February 2019

ISDA®

LEGAL GUIDELINES FOR SMART DERIVATIVES CONTRACTS: THE ISDA MASTER AGREEMENT

CONTENTS

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INTRODUCTION

The purpose of these guidelines is to explain the core principles of ISDA documentation and to raise awareness of the important legal terms that should be maintained when a technology solution is applied to derivatives trading.

In presenting this material, an assumption is made that certain terms in ISDA documentation are capable of being (and may currently be) represented in computer code or performed across a technology platform. For example, payments-related provisions that require one party to pay another an amount that is calculated on the occurrence of a certain event may be suited to codification or automated processing. It is also assumed that some provisions of the ISDA documentation may not be as well suited or efficient to code and will remain as written in the contract.

The intention of this paper is not to specify or recommend any particular approach or to address any particular technological application or project. Rather, it is intended to provide high-level guidance on the legal documentation and framework that currently governs derivatives trading, and to point out certain issues that may need to be considered by technology developers looking to introduce technology into that framework.

These guidelines discuss legal issues from time to time. These discussions are intended to provide general guidance, not legal advice, and to promote a better understanding of the basic principles that underpin ISDA documentation. In practice, the law relating to derivatives transactions and the legal documentation that governs them are complex, may change over time due to evolving case law and new regulations, and may vary substantially from jurisdiction to jurisdiction.

The guidelines do not represent an explanation of all relevant issues or considerations in a particular transaction, technology application or contractual relationship. Parties should therefore consult with their legal advisors and any other advisor they deem appropriate prior to using any standard ISDA documentation. ISDA assumes no responsibility for any use to which any of its documentation or any definition or provision contained therein may be put.

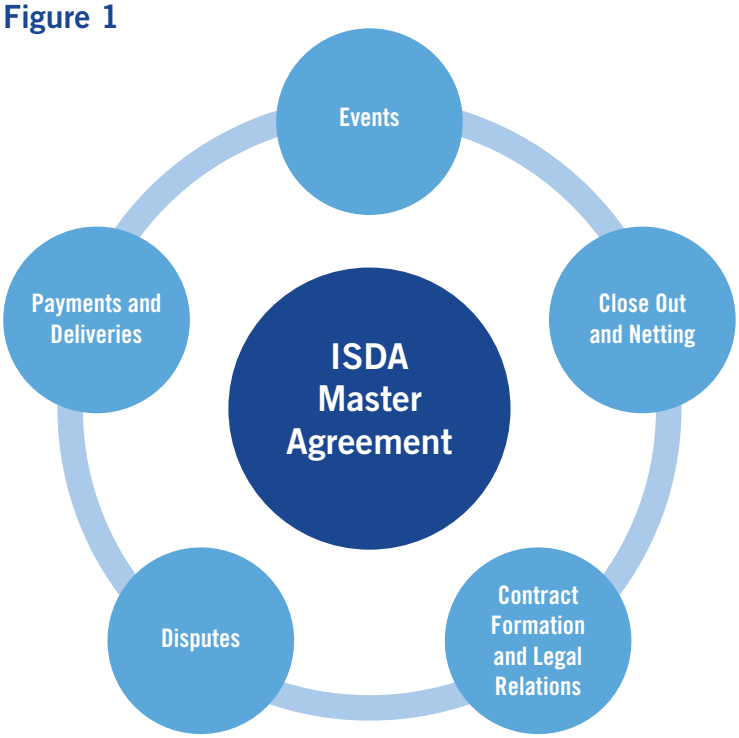
THE ISDA MASTER AGREEMENT

Central to the ISDA documentation architecture is the ISDA Master Agreement. The ISDA Master Agreement is the standard contract used to govern all over-the-counter (OTC) derivatives transactions entered into between the parties. Transactions across different asset classes and products are often documented under the same agreement.

The purpose of the ISDA Master Agreement is to set out provisions governing the parties' overall relationship[1]. There are a number of different versions of the ISDA Master Agreement, including the 1992 and 2002 versions. The paper focuses on the 2002 version, but many of the concepts and issues discussed will be common across each of the different versions.

It is possible to break down the ISDA Master Agreement into five core themes (see Figure 1).

Figure 1



1. **Events**

   In the context of the ISDA Master Agreement, this refers to things that happen outside the contract that may affect the parties' respective ability to perform their obligations under their transactions.

2. **Payments and Deliveries**

   While the economic terms of a transaction are contained in the confirming evidence of that transaction – its confirmation – there are a number of provisions within the ISDA Master Agreement that may affect or modify both the quantum and timing of payments and deliveries and the manner in which payments and deliveries are made.

[1] For a more detailed overview of the ISDA Master Agreement architecture, see ISDA Legal Guidelines for Smart Derivatives Contracts: Introduction https://www.isda.org/2019/01/30/legal-guidelines-for-smart-derivatives-contracts-introduction/

3. **Close Out and Netting**

   In certain scenarios, the parties may be entitled to terminate transactions entered into under an ISDA Master Agreement. The agreement outlines how the termination process operates.

   Additionally, the ISDA Master Agreement contains important provisions to ensure that one party's financial exposure to the other across all transactions is capable of being determined on a net basis. This has important benefits from a credit risk mitigation and regulatory capital perspective, and is a crucial element of the ISDA Master Agreement.

4. **Disputes**

   The ISDA Master Agreement establishes how the parties should resolve any disputes that might arise in respect of their overall trading relationship.

5. **Contract Formation and Legal Relations**

   Beyond the four core areas outlined above, the ISDA Master Agreement also contains a number of provisions aimed at creating a legally effective and robust contractual relationship between the parties. These include provisions on how the contract might be amended, any representations made by the parties and how notices are effectively delivered.

These guidelines will explore each of these five themes separately, explain how they work at a high level and draw out relevant considerations for technology developers.

EVENTS

Overview

Beyond the economic terms of a particular transaction, there are a multitude of external events that can occur that might affect a party's ability to continue performing its obligations under one or more transactions. Many of these external events are contemplated within and defined by the terms of the ISDA Master Agreement.

The ISDA Master Agreement provides for both events of default and termination events. Provisions relating to events of default and termination events are contained in section five of the ISDA Master Agreement. Although the ultimate consequence of both is the same – the potential termination of a given set of transactions – they are conceptually distinct. Additionally, the mechanics and timing for determining when an event of default or termination event has occurred may differ depending on the nature and circumstances of a specific event.

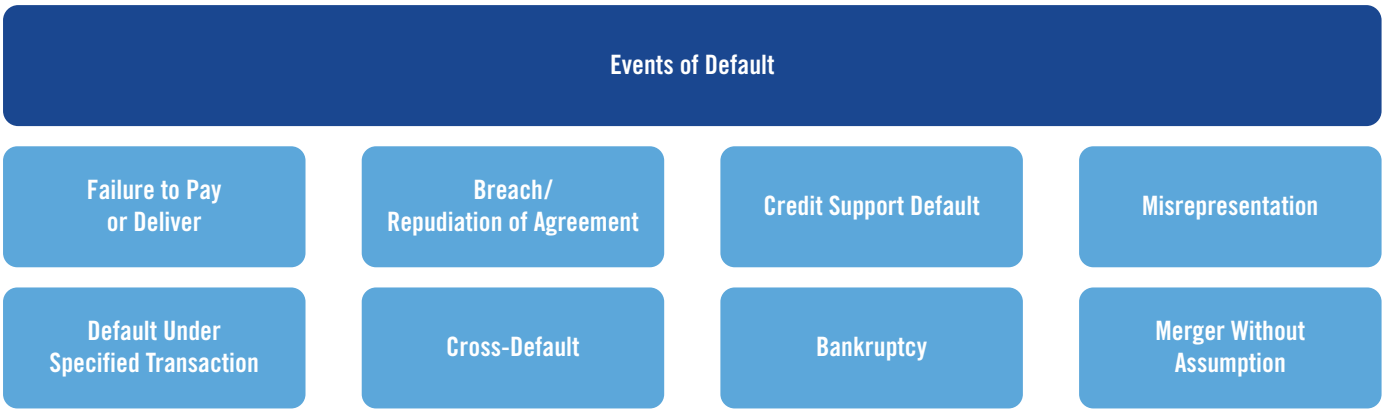
The provisions within the ISDA Master Agreement relating to events of default and termination events, and the consequences arising from their occurrence, are explained in more detail in the following sections.

Events of Default

Broadly speaking, events of default may occur where one party is at fault. The party at fault is known as the 'defaulting party', and the other party is referred to as the 'non-defaulting party'. Upon the occurrence of an event of default, a party may elect to terminate all transactions under the ISDA Master Agreement.

The ISDA Master Agreement contains eight standard events of default (see Figure 2). It should be noted that additional events of default can be added by the parties by amending the schedule to the ISDA Master Agreement.

Figure 2: Events of Default



Failure to Pay or Deliver

Applies to the failure by a party to make any payment or delivery when due under the ISDA Master Agreement. Payments are covered in more detail in the 'Payments' section.

Breach or Repudiation of Agreement

Applies to the failure by any party to comply with any agreement or obligation under the ISDA Master Agreement. It is important to note that this event of default does not apply to any failure to make a payment or delivery and certain other obligations (for example, to deliver certain specified information), since these events are subject to different treatment elsewhere.

An event of default under this section may also occur if a party repudiates or challenges the validity of the ISDA Master Agreement, confirmation or any transaction. The effect of this provision is to give a party the right to terminate if the other party has clearly indicated an intention not to perform its contractual obligations, even if the other party has not actually failed to perform.

