
Accounting for Tokenized Assets as Collateral

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1. EXECUTIVE SUMMARY

The use of tokenized assets as collateral for derivatives and securities financing transactions (SFTs)¹ is emerging as a significant development in global capital markets. Financial institutions are increasingly evaluating tokenized representations of money market funds (MMFs), government securities and other high-quality liquid assets to enhance collateral mobility, improve settlement efficiency and post-settlement workflows and optimize liquidity management. As market adoption advances, the focus is shifting from operational feasibility to the broader legal, regulatory, risk management and financial reporting implications of tokenized collateral.

This whitepaper analyzes potential gross versus net balance sheet presentation accounting considerations of derivatives and SFTs where certain tokenized financial assets are used as collateral under International Financial Reporting Standards (IFRS®) accounting standards and US Generally Accepted Accounting Principles (US GAAP)². The analysis considers traditional bilateral over-the-counter (OTC) and centrally cleared structures, as well as emerging structures enabled by distributed ledger technology (DLT). The analysis is focused on individual product types, such as derivatives and SFTs, and does not address cross-product netting arrangements.

The operational and legal feasibility of using tokenized collateral in derivatives markets has been examined in other industry studies^{3,4} and is beyond the scope of this paper. This paper also does not address accounting issues relating to classification⁵ and recognition/derecognition of tokenized assets as collateral. The analysis in this paper is premised on the assumption that recognition of tokenized assets as collateral may be achieved and explores the previously unexamined question of whether recognition of tokenized collateral may change the balance sheet presentation outcomes for derivatives and SFTs and their related recognized collateral balances under existing accounting standards.

The analysis is based on existing accounting standards, principally International Accounting Standard (IAS) 32 (Financial Instruments: Presentation) and IFRS 9 (Financial Instruments), and Accounting Standards Codification (ASC) 210 (Balance Sheet) and ASC 815 (Derivatives and Hedging) under US GAAP. The ability to net collateral receivables and obligations against derivatives and SFT receivables and obligations is largely dependent on the parties' legal rights and obligations and the settlement mechanism for SFTs that qualify as securities repurchase and reverse repurchase transactions – not on the technology used to evidence or transfer the financial instruments.

Traditional and new market structures for derivatives may use either a collateralized-to-market (CTM) or a settled-to-market (STM) exposure management model, depending on the legal character of collateral and margin. Under the CTM model, the variation margin (VM) is transferred to collateralize the underlying exposure, while under the STM model the VM legally extinguishes the underlying derivatives exposure.

¹ Securities financing transactions are collateralized transactions involving the temporary transfer of securities in exchange for cash or other assets, with an agreement to reverse the transfer at a future date, including sale and repurchase agreements (repos), securities lending and borrowing, buy-sell back transactions and margin lending

² Accounting principles issued by the Financial Accounting Standards Board (FASB)

³ The Case for Collateral Mobility in Europe & the UK Using Tokenized Money Market Funds, Global Digital Finance (GDF), 2025, www.gdf.io/resources/the-case-for-collateral-mobility-in-europe-the-uk-using-money-market-funds/, page 18; Unlocking Capital with US Tokenized Money Market Funds for Collateral Mobility, ISDA, GDF, 2026, www.gdf.io/resources/unlocking-capital-with-u-s-tokenized-money-market-funds-for-collateral-mobility, page 17 notes the accounting treatment is not addressed

⁴ Assessing Tokenized Money Market Funds as Eligible Collateral Under the ISDA CSA, ISDA, October 6, 2026, www.isda.org/2026/10/06/assessing-tokenized-money-market-funds-as-eligible-collateral-under-the-isd-csa/

⁵ This paper does not address regulatory capital considerations, but institutions should consider whether the recognition and classification of tokenized assets as certain types of assets (eg, intangible assets) could result in adverse capital consequences

Under the CTM model, the payable or receivable associated with recognized tokenized assets transferred as collateral would be presented gross, as the criteria for offsetting would not be met. Under IFRS accounting standards, offsetting requires both a currently enforceable legal right of set-off and an intention to settle net or simultaneously. Tokenization does not affect the legal right of set-off criterion, as collateral can only be applied against the derivatives exposure on close-out, therefore offsetting is not achieved. Under US GAAP, offsetting similarly depends on enforceable rights and, in most cases, intent to net settle. However, US GAAP contains exceptions to these criteria for derivatives, where specific guidance permits offsetting of derivatives positions with the same counterparty as well as fair value amounts recognized for receivables or payables associated with cash collateral posted or received under a master netting arrangement, without demonstrating the intent to net settle. Importantly, the ability to offset the payable or receivable associated with collateral is limited to cash collateral and does not apply to collateral received in the form of tokenized assets that are not considered as cash, including cash equivalents. As a result, payables or receivables associated with recognized tokenized assets transferred as collateral would not be eligible for offsetting under US GAAP.

This paper concludes that, for accounting purposes, tokenization by the issuer or its transfer agent⁶ does not, in itself, automatically change the nature of the underlying asset (eg, a bank deposit, government bond, equity security or a share or unit of an MMF) and netting accounting considerations. Where a third-party custodian issues the token, the underlying asset is also unchanged, but the holder's rights are held through the custodian (a security entitlement under Uniform Commercial Code Article 8), with the custodian's credit and operational risk.

While the nature of the underlying assets is not changed by tokenization, DLT may nonetheless facilitate settlement mechanisms that could align to existing STM models by enabling atomic delivery-versus-payment⁷ and programmable settlement through smart contracts⁸. These issues would need to be separately supported by careful legal analysis of the respective structures. Where such mechanisms are combined with appropriate legal structuring, so that transfers legally extinguish exposures, derecognition of derivatives balances may be achieved and gross balance sheet positions reduced. In these circumstances, accounting outcomes would be consistent with existing STM models already observed in centrally cleared market structures. In addition, DLT may have the potential to enable parties to structure trades without the need for a central counterparty (CCP) for transactions not subject to a clearing mandate, which may expand the ability to achieve STM-like outcomes.

Without considering the recognition/derecognition or classification of tokenized collateral, this paper concludes that while tokenization enhances operational efficiency and collateral mobility⁹, it does not, in itself, create or change derecognition or offsetting accounting outcomes. Through appropriate changes to the legal and settlement structure of the transaction agreements, tokenization may enable settlement mechanisms that align with the STM model and achieve changes in accounting outcomes that support balance sheet reduction.

⁶A transfer agent is a service provider that acts on behalf of the issuer to maintain records of security ownership and process ownership changes

⁷The term 'atomic' refers to the inability to be divided into smaller parts, such that all operations are fully completed or none at all. Under a delivery-versus-payment settlement mechanism, the transfer of securities and the corresponding cash payment are linked so that each is completed only if the other is also settled. For more information, see Securities settlement systems: delivery-versus-payment in a distributed ledger environment, European Central Bank, Bank of Japan, March 2018, www.ecb.europa.eu/pub/pdf/other/stella_project_report_march_2018.pdf

⁸A smart contract is an agreement that is automatable by computer, although some parts may require human input and control, and enforceable either by legal enforcement of rights and obligations or via tamper-proof execution of computer code. For more information, see Smart Derivatives Contracts: From Concept to Construction, ISDA, October 2018, www.isda.org/a/CHvEE/Smart-Derivatives-Contracts-From-Concept-to-Construction-Oct-2018.pdf

⁹The Case for Collateral Mobility, GDF, 2025, page 9

2. INTRODUCTION

By developing globally recognized documentation standards and supporting market infrastructure, ISDA plays a central role in promoting consistency, legal certainty and efficiency across derivatives and SFT markets. Core market standard frameworks like the ISDA Master Agreement and Credit Support Annex (CSA), together with the International Capital Market Association Global Master Repurchase Agreement (GMRA), establish standardized contractual terms that govern derivatives and SFT transactions. ISDA has also been instrumental in shaping practices by updating collateral documentation to reflect regulatory requirements and evolving practices like VM exchange and collateral eligibility criteria, all of which facilitate greater interoperability, automation and resilience in derivatives and SFT collateral ecosystems.

