

Implementation of a Faster Payment System in Hong Kong

by Financial Infrastructure Department

Retail payment services around the world have undergone rapid changes recently, partly driven by the evolution of advanced technology and partly by the emerging need of banks and non-bank payment service providers in response to the increasing demand and expectation from end-users for more convenient and efficient retail payment services. Among other developments, the implementation of a faster payment system has evolved as a global trend in major economies.

Introduction

Throughout the years, the HKMA has been collaborating with the banking sector and the payment industry to enhance retail payment services. Major developments include the implementation of the Electronic Bill Presentment and Payment platform in 2013 and the introduction of e-Cheque in 2015. Following the implementation of the Payment Systems and Stored Value Facilities Ordinance (PSSVFO) (Cap. 584) in 2016, providers of stored value facilities (SVFs) have brought a variety of innovative products and services to the market. Despite these developments, there is always room for further enhancing payment efficiency in smaller-value payments. For example, smaller-value fund transfers across different banks often take a day or so to complete; there are only limited top-up channels from bank accounts to SVF e-wallets, while transfers between e-wallets are not possible. This reflects the underlying issue of the lack of a common platform open to all payment service providers.

In light of this, the HKMA considered it necessary to initiate the development of a Faster Payment System (FPS) in Hong Kong for full connectivity of digital

retail payments among users of banks and SVFs. The FPS is a payment financial infrastructure developed and operated by the Hong Kong Interbank Clearing Limited (HKICL). It enables immediate fund transfers and retail payments, providing end-users a safe, efficient and widely accessible retail payment service on a 24x7 basis in multiple currencies, including the Hong Kong dollar (HKD) and the renminbi (RMB) at launch. In particular, the FPS achieves the following objectives:

(i) **Improving payment convenience and efficiency in Hong Kong**

To enhance payment efficiency, the FPS enables end-users to make real-time payments with ease. It allows person-to-person (P2P) payments, person-to-business (P2B) and business-to-business (B2B) payments across banks or SVFs. On implementation, payers can also make payments to payees without the need to ask payees their bank account numbers. This can be achieved by simply using the mobile number or email address as the payee's identifier, provided the payee has registered their mobile number or email address with their banks or SVFs as the proxy account for receiving funds.

(ii) Promoting healthy competition and enhancing overall payment services in Hong Kong

To promote healthy competition between banks and non-banks, the FPS allows both banks and SVF licensees to participate in the FPS according to their business needs. It provides a level-playing field among participants, thus encouraging healthy competition through the introduction of value-added services such as mobile payments and e-commerce applications.

(iii) Strengthening financial stability in Hong Kong

To eliminate interbank settlement risk, the FPS is one of the first faster payment systems among all developed markets in the world in adopting a real-time gross settlement (RTGS) model. It enables real-time clearing and settlement of interbank payments, thus eliminating risks arising from accumulated credit exposure among participants.

Design of the Faster Payment System

The FPS encompasses a basic infrastructure which supports real-time credit transfers and direct debit functions, and other overlay services enabling value-

added functions such as an addressing service. This allows a payer to use the payee's bank account proxy, including mobile number and email address, to make a payment; and electronic direct debit authorisation (eDDA) which, for instance, enables users of SVF to link their bank accounts with the e-wallets for conducting e-commerce transactions or e-wallet top-up.

Accessible to banks and stored value facility licensees

Both banks and SVF licensees can join the FPS. In particular, all licensed banks in Hong Kong are required to be a settlement participant (SP) regardless of the kind of FPS functions they subscribe to. SPs can access both clearing and settlement facilities. Each SP has a currency-specific FPS ledger account for settlement purposes. The FPS ledger account and the RTGS ledger account together constitutes the settlement account each bank maintains with the corresponding settlement institution or clearing bank.

