



27 May 2022

To:
Fintech Facilitation Office
Hong Kong Monetary Authority (HKMA)
Submitted to: ehkd_feedback@hkma.gov.hk

ASIFMA response to HKMA's "e-HKD: A policy and design perspective"

Dear Sir/Madam,

The Asia Securities and Financial Markets Association (ASIFMA)¹ appreciates the opportunity to respond to the discussion questions set out in the Hong Kong Monetary Authority's (HKMA) Discussion Paper on e-HKD: A policy and design perspective, published on 27 April 2022 (Discussion Paper). Feedback set out in this response has been collected from ASIFMA Fintech Working Group and CBDC taskforce.

ASIFMA wishes to thank the HKMA for the opportunity to share this feedback on the Discussion Paper. We welcome the opportunity to contribute to further consultations in the future.

Unless otherwise defined herein, the terms used in this response have the meanings assigned to them in the Discussion Paper.

¹ ASIFMA is an independent, regional trade association with over 160 member firms comprising a diverse range of leading financial institutions from both the buy and sell side, including banks, asset managers, law firms and market infrastructure service providers. Together, we harness the shared interests of the financial industry to promote the development of liquid, deep and broad capital markets in Asia. ASIFMA advocates stable, innovative, and competitive Asian capital markets that are necessary to support the region's economic growth. We drive consensus, advocate solutions and effect change around key issues through the collective strength and clarity of one industry voice. Our many initiatives include consultations with regulators and exchanges, development of uniform industry standards, advocacy for enhanced markets through policy papers, and lowering the cost of doing business in the region. Through the GFMA alliance with SIFMA in the United States and AFME in Europe, ASIFMA also provides insights on global best practices and standards to benefit the region. More information about ASIFMA can be found at: www.asifma.org.

1. Do you agree that e-HKD can bring potential benefits as described? Do you see other potential benefits?

1.1. Improving the availability and usability of central bank money

- Similar to other digital payment methods, e-HKD will allow consumers to transact from anywhere and at any time, using their mobile phones or a device digital token using their mobile phones or a device/digital token, but at the same time, they will use risk-free money.
- We also agree with HKMA that while in theory, financial inclusion could be a significant benefit of CBDCs, the unbanked population in Hong Kong is very low and physical cash circulation will remain strong and as such declining cash use and financial inclusion are not compelling rationales to introduce e-HKD.

1.2. Positioning for the challenges of new forms of money

- We note that while stablecoins can act as a bridge, there is currently no stablecoin that is close to become dominant.
- We are of the view that e-HKD and stablecoins can coexist, but we need regulatory clarity on stablecoins and a clear regulatory framework on stablecoins to ensure consumer protection and market stability, under the principle of “same risk, same regulation”. We refer to our response to the recent HKMA consultation on stablecoins.
- It is important to ensure that new innovative tools like stablecoins should be regulated according to the specific activity, or as noted, under the principle of “same risk, same regulation”.
- It will be important to educate the general public on the differences between e-HKD and other forms of digital money.

1.3 Supporting innovation and meeting future payment needs in a digital economy

- The e-HKD regulatory framework should enable innovation from market participants and encourage the development of additional services on top of the e-HKD platform.
- The ability to program money should be explored as it could create entirely new capabilities that will lead to new products and services. But this should take place only after in-depth consideration and detailed analysis of how to mitigate possible risks and challenges (See our answer to question 2 regarding programmability).

1.4 Improving resilience and efficiency of the payment system

- An e-HKD that support offline payments could support operational resilience of payment systems for example during times of pandemic, extreme conditions (typhoons, etc).

1.5 Reinforcing the transmission of monetary policy

- The HKMA states that the use of e-HKD is less relevant given the continued importance of physical cash. We recommend that physical cash is not phased out for as long as there is strong demand for it to ensure universal access is maintained.
- We believe that e-HKD should not be interest-bearing as this could have a significant impact on the creation of money in the economy, alongside being likely to reduce the amount of available funding for commercial banks.