Mandatory margining requirements for derivatives following the 2008 financial crisis have significantly increased demand for collateral to mitigate counterparty credit risk. In periods of stress, SFTs, particularly sale and repurchase agreements (repo) and securities lending, are relied upon to transform non-eligible assets into eligible collateral and to generate liquidity to meet margin calls. This has driven a growing interdependence between the derivatives and SFT markets, with the latter effectively acting as a collateral and funding backstop but also placing increasing pressure on balance sheets and liquidity due to funding, segregation and regulatory constraints. In response, ISDA has advocated for the recognition of cross-product netting across derivatives and SFT exposures, alongside greater alignment of documentation and regulatory treatment. This would better reflect the economic offsetting of risks, improve balance sheet efficiency and enhance collateral mobility across these closely linked markets.

This paper provides an analysis, under IFRS accounting standards and US GAAP, of the potential net versus gross balance sheet presentation implications of using tokenized assets as collateral for derivatives and SFTs in traditional market structures, applying either a CTM or STM exposure management model, and new market structures enabled by DLT.

3. BACKGROUND

Under traditional market convention, cash is the dominant form of collateral but investments in MMFs are not widely used directly as collateral, even though they can be agreed as eligible collateral under ISDA CSAs¹⁰. MMFs are instead used for cash management and redeemed in cash to meet margin calls. This introduces a settlement lag, liquidity inefficiencies and the loss of returns. The need to redeem MMFs can also exacerbate market shocks, as seen during the UK gilt market crisis in 2022. From an operational perspective, tokenized versions of MMFs (ie, a share or unit in an MMF that is recorded or represented using DLT) can behave in a similar way to cash collateral¹¹.

Tokenization could also enable other types of assets, such as government bonds, Treasuries, bank deposits or equity shares, to be used as VM more readily than in traditional form, but it does not change whether the underlying asset is eligible under applicable margin rules¹². The question that arises is whether tokenization of collateral may change the balance sheet presentation outcomes for derivatives and SFTs and their related recognized collateral balances from a gross versus net perspective. Under both IFRS accounting standards and US GAAP, non-cash collateral such as MMFs and other securities are generally off-balance sheet. This paper therefore addresses this question only in situations where the recognition requirements of the tokenized collateral are met such that they are presented on balance sheet for accounting purposes.

3.1 Key Characteristics of Blockchain and Application to Financial Markets

DLT is a decentralized or shared ledger on which each participant maintains a synchronized copy of the transactions recorded on the ledger. The technology enables peer-to-peer transfers and the transactions are cryptographically secured and made immutable. This is referred to as ‘on-chain’ settlement, which reduces the reliance on intermediaries such as CCPs. Another feature of DLT is that transactions can be programmed through smart contracts, reducing operational risks and manual processing costs. Capital markets are increasingly embracing DLT and tokenization as a means of modernizing financial infrastructure, enhancing efficiency and improving transparency across the trade lifecycle.

A key application of DLT is collateral mobility, particularly in the context of tighter margin requirements and liquidity constraints, where current processes can amplify market stress and operational risks. Tokenized versions of financial assets could be a promising innovation, offering the potential for more efficient, programmable and transparent collateral solutions, although their practical implementation requires careful legal, operational and regulatory consideration.

3.2 Market Structures Considered in the Analysis

This paper analyzes the balance sheet presentation implications of using tokenized financial assets as collateral under (a) traditional market structures, such as bilateral OTC and centrally cleared structures, and (b) new emerging market structures enabled by DLT, for both derivatives and SFTs.

Traditional Market Structures

Traditional market structures use the following two exposure management models that impact the balance sheet presentation of derivatives and SFTs and their related collateral balances:

¹⁰ The Case for Collateral Mobility, GDF, 2025, page 13. See also ISDA Margin InfoHub eligible collateral comparison by jurisdiction for non-cleared margin rules, assets.isda.org/media/2d9a4dc4/ca668f9e-pdf

¹¹ The Case for Collateral Mobility, GDF, 2025, page 9

¹² Accelerating the velocity of collateral: The potential for tokenisation in cleared derivatives markets, FIA, June 2025, www.fia.org/sites/default/files/2025-06/FIA%20-%20Tokenisation%20-%20Accelerating%20the%20velocity%20of%20collateral.pdf, page 5

1. CTM: In this scenario, financial assets are tokenized and the token is used as collateral for a derivatives transaction, such as an interest rate swap, or an SFT, such as a securities sale and repurchase.

For derivatives under a CTM model, the initial margin (IM) and VM are returnable and are used as credit risk mitigation. The VM is generally held in the form of cash and the collateral does not settle or extinguish the derivatives exposure. For the SFTs, the securities transferred serve as collateral. The VM, generally in the form of cash, is returnable and is used as credit risk mitigation.

2. STM: In this scenario, financial assets are tokenized and the token is used to settle the derivatives or SFT exposure.

For derivatives, there is an obligation to return IM, but for STM transactions, the VM, generally in the form of cash, is used to settle or extinguish the derivatives exposure (either as a financial asset or liability) and there is no obligation to return the VM following settlement or extinguishment.

For SFTs, the securities transferred serve as collateral and are not held in tokenized form. The VM, generally in the form of cash, is not returnable and is used to settle the mark-to-market exposure arising from changes in the value of the underlying securities lent. While this is not a common structure in the market today, this paper still considers this scenario.

New Market Structures

New market structures enabled by DLT and smart contracts potentially enable real-time CTM or STM models. For example, it may facilitate the use of perpetual swaps or perpetual futures, financial instruments popular for trading cryptocurrencies, where exposures may be settled or re-margined continuously or at high frequency. These exposure management models could potentially be structured by the parties so that the tokenized assets settle the derivatives or SFT exposure continuously (ie, be STM-like). However, new market structures could also use a CTM model to re-margin instead of settling the exposure.

4. ASSUMPTIONS AND SCOPE EXCLUSIONS

- a. This paper does not analyze the legal implications of tokenization or the settlement features of digital assets on a blockchain. Tokenization of traditional financial assets is assumed not to change the legal rights of the holder to the underlying assets, but rather the way ownership is recorded and transferred. Where the issuer or its transfer agent maintains the register (on-chain or off-chain), the token holder owns the underlying asset. Where a third-party custodian issues the token, the holder's rights are held through that custodian (see ISDA guidance on tokenized collateral¹³ and the US Securities and Exchange Commission's staff statement on tokenized securities¹⁴). Tokenization also does not change the unit of account of the collateral asset and does not override default-only netting under the ISDA Master Agreement (including any CSA) or GMRA.
- b. This paper does not address recognition, derecognition or classification of collateral in the form of tokenized assets. For the purposes of this paper, it is assumed that recognition of tokenized collateral on balance sheet for accounting purposes may be achieved.
- c. This paper does not analyze classification of tokenized assets and whether tokenization enables assets to meet the definition of cash or cash equivalents and assumes that tokenization does not change the nature and purpose with which investment in the financial asset is held.
- d. Tokenized versions of constant and low-volatility MMFs provide an opportunity to behave similarly to cash collateral from an operational perspective and there is relative legal certainty that tokenized MMFs would be eligible for use as VM for non-cleared derivatives under ISDA CSAs in certain jurisdictions¹⁵. This paper assumes that eligible tokenized assets (such as MMFs) and other highly liquid assets can be used as collateral in CTM models and new market structures, enabled by DLT permitting on-chain settlement.
- e. The net presentation of financial instruments may have regulatory capital benefits for entities operating in regulated industries, if regulatory bodies recognize the on-balance sheet netting of calculations of minimum capital requirements. An entity might also be able to achieve regulatory capital benefits from credit and liquidity risk mitigation arrangements that do not qualify for on-balance sheet offsetting. This paper does not address the regulatory capital or tax consequences of using tokenized assets as collateral within derivatives and SFTs.
- f. Netting may also lead to lower collateral requirements, reduced funding costs and liquidity needs. Collateral requirements and liquidity needs are governed by separate rules, including those set out in the ISDA Master Agreements and CSAs, so some of these netting benefits may be obtained irrespective of the presentation on the balance sheet under IFRS accounting standards and US GAAP. This paper does not address netting for the purposes of regulatory capital requirements.