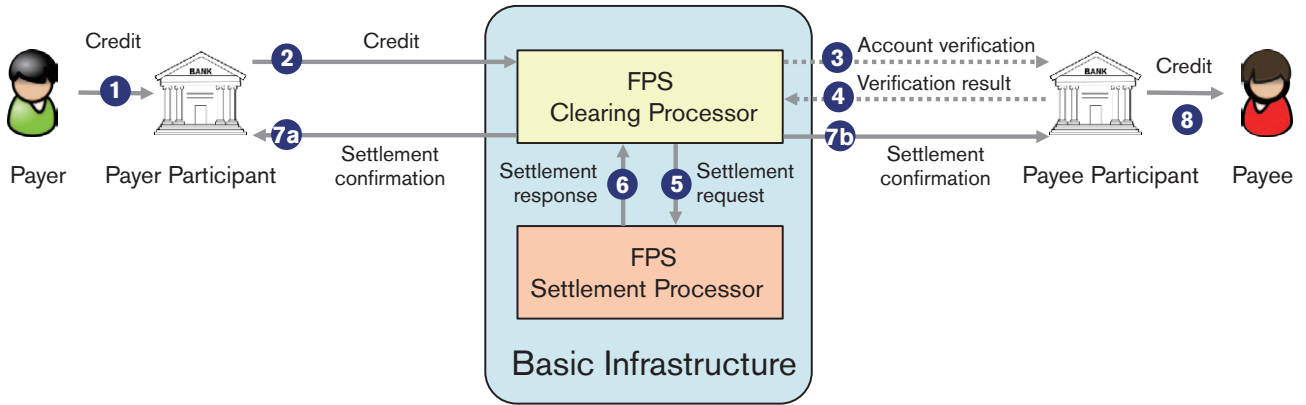
SVF licensees can join the FPS as clearing participants (CPs). As CPs can only access clearing facilities and do not maintain an FPS ledger account, they must engage an SP as their settlement service provider for each subscribed currency.

Real-time credit transfer

The convenience brought by FPS can be further extended to different types of credit transfer, such as P2P, B2B and person-to-merchant (P2M), allowing

banks and SVFs to develop different front-end applications to meet the needs of their customers.

The following diagram illustrates the typical process flow for a credit transfer:



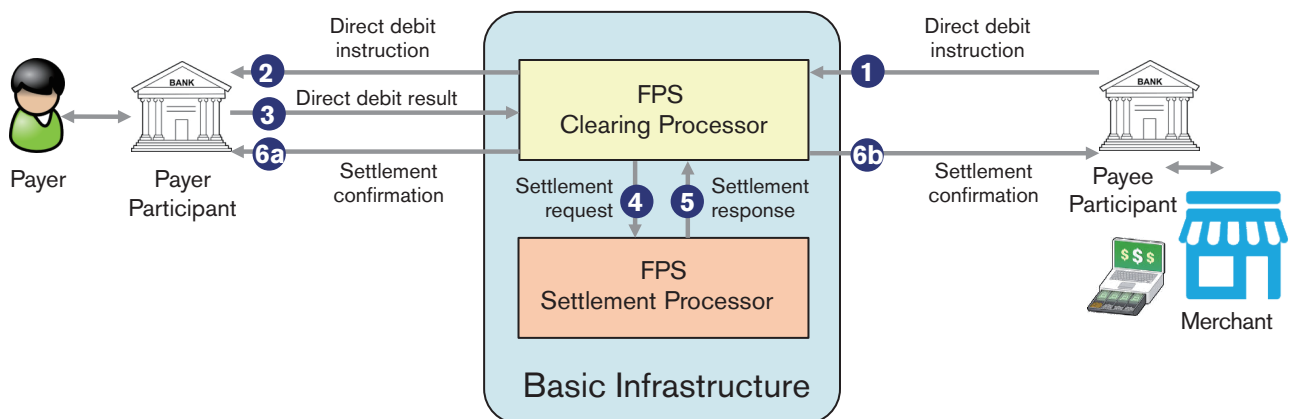
Note: Steps 3 and 4 can be skipped if payee's account status is confirmed (eg. registered merchant of an SP or CP).

