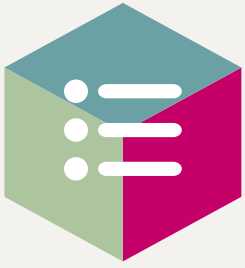




Digital Asset's
Committed Settlement:
Adoption under English Law



Introduction

Committed Settlement is a method created by Digital Asset using its smart contract language, DAML™, to create, almost instantaneously, control accounts or memo pledges (or equivalent concepts in other jurisdictions) on a distributed ledger at a pace and with the efficiency limited only by the speed of the platform running such ledger. High-performance

distributed ledgers like those built to Digital Asset's specifications can create 27,000 transactions per second¹. Implemented in this context, Committed Settlement could potentially facilitate bankruptcy and performance protection for a myriad of transactions that cannot be protected by control accounts today due to the cost, time, and expense of opening and maintaining one.

¹ "In an independent test conducted by GFT, the results from this benchmarking application are significant. The current level of throughput stands at 27,000 trades per second, which includes trade registration. During trade registration, the clearinghouse is simultaneously calculating a live net... In terms of ledger updates per second, there are two ledger updates for each initial trade processed, so this could be understood to imply a 2x multiplier or 54,000 TPS. In terms of total ledger events across all nodes this would be a 3x multiplier, or 81,000 TPS." Creer, David, GFT. *Performance Testing of Distributed Ledger Technology*. October 16, 2018. <https://blog.gft.com/blog/2018/10/18/gft-trade-test-demonstrates-blockchain-can-handle-real-world-trading-volumes/>



The Case for Committed Settlement

The use of control accounts to create and maintain enforceable security interests can help trading entities reduce the risk of bankruptcy or non-performance of their counterparties. However, the modern control account is cumbersome, slow, and expensive. Opening one requires the time and expense of a triparty negotiation of the securities intermediary's unique legal agreements. The securities intermediary must then create the account, a process that may take two or more weeks as it must perform all regulatory and other background checks on both the security provider and the secured party, confirm authorized signatories, create and test linkages, and set up reporting. Once operational, the trading parties must monitor the account, and simply reconciling transactions to posted collateral becomes a large operational burden for entities with numerous transactions. Due to the expense, operational burden, and delay, control accounts are typically only used for highly sensitive transactions or large transactions, leaving a myriad of short-term or smaller transactions without the benefits of bankruptcy or performance protection.

The modern control account was shown to be systemically inefficient when financial regulators across the globe attempted to implement the segregation requirements proposed by the Basel Committee on Bank Supervision and International Organization of Securities Commissions (BCBS-IOSCO) in their Final Framework on Margin Requirements for Non-Centrally Cleared Derivatives (BCBS-IOSCO Final Framework). On November 30, 2015, the American Prudential Regulators required the segregation of independent amounts for uncleared swaps at third party custodians². The CFTC followed suit on January 6, 2016³. The American regulators gave the swap dealers with the largest outstanding notional amounts of uncleared swaps (the "Phase 1 Firms") until September 1, 2016, to segregate independent amounts in control accounts for uncleared swaps. In the ensuing months before the deadline, and despite

reducing and consolidating trading activity, the Phase 1 Firms and their securities intermediaries were unable to open, test, and fund sufficient control accounts to comply with the regulations, forcing the CFTC to issue a no-action letter extending the deadline to October 1, 2016⁴. Similar experiences occurred in Europe in response to the adoption of the BCBS-IOSCO Final Framework, and the EU Commission delayed implementing the phase-in of the segregation requirement⁵ by six months⁶.

The "memo pledge" is an alternative method of creating security interests in securities, where the securities intermediary notes that a portion of the securities position in the security provider's account has been encumbered with a security interest. This method provides efficiencies for both the security provider and the secured party by providing transaction- and asset- level detail on the secured asset. Unfortunately, this practice, a remnant of the days when the books and records of a securities intermediary were physical books and records and when memos were written in ink, creates severe operational burdens and risks for modern securities intermediaries operating electronic systems. As securities and cash held in traditional form are not uniquely identifiable, limits within a particular position within a single account may be bypassed due to processing discrepancies, timing issues, or manual error. Allowing third party access into a particular account position is rare and requires exception processing, as custodial accounts are typically designed to allow all

authorized users complete access to the entire account. The complexities increase when there are multiple memo pledges to multiple secured parties within a single account, creating severe operational and financial risk for the securities intermediary. As a result, memo pledges are not operationally scalable, and many securities intermediaries do not offer the service.

