

How fintech ideas can solve big credit woes of small companies

Government-backed research institute designs credit-scoring framework to help city's businesses access funds

New technology is helping address some of the problems small companies face in obtaining loans thanks to the Hong Kong Applied Science and Technology Research Institute (ASTRI).

Micro, small and medium-sized enterprises (MSMEs) play an important role in Hong Kong's economy, making up 98 per cent of business units and accounting for 45 per cent of employment in the private sector.

Yet when it comes to borrowing money, MSMEs often struggle to provide the information and documentation banks need to assess their creditworthiness.

"More often than not, SMEs don't have the cleanest of books," says Hugh Chow, CEO of ASTRI, which was set up by the Hong Kong government in 2000 to enhance the competitiveness of the city's technology-based industries.

"They have a lot of offline and cash-based transactions and that puts them at a disadvantage."

Florian Spiegl, co-founder and chief operating officer at FinFabrik—a fintech start-up that creates software and services for institutions to connect asset issuers and investors – says start-ups struggle to get loans as they do not typically fit lenders' frameworks.

"We quickly learned the conversation stops once banks realise they are talking to a start-up," he says.

Spiegl believes it would be helpful if banks could use alternative sources of data in their lending assessments for MSMEs, which cannot prove creditworthiness in other ways.

"This would offer a different angle on risk and creditworthiness that more accurately reflects the company's economic situation," he says.

Eddie Yue, Chief Executive of the Hong Kong Monetary Authority (HKMA), says that it is a global phenomenon that smaller businesses often find it challenging to access finance.

"SMEs play an important role in the economy," he says. "Fintech is believed to be an essential tool to help expand SMEs' access to credit by lowering costs and better managing the credit risks.

"Hong Kong is well positioned to drive fintech development given the support from the industry and society as a whole."

To encourage banks to adopt fintech innovation when performing credit assessment, the HKMA has been using various approaches including issuance of circulars to provide guidance to the banking industry on the use of artificial intelligence on credit underwriting.

ASTRI is also identifying alternative sources of information to assess the creditworthiness of SMEs, such as cash flow, point-of-sale transaction records, utility bill payments and even information from online accounting software programs.

It is also exploring the possibility of enabling banks to access this information through an Open Application Programming Interface (API), making it easier to exchange information and execute instructions from different computer systems.

"Banks have very sophisticated tools and formulas to calculate creditworthiness," Chow says.

"We can help banks get access to information quicker. For an SME that is in distress, a day saved is very important."

He says one challenge of creating such a system is ensuring it is secure and that no information about a person or company is shared without consent.

To encourage the development and wider adoption of Open API by the industry, the HKMA introduced Open API Framework for the Banking Sector in July 2018.



SMEs are at a disadvantage when it comes to accessing credit they need to grow. Photo: Shutterstock



Fintech can help expand SMEs' access to credit by lowering costs and better managing the credit risks

Eddie Yue
Chief Executive, Hong Kong Monetary Authority

It is currently being used by 20 retail banks with over 800 Open APIs providing details of their products and supporting product applications. In time, it will enable customers' account information to be shared with their consent, enabling transactions to be carried out and driving product innovation in the banking sector, which can potentially facilitate loan applications.

Another potentially game-changing development is the entrance of virtual banks, with banking licenses granted to eight virtual banks by the HKMA last year.

As of mid-June, two virtual banks have officially begun operations and four others are conducting pilot trials of their services in the HKMA's Fintech Supervisory Sandbox. The remaining two virtual banks are completing the necessary preparatory work with a view to offering services to the public as soon as practicable.



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"The HKMA encourages the development of virtual banks and expects new forms of banking services can offer a new kind of customer experience." Yue says.

"Looking ahead, digitalisation is a means of enhancing financial inclusion for the underserved SMEs in Hong Kong. By nature, virtual banks tend to place an emphasis on adopting technology to provide banking services including loans, and we expect they will facilitate financial innovation as well as SMEs' access to finance."

Rockson Hsu, CEO of Hong Kong's first virtual bank, ZA Bank, believes alternative data could be useful in helping banks make lending decisions.

He says that for certain types of SMEs, electricity bill records not only enable lenders to see that firms have a good payment history, but fluctuations can help banks assess whether business is booming.

Such an assessment could be made easier by big data and AI. The HKMA recently issued specific guidance about these areas to allow banks to address the new risk management challenges involved.

"Data keeps changing," Hsu says. "Traditional banks will look at data annually, but by the time you get figures for sales and the fiscal year [ending] in December, it is March."

The alternative MSME credit framework is only one of many areas in which ASTRI is currently working to improve the banking system.

As the city's premier technology research institute, it is also looking at ways to boost security by improving customer authentication and has developed a system that enables consumers to be identified through their palm print and the veins in their hands.

"Something that really sets us apart here at ASTRI is that we do applied research," Chow says.

"We don't do research for the sake of doing research, we do it to solve a real industry problem or societal problem."

How banks better prepare for countering cyberattacks

Banks are enhancing their cybersecurity by sharing information with the support of Hong Kong Applied Science and Technology Research Institute (ASTRI).

The Hong Kong Association of Banks asked the research and development centre for technology-based industries to build the Cyber Intelligence Sharing Platform, which enables the licensed banks to share intelligence about cybersecurity risks and their experiences of preventing hacking attempts.

It also connects the banks to real-time information about the latest cyber threats provided by intelligence bodies, which enables them to prepare better for potential attacks.

The platform – initiated by the HKMA and supported by the Hong Kong Association of Banks – is one of the three pillars of the HKMA's Cybersecurity Fortification Initiative designed to enhance the resilience of the banking industry against cyber attacks.

A key challenge that ASTRI faced in creating the platform was to ensure that it was secure, so that banks would have the confidence to use it for sharing information with their peers.

Dr Andrew Wat, ASTRI's director in cybersecurity and analytics, says: "We had to pay special attention to requirements like two-factor authentication, end-to-end encryption, anonymous posting, the security of data at rest, intelligence exchange protocols and regulatory requirements."

Before the platform's launch it also underwent an external security audit, he says.

More than 160 of Hong Kong's licensed banks have joined the platform since it was launched two years ago.

Lucas Hui, ASTRI's chief technology officer, says the fact that ASTRI remains neutral and impartial helped encourage banks to use the platform.

"We provided timely technology information to the banks to help them fulfil their needs and regulatory requirements," he says.

Besides the banking industry, ASTRI also shares its own research on cyberattacks and information from its CyberSecurity Special Interest Group with professionals in town, Hui says.

"Sharing information helps to protect the whole community," he says.