¹³ Guidance for memorandum of law examining the validity and enforceability of collateral arrangements using the ISDA model provisions for tokenized collateral, May 21, 2024, www.isda.org/a/ox1gE/ISDA-Tokenized-Collateral-Guidance-Note-052124.pdf

¹⁴ Statement on Tokenized Securities, January 28, 2026, www.sec.gov/newsroom/speeches-statements/corp-fin-statement-tokenized-securities-012826-statement-tokenized-securities

¹⁵ The Case for Collateral Mobility, GDF, 2025, page 9

5. ACCOUNTING ANALYSIS

This section sets out the accounting guidance and balance sheet presentation of derivatives and SFTs, including associated collateral, under IFRS accounting standards and US GAAP, and evaluates the implications of using tokenized assets as collateral for the balance sheet presentation of traditional and new market structures.

5.1 Accounting Guidance

The presentation of financial assets and liabilities in a way that reflects an entity's exposure to future cashflows provides relevant information to users about its credit and liquidity risk exposure. If the relevant criteria under IFRS accounting standards¹⁶ and US GAAP¹⁷ are met, entities are required, under IFRS accounting standards, or permitted under US GAAP, to present recognized financial assets and liabilities on a net or settled basis. If the criteria are not met under both frameworks or if offsetting is not elected under US GAAP, disclosure¹⁸ of the effects of netting arrangements on the risks arising from the financial instruments is required. The objective of these requirements is to achieve a fair presentation or disclosure of the entity's exposures to its counterparties and, where appropriate, prevent the overstatement of balance sheet size and credit and liquidity risk.

Derecognition and offsetting of financial instruments are different accounting concepts and offsetting only applies to the presentation of recognized financial instruments¹⁹. It should therefore be determined if an instrument or portion of the instrument is a recognized asset or liability or if it can be derecognized, for example under the STM model, before net versus gross presentation under offsetting rules is evaluated.

Derecognition occurs when a financial instrument is removed from the balance sheet (also known as the 'statement of financial position'). Financial assets are derecognized under IFRS accounting standards when the contractual rights to the cashflows from the financial asset expire through settlement or the financial asset is transferred and the transfer qualifies for derecognition²⁰ and, under US GAAP, when the contractual rights to the cashflows expire through settlement or when a transfer of the financial asset satisfies the conditions for sale accounting under ASC 860²¹. Financial liabilities are derecognized when they are extinguished, which under IFRS accounting standards is when the obligation specified in the contract is discharged, cancelled or expires²². Under US GAAP, liabilities are derecognized when the debtor pays the creditor and is relieved of the obligation, or when the debtor is legally released from being the primary obligor²³.

Offsetting is the presentation of recognized financial assets and liabilities on a net basis when applicable offsetting criteria are met. The balance sheet presentation of two instruments that are fully offset therefore looks the same as two instruments that have been derecognized, although the related disclosures are different.

¹⁶ International Accounting Standard (IAS) 32.42

¹⁷ Accounting Standards Codification (ASC) 210-20

¹⁸ International Financial Reporting Standard (IFRS) 7.13A-13F, ASC 210-20-250-3

¹⁹ IAS 32.44; ASC 210-20-45-1 and 45-2

²⁰ IFRS 9.3.2.3

²¹ ASC 860-10-40-5

²² IFRS 9.3.3.1. IFRS 9 has been amended to clarify the criteria for recognition and derecognition and an exception to derecognition has been introduced for financial liabilities settled using electronic payment systems, effective for annual periods beginning on or after January 1, 2026. This exception and its applicability is beyond the scope of this paper and is not expected to impact the illustrations in section 5.1.2 or the conclusions in section 5.2.1

²³ ASC 405-20-40-1

5.1.1 IFRS Accounting Standards

IFRS accounting standards contain a general principle that recognized assets and liabilities must not be offset unless permitted or required by the accounting standards or interpretations²⁴. IAS 32 contains an exception to the general principle and requires financial assets and liabilities to be offset when the criteria in IAS 32.42 are met. This is to ensure the balances presented on the balance sheet reflect the entity's expected future cashflows from settling two or more separate financial instruments, as well as the risks to which those cashflows are exposed²⁵.

IAS 32.42 requires that financial assets and liabilities must be presented on a net basis when both of the following criteria are met:

- a) The entity currently has a legally enforceable right to set off the recognized amounts ('right to set off'); and
- b) The entity intends either to settle on a net basis or to realize the asset and settle the liability simultaneously ('intention to settle net').

The application guidance for IAS 32 clarifies that the right to offset must not be contingent upon a future event and must not only be enforceable in the event of default, insolvency or bankruptcy, but also in the normal course of business²⁶. The right to set-off depends on the laws applicable to the relationships between the parties and therefore the nature and extent of the right may be different from one jurisdiction to another. Master agreements that are drafted to restrict the counterparty's exposure only in the event of default, bankruptcy or other events not expected to arise in the normal course of business, do not provide a current legally enforceable right to set off. IAS 32.BC103 is clear that there are no special considerations for items referred to as collateral and these items can only be offset if the criteria in IAS 32.42 are met.

The ability to settle simultaneously was included as a practical exception to net settlement²⁷, as net settlement may not be operationally possible. Even simultaneous settlement, which is gross settlement at the same moment, may not be operationally feasible, so the standard allows gross settlement mechanisms with features that are effectively equivalent to net settlement. Net or simultaneous settlement may occur through a clearing house or organized financial market, but settlement through these intermediaries does not always result in net settlement that meets IAS 32.42(b). IAS 32.AG38F clarifies that a gross settlement mechanism that eliminates or results in insignificant credit and liquidity risk and that settles receivables and payables in a single settlement process, meets the net settlement criterion, as the outcome is effectively equivalent to net settlement. A settlement mechanism with the following characteristics is provided in the standard as an example of such a settlement mechanism:

- a) Financial assets and liabilities eligible for set-off are submitted at the same point in time for processing;
- b) Once the financial assets and liabilities are submitted for processing, the parties are committed to fulfil the settlement obligation;
- c) There is no potential for the cashflows arising from the assets and liabilities to change once they have been submitted for processing;

²⁴ IAS 1.32, or IFRS 18.44 when applied

²⁵ IAS 1.32, or IFRS 18.44 when applied

²⁶ IAS 32.AG38B

²⁷ IAS 32.AG38F

- d) Assets and liabilities that are collateralized with securities will be settled on a securities transfer or similar system (for example, delivery-versus-payment), so that if the transfer of securities fails, the processing of the related receivable or payable for which the securities are collateral will also fail (and vice versa);
- e) Any transactions that fail, as outlined in (d), will be re-entered for processing until they are settled;
- f) Settlement is carried out through the same settlement institution (for example, a settlement bank, a central bank or a central securities depository); and
- g) An intraday credit facility is in place that will provide sufficient overdraft amounts to enable the processing of payments at the settlement date for each of the parties, and it is virtually certain that the intraday credit facility will be honored if called upon.

As settlement mechanisms with these characteristics have negligible credit and liquidity risk in that both assets and liabilities are submitted for settlement at the same time, the submission is irrevocable and the cashflows cannot change once the instruction is submitted. It is near-certain that the settlement will be completed where it happens on the same system and failure of one leg cancels the other. On-chain settlement, whether conducted manually or automatically through smart contracts, is demonstrated to take seconds²⁸ and may satisfy these characteristics. However, there are characteristics introduced by DLT that may not have been contemplated when IAS 32.AG38F was drafted. For example, a blockchain is decentralized and settlements could happen between two blockchains, which may not meet the 'same settlement institution' characteristic in IAS 32.AG38F(f), although where the blockchain register is maintained by the issuer or transfer agent, it may be met.

On-chain settlement may not achieve legal finality in all jurisdictions and may not sufficiently eliminate credit and liquidity risk. Also, if the on-chain transfer and an off-chain register update are separate steps, on-chain transfer does not guarantee legal atomicity. Legal finality may also depend on whether the on-chain transfer or an update to an off-chain register is the legally operative event. For an on-chain transfer, entities need to establish when the transfer is final and irrevocable, especially where the two settlement legs are on different ledgers. Whether on-chain settlement is equivalent to net settlement would need to be assessed on a case-by-case basis.