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2 Margin and Capital Requirements for Covered Swap Entities; Final Rule 80 FR 229 (Nov. 30, 2015).

3 Margin Requirements for Uncleared Swaps for Swap Dealers and Major Swap Participants, 81 FR 636 (Jan. 6, 2016).

4 CFTC Letter No. 16-70 (September 1, 2016).

5 "Payment behaviour in Germany" published by Bundesbank

6 "See EU Collateral Rules Lag U.S. in \$493 Trillion Swap Market, [bloomberg.com/news/articles/2016-06-09/banks-gain-more-time-to-meet-eu-swap-collateral-regulations](https://www.bloomberg.com/news/articles/2016-06-09/banks-gain-more-time-to-meet-eu-swap-collateral-regulations)



What is Committed Settlement?

Digital Asset's Committed Settlement makes the creation and maintenance of control accounts simple and routine. Committed Settlement is a method created by Digital Asset to leverage its smart contract language DAML and Distributed Ledger Technology (DLT) to implement control accounts in an efficient and cost-effective manner. DAML is Digital Asset's open source smart contract language that was designed to facilitate the legal constructs that support the current financial market infrastructure.

DAML smart contracts and the transactions that result from execution of such contracts can be recorded on a distributed ledger — a record of transactions or other data that exists across multiple distinct entities in a network. The records in a distributed ledger may be used to constitute or evidence (depending on the implementation) ownership of particular assets. The ledger can be replicated fully across all participants, or particular segments can be replicated across specific subsets of participants. In either case, the integrity of the data is ensured in order to allow each entity to rely on its veracity and to know that data it is entitled to view is consistent with that viewed by others entitled to view the same data. This makes a distributed ledger a common, authoritative prime record — a single source of truth — to which multiple entities can refer and with which they can securely interact. Not only can the technology synchronize records of ownership and other rights, it can also provide a common workflow for processing that data, ensuring that the results of agreements are processed in the same, mutually agreed manner.

Smart contracts written in DAML are based upon offer and acceptance. The proposing party must digitally execute its smart contract offer before sending the electronic offer to its counterparty/ counterparties. In order for the smart contract to be fully executed, each counterparty must accept the offer by digitally executing the smart contract, and the smart contract must be fully executed before it can be effected by a DAML enabled platform. The parties are free to agree broad contractual terms using DAML, including the creation of security interests, as described below.

Smart contracts written in DAML allow users to record ledger data specifically for each individual asset. Each individual asset can be made identifiable by reference to its beneficial owner, secured party, broker or custodian, account location, pending transaction, transaction agreement and any other data point the parties wish to assign. These data points may include "locks", which may be used to delegate transfer, trading, or other disposition authority to a designated or secured party. If coded in the relevant smart contract, such locks also limit the use of such assets to that particular smart contract, locking each asset against all other uses by any party. Assuming the proper legal framework is in place with the participants of the DLT network, these locks could be used to provide certainty that, for example, secured assets are safeguarded against any restricted use by the security provider and that the secured party will in fact receive them upon an enforcement event.

Locks in DAML are also flexible enough to support option contracts and delayed instructions. In certain instances, the locked asset may be coded to be immediately committed to be delivered to a certain recipient as the secured party. Alternatively, a DAML smart contract may also provide that a secured party has the sole and unilateral right to instruct on the locked asset for a designated amount of time. This delay feature supports both options contracts and control account scenarios where an asset remains in place until the secured party exercises its right to instruct delivery upon an event of default.

When adopted by a custodian, broker dealer, central securities depository, or other securities intermediary, the distributed ledger running DAML can serve as the books and records of the entity. The securities intermediary may then promulgate rules that recognize parties on its platform as its customers, with any transaction agreed upon by the parties, along with the smart contract implementing such transaction, binding on such parties.

For legal jurisdictions that rely upon notice and/or deed recordation, the custodian, broker, or central securities depository may agree that it is notified of the security interest in favor of the secured party through automated procedures built into the smart contract, once such smart contract is fully executed. Additionally, the lock itself, which commits the particular security to the particular transaction to the exclusion of all other uses, may constitute the security interest. As a lock prevents the asset from being committed

to any other purpose via another lock, the parties can know that there are no prior encumbrances of that type on that asset once the lock is in place — assets already locked may not be subject to another lock. For jurisdictions with registration or filing requirements, the DLT running DAML could be designed with robust reporting capabilities that may be utilized to satisfy the relevant requirements or to generate forms for filing.