Credit Support Default

Where a party's obligations under the ISDA Master Agreement are supported by external credit support or guarantee, a failure in the efficacy of that credit support may allow the other party to terminate. For example, a failure to maintain any security interest granted to the other party, or the unanticipated cessation of a financial guarantee provided by a third party.

Misrepresentation

Applies to certain breaches of representations (other than tax representations) made in the ISDA Master Agreement. Representations are covered in more detail in the 'Contract Formation and Legal Relations' section.

Default Under Specified Transaction

Applies to certain events that would indicate there has been an event of default or another unexcused failure to perform in respect of other transactions entered into between the parties, but which are not governed by the ISDA Master Agreement. These are known as 'specified transactions'.

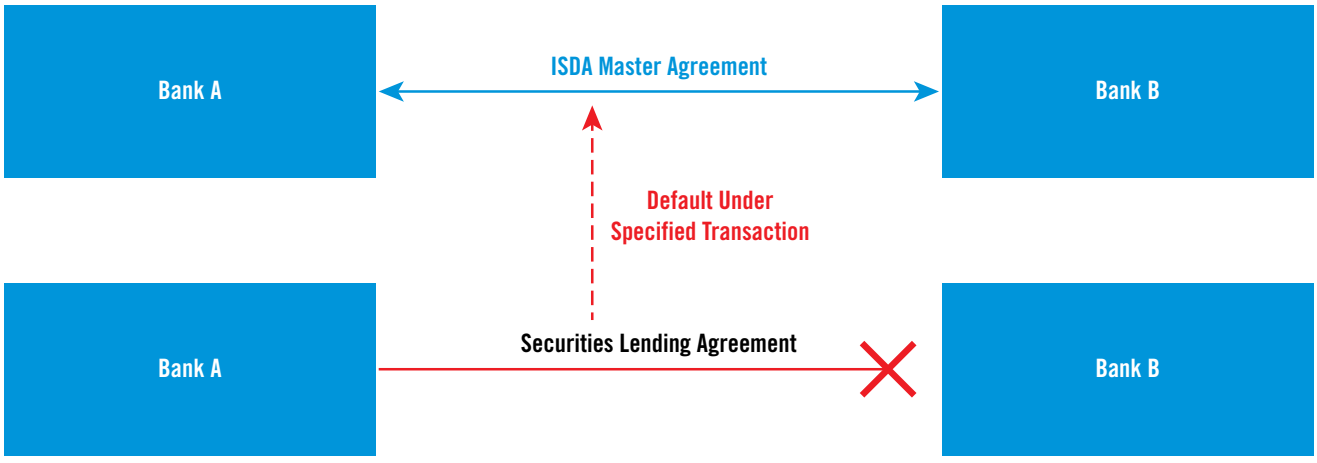
The ISDA Master Agreement sets out a suggested list of specified transactions. This list includes a broad range of derivatives and securities financing transactions. Parties may broaden or narrow the application of this event of default by amending the list of specified transactions.

Example of Default under Specified Transaction

Bank A and Bank B enter into a number of agreements, including an ISDA Master Agreement and securities lending agreement (see Figure 3).

While Bank A continues to meet its obligations under the ISDA Master Agreement, it fails to make a payment when due under the securities lending agreement.

Figure 3



Upon this default, an event of default may occur with respect to Bank A under the ISDA Master Agreement.

Cross-Default

Applies to a default under agreements relating to borrowed money, referred to in the ISDA Master Agreement as 'specified indebtedness'. The default by a party under a loan agreement, for example, could indicate that the creditworthiness of that party has deteriorated sufficiently for the other party to wish to terminate the ISDA Master Agreement.

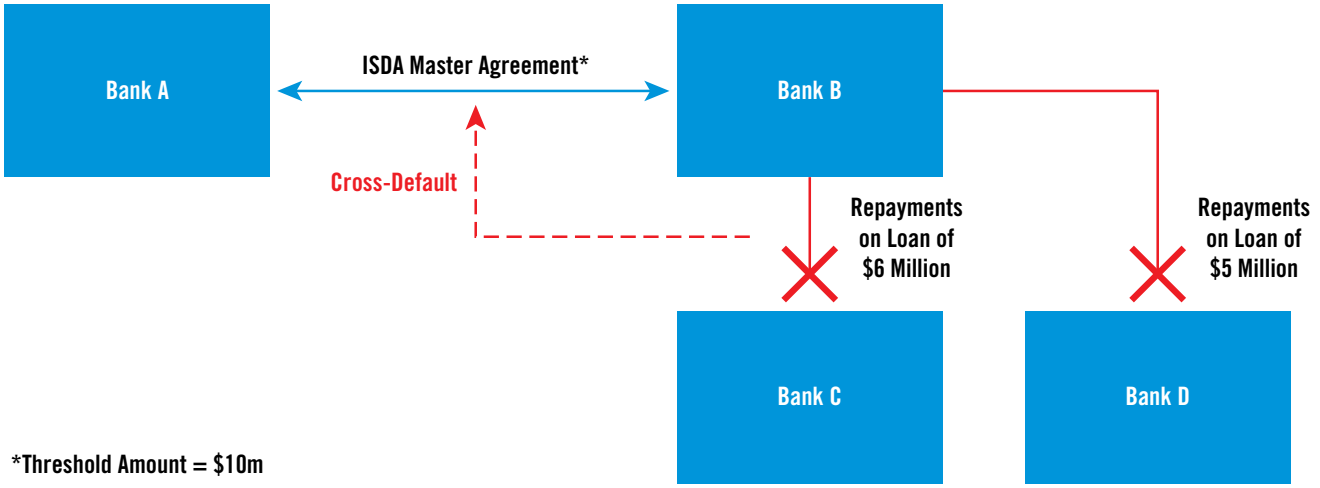
In order to avoid the occurrence of an event of default in scenarios where the amount of specified indebtedness in default is small or immaterial, parties will typically specify that a threshold amount should apply. If the amount unpaid is greater than the threshold amount, a cross-default may occur.

Example of Cross-Default

Bank A and Bank B have entered into an ISDA Master Agreement. For the purposes of the cross-default provision, they have agreed that the threshold amount in respect of any specified indebtedness should be $10 million (see Figure 4).

Bank B also has two loans with Bank C and Bank D totaling $6 million and $5 million, respectively. Bank B fails to make repayments under both loans.

Figure 4



Bank B is therefore in default with respect to an amount of specified indebtedness totaling $11 million. This is in excess of the $10 million threshold amount agreed by Bank A and Bank B. This may therefore constitute an event of default in respect of Bank B under the ISDA Master Agreement.

Bankruptcy

The bankruptcy event of default is drafted to be triggered by a variety of events associated with bankruptcy or insolvency proceedings under English or New York law. However, the provision recognizes that market participants are located in and organized under the laws of different countries. It has therefore been drafted to be broad enough to be triggered by analogous proceedings or events under any bankruptcy or insolvency laws pertaining to a particular party. For example, the definition includes insolvency related events such as being unable to pay debts when they fall due, being subject to insolvency proceedings, or making a financial arrangement with creditors.

Merger Without Assumption

Applies where a party merges with or transfers substantially all of its assets to another entity, or reorganizes into another entity, and the resulting entity fails to assume the former party's obligations under the ISDA Master Agreement or fails to maintain any existing credit support arrangements.

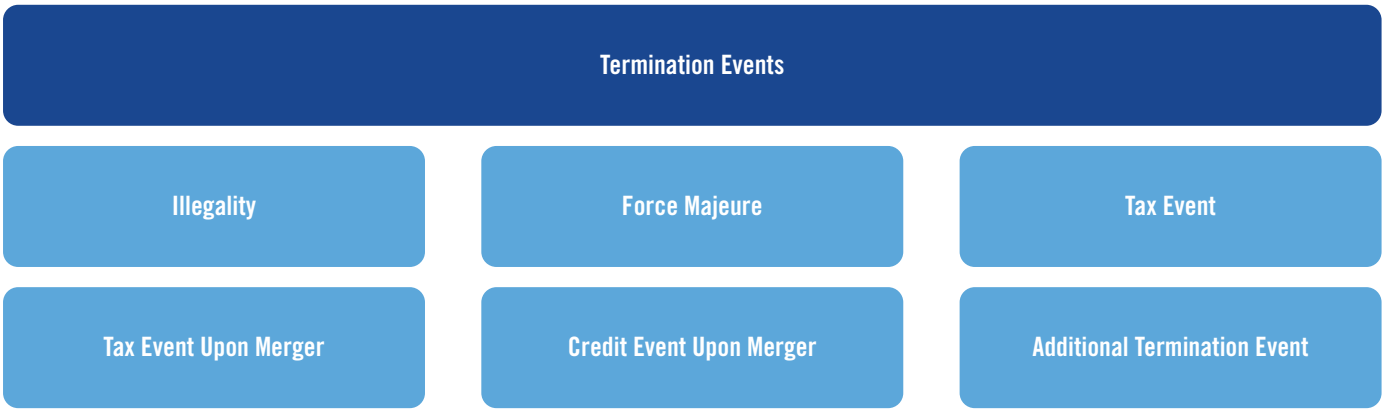
Termination Events

Unlike events of default, termination events aim to capture events where neither party is strictly at fault. Parties affected by the event are therefore referred to as 'affected parties'. It is possible for both parties to be affected parties in scenarios where the event has prevented or impeded both parties' performance of their respective obligations. Otherwise, where there is only one affected party, the other party is known as the 'non-affected party'.