Real-time direct debit

The FPS supports immediate direct debit payments, such as e-wallet top-ups, bill payments and e-commerce payments. A direct debit payment is usually initiated by a merchant to collect funds from its customers or by a customer to top up his/her e-wallet. It can be executed only if the payer has

given proper authorisation prior to the initiation of the direct debit payment. The FPS also supports batch mode operations in addition to real-time fund transfers. Participants can opt to subscribe to different functions of the FPS.

The following diagram illustrates the typical process flow for a direct debit:



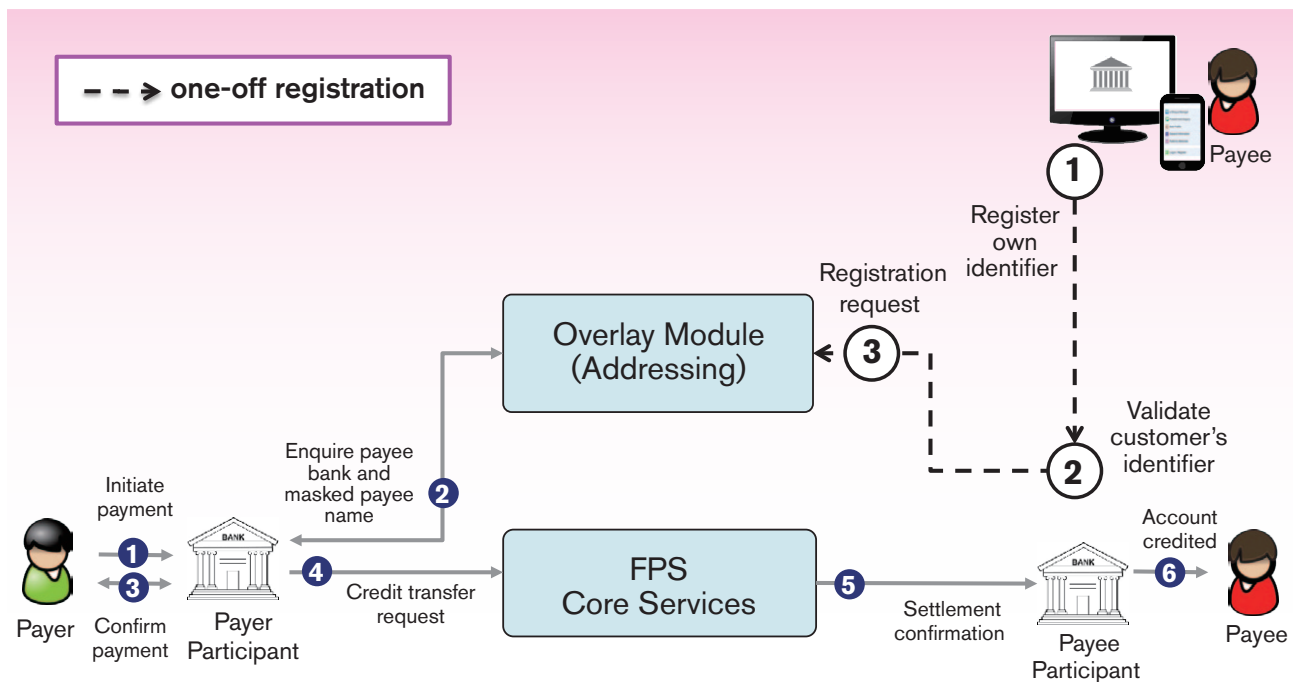
Note: A real time direct debit function is available upon a one-time direct debit authorisation (i.e. eDDA) is established.