For legal jurisdictions that rely upon control, once the parties and the securities intermediary have agreed to a smart contract locking the asset, none of the parties may unilaterally alter the commitment of that asset pursuant to that lock. A lock may also implement a sophisticated permissions hierarchy addressing the needs of the parties whilst still meeting legal control requirements. If the securities intermediary agrees that the smart contract constitutes an instruction from the secured party to the securities intermediary, and since the lock is designed to prevent such securities intermediary from obeying any other instruction from any other party with respect to that asset, including the security provider, the lock may be an indicator of control.

The power of Digital Asset's technology to identify assets individually allows a granular level of precise and efficient control over assets that is challenging and costly to implement within current systems. Because DAML has abstracted many major programming

requirements necessary to support financial transactions, the creation of DAML locks may require just a few extra lines of DAML code. Unlike existing and cumbersome control accounts, DAML can create locks as a normal part of transaction processing, eliminating significant operational burdens currently necessary to create control accounts. Additionally, DLT eliminates the current operationally intensive post-trade reconciliation obligations, as the universal source of truth provided by DLT ensures that all participants have the same record. It also streamlines and enhances reporting functionality. This streamlined and efficient process of creating and maintaining security interests and the related account and process management functions drastically increases the possible applications and uses of control accounts with the potential to fundamentally alter the financial industry.

While developing the technical details of Committed Settlement, Digital Asset's guiding principle is that technology should support the existing legal frameworks governing business transactions and exchanges of value. Technology should not assume or attempt to change statutes and caselaw in order to support the value exchange it enables. In light of this, in the following sections, Linklaters outlines the key legal and regulatory considerations relevant to the implementation of Digital Asset's Committed Settlement technology from an English law perspective.

Digital Asset's Committed Settlement makes the creation and maintenance of control accounts simple and routine.



Committed Settlement locks may be used to provide *certainty* that secured assets will be transferred to a secured party on an enforcement event



Key Legal and Regulatory Considerations under English Law

Committed Settlement has the potential to deliver significant operational efficiencies and protections across financial markets, particularly in collateral management. If structured and deployed appropriately, it should be possible for those operational benefits to align with, and have the legal backing of, English law. Here are some of the key legal and regulatory considerations that will have a bearing on structuring and deployment, from an English law perspective.

Insolvency considerations



- > If Committed Settlement is deployed in the context of a collateral or security arrangement, the security arrangements and transfers it effects would need to survive the insolvency of a defaulting party from a legal perspective as well as an operational one. Subject to the considerations outlined below, the contract can be set up to provide for that. However, there are certain mandatory provisions of insolvency law that may override an inconsistent contractual agreement – for example, provisions that provide for a stay on security enforcement, mandatory set-off or the avoidance of certain transactions. From a legal perspective, these overriding provisions cannot be bypassed by technology alone.
- > There are, however, various legal regimes that are already used to safeguard certain financial markets transactions against these types of insolvency risks. Deployed within the context of such a regime, Committed Settlement could prove a powerful means of automating certain transactions or structures. The main regimes applicable to collateral are discussed in further detail in the following sections.
- > In addition to the normal insolvency rules, UK authorities have wide-ranging powers to resolve failing banks and other systemically important firms under the Banking Act 2009⁷. These include, for example, the power to write down, or transfer, the firm's liabilities. Certain types of transaction are protected against this type of action under prescribed safeguarding orders. There is some debate as to whether all FCAs (as defined below) would be protected. The extent to which any asset subject to a Committed Settlement arrangement would be safeguarded would need to be considered on a case by case basis.
- > It should be noted that our analysis in this paper relates primarily to English law and thus assumes the insolvency proceedings of the defaulting party are governed by English law. Certain pieces of EU legislation that seek to modify national insolvency laws, including the Financial Collateral Directive⁸ and Settlement Finality Directive⁹ (the UK implementations of which are discussed below), contain conflicts of laws provisions that may be relevant in this context. However, the implementation of these EU laws differs between different EU jurisdictions, so the laws of other jurisdictions may still need to be considered, even within an EU context.

⁷ Including secondary legislation, instruments and orders made under it.