It is also possible for only certain transactions to be affected by the termination event. These are referred to as 'affected transactions'. For example, it may become illegal for one party to continue making payments under a particular type of transaction. In this scenario, the parties could determine that only these types of transactions would be terminated, while the other transactions are maintained.

The ISDA Master Agreement contains five standard termination events, but also permits parties to designate other additional termination events to take account of specific risks or requirements (see Figure 5).

Figure 5: Termination Events



Illegality

Stipulates that a termination event will occur if it becomes unlawful under any applicable law for a party to make or receive payments with respect to a transaction, or to perform any material provision of the ISDA Master Agreement with respect to such transaction. A termination event may also occur if it becomes unlawful to perform under a designated credit support document (for example, a guarantee).

It is important to note that this termination event is anticipatory in nature. For example, it may occur if it *would* be unlawful to make a payment on a given day, even if no actual payment is required to be made on that day.

Force Majeure

A force majeure covers events that fall outside the definition of illegality but which still hinder or prevent performance under the ISDA Master Agreement. Examples might include an act of terrorism or a natural disaster. As with illegality, it is anticipatory in nature.

Tax Event and Tax Event Upon Merger

Applies where a transaction becomes subject to an additional tax burden due to a change in law (defined in the ISDA Master Agreement as a 'tax event') or as a result of one party's merger, assuming the merger does not also constitute a merger-without-assumption event of default (defined in the ISDA Master Agreement as a 'tax event upon merger').

Credit Event Upon Merger

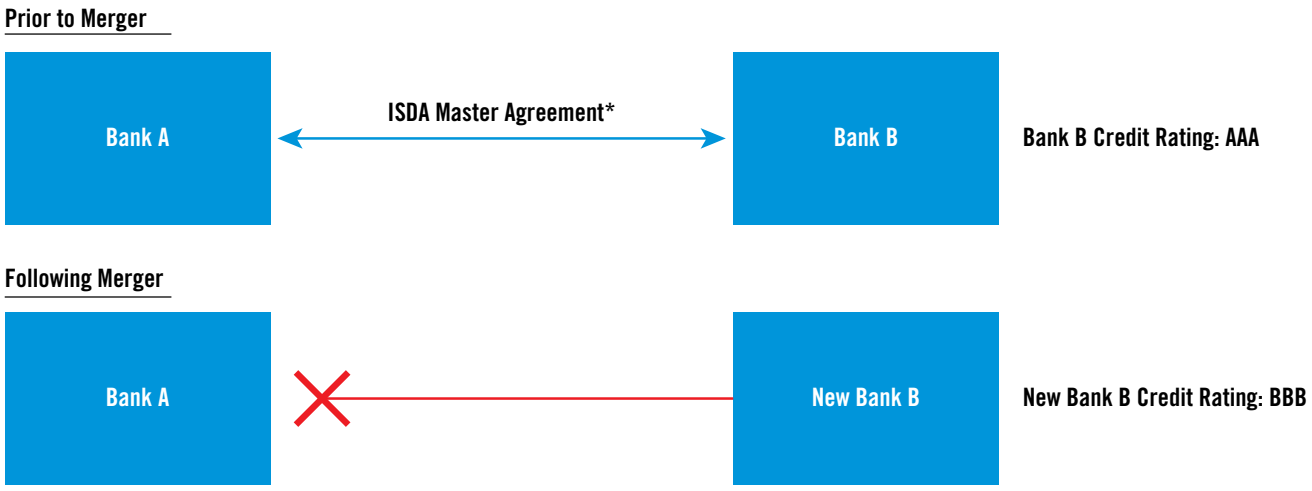
Applies where a party is subject to a merger, acquisition or capital restructuring and the creditworthiness of the resulting entity becomes materially weaker as result.

Example of Credit Event Upon Merger

Bank A and Bank B have entered into an ISDA Master Agreement. On the date the ISDA Master Agreement is entered into, Bank B's credit rating is AAA (see Figure 6).

Bank B subsequently merges with another entity. The resulting entity, New Bank B, is assigned a credit rating of BBB.

Figure 6



As New Bank B is materially weaker from a credit perspective than the former Bank B, Bank A may have the right to call a termination event under the ISDA Master Agreement.

Additional Termination Events

Parties have the ability to specify any additional termination events they wish to apply, the transactions that may be terminated, and by whom they may be terminated as a result of their occurrence. Some examples of common additional termination events include the downgrade of an entity's credit rating or a decrease in the net asset value of a fund counterparty by a certain specified amount within a particular period of time.

Occurrence of Events

Where an event contemplated by any of the events of default or termination events occurs, it does not necessarily mean any transactions will actually be terminated as a result.

Subject to some limited exceptions, events of default and termination events will only give rise to the right to terminate an ISDA Master Agreement (or certain transactions under an ISDA Master Agreement) once the non-defaulting or non-affected party delivers a notice of the relevant event to the other party. The process for terminating transactions under an ISDA Master Agreement is explained in more detail in the 'Close Out and Netting' section.

There are a number of scenarios where a party may not wish to close out an ISDA Master Agreement, even where an event of default has occurred. For example, if the close out would ultimately result in it having to make a sizeable payment to the defaulting party, then the non-defaulting party may not be inclined to exercise its right to terminate.

There are additional complexities involving the occurrence of events, relating to both timing and the scope of application. In some circumstances, the occurrence of the event will only constitute an event of default or termination event if certain additional steps are taken and/or a specified period of time elapses.

Grace Periods

Certain events of default can only occur once a specified grace period has elapsed. Grace periods therefore provide parties with an opportunity to remedy the issue that might otherwise give rise to an event of default.

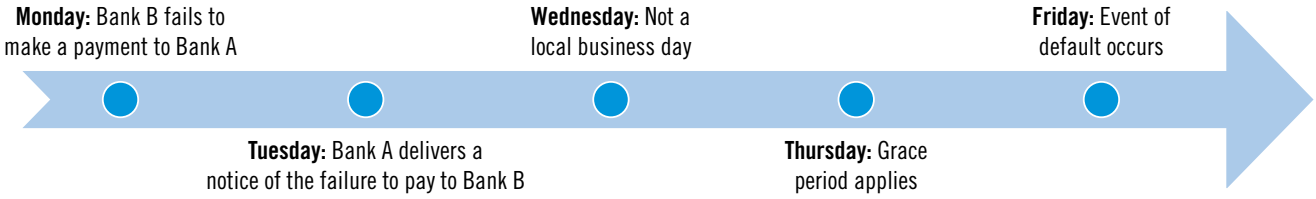
Determining the duration of the grace period upon the occurrence of a particular event may not always be straightforward. Some grace periods use calendar days for determining their duration. Others are determined by reference to days on which commercial banks are open in a relevant jurisdiction in which the parties are located (defined in the ISDA Master Agreement as 'local business days').

Example of Grace Periods

Bank A and Bank B have entered into a transaction. The terms of the transaction require Bank B to make a payment to Bank A on Monday. Bank B fails to make the payment. This potentially constitutes an event of default. The ISDA Master Agreement provides a one-local-business-day grace period before a failure to pay event of default will actually occur.

The following day (Tuesday), Bank A delivers a notice of the failure to pay to Bank B. Wednesday is a public holiday in the jurisdiction in which Bank B is based. Commercial banks are not open for general business. Wednesday is therefore disregarded when determining whether the one-local-business-day grace period has elapsed (see Figure 7).

Figure 7



The following day (Thursday) is a local business day, so the grace period applies. On Friday, and assuming the failure to pay has not been remedied, an event of default occurs.

The grace periods applicable to certain events of default may also be contained in other documents. For example, when considering whether a credit support default has occurred, it will be necessary to look at the terms of the relevant credit support document to confirm whether any grace periods might apply to performance of the relevant obligation.

Certain termination events (for example, illegality) may only occur after giving effect to any applicable fallback or remedy specified in a confirmation or elsewhere in the ISDA Master Agreement. This means that parties may be required to demonstrate they have taken all reasonable steps to mitigate or cure the impact of the event prior to being permitted to terminate the ISDA Master Agreement (or certain transactions under it).

Specified Entities

Some events of default and termination events (default under specified transaction, cross-default, bankruptcy and credit event upon merger) may be extended in scope to capture certain designated 'specified entities'.

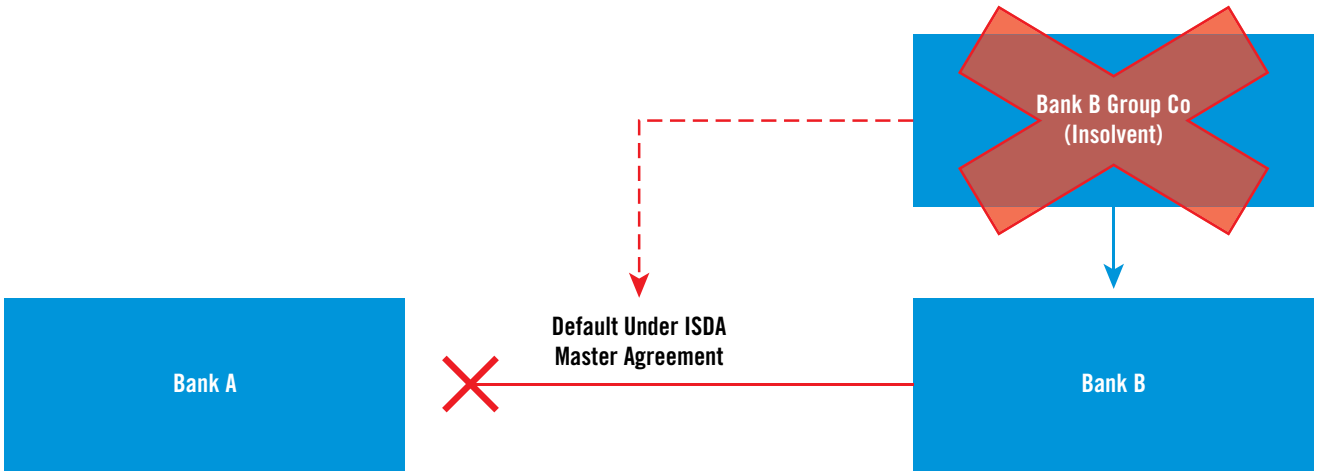
A specified entity would typically be an affiliate or entity within the same business group, the circumstances of which are likely to have some impact upon the party's creditworthiness or its ability to continue meeting its obligations under the ISDA Master Agreement.