5.1.2 US GAAP

Balance sheet offsetting is generally not allowed under US GAAP, except where a right of set off exists and the entity intends to exercise that right. ASC 210-20 provides criteria for offsetting amounts related to certain contracts and provides guidance on presentation. The guidance in ASC 210-20 applies to all entities and relates only to the presentation of recognized assets and liabilities between two parties.

ASC 210-20-45-1 states that a right of set off exists when all of the following conditions are met:

- a) Each of the two parties owe the other determinable amounts;
- b) The reporting party has the right to set off the amount owed with the amount owed by the other party;
- c) The reporting party intends to set off;
- d) The right of set off is enforceable at law.

²⁸ The Case for Collateral Mobility, GDF, 2025, page 51

ASC 210-20-45-2 states that a debtor having a valid right of set off may offset the related asset and liability and report the net amount.

The requirement that the right of set off must be enforceable at law is generally met where a legally enforceable master netting arrangement exists and the associated netting rights would be upheld under the laws applicable in the relevant jurisdiction, including upon a counterparty default or bankruptcy. US GAAP does not require that the right to set off must be currently enforceable under all circumstances and allows it to be contingent upon future events such as default or bankruptcy.

Exceptions to the general rule exist for derivatives and securities repurchase contracts where the criterion requiring an intention to set off can be disregarded.

A key pillar of ASC 815 is that financial assets and liabilities should be presented on the balance sheet on a gross basis unless the conditions set out in ASC 210-20 have been met. However, ASC 815-10-45-1 through 45-7 provide special offsetting guidance for derivatives instruments executed with the same counterparty under a master agreement, including offsetting fair value amounts recognized for the receivable or payable associated with cash collateral posted or received, without applying the condition in ASC 210-20-45-1(c) that a reporting entity intends to set off²⁹.

When it comes to collateral, the guidance in ASC 815-10-45-5 explicitly states that offsetting is applicable for the receivable/payable associated with cash collateral. The receivable/payable associated with collateral in a form other than cash, including cash equivalents, if recognized, would therefore not be eligible for netting under this guidance.

ASC 815-10-45-6 further clarifies that if an entity makes an election to offset derivatives instruments under ASC 815-10-45 guidance but cannot offset any related collateral receivables or obligations, the entity would continue to offset derivatives receivables and liabilities governed by a common master agreement.

5.2 Balance Sheet Presentation of Traditional Market Structures

5.2.1 Derivatives

Traditional market structures can be divided into bilateral OTC and centrally cleared derivatives. Bilateral OTC derivatives are contracts entered into directly between counterparties and are typically collateralized through the exchange of IM posted at inception to protect against potential future exposure if a counterparty defaults and VM transferred regularly, often daily or more frequently, to reflect mark-to-market movements.

Bilateral contracts are not cleared through a CCP and one of the parties is often a financial institution such as a bank. These transactions are generally executed under a CTM model, meaning the exposure that arises during the life of the contract is collateralized through the exchange of VM. Under a CTM model, the derivatives exposure is not extinguished, therefore the derivatives asset or liability continues to be recognized and the collateral is accounted for separately. Cash collateral received is recognized together with a liability to return it, and cash collateral posted is derecognized with a receivable for its return. Non-cash collateral generally remains on the transferor's balance sheet, such that gross balance sheet presentation continues. The exchange of non-cash collateral is recorded by the transferor and transferee in an off-balance sheet account and may be subject to separate credit risk disclosure requirements.

Centrally cleared derivatives, by contrast, are contracts novated by both parties to a CCP such that both parties are left with the CCP as their counterparty, instead of each other. The CCP manages the

exchange of collateral in accordance with a clearing framework that can require derivatives to be either under a CTM model or an STM model. Cash collateral exchanged under an STM model does not collateralize the unrealized market movements like CTM does, but instead settles the exposure on a daily or even more frequent basis. VM under bilateral derivatives could also potentially be structured under an STM model. Cash collateral and the related derivatives exposure are derecognized under an STM model. The balance sheet offsetting rules are therefore not relevant because VM movements directly reduce or extinguish the value of the derivatives asset/liability on the balance sheet.

The following example illustrates the balance sheet presentation of derivatives and the related collateral under both CTM and STM models for IFRS accounting standards and US GAAP:

- Entity A enters into two interest rate swaps with Bank X and posts \$20 of IM that is held by Bank X in a segregated account;
- At the reporting date, Swap 1 has a favourable fair value of \$100 and Swap 2 has an unfavourable fair value of \$30 from entity A's perspective;
- Bank X therefore transfers \$70 of cash (or \$70 of government bonds) to Entity A as VM, mirroring the cumulative change in fair value of both swaps;
- The trades between Entity A and Bank X are governed by a master agreement, which provides the parties with the legal right to use the VM to settle the net derivatives position in the event of default.

5.2.1.1 IFRS Accounting Standards

Table 1: IFRS Balance Sheet Presentation of Derivatives at the Reporting Date

Balance Sheet Line Item	CTM Model (cash margin)	CTM Model (non-cash margin) (tokenized assets margin)	STM Model (cash margin) (tokenized assets margin)
(A) Derivatives asset (at fair value)	\$100 ^{1,3}	\$100 ⁵	\$0 ⁴
(B) IM receivable	\$20	\$20	\$20
(C) VM payable (collateral held)	\$(70)	n/a ²	n/a ⁴
(D) Derivatives liability (at fair value)	\$(30) ^{1,3}	\$(30) ⁵	\$0 ⁴
(E) Net derivatives balance = (A - D)	\$70	\$70	\$0 ⁴
(F) Net VM balance = (C)	\$(70)	n/a ²	\$0 ⁴
Net balance sheet position, including IM = (E - F + B)	\$20	\$90	\$20

¹ The VM is returnable and the master agreement only gives Entity A the right to use the VM against its exposure in the event of default, so the collateral payable cannot be offset against the derivatives asset.

² Non-cash collateral received in a CTM model is not recognized on the balance sheet, so no corresponding payable is recognized on the balance sheet. This example reflects the scenario in which tokenized assets received as collateral would not be recognized.

³ As the master agreement between Entity A and Bank X only gives Entity A the right to offset in the event of default, the two derivatives cannot be offset, even though they are with the same counterparty.

⁴ Cash VM extinguished the derivatives exposures in STM models. Non-cash collateral is typically not used as VM in STM models.

As explained in section 5.1.1, if the recognized financial instruments do not meet the requirements to be derecognized, the instruments can only be offset and presented on a net basis if the respective offsetting criteria are met. The offsetting criteria are essentially the legal right to offset and the intention to settle net.

The exchange of collateral using DLT may enable entities to meet the 'intention to settle net criterion' in IAS 32.42(b). Whether settlement on-chain meets the characteristics of a net

settlement mechanism described in IAS 32.AG38F depends on the facts and legal arrangements of the specific blockchain(s) used. Legal analysis would need to be carried out for the specific tokenization structure and blockchains to determine whether settlement is legally final.

Tokenization on its own does not change the legal rights of the parties with respect to collateral, and under CTM models the collateral posted or received remains returnable and does not extinguish the exposure, so the 'right to set off' criterion in IAS 32.42(a) is not met.

Structural changes required to achieve derecognition and a reduction in recognized gross balances are to align collateral agreements with STM models, ie, to structure the transaction so that the VM legally extinguishes the related exposures and the recognized balances are removed from the balance sheet. To achieve offsetting, however changes to existing accounting guidance may also be required if legal analyses conclude that settlement on-chain does not meet the current characteristics of the net settlement mechanism described in IAS 32.AG38F.

Under an STM model, the offsetting assessment is typically not applicable and the use of tokenized assets for VM in STM models does not change the accounting and balance sheet presentation of derivatives. However, the use of tokenized assets and DLT for collateral management could introduce benefits such as yield retention on tokenized assets and programmable VM transfers through the use of smart contracts. To afford participants these benefits, clearing houses, custodians and settlement systems may need to adapt their rulebooks to permit the use of tokenized assets as settlement instruments, where current requirements mandate cash settlement. In the US, the constraint is also regulatory, as MMFs, whether or not they are tokenized, are not currently eligible as cleared VM.