1.6 Additional benefits

- E-HKD will also boost e-commerce services which have become increasingly popular, especially in the aftermath of the COVID-19 outbreak.
- E-HKD could improve efficiencies and lower costs (including for merchants).
- Whilst financial inclusion is not a major issue in Hong Kong, the introduction of e-HKD would broaden electronic payment options for the non-banked population.
- If the use cases of e-HKD would also extend to cross-border remittance/payments then significant benefit could include faster (real-time) and lower cost cross-border payments, subject to international collaboration among central banks and the development of the necessary infrastructure.

2. How can e-HKD implement the suggested use cases better than the existing e-payment means? Apart from programmability, what other technologies would bring new use cases for e-HKD?

- The ability to make offline transactions via near-field communication (NFC) technology. This is particularly important for resiliency or areas of weak networks or with no internet. Consideration will need to be given to possibly limiting to set periods and up to predetermined thresholds.
- Programmability under certain conditions could contribute to AML/CFT, introduce new services, contribute to investor protection, facilitate daily transactions and enhance customer experience.
- Programmability, however, and particularly combined with interoperability, also creates risks and a number of difficulties will have to be overcome before it is ready for widespread use in digital currencies. If the array of programmable features in distributed systems increase, additional safeguards are likely to be required, and all infrastructures involved must support the same programmability, meaning harmonization across multiple separate ledgers, including governance and operational standards. Additionally, security features and cybersecurity protections would need to be developed and implemented, taking into consideration other variables that relate to interactions with other systems needed for settlement or execution. Also, centralized controls, for example to lock stolen funds or query suspicious transactions, are more difficult to implement on a distributed system. Reliance upon programmability of a token also raises questions as to:
 - whether such programming may be inherently static, and incompatible with changing needs (such as regulatory or legal restrictions adopted after issuance of the token)
 - whether the underlying blockchain may have adequate security to maintain the integrity of such programming
 - whether it may be managed in a dynamic manner to be sufficiently adaptable to changing needs and requirements
 - who can define the programming logic and relevant flow? will selected commercial banks be allowed to program within defined boundaries, or will programmability reside with HKMA?
 - whether programmability will be applied to tokens or wallets
 - how consumers' awareness about the applied rules will be ensured
 - how to explore and trace the relevant agreement, usage guidance, generation flows, expiration, etc.
 - in addition, serious thought needs to be given to the consequences of programmability for the fungibility of CBDC with conventional currency. Programmable features regarding the supply of, returns on or other features concerning CBDC may cause it to be valued differently, and potentially traded separately, from its conventional analogue. The implications of programmability on adoption rates, particularly if programmability is used to impose limitations such as an expiration date or select use cases, must also be fully considered. Central banks will

need to consider the market fragmentation, liquidity limitations and other inefficiencies that could result from effectively having parallel currencies. While we believe programmable money can unlock new innovative solutions, value and efficiency, the private and public sector should work together to continue the exploration and address the impediments and concerns discussed above.

3. How do you see the demand for e-HKD as a means of payment? What other design features would promote the use of e-HKD?

Required design features and considerations to promote the use of a potential e-HKD include:

- E-HKD should be interoperable between all operators and also with physical cash as this would allow for split payment.
- e-HKD should be usable in at least the same types of transactions as cash, including at point of sale and person-to-person.
- End users of the system should be able to make payments in e-HKD 24/7/365. However, consideration should be given to implications for other systems that are interacting with the e-HKD, if operating hours differ.
- We would also support an effort from HKMA to explore offline banking capabilities for e-HKD as this would ensure access to central bank, risk-free money in cases where physical money or other forms of digital payments might not be available.
- The advantages of an e-HKD versus other forms of (electronic) payments will need to be made clear to the general public.
- User experience: to encourage adoption, there should be no or limited cost for end-users – including minimal (or no) requirements for technological investment e.g. can be implemented as an app on a smartphone, or can be used by tapping with a card or scanning a mobile phone. It is worth noting that the first form of a retail CBDC was in the early 90s through a subsidiary of the Bank of Finland, under the brand name “Avant”. This was however short-lived due to the costs involved in producing physical pre-loaded cards, and the increasing competition from the ATM network at the time (which was free to use) – hence, ease of use and (near) zero costs (for end-users and merchants) will be key to driving demand for e-HKD adoption against existing electronic payments.
- Technical considerations include:
 - the instrument and ledger should support instant (or near-instant) final settlement to end users of the system
 - the system needs to offer sufficient interaction mechanisms and API connections with domestic and international digital payment systems, as well as consistency of arrangements to allow easy flow of funds between systems
 - the system should be able to process a very high number of transactions and data, and higher velocity
 - accommodate the potential for large future volumes, a e-HKD system should be able to expand.
 - the e-HKD system should be flexible and adaptable to changing conditions, new innovations as well as policy directions
 - The system should be resistant to cyber-attacks and ensuring against counterfeiting.
- Protect user data using a variety of mature cryptographic techniques flexible enough to be used across centralised or distributed ledgers.