Example of Specified Entities

Bank A and Bank B enter into an ISDA Master Agreement. Bank B Group Co owns 100% of the share capital in Bank B. Bank A therefore insists that Bank B Group Co is designated as a specified entity of Bank B in the ISDA Master Agreement for the purposes of bankruptcy.

Bank B Group Co subsequently becomes insolvent. Despite the fact that Bank B may be continuing to meet its obligations under the ISDA Master Agreement, an event of default may now occur due to the insolvency of a specified entity of Bank B (see Figure 8).

Figure 8



Credit Support Providers

Most events of default and termination events are also applicable and may be extended to credit support providers. A credit support provider is any party designated within the ISDA Master Agreement as providing some form of credit support to one of the parties (eg, a guarantee).

Automatic Early Termination

Parties may specify within the schedule to the ISDA Master Agreement that automatic early termination will apply. If so, and upon the occurrence of certain events contemplated by the bankruptcy event of default, transactions under an ISDA Master Agreement are terminated automatically without any requirement to give notice. This is discussed in more detail in the 'Close Out and Netting' section.

Hierarchy of Events

Occasionally, more than one event can occur at the same time. Generally, parties will have the ability to choose the grounds on which they wish to terminate an ISDA Master Agreement by specifying this in the notice.

However, in certain scenarios, an event of default may not occur where the circumstances giving rise to the event of default also constitute an illegality or force majeure.

Considerations for Technology Developers

This is a complex area, and it is important that technology developers understand the types of event that might occur under the ISDA Master Agreement, how and when they might occur, and how the occurrence of any of the events might affect their product, platform or solution.

Where a system or solution is designed to monitor and determine the occurrence of an incident that might give rise to an event of default or termination event, the complexity of the underlying event should be considered. For example, some technology solutions may make use of oracles or other external data sources to determine whether a particular event has occurred. While it might be relatively straightforward to monitor certain types of external activity or data through the use of oracles, other types of event might be more difficult or inefficient to assess solely through the use of external data sources. For example, it is unlikely to be efficient to develop a system designed to constantly monitor whether or not insolvency proceedings have been instituted against a particular entity in its local jurisdiction.

The requirements that must be satisfied prior to the occurrence of these events add further complexity. Monitoring applicable grace periods, their respective durations and each of the various external factors that determine their precise parameters and scope will all have to be considered.

It is important to remember that the occurrence of an event of default or termination event does not automatically mean the ISDA Master Agreement, or specific transactions entered into under the ISDA Master Agreement, will be terminated. Generally speaking, a party entitled to terminate following the occurrence of such an event retains discretion to determine whether or not to terminate. It may instead decide to require continued performance on a reciprocal basis or, in some cases, to suspend performance on a unilateral basis (see 'Payments and Deliveries' section). This is an important and potentially valuable right. It is important therefore that this discretion is maintained.

Consideration should be given to whether it would be appropriate for parties to a smart derivatives contract (designed to automate payments or deliveries under a transaction) to have the right to pre-emptively 'switch off' the automated portion of the smart derivatives contract if one of the parties believes it is likely that an event of default may shortly occur.

Parties should also give some thought as to whether it would be possible or desirable to take certain transactions 'off-ledger' as and when required to resolve certain events that have not been contemplated by the platform code, and whether the relevant transaction would be capable of being brought back 'on-ledger' once the potential issue was remedied.

The involvement of a technology solution will also require the parties to consider how existing events of default and termination events might interact with the operation of the technology. For example, parties may wish to consider whether certain events of default or termination events could be extended to cover the insolvency of a platform provider (or any of the participants in the platform), or to address a scenario where it becomes illegal to automate certain terms of a transaction.

It will also be important to consider whether the contract should contemplate new types of events (and the potential consequences of those events) that might arise as a result of using new technology solutions. For example, it will be important to ensure that any 'new' events that derive from the operation of code (eg, a coding error, virus or cyber attack) are dealt with appropriately.

PAYMENTS AND DELIVERIES

Overview

The economic terms of a transaction, including terms relating to payments and deliveries, are contained in the confirmation. References to payments in this section include (unless otherwise stated) reference to deliveries. A confirmation will set out how a payment amount is calculated, when it should be made and by whom, among other things.

The core payment obligations under a transaction tend to be operational in nature. For example, a confirmation may state that, on a specific date, a calculation will be performed and, based on the output derived from that calculation, a payment may subsequently be made to another party.

Beyond the individual transaction level, the ISDA Master Agreement requires parties to make each payment or delivery specified in each confirmation, subject to the other provisions contained in the agreement. There are a number of provisions within the ISDA Master Agreement that may impact upon or create new payment obligations, creating multiple levels of potential payment obligations between the parties. Provisions related to payments are primarily found in section 2 of the ISDA Master Agreement.

These provisions and the different layers of payment obligation are discussed in more detail in the following section.

Obligation to Make Payments

Beyond the transaction level, there are a number of provisions within the ISDA Master Agreement that may impact upon or modify both the quantum of payment and the manner in which payments are made.

Suspension of Payments

A fundamental obligation of the ISDA Master Agreement is the requirement that parties should make payments to each other as and when due under their transactions. However, the performance of a payment obligation depends on the condition precedent in Section 2(a)(iii) of the ISDA Master Agreement being satisfied.

Section 2(a)(iii) stipulates that if a certain event with respect to a party has occurred (such as an event of default or a termination event), then the other party is not obliged to perform any of its obligations to make payments for as long as such event continues.

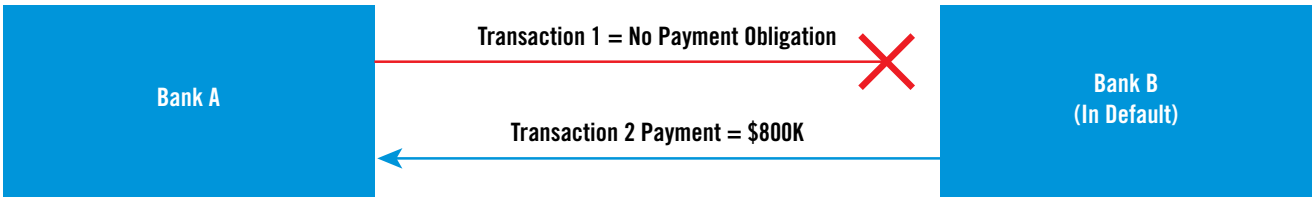
The obligation to make the payment is therefore 'suspended' for the duration of the event. In this scenario, it is important to note that, notwithstanding the existence of grace periods in respect of certain events of default, payments and deliveries are conditional upon no event of default or potential event of default having occurred and continuing. Therefore, where an event occurs that may at some point in the future constitute an event of default with respect to a party, the other party may suspend payment.

It is also important to remember that the payment obligation is suspended, rather than expunged or cancelled. If the event giving rise to the suspension is cured or ceases to exist, the payment obligation will resume on the original terms. Interest may also be payable on the payment amount that was subject to the suspension.

Example of Payment Suspension under Section 2(a)(iii)

In this example, an event of default with respect to Bank B has occurred and is continuing (see Figure 9). Bank A would therefore be entitled to withhold payments under Transaction 1 while Bank B would continue to be liable for payment under Transaction 2 (in this example, $800,000).

Figure 9



In this example, the smart derivatives contract would need to recognize that Bank A is entitled to suspend its payment obligations upon occurrence of the relevant event, but also recognize that such suspension is not automatic. Also, if the suspension is lifted (for example, by the relevant event no longer continuing), performance of the relevant obligations would resume. The smart derivatives contract would also need to recognize that interest would accrue on the amount that was not paid.

It is important that a smart derivatives contract is capable of recognizing these interdependencies to ensure that potentially valuable contractual rights are not impeded or undermined.

Interest and Compensation Payments

Where a payment is not made, whether because it has been deferred due to the operation of Section 2(a)(iii) (as discussed above) or because a party has defaulted, the ISDA Master Agreement provides for the payment of interest on these payments.

Depending on the scenario, the rate of interest payable will be determined differently.

- Where a party has defaulted on payment, the interest rate applicable will be the payee's cost of funding plus 1% per annum (defined in the ISDA Master Agreement as the default rate);
- Where a payment obligation is deferred due to the operation of Section 2(a)(iii), the interest rate applicable will be the rate at which the payer can borrow from a major bank in a relevant interbank market for overnight deposits (defined in the ISDA Master Agreement as the applicable deferral rate).

In both instances, the interest payment must be in the same currency as the overdue amount, for the period from and including the original due date for payment, or the date the amount would but for the suspension of the payment obligation have been payable, but excluding the date of actual payment. Compensation will also be payable in respect of any defaulted deliveries, and may also be payable in respect of deferred deliveries where specifically agreed in the relevant confirmation or in the schedule to the ISDA Master Agreement.