5.2.1.2 US GAAP

Table 2: US GAAP Balance Sheet Presentation of Derivatives at the Reporting Date

Balance Sheet Line Item	CTM Model (cash margin)	CTM Model (non-cash margin) (tokenized assets margin)	STM Model (cash margin) (tokenized assets margin)
(A) Derivatives asset (at fair value)	\$0 ^{1,3}	\$70 ³	\$0 ⁴
(B) IM receivable	\$20	\$20	\$20
(C) VM payable (collateral held)	\$01	n/a ²	n/a ⁴
(D) Derivatives liability (at fair value)	\$0 ^{1,3}	\$03	\$0 ⁴
(E) Net derivatives balance = (A-D)	\$0	\$70	\$0 ⁴
(F) Net VM balance = (C)	\$(0) ¹	n/a ²	\$0 ⁴
Net balance sheet position, including IM = (E - F + B)	\$20	\$90	\$20

¹ Where the VM is cash, the related payable of \$(70) can be offset against the net derivatives position of \$70, resulting in a net balance sheet presentation of \$0.

² Non-cash collateral received in a CTM model is not recognized on the balance sheet, so no corresponding payable is recognized on the balance sheet. This example reflects the scenario in which tokenized assets received as collateral would not be recognized.

³ As the two derivatives are with the same counterparty under a master agreement, Entity A elects to offset the derivatives asset of \$100 with the derivatives liability of \$30, resulting in a net derivatives position of \$70.

⁴ Cash VM extinguished the derivatives exposures in STM models. Non-cash collateral is typically not used as VM in STM models.

As explained in section 5.1.2, under US GAAP, ASC 815 contains an exception to the general offsetting criteria in ASC 210-20, where the derivatives instruments between the same counterparties under a master agreement are permitted to be offset as well as the fair value of the cash collateral posted or received. Cash is defined under US GAAP as currency on-hand as well as demand deposits with banks or other financial institutions. VM payments by CCPs such as CME are commonly required to be settled in cash.

Where tokenized assets are not considered cash under US GAAP, any payable/receivable associated with tokenized assets used as collateral, if recognized, would not be eligible for offsetting against derivatives positions under the ASC 815 exception. While tokenization may facilitate more synchronized or simultaneous settlement, it does not establish the required legal right or intent. Under US GAAP, simultaneous settlement is also not regarded as equivalent to net settlement for derivatives. The derivatives exposure and the related receivable/payable on collateral in the form of tokenized assets would therefore be required to be presented on a gross basis, given that the ASC 210-20 offsetting criteria are unlikely to be met. Without changes to current accounting guidance, net presentation associated with collateral in the form of tokenized assets under the CTM model would not be achieved. However, the use of tokenized assets as collateral would not impact the ability to offset derivatives asset and liability positions with the same counterparty under a master netting arrangement if an entity elects to offset under ASC 815.

Where transfers constitute legal settlement (STM model), the primary US GAAP question is not offsetting under ASC 210 but whether derecognition or extinguishment has occurred. If derecognition or extinguishment is achieved, the recognized exposure is removed from the balance sheet and offsetting becomes relevant only if any gross recognized balances remain following that analysis. Because derivatives can be either assets or liabilities, they must meet the criteria of both ASC 405-20-40-1 and 860-10-40-5 to be derecognized. The legal determination of VM as settlement of the exposure results in the payer of VM having no right to reclaim that cashflow in the future (ie, a financial asset), and the receiver of VM having no obligation to return that cashflow in the future (ie, a financial liability). As such, it would not be appropriate for VM payments and receipts to give rise to the recognition of financial assets and liabilities related to those flows as separate units of account. The cashflows serve to settle and reduce the recognized asset or liability arising from the derivatives' mark-to-market movements, and not to result in additional financial assets or liabilities being recognized. As with IFRS accounting standards, tokenization may facilitate the mechanics of settlement (for example, through atomic delivery-versus-payment), but does not, of itself, determine the accounting outcome, which is driven by the legal characterization of the arrangement.

The settlement mechanism and whether the posting of VM legally extinguishes the derivatives exposure is critical to the accounting outcome and balance sheet presentation of derivatives and related collateral. To support such an outcome, the transaction documentation needs to clearly state whether each VM transfer is returnable collateral or legal settlement of the exposure. Although the balance sheet presentation differs, the economics under both the CTM and STM models are the same.

5.2.2 Securities Financing Transactions

An SFT, such as a repurchase agreement or securities lending arrangement, is a short-term financing transaction in which one party temporarily transfers securities to another in exchange for cash or other securities, with a contractual obligation to reverse the transaction at a future date. As the transferor undertakes an obligation to reverse the transaction in the future, under IFRS accounting standards it generally does not transfer all the risks and rewards associated with the securities and therefore cannot derecognize the securities from its balance sheet. Under US GAAP, transfers of financial assets under a repo agreement are either accounted for as sales or collateralized borrowing transactions, depending on whether the derecognition requirements of ASC 860 have been met. The securities transferred in this transaction serve as collateral for the cash or other securities borrowed.

The payable under a repo agreement accounted for as a collateralized borrowing refers to the amount for the repo party's obligation for the future repurchase of the securities from the reverse repo party. The receivable under a reverse repurchase agreement accounted for as collateralized borrowing refers to the amount due from the repo party for the repurchase of the securities from the reverse repo party.

As the market value of the securities lent can change daily, parties are required to exchange VM on a regular (typically daily) basis to ensure the counterparty credit risk exposure from the SFT remains aligned with the agreed level of collateralization. Parties can structure their transactions as either a CTM or STM model with respect to VM. Under a CTM model, the VM is used as collateral and is treated as a separate unit of account to the repurchase liability and does not extinguish it. Where the VM is cash, a receivable or payable is recognized as a separate financial asset or liability for the right to receive or obligation to return the cash. Under an STM model, the VM regularly settles the mark-to-market movements instead of being held as collateral, in addition to the securities lent, and is not recognized as a separate financial asset or liability. Instead, VM under an STM model results in decreases or increases in the repo payable or receivable, depending on whether securities lent appreciate or depreciate and netting considerations would not be relevant.

The following example illustrates the balance sheet presentation of a sale and repurchase transaction and the related collateral under both CTM and STM models for IFRS accounting standards and US GAAP, respectively:

- Entity A transfers securities with a fair value of \$102 and receives \$100 of cash under a repurchase agreement;
- The \$2 excess of collateral value over cash received is the IM/haircut and is an inherent feature of the pricing, not a separately recorded cashflow;
- At the reporting date, the securities value declines to \$99, and Entity A (as cash borrower) is required to post \$3 of additional cash/collateral as VM to maintain the lender's required margin;
- Most repo VM is contractually collateral (CTM-like). An STM-style repo, where VM is treated as adjusting the repurchase price itself, is comparatively less common.

5.2.2.1 IFRS Accounting Standards

Table 3: IFRS Balance Sheet Presentation of SFTs at the Reporting Date

Balance Sheet Line Item	CTM Repo (cash margin)	CTM Repo (non-cash margin) (tokenized assets margin)	STM Repo (cash margin) (tokenized assets margin)
(A) Securities pledged	\$99 ¹	\$99 ¹	\$99 ¹
(B) Repurchase liability (cash borrowed) 5	\$(100)	\$(100)	\$(97) ⁴
(C) VM receivable	\$3 ²	n/a ³	n/a ⁴
Net repo liability balance = (B)	\$(100)	\$(100)	\$(97) ⁴
Net variation margin balance = (C)	\$3	n/a ³	n/a ⁴
Net balance sheet position, excluding securities pledged = (B - C)	\$(97)	\$(100)	\$(97)

¹ As the transferor cannot derecognize the transferred asset, it reclassifies the asset as a loaned or pledged asset or repurchase receivable when the transferee has the right to sell or repledge the asset³⁰. The pledged asset continues to be measured on the basis used before the repo, for example at fair value through profit and loss or amortized cost. In addition, IFRS 9 and IAS 32 prohibit the offsetting of a transferred financial asset that does not meet the derecognition criteria (ie, the securities lent) and the associated liability for the obligation to return the proceeds received³¹. In a sale and repurchase transaction, the assets sold cannot therefore be offset against the associated liability, as this would otherwise circumvent the derecognition rules.