Addressing service

Addressing service is a value-added service in the FPS which allows bank customers or SVF users to register their mobile number or email address to receive payments. Instead of having to input the account number of the payee to make payment, a payer can now make payment to a payee simply by inserting the payee's registered mobile number or email address. Payees can link their mobile number

or email address to more than one bank or SVF account and designate one of them as the default receiving account. Merchants can also make use of the FPS identifier (FPS ID) as a proxy for an account number to receive payment from their customers. Such services enhance user experience and provide greater convenience to customers.

The following diagram illustrates the registration for the addressing service:

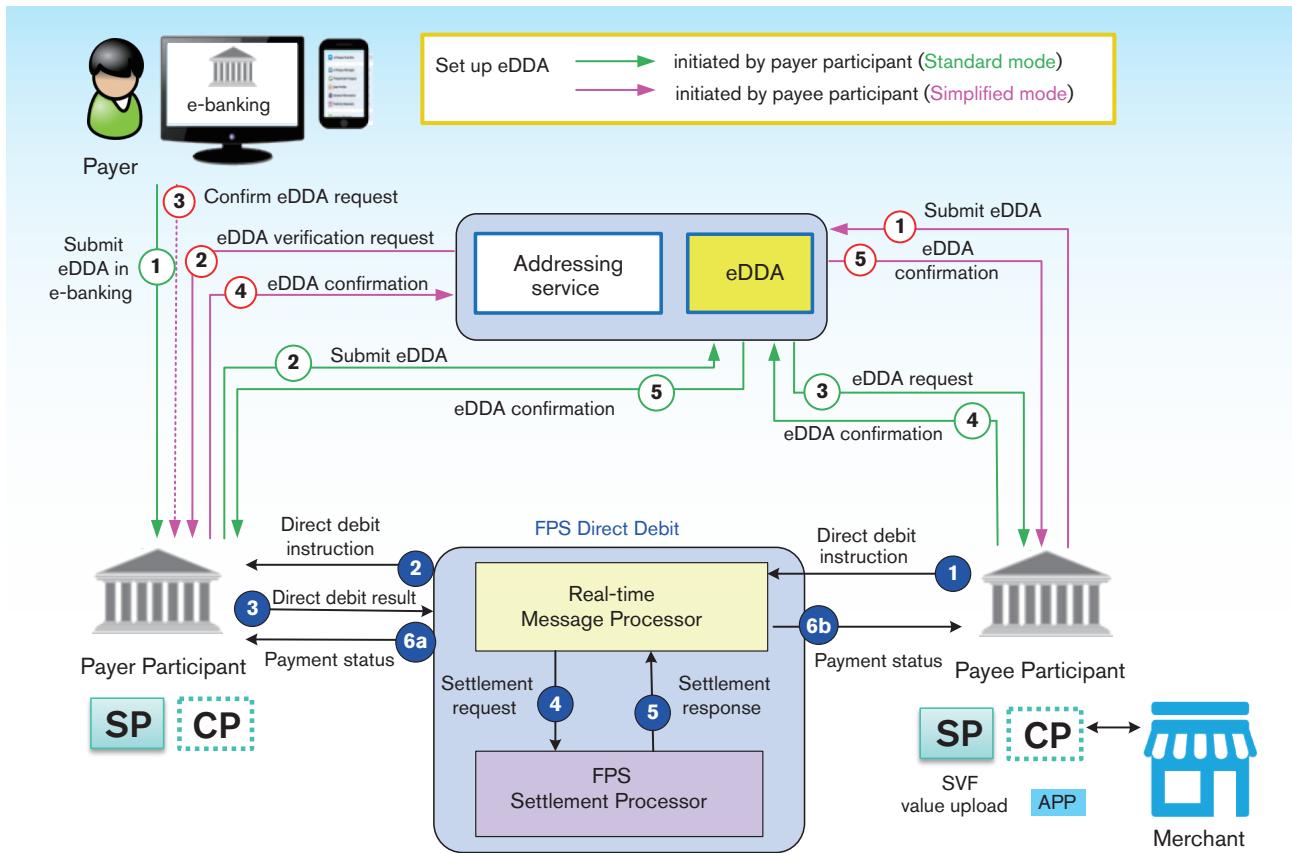


Electronic Direct Debit Authorisation

eDDA is also a value-added service in the FPS to support the setting-up of an authorisation to debit the payer's account by direct debit payments initiated by the payee participant through the FPS. This function enables customers to link their accounts for e-commerce or SVF top-ups when making a real-time direct debit transfer. The FPS supports two types of eDDA established by the payer (i.e. Standard mode) and by the payee (i.e. Simplified

