



Monetary Authority
of Singapore

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JOINT MEDIA RELEASE

MAS and SGX successfully leverage blockchain technology for settlement of tokenised assets

Singapore, 11 November 2018... The Monetary Authority of Singapore (MAS) and Singapore Exchange (SGX) have successfully developed Delivery versus Payment (DvP)¹ capabilities for the settlement of tokenised assets across different blockchain platforms². This will help simplify post-trade processes and further shorten settlement cycles.

2 The DvP prototypes, developed with technology partners Anquan, Deloitte and Nasdaq, demonstrated that financial institutions and corporate investors are able to carry out the simultaneous exchange and final settlement of tokenised digital currencies and securities assets on different blockchain platforms. The ability to perform these activities simultaneously improves operational efficiency and reduces settlement risks.

3 The collaboration also demonstrated that DvP settlement finality, interledger interoperability and investor protection can be achieved through specific solutions designed and built on blockchain technology. Following its conclusion, MAS and SGX have jointly published an [industry report](#), which provides a comprehensive view of automating DvP settlement processes with Smart Contracts³. The report also identifies key technology and operational considerations to ensure resilient operations, and defines a market framework that governs post-trade settlement processes such as arbitration.

4 Mr Sopnendu Mohanty, Chief FinTech Officer, MAS, said, “Blockchain technology and asset tokenisation are fuelling a new wave of innovation globally. This project has demonstrated the value of blockchain technology and the benefits it can bring to the financial industry in the short to medium term. The concept of asset tokenisation, as well as other

¹ Delivery versus Payment (DvP) is a settlement procedure where securities and monies are simultaneously exchanged to ensure that delivery of securities occurs only if the corresponding payment is made.

² MAS and SGX announced the collaboration in August this year, one of two spin-offs from Project Ubin.

³ Smart Contracts are self-executing contracts where contractual terms or business logics are codified as software code to be executed upon the fulfilment of pre-defined conditions.

learnings gleaned from this project, can potentially be applied to a broad spectrum of the economy, creating a whole new world of opportunities.”

5 Ms Tinku Gupta, Head of Technology at SGX and Project Chair, said, “We are delighted to drive this important industry effort to accelerate innovation in the marketplace. Based on the unique methodology SGX developed to enable real-world interoperability of platforms, as well as the simultaneous exchange of digital tokens and securities, we have applied for our first-ever technology patent.”

Additional Information

[Project Ubin](#) started in November 2016 as an industry collaboration to explore the use of Distributed Ledger Technology (DLT) for clearing and settlement of payments and securities. This is with the aim of understanding DLT’s potential in making financial transactions and processes more transparent, resilient and at lower cost.

The first two phases of Project Ubin focused on domestic inter-bank payment and settlement.

- Phase 1 achieved the objectives of producing a digital representation of the Singapore dollar for interbank settlement, testing methods of connecting bank systems to a DLT, and making the MAS Electronic Payment System (MEPS+) interoperate with the DLT for automated collateral management.
- Phase 2 successfully developed software prototypes of three different models for decentralised inter-bank payment and settlements with decentralised netting of payments in a manner that preserves transactional privacy. The source-codes and technical documentations are available for public access under Apache License, Version 2.0. Central banks, financial institutions, as well as academic and research institutions are encouraged to tap the open source-codes to facilitate their experiments, research and innovation.

Annex A – Quote Sheet

The technology partners for this project are Anquan Capital Pte Ltd., Deloitte and Nasdaq.

<p>Juzar Motiwalla, Co-founder of Anquan Capital</p>	<p>The evolution of new forms of tokenised assets is accelerating the search for new business models, which in turn intensifies the search for dramatically improved settlement engines. With a view to revolutionising settlements, Anquan has introduced novel ways of enabling atomic swap, high throughput, security and privacy on its blockchain platform. We see keen interest in this across multiple sectors, including financial services and digital advertising.</p>
<p>Ho Kok Yong, Financial Services Industry Leader, Deloitte Southeast Asia</p>	<p>Deloitte is glad to have the opportunity to extend our expertise in blockchain technology in conjunction with our APAC Blockchain Lab to make this collaboration a success.</p> <p>The prototype was designed on two separate ledgers (cash and securities) on different blockchain technologies to successfully mitigate counterparty risks and achieve DvP (Delivery versus Payment) settlement finality. Additionally, features such as time boundaries, multi-signature and arbitrator design facilitate a secure and transparent transaction thus strengthening investors' confidence.</p>
<p>Magnus Haglind, Senior Vice President and Head of Product Management, Market Technology, Nasdaq</p>	<p>In collaborating with SGX and MAS on this unique ecosystem of converging blockchains, we have demonstrated how to create interoperability between multiple networks to secure settlement between different assets – this is a major step in the application of blockchain to the capital markets. By leveraging our Nasdaq Financial Framework, we can create this interoperability through an agnostic approach in relation to specific DLT selection, as well as have the flexibility to support various business and settlement models depending on the market structure and readiness of participants.</p>

About the Monetary Authority of Singapore

The Monetary Authority of Singapore (MAS) is Singapore's central bank and integrated financial regulator. As central bank, MAS promotes sustained, non-inflationary economic growth through the conduct of monetary policy and close macroeconomic surveillance and analysis. It manages Singapore's exchange rate, official foreign reserves, and liquidity in the banking sector. As an integrated financial supervisor, MAS fosters a sound financial services sector through its prudential oversight of all financial institutions in Singapore – banks, insurers, capital market intermediaries, financial advisors, and stock exchanges. It is also responsible for well-functioning financial markets, sound conduct, and investor education. MAS works with the financial industry to promote Singapore as a dynamic international financial centre. It facilitates the development of infrastructure, adoption of technology, and upgrading of skills in the financial industry.

About Singapore Exchange

Singapore Exchange (SGX) is Asia's leading and trusted market infrastructure, operating equity, fixed income and derivatives markets to the highest regulatory standards. As Asia's most international, multi-asset exchange, SGX provides listing, trading, clearing, settlement, depository and data services, with about 40% of listed companies and over 80% of listed bonds originating outside of Singapore.

SGX is the world's most international offshore market for the benchmark equity indices of China, India, Japan and ASEAN and offers commodities and currency derivatives products. Headquartered in AAA-rated Singapore, SGX is globally recognised for its risk management and clearing capabilities. For more information, please visit www.sgx.com.

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