- For local store of value style systems, technologies such as tamper-resistant hardware found in credit cards and smartphones today do store other forms of sensitive data and may be a suitable basis on which to provide local e-HKD security.
 - e-HKD system needs to be extremely resilient to operational failure and disruptions, natural disasters, electrical outages and other issues – including having the technology for offline payments.
 - “Do no harm” should be the fundamental principle when considering design models for CBDCs.
- 4. Do you agree with the description of challenges brought by e-HKD? Do you see other challenges? Are there any other measures that can mitigate the adverse impacts of e-HKD? How would these measures affect the attractiveness of e-HKD?**

- While we agree there are many possible benefits to the use of e-HKD, the development of the e-HKD will require significant analysis to assess potential impacts on the safety and soundness and financial stability of the system, as well as on the ability to continue to provide the products and services clients’ need. This analysis should focus on the potential role of e-HKD across the entire financial system, including its use in retail vs. wholesale markets, and domestic vs. cross border activities. It is possible that the potential negative implications of a e-HKD can be managed with a correct design. Further research in this regard is required. For example, we believe a CBDC should be designed to serve as a means of payment, not as a savings or investment instrument, so that significant outflows from commercial bank deposits into CBDC outside the banking sector is mitigated. The shift of retail bank deposits to e-HKD could have unintended consequences on the role of banks in maturity transformation and the funding of the economy. In particular, the procyclicality effect of crowding-out of bank deposits would be of critical importance in the context of any financial stress of credit institutions. Further, the banking sector performs several additional functions, most importantly AML/KYC, transaction monitoring, sanctions, screening, files SARs, reply to law enforcement.

4.1. Implications for bank funding

- E-HKD could reduce the deposits used by banks to fund loans, decreasing the supply and increasing the cost of credit to the real economy and hurting economic growth. In addition, it could lead to less diversification of funding or increased concentration risk for bank liabilities, increased refinancing risk due to reduced market windows, and increased exposure to market volatility. It is vital that new forms of digital money do not lead to ‘digital bank runs’. A CBDC-backed e-money distribution model resolves that by keeping the central bank as the lender of last resort and having banks and other regulated intermediaries facing consumers.
- We agree with HKMA that for as long as e-HKD is unremunerated, the attractiveness of e-HKD as a store of value over bank deposits should also be limited, and hence the bank disintermediation risk should be manageable. However, whatever effect this feature may have in normal market conditions, we believe it may be less effective in a stress environment, where remuneration would be secondary to credit concerns. We also agree with the recommendation about the introduction of appropriate holding caps. However, while conceptually helpful any limits or holding caps may be difficult to maintain in the long term. Assuming e-HKD was viewed as an attractive tool for payments and store-of-value services, policymakers could face pressure from households and businesses to increase or abandon such limits, given the lower

credit risk arising from directly facing the central bank. This pressure could become more acute in times of market stress, which would then introduce run risk.