mode). Under a Standard eDDA mode, the payer sets up a DDA by inserting information such as a bank account number and payment limit via internet banking, mobile banking or e-wallet. Under a Simplified eDDA mode, the request is initiated by the payee after obtaining the payer's consent and relevant personal information. The eDDA in Simplified mode enables a streamlined set-up process to be initiated by the payee's mobile application (app), whether it is for on-line shopping, bill payment or an SVF top-up.

The following diagram illustrates a typical eDDA process flow:



Settlement mechanism

The FPS adopts the RTGS mechanism under which each transaction is settled on a transaction-by-transaction basis. This differs from a deferred net settlement (DNS) mechanism where payments at customer level take place immediately, but the corresponding interbank payments are netted and settled separately at a later stage. The adoption of real-time settlement in the FPS effectively eliminates the credit risk exposure accumulated across different settlement participants.

Settlement finality

For settlement finality, FPS participants enjoy the finality of settlement conferred by the PSSVFO¹ for

¹ Similar to the HKD RTGS and RMB RTGS, the HKD FPS and RMB FPS are subject to the HKMA's oversight under the PSSVFO. The PSSVFO also provides statutory backing to the finality of settlement for transactions made through the HKD FPS and RMB FPS by protecting the settlement finality from insolvency laws or any other laws.

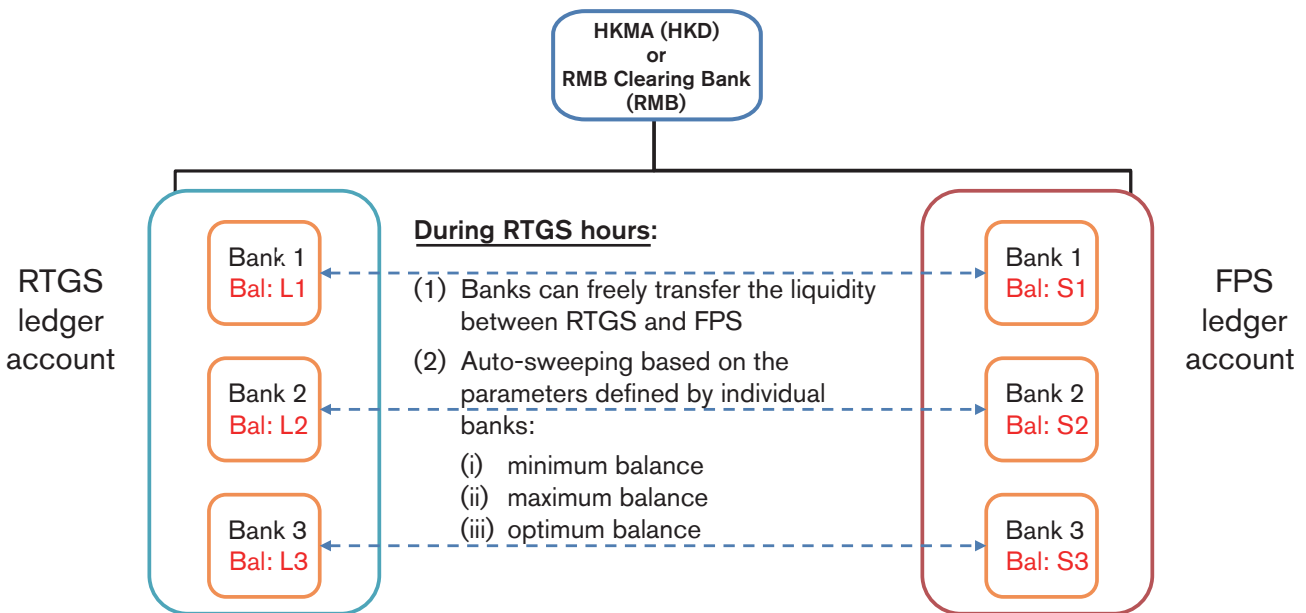
payments settled in the systems according to the operating rules of individual systems. All payments debiting or crediting the FPS ledger accounts of the settlement participants, once debited or credited, are deemed made, completed, irrevocable and final. The HKMA oversees the designated FPS systems on an ongoing basis for compliance with safety and efficiency requirements.