Multibranch

The ISDA Master Agreement stipulates that parties may enter into transactions through different branches or offices within the same legal entity. If parties wish to do so, it is possible to designate a party as a 'multibranch party' in the schedule to the ISDA Master Agreement. That party may then enter into transactions through, book transactions in, and make and receive payments and deliveries with respect to a transaction through any of the offices it lists in the schedule to the ISDA Master Agreement.

It is important to note that if a party enters into a transaction through an office other than its head office, the parties may agree in the schedule that the other party will have recourse to such party's head office, as if the transaction had been entered into through its head office.

Contractual Currency

The ISDA Master Agreement stipulates that all payments (not deliveries) will be made in the 'contractual currency'. This is the currency agreed upon by the parties for payments.

Tax

The ISDA Master Agreement also contemplates payment streams between the parties that arise from obligations or requirements that relate to tax.

Payment Netting

Transactions entered into under an ISDA Master Agreement do not create separate and distinct contracts between the parties. Instead, they are incorporated by reference into a single agreement under the ISDA Master Agreement architecture. One of the benefits of the single agreement architecture is the ability to net payment obligations arising under multiple transactions at the individual transaction level in order to determine a net sum that is payable at the ISDA Master Agreement level (see Figure 10).

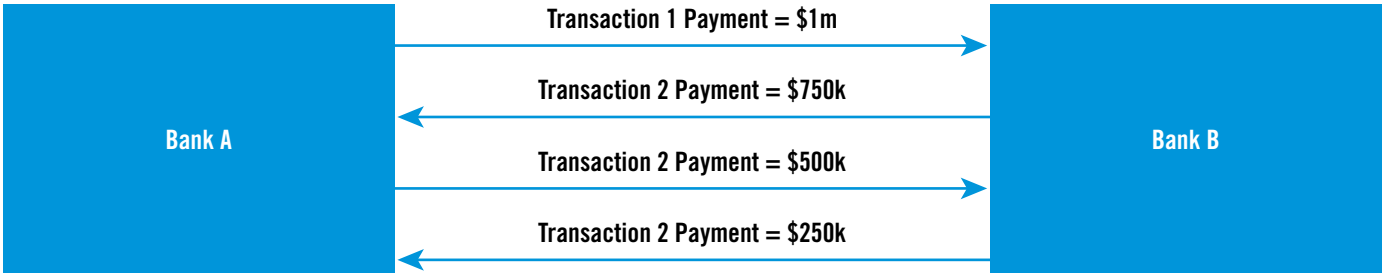
Netting takes two forms in the ISDA Master Agreement. Payment netting takes place during the normal business of a solvent firm, and involves offsetting cashflow obligations between two parties on a given day and in a given currency into a single net payable or receivable.

This is distinct from close-out netting, which applies to the netting of transactions when the ISDA Master Agreement is terminated or 'closed out'. Close-out netting is discussed in the 'Close Out and Netting' section.

The application of payment netting across multiple transactions is optional. Parties may elect for it to apply solely with respect to individual transactions, across a specific group of transactions or transaction types, or across all transactions.

Figure 10:

Individual Transaction Level



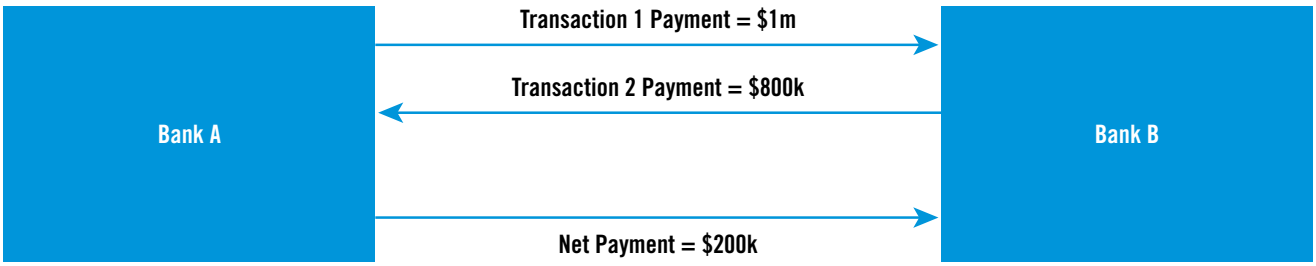
ISDA Master Agreement Level

While provisions for payment and delivery obligations are addressed at the transaction level, provisions relating to netting of payments are contained in the ISDA Master Agreement. This is another example of the interdependency that exists among the various documents.

Example of Payment Netting

Bank A and Bank B enter into two transactions. The parties determine that payment netting should apply across both transactions. This allows a payment by one party under a transaction to be reduced by a payment due to it from the other party under another transaction (see Figure 11).

Figure 11



The ISDA Master Agreement provides that payments due on the same date and in the same currency in respect of the same transaction will be netted. The parties may also elect that one net amount and payment obligation will be determined in respect of all amounts payable on the same date in the same currency in respect of two or more transactions. This is referred to as 'multiple transaction payment netting'.

Considerations for Technology Developers

In the context of smart derivatives contracts, technology developers should be mindful of the multiple levels of payment obligations that may exist between the parties.

The approach taken may also depend on the technology solution being used. In the context of payments, it is useful to recall the distinction made in the introduction paper of the *ISDA Legal Guidelines for Smart Contracts*[2] between:

- Distributed ledgers that are akin to a sophisticated messaging system that enables communications between participants, but where payments settle off-chain via existing payment systems such as SWIFT (a 'light chain'); and

- Distributed ledgers that could provide the infrastructure to support an entire trading relationship between two parties – for example, by being able to house assets that are native to the ledger and support the transfer of such assets for parties to meet payment or delivery obligations and for collateral transfers (a 'heavy chain').

Where multiple platforms or applications are being used to process or effect payments, the interoperability between those systems should also be considered, particularly where the respective obligations are intended to be governed under the same ISDA Master Agreement.

An important task in developing technology solutions will be to identify each of these potential payment streams (each of which may result from transactions related to a different asset class), and how these payment streams might be affected by the provisions of the ISDA Master Agreement. It will also be important to identify the nature and purpose of each payment correctly, and to create appropriate records, particularly to account for tax liabilities and to facilitate audit processes.

In order to replicate the payment provisions of the ISDA Master Agreement within a smart derivatives contract, each of the various provisions relating to payments will need to be considered in turn.

Payment and Delivery Obligations

In the heavy chain context, consideration should be given to the nature of the assets being transferred to meet the parties' respective payment and delivery obligations as and when they arise. The potential for disruption to payments or deliveries arising as a result of a technological failure relating to the platform (or the assets themselves) could be addressed within the contract in much the same way as operational failures are addressed today (for example, by providing extended grace periods), or by the parties agreeing to alternative, off-ledger payment or delivery methods.

As discussed earlier, the performance of any payment or delivery obligation in respect of a transaction entered into under a ISDA Master Agreement is contingent upon the absence of an event of default or potential event of default.

Therefore, in order to replicate the payment provisions of the ISDA Master Agreement within a smart derivatives contract, the smart contract code would need to be capable of recognizing the occurrence of an event of default (or potential event of default) and the impact of Section 2(a)(iii) in deferring payment obligations, including the calculation of any interest or compensation that may be payable in respect of the suspended payment or delivery. The capacity for the smart derivatives contract to recognize when a default is no longer continuing may also need to be incorporated so the previously suspended obligation can resume.

[2] https://www.isda.org/a/MhgME/Legal-Guidelines-for-Smart-Derivatives-Contracts-Introduction.pdf

Payment Netting

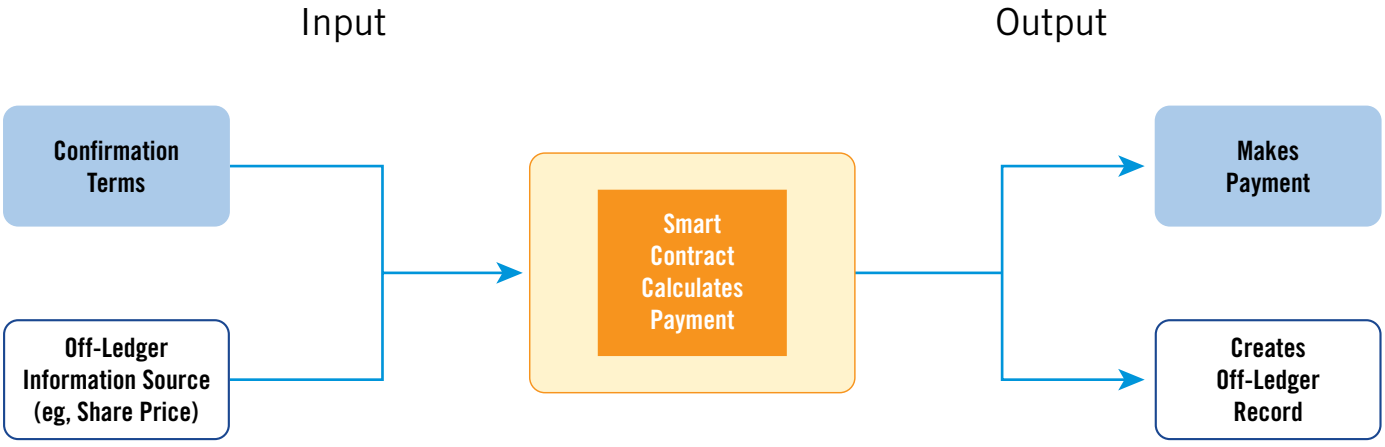
To replicate payment netting using a smart derivatives contract, the smart contract code would need to be capable of:

- Recognizing that two (or more) separate obligations have arisen, potentially across different transactions;
- Calculating the net amount payable;
- Identifying that the obligations are subject to payment netting where they arise under different transactions (if multiple transaction payment netting applies);
- Either transferring the actual payment or communicating the net payment obligation; and
- Recognizing that payment of the single net amount discharges the payment obligations of both parties.