² Under a CTM-style repo, VM is posted as collateral alongside an unchanged \$100 repurchase liability.

³ Non-cash collateral received in a CTM model is not recognized on the balance sheet, where the recipient does not obtain control or the right to sell or repledge the asset, therefore no corresponding payable is recognized on the balance sheet. This example reflects the scenario in which tokenized assets received as collateral would not be recognized.

⁴ Under an STM-style repo, the VM is treated as an adjustment to the repurchase price itself, so it is absorbed into the repurchase liability (\$100 - \$3 = \$97) rather than recognized as a separate margin balance. Current practice is that cash margin is used in STM models, but if non-cash margin were to be accepted, this illustration shows that the balance sheet presentation of the SFT balances would be the same as if cash margin was used, except for the non-cash margin transferred being derecognized.

⁵ One situation where offsetting could be permitted is where the transferor in a repurchase agreement entered into a reverse repurchase agreement with the same counterparty. In this situation, the receivable for the cash lent and the payable for the cash borrowed from the same counterparty could be offset if the respective criteria in IAS 32 are met.

As with derivatives, where the collateral is returnable and the parties do not have the legally enforceable right to settle the recognized SFT balances with the collateral in the normal course of business, other than in the event of default, the parties do not have the legal right to set off, as required by IAS 32.42(a). The SFT balances and related collateral are therefore presented on a gross basis in the statement of financial position.

The VM in SFTs is usually structured as CTM, but can also be STM, where the exposure created from changes in the value of the underlying securities of the SFT is usually settled daily through the exchange of cash, which is accounted for as a change in the SFT receivable or payable and not separately recognized as collateral receivables or payables. Where the exchange or settlement of VM is not daily, the SFT balance is not adjusted until the additional VM transferred and therefore the question about offsetting does not usually arise.

5.2.2.2 US GAAP

Table 4: US GAAP Balance Sheet Presentation of SFTs at the Reporting Date

Balance Sheet Line Item	CTM Repo (cash margin)	CTM Repo (non-cash margin) (tokenized assets margin)	STM Repo (cash margin) (tokenized assets margin)
(A) Securities pledged	\$991	\$991	\$991
(B) Repurchase liability (cash borrowed) ⁵	\$(100)	\$(100)	\$(97) ⁴
(C) VM receivable	\$32	n/a ³	n/a ⁴
Net repo liability balance = (B)	\$(100)	\$(100)	\$(97) ⁴
Net VM balance = (C)	\$3	n/a ³	n/a ⁴
Net balance sheet position, excluding securities pledged = (B - C)	\$(97)	\$(100)	\$(97)

¹ As the transferor cannot derecognize the transferred asset, it reclassifies the asset as a pledged asset. US GAAP similarly prohibits the offsetting of a transferred financial asset, which does not meet the derecognition criteria, against the repo payable, as this would otherwise circumvent the derecognition rules.

² Under a CTM-style repo, VM is posted as collateral alongside an unchanged \$100 repurchase liability. Unlike the special exception for derivatives, US GAAP guidance does not explicitly permit netting of the receivable or payable for any collateral posted or received, if recognized separately, against the repo payable or repo receivable balance unless the criteria under the general ASC 210-20 offsetting model are met.

³ Non-cash collateral received in a CTM model is not recognized on the balance sheet, where the recipient does not obtain the rights to trigger recognition, so no corresponding payable is recognized on the balance sheet. This example reflects the scenario in which tokenized assets received as collateral would not be recognized.

⁴ Under an STM-style repo, the VM is treated as an adjustment to the repurchase price itself, so it is absorbed into the repurchase liability (\$100 - \$3 = \$97) rather than

Under US GAAP, the use of tokenized assets as collateral in SFTs does not, in itself, change the balance sheet presentation. Transfers of securities under repurchase agreements that are accounted for as collateralized borrowings result in the recognition of a repo payable liability for the amount of cash received from the repo counterparty. The securities lent to the counterparty are not derecognized. Any payable/receivable associated with VM, if separately recognized, would be presented on a gross basis unless the offsetting criteria in ASC 210-20 are met. While offsetting may be permitted where the criteria in ASC 210-20-45-1 are met, these criteria include the existence of a legally enforceable right of set off and the intention to set off, both of which are typically not satisfied outside of limited circumstances. Tokenization on its own does not satisfy these requirements as it doesn't change the contractual rights or settlement terms of the arrangement. Structural changes may be required to align VM in the form of tokenized assets with the STM model.

³⁰ IFRS 9.3.2.23

³¹ IFRS 9.3.2.22

While US GAAP includes specific offsetting guidance for repurchase agreements that allows offsetting amounts of repo payable and repo receivable with the same counterparty if certain criteria are met, this guidance does not apply to the ability to offset the receivable/payable associated with the VM movements for arrangements under the CTM model.

5.3 Balance Sheet Presentation of New Market Structures

DLT and the use of tokenized assets could potentially enable parties, subject to technological, operational and legal feasibility, to structure a trade bilaterally (ie, without the use of a CCP) and to manage and transfer collateral or margin on-chain using smart contracts. Despite the technological innovation, the balance sheet presentation of derivatives and SFTs remains dependent on whether the transfer of tokenized assets legally settles or only collateralizes the underlying exposure.

Under traditional market structures, bilateral trades are mostly collateralized under a CTM model, which generally results in gross balance sheet presentation, as explained in section 5.2. Trades managed using DLT and tokenized assets as margin could be structured by the parties so that the transfer of margin legally settles the underlying exposure³², which would therefore be presented consistent with STM models in traditional market structures – ie, exposures are derecognized, which reduces gross balances. An example of such a trade could be a perpetual swap or perpetual futures contract that has no expiry for which exposures (eg, cryptocurrencies) are potentially settled or re-margined continuously or at high frequency.

Parties could also structure a trade using DLT and tokenized assets to settle exposures less frequently than daily, for operational or other reasons (although this is not expected to be common). In this case, where the reporting date falls between the dates that VM is transferred (referred to as settlement cycles) and the entity has more than one derivative, or a reverse repo receivable and a repo payable balance, with the same counterparty, the offsetting assessments need to be made.

5.3.1 IFRS Accounting Standards

Where the reporting date falls between settlement cycles, recognized derivatives assets and liabilities, or repo and reverse repo balances, may remain outstanding. Those balances are presented on a net basis only if both criteria in IAS 32.42 are met. The entity must have a current legally enforceable right to set off the recognized amounts and must intend either to settle net or to realize the asset and settle the liability simultaneously.

DLT may facilitate the settlement element of this analysis. An on-chain mechanism may support the second criterion if it provides net settlement or a gross settlement mechanism that is effectively equivalent to net settlement under IAS 32.AG38F. Whether it does so is fact-specific and depends on whether the characteristics of a gross settlement mechanism in IAS 32.AG38F, as explained in section 5.1.1, are met.

DLT does not, however, create the legal right required by IAS 32.42(a). The parties would need to structure their contractual arrangements so that a current legally enforceable right of set-off exists in the normal course of business and in the event of default, insolvency or bankruptcy. If either criterion is not met, the outstanding recognized balances are presented on a gross basis.

³² The determination would require a detailed legal analysis on a case-by-case basis to support whether a structure where tokenized assets are posted as VM could result in settlement of exposure, resulting in the STM model being applicable

5.3.2 US GAAP

Where the reporting date falls between settlement cycles, outstanding derivatives positions remain subject to the ASC 815 or ASC 210-20 offsetting guidance and the entity's related accounting policy election. Repo receivables and payables may be offset only if the applicable requirements of ASC 210-20, including any repo-specific guidance, are met.

A separately recognized receivable or payable associated with tokenized collateral that is not considered cash does not qualify for the cash collateral exception in ASC 815. It would therefore be presented on a gross basis unless the general offsetting requirements in ASC 210-20 are met. An on-chain mechanism that provides simultaneous or atomic settlement does not, by itself, create the legally enforceable right of set-off or satisfy any applicable intent requirement.