Liquidity arrangement

All licensed banks are required to maintain an RTGS ledger account and an FPS ledger account (which together form the settlement account) with the settlement institution or clearing bank depending on the currencies they support. To ensure they have adequate liquidity to cope with the need for FPS payment transactions, an auto-sweeping mechanism for both HKD and RMB is in place to support liquidity transfer between their RTGS accounts and FPS accounts. Banks are required to set parameters, including the minimum balance, the maximum

balance and the optimum balance, for the FPS account. During the opening hours of the RTGS, banks can freely transfer the liquidity between their RTGS accounts and FPS accounts according to the pre-defined parameters. When the RTGS closes, all the remaining balances in the RTGS account will be automatically transferred to the FPS account to

provide liquidity for the FPS at night and during public holidays and weekends. When the RTGS opens the next day, the excess balance over the optimal balance set by banks in the FPS account will be automatically transferred back to the RTGS account to provide the liquidity for both the RTGS and the FPS.



ISO 20022 standard

The FPS adopts the latest ISO20022 international messaging standard, which should be applied to participants for sending and receiving messages through the FPS. The ISO20022 provides a rich data format and allows the use of standardised Chinese characters, which better meet the needs of the participants in carrying different kinds of payments through the FPS.

Benefits of Faster Payment System

In summary, with the introduction of the FPS and the participation of both banks and SVFs on the same platform, the HKMA anticipates it will bring the following benefits:

- It enables payment *anytime, anywhere*. The FPS operates on a round-the-clock basis.

Customers of banks and SVFs can easily make real-time payments 24x7.

- It enables *almost instant* transfer of funds. The FPS adopts the RTGS model enabling real-time clearing and settlement of interbank payments, and end-users to receive funds in seconds. This reduces interbank settlement risk arising from cumulative credit exposure among banks.
- It is *convenient*. By using a mobile number or email address to link with the payee's bank accounts or e-wallets, transfers of funds between bank accounts and e-wallets can be made with ease.
- It supports *multiple currencies*. The FPS is designed to support settlement of payments in multiple currencies. In the initial stage, the FPS supports payments in HKD and RMB.

- It is *safe*. The FPS is a designated system under the PSSVFO. Participants enjoy the finality of settlement conferred by the Ordinance for payments settled in the systems according to their operating rules. The designated FPS systems are continually overseen by the HKMA for compliance with safety and efficiency requirements.

Conclusion

With the launch of the FPS, the HKMA anticipates that the payment landscape in Hong Kong will change rapidly in the next couple years. When the FPS was launched on 17 September 2018, a total of 21 banks (including most retail banks) and 10 SVF operators² have participated in the system to provide real-time services and/or addressing service to their customers. A two-week staff pilot programme was conducted before the system is fully activated from 30 September 2018. The FPS will enable banks and SVFs to support the development of innovative payment solutions to facilitate e-commerce and online shopping, while the public will be able to enjoy a new payment experience, greater convenience and lower cost in payments through the availability of real-time retail payments.

² List of participating banks and SVF operators which offer real-time services can be found in <http://fps.hkicl.com.hk>