- We will also invite HKMA to consider access eligibility and daily conversion and transaction limits as additional safeguards at least in the initial phases of implementation and adoption with further reviews or relaxations of such limits be reviewed along with the data and intelligence collected over time.
- The potential implications of the e-HKD on bank balance sheets should be considered.
- In the event of the issuance of e-HKD, we suggest a careful and gradual transition period, allowing the issuance to be monitored and adjustments to be made to the policy environment as needed, based on data analysis relating to a bank's funding model, shifts and impacts on deposits, the overall size of a CBDC issuance and its liquidity and other market indicators such as lending rates and costs. In addition, the HKMA could also consider placing initial limitations on the use of a CBDC to specific purposes only, to manage or ease any potential disruptions to the financial services ecosystem. For instance, the HKMA could designate the use of the CBDC for specific transactions only, or place transaction limits on certain types of transactions.

4.2 Increasing cybersecurity and software risks

- We agree with the cybersecurity risks outlined by the HKMA.
- Attacks targeting CBDC systems could come in various forms and with different purposes. Criminals could try to profit from hacking, create inefficiencies in the CBDC ecosystems, terrorize participants, or steal non-public data. A successful cyberattack on a CBDC system will not only impact the direct users, but also damage the reputation of the central bank and reduce confidence in the system. Cybersecurity is thus critical to the successful development of the e-HKD. The level of cybersecurity risk is a direct result of other design choices, such as access, interoperability, programmability, etc. Cyberattacks on a retail CBDC system such as e-HKD will be more difficult to defend, due to the wide range of user access and end points. A system based on permissioned DLT may be more controllable than public DLT but will still require permitted participants to have sufficient controls in place to limit their vulnerability while not interfering with efficiency, safe transactions and required levels of privacy.

4.3 Increasing economic vulnerability to power/network outages

- We agree with HKMA suggestions that Hong Kong has a very resilient power grid and network systems.
- We acknowledge the need to ensure access to central bank money in remote areas or in areas without ATM or with no internet access, or in the event of power or network outage.
- The option of offline e-HKD would ensure access to central bank money for Hong Kong consumers in the event of any such outages, as described in the potential use cases for offline usage above.

4.4 Costs of servicing e-HKD

- In designing e-HKD, the decisions the HKMA makes would dictate retail bank economic performance. The cost structure for such a new infrastructure – including but not limited to digital custody - along with its many associated requirements, may be additional to what is currently operating in the market and thus, needs to be considered and allocated accordingly, among ecosystem participants.

5. How can e-HKD assist in the detection of illicit activities while preserving user privacy at the same time?

- The ability to meet consumer privacy expectations, as well as legal requirements around financial crime, will be critical to the success of any CBDC, because these factors are critical for trust.
- The introduction of CBDCs is also an opportunity to design a new compliance and risk technology tool that will incur minimal extra compliance cost. For example, depending on the solution(s) adopted, data available from CBDCs could benefit AML compliance relative to cash.
- The design of e-HKD should include data privacy and protection safeguards to coexist with, and support, the wider cross-sectoral legal and regulatory framework for the use, storage and management of data and the overall integrity of the financial system.
- Features like transparent records on a ledger, depending on how they were implemented, could increase the traceability of illicit financing. A single, specific dollar could be traced on its path through the economy. Where a blockchain-based infrastructure is adopted, the HKMA would need to consider whether to use a public blockchain to increase traceability or to maintain greater consumer privacy with a private blockchain. If a public blockchain is contemplated, effective mechanisms for appropriate anonymization must be determined (and validated) to assure consumers that (previously private) public information on their spending activities could not be traced back to them.
- Privacy does not mean anonymity and many controls to combat financial crime are designed to aid traceability and counterparty identification to establish the purpose of a payment. To execute these controls, the relevant information only needs to be available to select parties including private firms performing identification services. Data rights over data generated within the e-HKD ecosystem should be made clear, including a clear demarcation of data access or ownership by the central banks or intermediaries.
- We also welcome the intention of HKMA to consider the experience of other markets to ensure that e-HKD can meet consumer privacy expectations in tandem with legal requirements around financial crime.

6. What types of financial institutions should be responsible for distributing e-HKD? Should the functionalities of the e-HKD wallet be allowed to differ among the financial institutions?