⁸ Directive 2002/47/EC

⁹ Directive 98/26/EC

Financial Collateral Regulations



- > The Financial Collateral Regulations¹⁰ (the “FCRs”) simplify the process for taking and enforcing security arrangements that qualify as “financial collateral arrangements”, as defined (“FCAs”). They do so by modifying the application of the general law to FCAs in a number of ways – many of which would be helpful to facilitating the use of Committed Settlement. For example, they:
 - disapply certain formalities, including signing and registration requirements;
 - allow the collateral-taker to appropriate the collateral on enforcement (without a court order);
 - ensure the security interests are effective and enforceable even where a party enters into administration and is subject to a stay on enforcement;
 - disapply certain provisions of insolvency law providing for the avoidance of contracts; and
 - limit the application of mandatory set-off provisions.¹¹
- > Only cash, certain financial instruments and credit claims are capable of forming the subject of an FCA.
- > There are two types of FCA – “title transfer FCAs” and “security FCAs”.
- > Committed Settlement should be compatible with, and provide operational support for, the creation of a security FCA. One of the key criteria of a security FCA is that the collateral taker takes “possession or control” over the collateral assets. These can be difficult tests to meet and there is some legal uncertainty around them. In particular, in order to meet the “control” test, there is some debate as to whether *legal* control is sufficient or whether, in addition, the collateral taker needs to be able to *mechanically prevent* the collateral provider from accessing the collateral. Exercising such mechanical control can be administratively burdensome, particularly where certain withdrawals are permitted, and is often impractical in practice. Committed Settlement could potentially provide a route to achieving such mechanical control without the administrative burden (for example, by automating returns of excess collateral). This may enable broader access to the beneficial treatment of the FCRs regime.
- > Committed Settlement may also be compatible with the creation of a title transfer FCA, if structured appropriately. As the criteria for this type of FCA require a clean transfer of legal and beneficial ownership to the collateral taker, the collateral provider may not be able to lock *its specific* collateral assets back to itself under this regime (in the way it would for a security FCA). However, *equivalent* assets could be so locked, if the commercial context allowed. Deployed in this way, Committed Settlement could help to reduce settlement risks.

¹⁰ Financial Collateral Arrangements (No. 2) Regulations 2003 (as amended), which implement the Financial Collateral Directive in the UK

¹¹ Note: FCAs are not immune from insolvency clawback for transactions at an undervalue or preferences (unless they fall within another regime that safeguards them against such risks).

**Considerations
in the context
of financial
markets
infrastructure**



- > To protect against systemic risk, collateral arrangements made through or involving certain financial markets infrastructures can sometimes benefit from protections against the interference of ordinary insolvency rules. For example, the Settlement Finality Regulations¹² safeguard “collateral security charges” (as defined) granted within designated payments or securities settlement systems. Similarly, Part VII of the Companies Act 1989 safeguards “market contracts” and “market charges” (as defined), which include certain charges granted in connection with a recognised investment exchange or clearing house. Unlike the FCRs, these regimes also include protection from insolvency clawback for transactions at an undervalue or preferences.
- > If the relevant financial market infrastructure adopts the distributed ledger over which the Committed Settlement transactions are run as its books and records, the qualifying collateral transactions within the relevant system would be able to benefit from this safeguarded treatment.
- > It is important to note that these regimes do not provide all the same benefits that the FCRs afford to FCAs – in particular, exemption from security formalities such as registration (as outlined below). For this reason, even if a transaction benefits from insolvency protection under one of these regimes, it is still likely to be helpful to ensure it qualifies as an FCA as well.

**Considerations
in the context
of non-
cleared OTC
derivatives**



- > Any deployment of Committed Settlement in the context of non-cleared over-the-counter derivatives would need to meet the Margin Regulatory Technical Standards¹³ (the “**Margin RTS**”). In particular, consideration would be required as to:
 - whether collateral in tokenised form could meet the eligibility requirements under the Margin RTS; and
 - whether the segregation requirements in respect of non-cash collateral under the Margin RTS could be met under the relevant DLT implementation.