New market structures may facilitate STM accounting outcomes, as discussed in section 5.2, by enabling frequent and legally effective settlement without a CCP. However, the use of DLT does not, by itself, expand the existing US GAAP offsetting exceptions or cause a tokenized non-cash asset to be treated as cash collateral.

6. CONCLUSION

Tokenization is not, by itself, expected to change the balance sheet presentation of derivatives, SFTs or related collateral under IFRS accounting standards or US GAAP. The balance sheet presentation is driven by legal rights and the characteristics of the settlement mechanism, rather than whether the assets are held or transferred in digital form.

Under traditional market structures, CTM and STM models produce different accounting outcomes because VM performs different legal functions. To achieve net presentation in a CTM model using tokenized collateral under IFRS accounting standards, the arrangement would need to be structured to provide parties with the legal right to offset in all circumstances, in addition to the ability to achieve simultaneous net settlement. Further interpretation or clarification from standard setters about the application of on-chain settlement to the characteristics of a simultaneous settlement mechanism envisaged by the current accounting guidance in IAS 32.AG38F may be required as market practices evolve.

Under US GAAP, the guidance permits offsetting of derivatives positions against the payable or receivable associated with collateral, but it is constrained by the requirement that collateral must be cash in order to benefit from the specific derivatives netting exception. As a result, in the absence of changes to the current accounting guidance, tokenized assets that are not considered cash under US GAAP and used as collateral in a CTM model would generally not enable offsetting of the associated collateral payable or receivable, if recognized.

New DLT-enabled market structures do not create a separate accounting model. They may, however, facilitate bilateral or platform-based STM-like arrangements through atomic, programmable, continuous or high-frequency settlement. Where the contractual and legal framework agreed by the parties establishes that tokenized assets used as VM constitute final settlement, these arrangements may achieve the same accounting outcomes as existing STM models without requiring a CCP. This determination would require careful legal evaluation of the relevant terms of the arrangement. Where the transfers remain returnable collateral, the CTM accounting outcome continues to apply.

This paper also identifies several matters that entities will need to consider as DLT-enabled market structures and practices develop:

- **Legal characterization of VM:** Transaction documentation should clearly establish whether each transfer of VM is returnable collateral or legally effective settlement of the underlying exposure. This would include careful legal analysis of the relevant terms and conditions of each arrangement. Where a non-cash tokenized asset is used as settlement, the documentation would also need to provide that its transfer discharges the relevant payment obligation and how it is valued for that purpose.
- **Settlement finality:** Entities will need to assess when an on-chain transfer becomes final and irrevocable, particularly where the settlement legs occur on different ledgers, or where legal transfer occurs on an update to an off-chain register rather than on-chain.
- **Accounting recognition and classification of the tokenized asset:** Entities would need to evaluate whether tokenized assets posted as collateral would be recognized on balance sheet in the first place and how those tokenized assets would be classified, including whether a tokenized asset could be considered cash.

³⁵ This paper does not address accounting considerations relating to recognition or presentation of tokenized assets received as collateral. The focus of this paper is only to assess whether different accounting outcomes could be achieved in the situation when recognition of collateral in the form of tokenized assets may be achieved

- Market infrastructure: CCPs, custodians and settlement platforms may need to amend their rulebooks and operating arrangements before tokenized non-cash assets could be used as settlement assets rather than only as collateral.
- Controls and audit evidence: Entities should consider the evidence needed to support ownership, valuation, completeness, legal finality and the timing of settlement, together with controls over wallets, private keys, smart contracts and reconciliation between on-chain records, any off-chain register of ownership and accounting systems.
- Accounting standard-setting: As market practices develop, clarification may be useful regarding the application of existing IFRS accounting standards and US GAAP offsetting and derecognition guidance to decentralized settlement, cross-ledger settlement and tokenized instruments that may have cash-like characteristics.
- Regulatory capital benefits for entities operating in regulated industries: Entities should assess the impact of potential classification of tokenized assets on the ability to recognize the on-balance sheet netting in calculations of minimum capital requirements as well as ability to achieve regulatory capital benefits from credit and liquidity risk mitigation arrangements that do not qualify for on-balance sheet offsetting.

7. APPENDIX: OFFSETTING AND DERECOGNITION ASSESSMENTS UNDER CTM AND STM MODELS

Tables A1 and A2 apply the IAS 32.42 offsetting and IFRS 9 derecognition criteria to each of the scenarios described in section 2.2.

Table A1: IFRS Scenario 1 – CTM with Tokenized Assets

IFRS Requirement	Technical Analysis	Conclusion
IAS 32.42 (a) current legally enforceable right to set off recognized amounts	In this scenario, the collateral is tokenized and the derivatives or SFT exposure is collateralized to market. Tokenization of the collateral on its own does not change the legal right to set off, as only the way ownership of the collateral assets is recorded and transferred has been changed. In addition to the collateral being returnable, the parties do not have the legal right to set off the collateral against the derivatives exposures in the normal course of business, so there is no legally enforceable right to set off.	The 'current legally enforceable right to set off' criterion is not met.
IAS 32.42 (b) intends to settle on a net basis, or to realize the asset and settle the liability simultaneously	Settlement through atomic delivery-versus-payment is made possible by the tokenization of the collateral and the settlement on-chain, but whether this settlement meets the characteristics of the mechanism described in IAS 32.AG38F depends on the specific facts and legal arrangement of the particular blockchain(s) used.	The 'intention to settle net or simultaneously' criterion is not relevant.
	Settlement/derecognition No derecognition of the derivatives or SFT exposure occurs when collateral is transferred, as the parties are legally exposed to the rights and obligations of the gross derivatives assets or liabilities and the SFT balances. Unit of account The collateral transferred is a separate unit of account to the derivatives or SFT balances and more than one unit of account exists. Offsetting eligibility As there is more than one unit of account, the offsetting assessment can be made, but as explained above, these criteria are not met. Auditability and evidential requirements Evidence of tokenized asset transactions and balances are expected to be available in the blockchain wallets of each counterparty and, where ownership is recorded off-chain or by a custodian, in the transfer agent or custodian's records, but would be dependent on the specific blockchain(s) used. Dependence on legal opinions The report on tokenized MMFs³⁴ indicates there are no fundamental legal barriers identified for accepting tokenized MMFs as collateral, but this would depend on the laws of each jurisdiction and legal opinions may have to be obtained to determine whether other tokenized assets would be accepted.	The exposure is not extinguished but collateralized with tokenized assets. Gross assets and liabilities are not derecognized and can also not be presented on the balance sheet on a net basis, as the offsetting criteria are not met.

³⁴ The Case for Collateral Mobility, GDF, 2025

Table A2: IFRS Scenario 2 – STM with Tokenized Assets

Under current market practice, non-cash collateral is typically not used as VM in STM models. As noted in section 2.2, parties may agree to structure transactions to use tokenized assets to achieve STM-like outcomes.

IFRS Requirement	Technical Analysis	Conclusion
An entity shall derecognize a financial asset when, and only when, the contractual rights to the cashflows from the financial asset expire. [IFRS 9.3.2.3(a)] An entity shall remove a financial liability (or a part of a financial liability) from its statement of financial position when, and only when, it is extinguished – ie, when the obligation specified in the contract is discharged, cancelled or expires. [IFRS 9.3.3.1]	STM models extinguish the derivatives or SFT exposure with each settlement of VM and result in the derecognition of the derivatives financial asset or liability, or a change in the recognized SFT receivable or payable instead of being recognized as a separate collateral receivable or payable. The offsetting assessment is therefore not applicable where settlement of VM occurs daily or intraday, as the gross position has been derecognized. Where the settlement cycle is less frequent than daily, the offsetting criteria could be met, where the VM legally settles the recognized financial asset or discharges the recognized financial liability and the parties structured the arrangement so that they also have the legal right to offset in all circumstances.	Derecognition criteria are met. Between settlement cycles, the offsetting criteria could be met
Additional considerations	Settlement/derecognition The VM extinguishes the exposure and results in the derecognition of the derivatives financial asset and/or liability, or adjustment to the SFT balance. Unit of account There is a single unit of account as the VM is used to derecognize the derivatives exposure, or adjusts the SFT balance. Between settlement cycles, VM is not yet transferred and the recognized derivatives asset and liability are separate units of account. Offsetting eligibility Offsetting is not applicable, where collateral is transferred daily, as the remaining financial asset or liability is a single unit of account, so there is nothing to offset. Where collateral is not transferred daily, the derivatives asset and liability could be offset. Auditability and evidential requirements Evidence of tokenized asset transactions and balances are expected to be available in the blockchain wallets of each counterparty and, where ownership is recorded off-chain or by a custodian, in the transfer agent or custodian's records, but would be dependent on the specific blockchain(s) used. Dependence on legal opinions The report on tokenized MMFs determined that there are no fundamental legal barriers to accepting tokenized MMFs as collateral, but this depends on the relevant jurisdiction and legal opinions may need to be obtained to conclude that other tokenized assets can be eligible as margin in STM models and can also be regarded to legally extinguish exposures.	Tokenization does not affect the accounting for daily settled exposures, as traditional cash margin is currently also treated as settlement of the mark-to-market exposure and the derivatives balances are derecognized or the SFT receivable/payable adjusted. Tokenization could enable offsetting of derivatives and reverse repo and repo balances between settlement cycles.