When designing a smart derivatives contract with this functionality, it will be important for technology developers to consider the various levels at which payment obligations might arise.

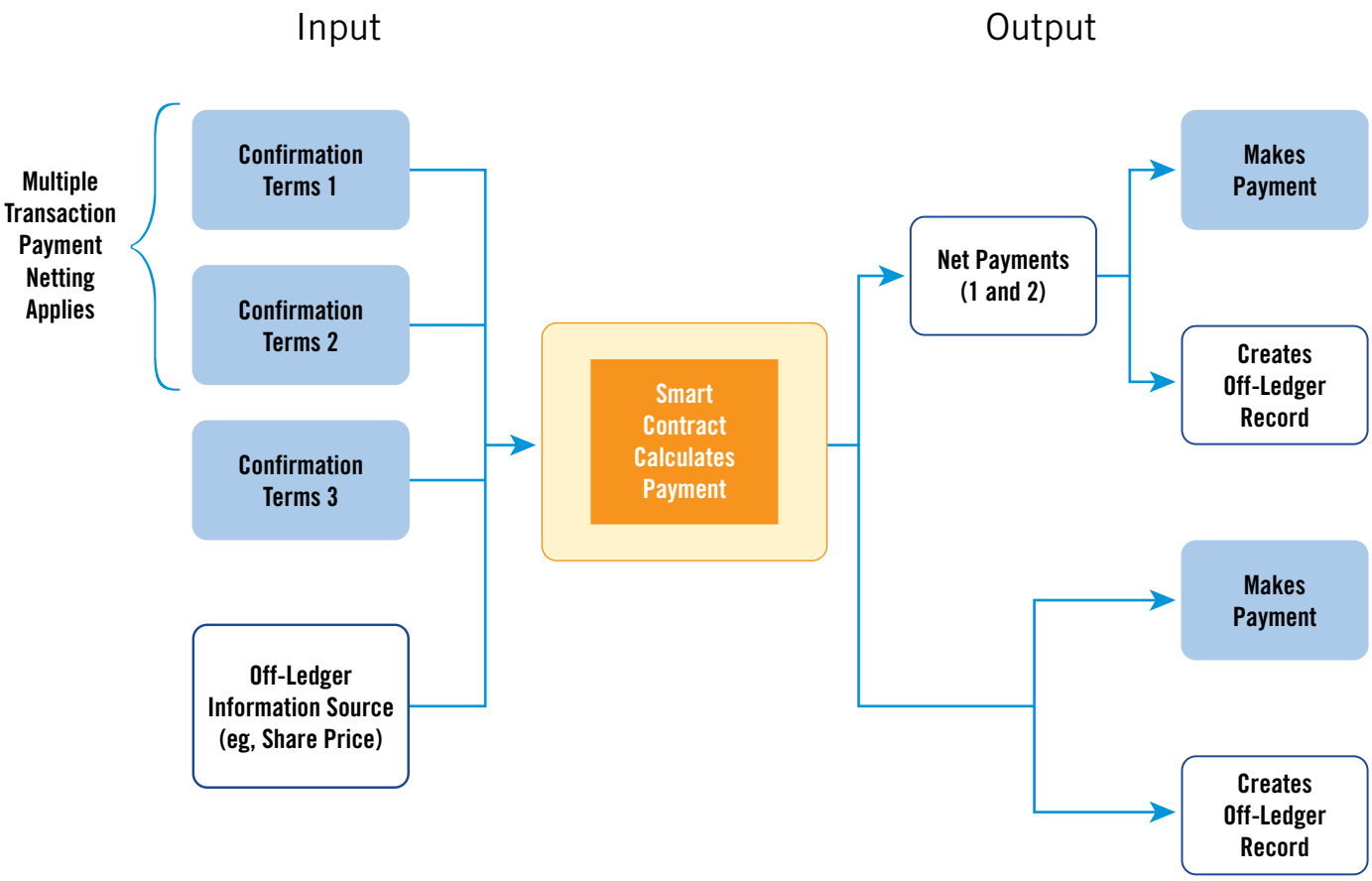
At the individual transaction level (see Figure 12), each transaction confirmation may establish payment obligations between the parties that could be automated through smart contract code on a platform. The methodology for calculating the amount of any such payments may require input from off-ledger information sources or oracles. The result of each such calculation of a payment obligation with respect to an individual transaction could be recorded as auditable output, so there is a retrievable record that is separate from any netted amounts. This output can either serve as a basis for off-ledger or on-ledger financial settlement.

Figure 12: Individual Transaction Level



At the aggregate transaction level (see Figure 13), there could be payment streams related to transactions that are subject to netting and payment streams related to transactions that are not subject to netting. The elections by parties to an ISDA Master Agreement as to whether 'multiple transaction payment netting' applies and, if so, to which categories of transactions could be addressed by smart contract code. If any of these payment streams exist both on-ledger and off-ledger, additional coordination will be required between these on-ledger and off-ledger payment streams to ensure that netting is properly applied.

Figure 13: Aggregate Transaction level



With respect to payment streams that are subject to netting on the aggregate transaction level, the output from separate individual transactions could be netted in connection with all amounts payable on the same date in the same currency in respect of those transactions, to the extent that multiple transaction payment netting applies. The result of each such calculation of netted payment obligations with respect to groups of transactions subject to payment netting could be recorded as an auditable output. With respect to payment streams that are not subject to netting on the aggregate transaction level, the output from separate individual transactions will remain disaggregated.

Whether on-ledger or off-ledger financial settlement is contemplated, thought should be given to whether and how smart contract code on a platform could manage all of these separate payment streams – payment obligations subject to netting and payment obligations not subject to netting, each of which may result from transactions related to different asset classes.

It is important to note that there may be additional payment streams that are not directly related to financial settlement of transactions (for example, platform fees). It will be important to determine which of these payment streams will be addressed on-ledger and off-ledger, coordinate payment netting where applicable, develop smart contract code to execute on-ledger payment streams and, if needed, coordinate on-ledger payment streams with off-ledger payment streams to ensure there are no conflicts or gaps.

Multibranch

If the smart derivatives contract seeks to replicate a multibranch relationship, the smart contract code would need to be capable of interacting with multiple addresses or a single address with a communication feature that issues a request to each relevant office for the transfer of assets.

Interest Payments

If the smart derivatives contract were to automate certain aspects of the close-out process (as discussed in the 'Close Out and Netting' section), it might also be necessary for the smart contract code to determine the default rate, including the currency of the payment and account details from and to which any interest payments would need to be paid. This may also be relevant where payment obligations are suspended and interest becomes payable at the applicable deferral rate (see 'Obligation to Make Payments' section).

In a light chain context, the smart derivatives contract could deliver a message to the other party stating the amount of interest payable by that party, and this payment could then be effected off-chain. In a heavy chain context, however, the smart derivatives contract would need to account for the netting of any interest or compensation payments with other obligations payable between the parties (see 'Payment Netting').

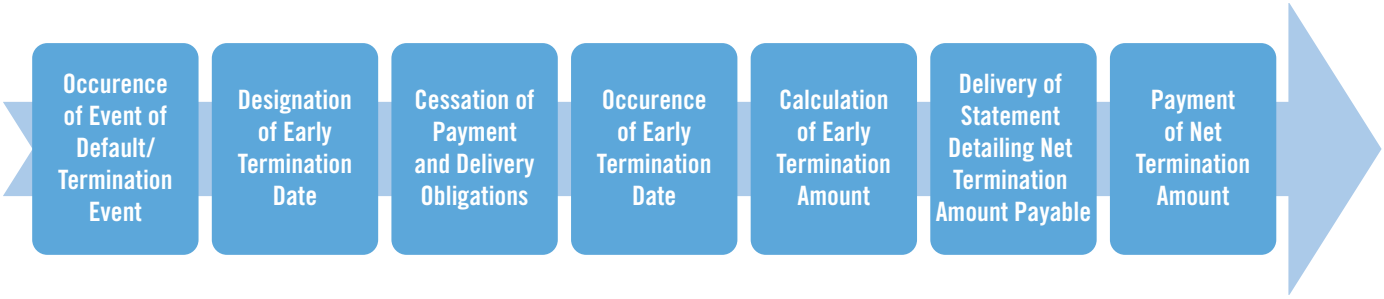
CLOSE OUT AND NETTING

Overview

Upon the occurrence of an event of default or termination event, either party (or, in some scenarios, both parties) may have the right to terminate or close out transactions entered into under the ISDA Master Agreement.

The process of closing out or terminating transactions entered into under an ISDA Master Agreement involves seven steps or elements (see Figure 14). Provisions relating to close out are found in Section 6 of the ISDA Master Agreement.

Figure 14: Close Out



1. **Events Giving Rise to Rights to Close Out**

   The right of a party to close out transactions under the ISDA Master Agreement may arise upon the occurrence of an event of default or termination event.