12 Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (as amended), which implement the Settlement Finality Directive in the UK

13 EU Commission delegated regulation 2016/2251 supplementing EU Regulation 648/2012 on OTC derivatives, central counterparties and trade repositories with regard to regulatory technical standards for risk-mitigation techniques for OTC derivative contracts not cleared by a central counterparty

Security interest formalities



- > The creation of a security interest is often required, by statute, to be documented “in writing” and/or “signed”. There is some debate as to whether a signature requirement can be met by using a cryptographic key and whether an “in writing” requirement can be met by a contract composed partly or wholly of computer code. However, Linklaters is currently assisting the UK Jurisdiction Taskforce in producing an authoritative legal statement (the “**UKJT Statement**”) as to the status of distributed ledger technology and smart contracts under English law, and this statement may help to clarify the issue.¹⁴
- > To be effective against third parties, certain security interests are also required to be registered at Companies House. This process requires a manual filing that cannot be performed by code alone. Other asset-based registrations are also required to perfect security over certain assets (such as land or intellectual property), but these are less likely to be relevant in the context of financial markets.
- > These formalities largely fall away, however, for FCAs.

Disclosure



- > Taking or enforcing security over certain types of asset (such as listed securities) may trigger certain disclosure requirements under English law. These would need to be complied with in the usual way.
- > The use of smart contracts may help to manage such compliance – for example, through the inclusion of automatic alerts or transfer limits. It would need to be possible to amend such settings to reflect any change in the legal requirements.

Licensing



- > Licensing requirements, including under the Regulated Activities Order¹⁵, will need to be considered carefully when structuring the framework over which Committed Settlement is run. For example, it would need to be considered whether any participant other than the operator could be found to be “safeguarding and administering investments” if the assets sit on a distributed ledger for which it is running a node.

¹⁴ For more detail, see: <https://www.linklaters.com/en/insights/blogs/fintechlinks/2019/may/uk-jurisdiction-taskforce-consults-on-legal-status-of-dlt-and-smart-contracts>

¹⁵ Financial Services and Markets Act 2000 (Regulated Activities) Order 2001

**Legal
framework
and market
infrastructure
for digital
assets**



- > Committed Settlement runs, and relies, on a distributed ledger that either evidences or constitutes (depending upon the implementation) legal ownership of the relevant assets. This raises legal questions around, for example, precisely what the relevant “asset” is and whether a distributed ledger can be used to evidence and transfer ownership in the relevant asset class, as well as whether the relevant asset may be characterised as a negotiable¹⁶ instrument. The UKJT Statement should help to clarify these issues, by resolving areas of legal uncertainty and/or by highlighting areas where further clarificatory steps are required.
- > The deployment of Commitment Settlement also requires market infrastructure that is compatible with transactions involving a distributed ledger. We expect it should be possible to create solutions for such market infrastructure within an English law context, with careful structuring. For example:
 - For transactions involving transferable securities, the system may need to comply with the EU’s Central Securities Depository Regulations¹⁷. Compliance may involve a central securities depository adopting the distributed ledger as its books and records and operating the system (by running the master node).
 - For transactions involving cash and, in particular, those intended to involve delivery-versus-payment (DvP), consideration will need to be given as to the interaction with the cash leg of the transaction. This may involve, for example, interaction with *existing* payments infrastructure or the development of *new* infrastructure, whether that represents cash balances via entries on a distributed ledger or creates tokenised cash. Linklaters has been advising a consortium of banks on a project to create a digital cash instrument backed by central bank money across various jurisdictions (including the UK).

¹⁶ In the sense that a transferee may, by mere transfer of the asset, acquire better title to that asset than that of the transferor.

¹⁷ Regulation (EU) No 909/2014 on improving securities settlement in the European Union and on central securities depositories

Contract



- > Committed Settlement consists of smart contract code. That code may give rise to, or form part of, a legal contract if, in the circumstances, the usual contractual requirements (i.e. offer, acceptance, consideration, intention to create legal relations and certainty of terms), as well as any relevant statutory requirements, are met. The UKJT Statement should help to provide clarity as to the circumstances in which such requirements can be met.
- > The automation of contractual mechanics, particularly value movements, raises certain practical issues. For example:
 - Implementations of Committed Settlement may require parties to agree that assets posted as collateral will be released or appropriated *automatically* only once they can be satisfied that the relevant trigger events are based on reliable and objective data and that every potential eventuality can be coded for in line with the parties' intentions. We expect that contractual arrangements that already define trigger events by reference to objective quantitative criteria may be better suited to automation in the short term than others.
 - For a value movement to occur automatically upon the relevant trigger, the value needs to be “locked” in a way that may restrict it from being used for other purposes. Again, this feature may be better suited to some arrangements (for example, collateral arrangements where use is intended to be restricted) than others (for example, arrangements where the ability to use the locked assets is central to the commercial agreement).