- **Types of institutions distributing e-HKD:**
 - Innovation should be encouraged in tandem with supporting resilience and stability of the Hong Kong financial system. We therefore recommend that HKMA carefully evaluate the benefits and trade-offs of including different types of intermediaries to handle e-HKD payments and distribution. The principle of “same activity, same risk, same regulation” should prevail as a guiding principle. Firms supporting e-HKD should be held to equivalent regulatory standards as those offering services for cash or existing digital money across transfer, storage, or custody.
 - At this stage, we propose e-HKD is limited to regulated financial intermediaries who currently have full and direct access to central bank accounts and services under the condition that they meet stringent regulatory requirements of financial stability and security. Consideration of broader access should be reserved to a later date when risks and rewards can be more effectively assessed based upon the initial implementation. Based on the experience gained from this first phase, HKMA may consider extending limited access to select financial institutions with governance, risk management, AML/CFT/Sanctions, prudential, capital, liquidity and operational resilience standards that are comparable to regulated financial institutions. Any such expansion of access in a second phase must be weighed against risk and financial stability considerations.

- **Functionalities of the e-HKD wallets:**

- Innovation and some degree of autonomy for intermediaries to add value-add services will unavoidably mean that e-wallets might not share the same functions. This is already happening with e-CNY in Mainland China.
- While this degree of autonomy can stimulate innovation it should not compromise the interoperability of the system. We therefore recommend that HKMA considers baselines within the overall design to ensure that certain functionalities deemed critical are available in all e-wallets. It will also be important to establish clear standards, regulations and liabilities around wallet services.

7. How should e-HKD be designed to achieve interoperability with existing payment system? Are there any technological barriers that would prevent the acceptance of e-HKD?

- **Interoperability:**

- We support efforts to introduce interoperability, a critical feature of CBDCs to meet future payment needs in a digital economy and improve the resilience and efficiency of the payment systems.
- Any future e-HKD is expected to operate alongside legacy instruments and systems, and not to replace them. It is therefore important for e-HKD to be interoperable with the broader payments system and financial market ecosystem. More specifically, connectivity and interoperability should be considered across the following dimensions: 1) with existing and new payment instruments and systems (including Real Time Gross Settlement (RTGS), Faster Payment Systems (FPS)), 2) with broader banking and capital market ecosystem, 3) with cross-border foreign exchange systems (including e-CNY), 4) with any future local wholesale CBDC that may exist, and 5) in the context of DLT-based CBDC infrastructure, with DLT infrastructure and protocols.
- To ensure transferability of e-HKD across multiple payment platforms, a solid legal and technological foundation is necessary. This will need to cover the full lifecycle of CBDC from its issuance, distribution, and transfer to its redemption. A common clearing and settlement system will need to underpin the different platforms with defined service level agreements to support user experience expected by the end users.
- In addition, irrespective of the model chosen for clearing and settlement, application of the ISO20022 messaging standard across all platform interfaces will aid in a uniform interaction model.
- It is also preferred that local or regional CBDC systems and infrastructure should interoperate with each other, including in cross-border and multi-CBDC (mCBDC) arrangements. Global standard setters will take on the role of coordinating wCBDC developments and setting common standards among central banks, partnering with the private sector to design and implement the necessary solutions for interoperability. Any DLT network aiming to deploy interoperable solutions should be built to the highest resiliency standards. As integration with legacy systems is accomplished, integration with any further innovations in payment systems should be evaluated in a more careful manner
- Implementing interoperability however does not come without challenges and policy trade-offs. Based on our observations and in line with the [2021 BIS report on CBDCs](#), we believe that fragmented data standards, and inconsistent standards for numbering and coding systems, security protocols, scalability or throughput capacity and opening hours are technical barriers that result to

lack of interoperability and prevent the wider adoption of e-HKD. Against this backdrop, we agree with the BIS recommendations for common (international) technical standards and/or application programming interfaces, stronger or at least minimally viable security standards, early and frequent communication with other systems to estimate volumes and throughput, and rules for CBDC payments during the closing hours of other systems.