   The right to close out is only exercisable for as long as the relevant event of default or termination event is continuing. If the underlying event is remedied or otherwise ceases to exist, then the right to terminate is lost and the transactions continue as before.

   In some cases, there may be further conditions to satisfy before the exercise of the close-out right. For example, a party may be required to attempt a transfer of affected transactions to another entity in order to avoid the circumstances giving rise to the termination event, or to give a notice or wait for a defined period before exercising its close-out right.

   It is important to remember that the occurrence of an event that may ultimately constitute an event of default or termination event does not necessarily mean an event of default or termination event will occur, or that any transactions will be terminated as a result.

2. **Designation of an Early Termination Date**

   Whether transactions are capable of being terminated depends on the nature of the event. In the case of an event of default, all transactions outstanding under the relevant ISDA Master Agreement will be terminated if the non-defaulting party decides to proceed with the close out. In the case of a termination event, and unless otherwise stated within the ISDA Master Agreement, only those transactions affected by the event will be capable of being terminated.

When the close-out right becomes exercisable, one or both of the parties may have the right to designate an early termination date in respect of all or some of the outstanding transactions by sending a notice to the other party.

A notice designating an early termination date, once given, cannot be withdrawn.

In some circumstances, the occurrence of an early termination date is automatic where:

- The parties have specified in the schedule that automatic early termination (see section on events) is applicable to the relevant party; and
- One of a limited set of bankruptcy events of default occurs in respect of the relevant party.

In such cases, transactions under the ISDA Master Agreement are deemed to be terminated automatically without any requirement to give notice as described above.

3. **Cessation of Payment and Delivery Obligations**

Once notice designating an early termination date is effectively given, or, in the case of automatic early termination, once the early termination date has occurred, neither party is required to make further payments or deliveries under the terms of the terminated transactions.

4. **Occurrence of the Early Termination Date**

If it has not occurred automatically as a result of the application of automatic early termination, termination of the relevant transactions will occur on the date designated by the relevant party in its notice (subject to a maximum 20-day notice period).

5. **Calculation of Early Termination Amount**

The provisions of the ISDA Master Agreement dealing with calculation of the early termination amount payable following close out are complex, particularly where there are many and various live transactions under an agreement. However, there are a few key concepts:

- The ISDA Master Agreement provides that the close-out amount is determined by assessing the amount of the losses or costs incurred (or the gains realized) in replacing the terminated transactions or by providing the economic equivalent of the material terms of the terminated transactions.
- The early termination amount is a net amount. Where termination values are separately calculated in respect of individual transactions or groups of transactions, they are added to produce the single early termination amount.
- The early termination amount is an amount determined by one of the parties, or (in certain limited cases) an average of the amounts determined by both parties.

- The early termination amount reflects both the value of transaction payments and deliveries that would have been due on or after the early termination date and the value of payments or deliveries that were due before the early termination date but remain unpaid/undelivered.

- The early termination amount is expressed in a single termination currency, even though individual transactions may specify payments to be made in different contracted currencies and denominate deliveries in different currencies.

6. **Statement of Early Termination Amount Payable**

Having performed its calculation of the early termination amount, the relevant party is required to deliver a statement to the other party setting out the amount and by whom it is payable.

7. **Payment of the Early Termination Amount**

The early termination amount is payable either:

- On the day the statement is given (in the case of an early termination date arising as a result of an event of default); or

- On the day that is two local business days after the day the statement is given (in the case of an early termination date arising as a result of a termination event).

As set out in the 'Payments' section, interest may accrue on an overdue early termination amount at a rate that differs depending on whether the early termination occurred in respect of an event of default, by whom it is payable, and certain other variables.

Close-out Netting

Provisions designed to achieve enforceable close-out netting form an essential part of the ISDA Master Agreement.

As previously discussed, the ISDA Master Agreement allows either party (or, in certain scenarios, both parties) to terminate transactions entered into under the ISDA Master Agreement upon the occurrence of an event of default or termination event. As part of the close-out process, all of the outstanding payment and delivery obligations of the parties with respect to terminated transactions are replaced with a single early termination amount due from one party to the other.

Close-out netting has advantages from both a credit and capital perspective. For example, when analyzing the amount of overall financial exposure that a party has to each of its counterparties, credit departments will typically do so based on the net exposure when a legally enforceable netting agreement is in place. From a capital perspective, regulated entities may be able to hold less capital if they are able to account for their exposures to their counterparties on a net basis.

However, in scenarios where one of the parties is insolvent, the close-out netting provisions of the ISDA Master Agreement may not always be enforceable due to the operation of insolvency law in the jurisdiction in which the insolvent party is based.

For example:

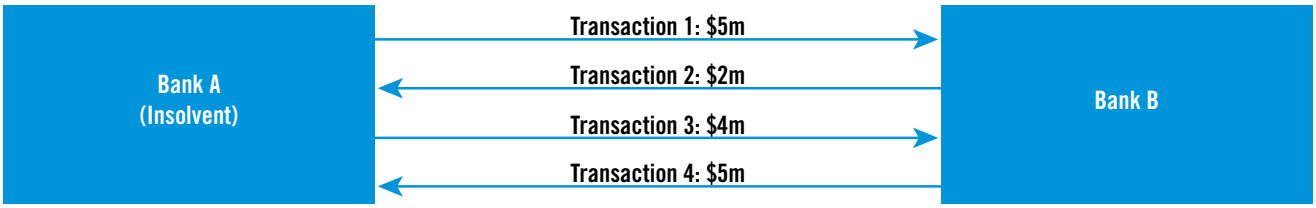
- Bankruptcy laws in certain jurisdictions may limit the availability of contractual set-off in an insolvency;
- Local insolvency laws might limit the effectiveness of contractual termination provisions when they are triggered on the basis of the opening of the insolvency proceedings;
- Under insolvency legislation, the liquidator may have the right to require the continuation or repudiation of transactions entered into by the insolvent party. This creates the risk of 'cherry-picking', whereby the liquidator could potentially decide to continue any valuable transaction for the insolvent party while repudiating other transactions, therefore undermining the entire netting mechanism.

Example of Close-out Netting:

Bank A is insolvent. This is an event of default under the ISDA Master Agreement, which allows Bank B to terminate all transactions if it chooses. Bank B decides to terminate the transactions and issues a notice of default. As the non-defaulting party, Bank B is required to calculate the termination values (close-out amounts) under all outstanding transactions under that ISDA Master Agreement.

Figure 15 illustrates the termination values of four different transactions entered into between Bank A and Bank B.

Figure 15

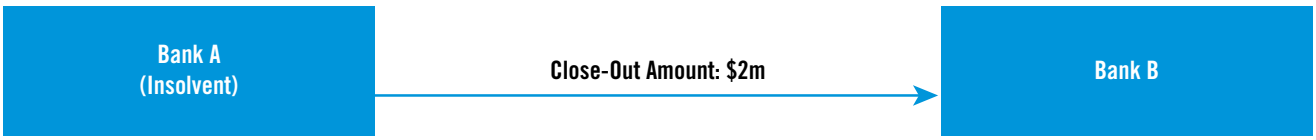


Bank B will follow the valuation requirements set out in the ISDA Master Agreement to achieve these valuations. All figures are converted using foreign exchange rates into the single termination currency named in the schedule to the ISDA Master Agreement (in this example, US dollars).

The net amount due (if the above termination values are reduced to a single net amount) is $2 million, owed by Bank A to Bank B (see Figure 16).

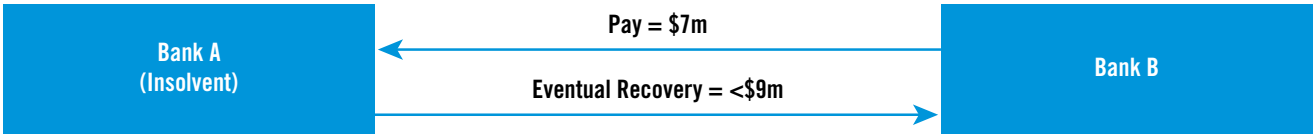
Bank B will therefore become a general creditor to Bank B for $2 million (the early termination amount).

Figure 16



If close-out netting was not enforceable, Bank B may be required immediately to pay $7 million to Bank A, representing the termination values of transactions 2 and 4. Bank B would then be forced to wait for months or even years for whatever fraction of the $9 million gross amount in respect of transactions 1 and 3 that it recovers as a creditor in the bankruptcy of Bank A (see Figure 17).

Figure 17



The result of close-out netting therefore is to reduce credit exposure from gross to net, which allows both parties to benefit from reduced credit exposure and lower regulatory capital requirements.

It is therefore important that the close-out netting provisions of the ISDA Master Agreement are enforceable.

The close-out netting provisions of an ISDA Master Agreement will be considered to be enforceable where the effectiveness of these provisions in the event of a party's insolvency are supported by a reasoned legal opinion in the relevant jurisdiction[2]. For example, when trading with a counterparty incorporated in and trading out of Germany, it will be necessary to procure a legal opinion affirming that the close-out provisions of the ISDA Master Agreement will be legally enforceable under German insolvency law.

It is important to note that this analysis is not static. As netting legislation is amended, updated or affected by other laws or regulations, it will be necessary to update and refresh netting and collateral enforceability opinions to ensure the close-out netting provisions of the ISDA Master Agreement remain enforceable.

[2] ISDA provides netting opinions to its membership that address the enforceability of the termination, bilateral close-out netting and multi-branch netting provisions of the 1992 and 2002 Master Agreements (https://www.isda.org/2017/10/02/opinions-overview/)

Considerations for Technology Developers

The operation of the close-out process in the context of a smart derivatives contract raises some interesting questions for both technology developers and derivatives market participants more generally.

