ It is a *marketplace*, enabling financial institutions to discover and connect with FinTech partners through APIs on a globally curated platform.
 - ♦ It also provides a *sandbox* environment for financial institutions and FinTech firms to design and test cross-border solutions.

I have spoken so far of how the two musketeers – Finance and Technology – can and must come together to bring value and convenience to customers. But for consumers to be part of this ecosystem, there needs to be Trust – the third musketeer.

Trust – the Musketeer who Binds Consumers to Finance

Trust is similar to Aramis, the third musketeer who is faithful and values friendship.

Trust is a key attribute for the success of a financial ecosystem.

- ♦ It is a shared responsibility among all the actors in the ecosystem.
- ♦ Banks in particular must be trustworthy so that customers have faith that their money and

data are safe with them.

As Finance adopts more Technology, it must pay close attention to three risks, so as to maintain the Trust of consumers.

First, **cyber risk**.

As more financial services move online and collaboration among banks and technology companies becomes more pervasive, a growing risk that financial institutions are facing is in cyber space.

- ♦ The frequency, scale, and complexity of cyber-attacks are mounting.
- ♦ Attackers can carry out sophisticated and prolonged attacks that can be difficult to identify and defend against.
- ♦ According to a study by FireEye, the median time it takes to detect a cyber intrusion is 78 days.

We need some *common risk management standards* in cyber defence.

- ♦ The risk management systems in financial institutions and regulatory and supervisory frameworks for cyber resilience are uneven and still evolving.
- ♦ There is no international equivalent of the Basel Capital Accord in cyber risk management.
- ♦ But given the clear and present danger that cyber risk poses, MAS has put in place a mix of mandatory requirements and best practice guidelines in this area.

Given their role as repositories of public monies and conduits for payments, banks in particular must meet higher cyber security standards. MAS expects banks to:

- ♦ limit unscheduled system downtime of their critical IT systems to not more than 4 hours within a year;
- ♦ conduct due diligence on third-party service providers' controls to safeguard customer information; and
- ♦ report all significant cyber incidents to MAS within one hour.

But cyber risk management should go beyond banks.

- ♦ The connectedness among participants in the financial system means that a cyber-attack on one party can potentially escalate into a more systemic problem.
- ♦ We need to level up the cyber resilience of *all* financial institutions, not necessarily to the level of banks but at least to a basic level – what we call *cyber hygiene*.
- ♦ Research has shown that the majority of cyber incidents can be avoided if some simple cyber hygiene practices are adopted.

MAS will soon issue a set of mandatory requirements on cyber hygiene that will apply to all financial institutions in Singapore. They include basic things like:

- ♦ securing administrative accounts;
- ♦ controlling network access at the perimeter;
- ♦ installing security patches promptly;
- ♦ installing anti-virus software on their systems; and
- ♦ implementing multi-factor authentication for users who access confidential information over the Internet.

In short, if we don't get cyber security right, financial institutions will be constrained in how much they can leverage on technology.

The second area financial institutions must address to ensure customer confidence is **information security risk**.

Information security is not the same as cyber security.

- ♦ Information security is focused on protecting data, while cyber security is focused on protecting systems.
- ♦ They are however closely related.
- ♦ Data leaks can occur when a system is not properly secured.

In the financial ecosystem, information security risk is growing for two key reasons:

- ♦ One, more data are becoming digitised.
 - ♦ The International Data Corporation has estimated that digital data will increase fivefold from 2018 to 2025.
- ♦ Two, as banks begin to collaborate with FinTech and BigTech players, customer data that was traditionally within the inner sanctum of banks will increasingly be shared with third party service providers.

Banks have to exercise care for the data they hold, as well as those that they have shared with third parties. This means:

- ♦ understanding at a granular level the data that are held, processed or shared;
- ♦ assessing the criticality and sensitivity of all data sets;
- ♦ putting in place targeted measures to safeguard data; and
- ♦ taking swift recovery measures in the event of a data breach.

Besides their personal health data, people regard their personal financial data as most sensitive. Financial institutions have a particular responsibility to safeguard this data.

The third area to watch closely is **risk from the misuse of data analytics and artificial intelligence**.

Data analytics and artificial intelligence can help to uncover patterns which we are unaware of and to provide insights that we could not have gained from traditional analytical tools.

But unless there is public trust that data analytics and artificial intelligence will be used responsibly, financial institutions will not get the social license they need to apply these technologies widely.

To gain this trust, we must address four areas in data analytics and artificial intelligence:

- ♦ *Privacy of data*. How do we safeguard the confidentiality of personal data?
- ♦ *Explainability of results*. How do we minimise the "black box" syndrome?
- ♦ *Accountability for decisions*. How can we hold humans ultimately responsible for decisions made by self-learning machines?
- ♦ *Acceptability of outcomes*. How do we minimise unconscious bias, social exclusion, and ethically unacceptable consequences?

MAS has co-created with the financial industry in Singapore a set of preliminary principles to

guide the responsible use of data analytics and artificial intelligence in financial services.

- ♦ The Principles are centred on four pillars – *fairness*, *ethics*, *accountability*, and *transparency*. Hence, the short-hand name FEAT Principles.
- ♦ They are not prescriptive but represent an industry consensus that individual financial institutions take reference from when formulating their own data governance policies and practices.
- ♦ We believe that the FEAT Principles will help to promote public confidence and trust in the use of data analytics and artificial intelligence in our financial sector.

Conclusion

Let me conclude.

Technology and Finance must come together. And they must do so in a manner that maintains Trust.

Finance, Technology and Trust are like the three musketeers of old.

- ♦ Like Athos, Finance allocates resources to those who need it.
- ♦ Like Porthos, Technology represents the aspiration for Finance to innovate.
- ♦ Like Aramis, Trust engenders confidence in Finance.

The motto of the three musketeers is: *“Tous pour un, Un pour tous”* – *“One for all, All for one”*.

- ♦ If Finance, Technology, and Trust can do the same, we can have innovation and dynamism with safety and stability.
- ♦ We can benefit not only the financial industry, but society at large.
- ♦ We can raise productivity, expand opportunity, and enrich the lives of our people.

Thank you.