- Implementation of e-HKD conversion to HKD (and vice versa): in terms of fungibility, there needs to be a process where e-HKD can be 'converted' back to HKD (and vice versa) in full faith before flowing back through the financial systems to minimise complexity of implementation. In taking account of money supply controls HKMA can exert, each e-HKD 'issued' should also mean a corresponding adjustment in the actual HKD.

- **Technical barriers:** assuming e-HKD will be legal tender, all merchants would have to accept payment in e-HKD. Merchant acquisition is a therefore key and consideration will therefore need to be given to the 'last mile', i.e. point of sale technological limitations.

8. Should there be different types of e-HKD wallets based on the level of personal information required? If so, what should the corresponding transaction/holding limits for each type of wallet be?

- We agree that there may be value in allowing different levels of information to be shared through reporting mechanisms and for different purposes. This is in line with the approach in other markets.
- HKMA could follow local and international industry practices for the introduction of transaction/holding limits depending on different KYC/CDD requirements and associated risks.
- PBOC has also introduced e-wallets, with different transaction and account limits, which correspond to different KYC requirements and consequently different risk levels. HKMA can draw useful lessons from PBOC on how to approach the introduction of different layers of transaction and holding limits depending on the levels of anonymity.

9. Are there more design considerations to be included in the e-HKD study? Would you be able to identify some trade-offs around such considerations?

- The e-HKD system should be designed in a way that compliance with the Personal Data Privacy Ordinance (PDPO) and relevant codes, guidelines, and best practices would be ensured at all times.
- The e-HKD design should develop new mitigations for privacy, cyber and broader resilience risks in the existing payments system.
- The HKMA will need to consider the level of access to information for each party along the process chain. In order to execute payments in e-HKD, the sender, receiver and any intermediary would necessarily receive information about the transaction. Beyond these parties, it is important to consider whether other parties should have access to this information and precisely what information must go to each party. For example, it would be important to determine if an intermediary would need to know the exact size of a transaction or merely the order of magnitude to be able to perform their appropriate intermediary duties. While this data could be helpful for consumers, it would also present significant privacy concerns given its granularity. The HKMA will need to balance the utility of solutions with consumer protection across the ecosystem.
- To preserve public trust, it is important that HKMA sets high standards for financial institutions and other intermediaries. Intermediaries will need to demonstrate cyber capabilities at an appropriate depth and breadth.

- The e-HKD design requirements should be agnostic to technology, allowing for flexibility to adopt to new features and adapt to future innovation.
 - The rapid pace of innovation in technology will constantly challenge the e-HKD platform design to deliver new user experiences. This will also require a rethink in policy choices as new technologies may operate at the boundaries of the policy. Hence, it is vital that policies and design requirements are agnostic to any technology. Building a new system from the ground up provides an opportunity to reimagine the design and usage capabilities. New technologies will provide new models of trust, security, and privacy, thereby increasing the landscape for design choices, but they can also change the threat landscape. As such, it is vital that the HKMA adopt technical design modules and conducts regular policy reviews to support this constant change.
- A CBDC's infrastructure should also be flexible and scalable, to accommodate increases in transaction volumes as a CBDC grows in adoption, any future technical or policy changes as the CBDC system matures, and new findings are made. However, a potential trade off might be that flexibility in computational loads will need to be balanced with the cost of computationally demanding privacy methods or any other features that add to processing demands on the system.
- We encourage collaboration with other central banks and international standard setters such as the BIS, specifically around cross-border interoperability with other retail CBDCs.

10. How could the private sector contribute to the e-HKD journey?

- We agree with the discussion paper that HKMA should leverage on the accumulated experience of the financial services industry and invite the private sector to offer its valuable services to the e-HKD journey, especially in the areas of innovation, compliance, operational tasks, and customer-facing activities relating to the distribution of the e-HKD.
- We also believe that the private sector can offer important services in the areas of compliance and prevention of illicit activities, not only through AML/CFT and other KYC services but also through possible collaboration with HKSAR regulators. For example, there can be a public-private sector partnership on data sharing, while at the same time respecting privacy concerns and maintaining alignment with the PDPO and other related codes, standards and guidelines.
- We encourage public-private sector partnerships in additional areas that would enhance the adoption of e-HKD without compromising compliance and privacy requirements. For example, the public sector can develop synergies with the private sector to promote the adoption e-HKD by raising awareness among the public, and educating consumers. The private sector can contribute by expanding e-HKD adoption among the merchant network. Also, the private sector (branch/retail outlets) could be leveraged as physical e-HKD top-up / distribution channel.