Other rules applying to assets and their trading fora



- > Any other rules relating to the relevant assets or the fora in which they are traded must also be followed. For example, issuers of securities would need to be able to meet their corporate record-keeping requirements through the ledger. For English companies, a statutory framework exists for the recognition and transfer of title to dematerialised securities via a “relevant system” under the Uncertificated Securities Regulations 2001 (the “**USRs**”). Consideration may need to be given as to whether the ledger amounted to such a system and, if so, whether it would be beneficial to structure the system so as to fall within the USRs regime. Also, as mentioned above, transactions in transferable securities may need to comply with the EU’s Central Securities Depository Regulations.
- > All relevant requirements will need to be factored in when structuring the framework over which Committed Settlement is run and building the relevant smart contracts.



Authors and Contact Persons

Committed Settlement

Charlie Yeh

Assistant General Counsel
Digital Asset Holdings,
LLC

legal@digitalasset.com

Charlie Yeh is an assistant general counsel at Digital Asset where he helps Digital Asset's customers design the next generation financial systems with DAML. He has extensive experience with securities custody, clearance and settlement systems.

Prior to joining Digital Asset, Charlie was an executive director and assistant general counsel at JPMorgan, overseeing the prime custody, clearance and collateral management lines of business. Building on his experiences gained from managing system strains caused by the insolvency of three major broker-dealers, he was one of the key designers of JPMorgan's innovative solution to tri-party repo settlement, meeting the FRBNY Task Force requirements to eliminate JPMorgan's trillion dollar intraday exposure to clearing repurchase agreements. He also helped JPMorgan manage the segregated independent amount deadline for non-cleared swaps for its clients.

English Law Perspective



Michael Voisin
Partner, Global Head of
Capital Markets
Linklaters LLP
michael.voisin@linklaters.com

As global head of the firm's Capital Markets practice, Michael is widely acknowledged as an authority on financial markets law and practice. He advises on financial markets infrastructure entities and sophisticated financial products, including securitised, OTC and exchange traded derivatives, repackagings, investment fund products (including CPPI products), collateralised debt obligations, regulatory capital raising for financial institutions, and note and warrant programmes. He also advises on the regulatory capital treatment of exposures to financial entities and products.

Michael led the firm's derivatives and structured products practice between 2002 and 2010 and was also the firm's global knowledge and learning partner for four years until 2012. Michael has been a board member of the Futures Industry Association since 2016. Michael developed the firm's knowledge and thought leadership relating to the Eurozone crisis and has since been closely involved in the development of the firm's knowledge in relation to cryptoassets, distributed ledger technology, smart contracts and settlement finality.



Richard Hay
UK Head of Fintech
Linklaters LLP
richard.hay@linklaters.com

Richard is the firm's FinTech lead and has considerable experience in advising on the financial structuring and regulatory aspects of innovative capital markets structures, products and systems.

He regularly advises investment banks, broker-dealers, market infrastructure providers and start-ups on the deployment of novel technologies to support new or existing business lines. He has particular experience of new product development in the context of market infrastructures, notably trading, clearing, payment and settlement systems. He has also advised numerous start-ups and buy-side institutions on the creation and issuance of novel instruments and investment structures.

He has advised extensively on structured securities, exchange-traded and OTC derivatives and clearing, including on the enforceability of netting, set-off and credit support provisions.

He was previously seconded to the Financial Markets Law Committee at the Bank of England and, prior to joining Linklaters, was an equity derivatives sales-trader at a major investment bank.

He is a CFA charterholder.



Sophia Le Vesconte
Senior Professional Support Lawyer
Linklaters LLP
sophia.le-vesconte@linklaters.com

Sophia is a senior finance lawyer in our global knowledge and learning team. She is one of the firm's leading experts in cryptoassets, distributed ledger technology and smart contracts and is driving the development of the firm's expertise in these areas.

Sophia focuses on complex and evolving areas of regulation in fintech as well as more broadly across a range of structured finance products. She previously practised for many years as a banking lawyer in Linklaters' London and Hong Kong offices and in her role as a knowledge lawyer she has developed much of the firm's knowledge base around cross-border financing regulation in China. She is also one of the firm's legal tech champions and has led several document automation projects across the firm's global banking practice.

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