Tables A3 and A4 apply the US GAAP offsetting and derecognition criteria to each of the scenarios described in section 2.2 in detail.

Table A3: US GAAP Scenario 1 – CTM with Tokenized Assets

US GAAP Requirement	Technical Analysis	Conclusion
Derecognition	Derivatives or SFT under CTM model would require collateral movements to be treated as separate unit of account from derivatives or SFT asset/liability positions. Derecognition is therefore not applicable.	Not applicable.
ASC 210-20-45-1 (a) Each of two parties owes the other determinable amounts	The tokenized asset functions as collateral for the derivatives or SFT exposure and does not change the nature of the arrangement. If the tokenized asset meets recognition criteria, it would be recognized on balance sheet together with an obligation to return to the counterparty. There would therefore be a determinable amount due from and to the counterparty.	Criterion is met if tokenized asset received as collateral meets recognition criteria.
ASC 210-20-45-1 (b) The reporting party has the right to set off the amount owed with the amount owed by the other party	Assuming the transaction was entered into under a legally enforceable master netting arrangement, there is a right to set off the amounts owed to the counterparty (eg, collateral payable) with amounts due from the counterparty (eg, derivatives asset or SFT). Tokenization changes the form of the collateral, but not the legal character of the arrangement.	Criterion is met.
ASC 210-20-45-1 (c) The reporting party intends to set off ASC 815-10-45-10 Intent to offset can be disregarded	Derivatives positions can be netted with related cash collateral under a master netting arrangement without demonstrating intent to net settle in accordance with ASC 815, but for payable/receivable on collateral this exception applies only to cash collateral and cannot be applied more broadly to other types of collateral, if recognized. Tokenization changes the form of the underlying asset but not the nature. Where the underlying asset is not cash, the tokenized form of that asset will also not be cash and therefore the exception in ASC 815-10-45-10 cannot be used to disregard the intent criteria in ASC 210-20-45-1(c). Further, even if the underlying asset is cash, the tokenized asset would not necessarily be viewed as cash for the purposes of the accounting guidance. There is no exception similar to ASC 815 applicable to SFT transactions that would allow netting of collateral. Any cash or non-cash collateral received, if recognized, would need to meet general criteria under ASC 210-20 to be netted. While there is specific guidance that allows netting of repo payables/receivables executed with the same counterparty under master netting arrangement, it does not permit netting of collateral. Acknowledgment of the intent to set off by the reporting party and, if applicable, demonstration of the execution of the set off in similar situations meet the criterion of intent. The intent criteria are focused on specific contracts that are being intended to set off. For derivatives instruments or SFTs where multiple contracts can be executed with the same counterparty and collateral posted is typically a net balance between all those contracts, the intent to set off is conditional on the premise of default provision under master netting agreement versus having specific intent to set off at a fixed point in time.	Criterion is not met under general guidance for derivatives or SFT. Ignored under ASC 815 scope exception (would only apply when collateral is in the form of cash).
ASC 210-20-45-1 (d) The right of set off is enforceable at law	Assuming there is a legally enforceable master agreement in place, this criterion has been met. A master netting arrangement exists when an entity has multiple derivatives contracts or SFTs with a single counterparty that are subject to a contractual agreement providing a right to set off all contracts through a single payment in a single currency in the event of default or upon termination of any one contract.	Criterion is met.
Overall	Scenario 1 is a CTM-model with returnable collateral. Tokenization improves collateral mobility and operational efficiency. Despite that, if the tokenized asset is not viewed for accounting purposes as cash, it does not introduce the same balance sheet netting benefit as posting cash collateral for derivatives. Further, it does not change accounting considerations around netting collateral for SFTs.	Offsetting under ASC 210-20-45-1 general framework may not be achieved due to the challenge of supporting intent to set off. Offsetting under ASC 815-10-45 would apply to derivatives positions but would only allow offsetting on collateral in the form of cash

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Additional considerations	Unit of account More than one unit of account exists as derecognition of either financial asset or financial liability is not achieved. Offsetting eligibility More than one unit of account exists and the recognized derivatives assets and liabilities could be offset, if the criteria are met. Auditability and evidential requirements Evidence of tokenized asset transactions and balances are expected to be available in the blockchain wallets of each counterparty and, where ownership is recorded off-chain or by a custodian, in the transfer agent or custodian's records. Dependence on legal opinions The tokenized MMF report indicates that there are no fundamental legal barriers identified for accepting tokenized MMFs as collateral, but this would depend on the laws of each jurisdiction and legal opinions may have to be obtained to determine whether other tokenized assets would be accepted. Dependence on accounting standards Where the tokenized assets are non-cash collateral, under ASC 210 and 815, there is no ability to apply netting similar to other derivatives where cash collateral is posted. The guidance would need to be modified to include broader non-cash collateral and cash equivalents.	
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Table A4: US GAAP Scenario 2 – STM with Tokenized Assets

Under current market practice, non-cash collateral is typically not used as VM in STM models. As noted in section 2.2, parties may agree to structure transactions to use tokenized assets to achieve STM-like outcomes.

US GAAP Derecognition Criterion / Guidance	Technical Analysis	Conclusion
Derecognition	STM models extinguish the derivatives or SFT exposure with each settlement of VM and results in the derecognition of the derivatives financial asset or liability, or a change in the recognized SFT receivable or payable instead of being recognized as a separate collateral receivable or payable. The offsetting assessment is therefore not applicable where settlement of VM occurs daily or intraday, as the gross position has been derecognized. The legal determination of VM as settlement of the exposure results in the payer of VM having no right to reclaim that cashflow back in the future (ie, a financial asset), and the receiver of VM having no obligation to return that cashflow in the future (ie, a financial liability). As such, it would not be appropriate for payments and receipts of VM to give rise to the recognition of financial assets and liabilities related to those flows as separate units of account. The cashflows serve to settle and reduce the recognized asset or liability arising from the derivatives' MTM or changes in SFT receivable or payable, and not to result in additional financial assets or liabilities being recognized. However, it should be noted that VM payments by CCPs such as CME Group are commonly required to be settled in cash.	If the tokenized assets can be used in an STM derivative or SFT model, the derivative or SFT and tokenized assets are viewed as a single unit of account and the derivative is derecognized. If the tokenized assets cannot be used in an STM model, it follows the same analysis described in scenario 1.
Additional considerations	Settlement / derecognition From an accounting perspective, the determination of the appropriate unit of account for STM contracts is primarily based on the legal analysis, especially in the absence of specific accounting guidance. Current practice for derivatives and SFTs under the STM model is to view the collateral and derivative or SFT as a single unit of account. As a result, the collateral reduces or extinguishes the value of the derivative or SFT payable or receivable on the balance sheet. Unit of Account There is a single unit of account under the STM model. Dependence on legal opinions Legal opinions are often critical because extinguishment may depend on whether the transfer of tokenized assets legally constitutes payment that discharges the liability or whether the creditor has legally released the debtor. Additionally, clearing houses and counterparties would have to allow for tokenized assets to be used in lieu of cash.	

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