11. Are there any other legal considerations, in addition to those discussed in this paper, which should be considered in designing a legally robust e-HKD?

- We agree with the discussion paper that the legal tender status of e-HKD should be ensured, and that the singleness of the HKD currency should be maintained. The legal Status of a future e-HKD must be addressed in legislative frameworks, with the goal of retaining the same classification and treatment as legacy fiat HKD. E-HKD must be fully fungible with fiat HKD.
- Also, prudential treatment regarding the role of e-HKD needs to be addressed and incorporated into global standards and regional policies. The prudential treatment of e-HKD should be analogous to other

central bank money (e.g., cash, coins, and deposits held by banks at central banks), particularly with regards to capital and liquidity frameworks.

12. Are there any other policy considerations which are relevant to e-HKD but not covered in this discussion paper?

- **Nexus between retail and wholesale CBDC:**
 - CBDCs are envisioned as having two different functions – retail and wholesale. Retail CBDCs are designed for circulation in small amounts and conceived of as an alternative to banknotes or coins. wCBDCs are designed for settling financial market transactions and possibly circulating outside of the issuer's territory.
 - There are significant interdependencies between retail and wholesale CBDCs and there are potential impacts of retail CBDC on capital markets (for e.g., impact on sources of funding for banking and capital markets and interoperability).
 - It would be possible to create an rCBDC without a wCBDC and vice versa. However, the introduction of a rCBDC (such as the e-HKD currently envisaged in the HKMA discussion paper) could, and most likely would, result in knock-on effects for wholesale markets. This would be true, for example, when retail aggregators fund their operations via wholesale markets. Another example is if a rCBDC may be used to fund the purchase or sale of a financial instrument, or to settle any subsequent cash flows.
 - Even though, rCBDCs and wCBDCs do not have to utilize the same infrastructure, nor have the same legal status, interoperability and legal consistency globally will promote the safety and soundness, financial stability, and the integrity of markets.
 - We suggest that there needs to be concurrent policy development for both rCBDC and wCBDC—for example, design decisions based on policies set for rCBDC may become the de facto design choices and policies for wCBDC due to the interconnectedness of retail and wholesale markets.
- **Timelines:** The introduction of e-HKD should be balanced and the timeline should be sufficiently cautious to mitigate any potential transition risk, impacting safety and soundness and financial stability. We recommend the use of sandboxes, proof of concept strategic dialogues with market participants, and pilot programs based upon defined use cases to test the application to help identify the impact. After sufficient analysis of lessons learned, financial institutions and regulators will require a defined transition period for effective implementation. We would be grateful if the HKMA can outline their current thought process regarding timeframes and further consultations.
- **Sustainability:** in designing a CBDC, the carbon/sustainable footprint of e-HKD must be considered, recognizing the importance of sustainability in the global agenda.
- As HKMA continues to assess different use cases for CBDCs, we emphasize the importance of considering potential impacts to the existing financial ecosystem holistically, both domestically and cross border. E-HKD issuance cannot be considered in isolation since there will be an interplay between the role of other forms of payments, as well as potential interoperability with emergence of synthetic CBDCs and fiat-linked stablecoins.

- HKMA might consider adoption of an 'open-source' approach to e-HKD design. Project Hamilton² is an example where MIT and Boston Fed are exploring this route.

We are grateful for the opportunity to share our feedback on the Discussion Paper. We are more than willing to discuss our response in more detail during a meeting. We remain at your disposal for any questions you might have in relation to the above response.

Best regards

Laurence Van der Loo

Executive Director Technology and Operations

ASIFMA

² <https://www.bostonfed.org/publications/one-time-pubs/project-hamilton-phase-1-executive-summary.aspx>