It is important to remember that the close-out process can only be initiated following the occurrence of an event of default or termination event. Parties may or may not elect to terminate transactions upon the occurrence of one of these events. Therefore, the application of any technology solution to the close-out process will need to consider when and how these events might occur (see 'Events' section).

It is also important to consider how the close-out amount is determined and how any technology solution might affect the existing process for calculating the close-out amount. The ISDA Master Agreement provides that the close-out amount is determined by assessing the amount of any losses or costs incurred (or the gains realized) in replacing the terminated transaction, or by providing the economic equivalent of the material terms of the terminated transactions.

In the context of a smart derivatives contract, thought should be given at the outset as to how one might obtain valuations for these transactions in the event they are subject to the close-out process. For example, the true replacement cost of a smart derivatives contract might not be readily obtainable at the point of close out. The close-out provisions of the ISDA Master Agreement do not currently contemplate transactions that are conducted on a distributed ledger or platform, so it is unclear whether the platform-related costs, for example, should be included in the calculation.

As such, different processes for determining the value of on-ledger and off-ledger transactions may be necessary. Consideration should therefore be given to whether it is appropriate to document on-ledger and off-ledger transactions under the same ISDA Master Agreement.

It is also essential that any technology solution applied (in full or in part) to the transaction of derivatives subject to an ISDA Master Agreement respects and supports the integrity of the early termination and close-out netting provisions. The enforceability of these provisions, both in and outside a party's insolvency, is key to credit risk management and, in the case of certain parties, the availability of certain regulatory capital benefits. Parties rely on legal opinions regarding enforceability in all jurisdictions relevant to the arrangements between them, and any alteration in the manner in which the provisions operate might adversely affect the availability of those opinions and, consequently, those regulatory capital benefits and/or important assumptions made by the parties for risk management purposes.

DISPUTES

Overview

Disputes between parties can arise in various contexts and can take a variety of forms.

At the transaction level, disputes may arise as a result of a disagreement over how a particular calculation was performed, for example. The manner in which a dispute is resolved with respect to an individual transaction may depend on the specific asset class being traded and the terms of the confirmation (as supplemented by asset-specific definitional booklets) entered into between the parties.

At the ISDA Master Agreement level, disputes may arise from events that are already anticipated by the standard events of default and termination events within the agreement. The effect of these events will generally be managed by the relevant mechanisms within the ISDA Master Agreement, but might need to be resolved by negotiated settlement between the parties or in national courts or other dispute resolution venues.

Under the ISDA Master Agreement, the manner in which a dispute is ultimately managed and resolved is dependent on a number of factors, including:

- The governing law of the ISDA Master Agreement (generally either English or New York law);
- The facts and circumstances of the dispute;
- The parties' relationship; and
- The terms of the ISDA Master Agreement with respect to the issue(s) in dispute.

Disputes may also arise from events that are not explicitly set out within the terms of the ISDA Master Agreement (for example, fraud or the application of sanctions or freezing injunctions), and may also arise before, during or after the lifecycle of a given transaction.

Considerations for Technology Developers

At least initially, it is expected that most disputes will continue to be resolved bilaterally between the parties via negotiation and national courts or, occasionally, arbitration hearings, rather than via dispute resolution or governance mechanisms built into smart contracts or platforms.

Even where appropriate online dispute resolution mechanisms exist, it will continue to be important to consider the key areas where disputes are likely to occur under the ISDA Master Agreement and related documentation, and how platform or smart contract implementations will need to take these into account.

For example, if a dispute arises, the parties may choose in practice not to fulfil their obligations until the dispute is resolved, either consensually or unilaterally by exercising a right to terminate the ISDA Master Agreement. The parties are able to do so because those obligations generally require some form of manual intervention to action (eg, approval of specific payments). However, if certain obligations have been automated within a smart derivatives contract and a dispute arises during the lifetime of a transaction, it may be important for the smart contract or platform code to allow for:

- Either party to 'pause' automated payments or other obligations while the dispute is outstanding between the parties; and

- The ability to restart those automated obligations or take such other steps as required (including, for example, beginning the close-out process) when the dispute is resolved.

Given the number of potential solutions that could be negotiated between parties, and the range of potential remedies that national courts could order to resolve a dispute, it is unlikely that all possible outcomes of a dispute could be set out in code. However, some form of general override or exception handling procedure of the type outlined above is likely to be necessary, so parties can halt or terminate an automated transaction that is no longer legally permissible or practicable and then resolve the dispute outside of the platform or smart contract.

It should also be noted that, following resolution of a dispute, it is possible that certain terms or provisions of the smart derivatives contract may need to be amended to reflect the decision of the court or the negotiated resolution agreed between the parties.

It will also be important for both technology developers and derivatives market participants to consider new types of dispute that may arise as a result of entering into smart derivatives contracts. For example, it will be important for the parties to agree upon a mechanism (whether internal or external to the smart derivatives contract) to determine or verify that any data inputs are correct, how any incorrect data inputs should be remedied, and how responsibility for errors should be apportioned.

Perhaps the most fundamental issue is what happens when the commercial intent of the parties is not reflected accurately in the code. In order to avoid the risk of disputes occurring between parties, it would seem sensible to include some provision within the smart derivatives contract stating that the natural language version of the contract will prevail in the event of any inconsistencies or ensuring there is some mechanism in place to confirm, to the extent necessary, that the legal effect of any coded part of the smart derivatives contract has been appropriately validated by lawyers[3].

[2] For further discussion, see Smart Derivatives Contracts: From Concept to Construction, https://www.isda.org/a/cHvEE/Smart-Derivatives-Contracts-From-Concept-to-Construction-Oct-2018.pdf].

CONTRACT FORMATION AND LEGAL RELATIONS

Overview

As previously discussed, the ISDA Master Agreement is intended to govern the broader contractual relationship between the parties.

In addition to provisions relating to events, payments, close out and netting and disputes, there are a number of other provisions that, although quite standard in most financial contracts, are worthy of additional consideration.

Some important additional provisions include the following.

Agreements Between the Parties

In addition to the obligations already discussed within these guidelines, the ISDA Master Agreement contains various other obligations with which parties must continuously comply while the agreement is in force. For example, it provides for an obligation to deliver any documentation specified in the schedule to the ISDA Master Agreement at certain intervals or upon request. This typically includes any tax forms needed to enable a party to make payments to the other without any tax withholding, copies of constitutional documents, signing authority and financial statements.

These obligations are not transaction-specific and must be adhered to throughout the duration of the legal relationship between the parties, irrespective of the nature of any transaction entered into or, indeed, whether or not any transactions have been entered into at all.

Provisions relating to agreements between the parties are primarily found in section 4 of the ISDA Master Agreement.

Representations

The ISDA Master Agreement contains a series of representations to be given by each party to the other. They cover such basic statements as:

- Due establishment and authority to enter into and perform the contract;
- That such party's obligations are binding and enforceable against it;
- That the entry into and the performance of the contract by it will not result in the violation of any law, regulatory requirements, court order or contractual restriction applicable to it; and
- That any necessary governmental, regulatory or other consents have been obtained.

They also confirm that the party is not in default, not subject to any material litigation or similar proceedings, that all information provided to the other party is accurate, and that the statements made with respect to its tax status are true.

Representations are given at the time the parties enter into the ISDA Master Agreement but are also repeated at the time each transaction is entered into. Tax status representations are deemed to be repeated at all times until the ISDA Master Agreement is terminated.

It is therefore important to ensure that the representations remain accurate on the day they are given and on each day they are repeated or deemed to have been repeated.

Representations are contained in Section 3 of the ISDA Master Agreement.

No Agency

The ISDA Master Agreement contemplates that each party is entering into it as principal and not as agent of any other person or entity. In addition to the representations already mentioned, the ISDA Master Agreement contains a representation to be given by each party to this effect.

Transfers

In certain circumstances, a party to an ISDA Master Agreement may want to transfer its rights and obligations under the agreement to another party. Generally speaking, this is only possible if consent is obtained from the other party.

There are, however, a couple of exceptions. Where a party merges with (or substantially all of the assets of that party are transferred to) another party, a transfer of the ISDA Master Agreement to that party is permitted without consent.

A party may also transfer its rights, as non-defaulting party, to receive any early termination amount (in addition to any interest) that might be payable following close out. Consent of the defaulting party in this scenario is not required.

Provisions relating to transfers are contained in section 7 of the ISDA Master Agreement.

Amendments

Amendments to the terms of the ISDA Master Agreement will only be effective if in writing and agreed to by both parties.

Provisions relating to amendments are contained in Section 9 of the ISDA Master Agreement.

Considerations for Technology Developers

The development of smart derivatives contracts is likely to be more effective and efficient where the overall contractual relationship is taken into account when developing the technology.

Where a technology solution includes a platform or service provided by a third party that the two parties to an ISDA Master Agreement can use for their transaction execution or management, it is important that platform or service does not unexpectedly interfere with the legal relationship between the parties. For example, where a trading or processing platform is deployed through which payments or deliveries are routed (as might be seen in the case of a stock exchange or clearing house), it could be interpreted that each party is separately contracting with the platform or its owner, rather than with each other.

It may be that certain aspects of a smart derivatives contract will need to change as the underlying technology or code is amended or updated. It will therefore be important that both parties are aware of the amendment provisions of the ISDA Master Agreement and, if unsuitable, agree on a mechanism for agreeing to these technology driven changes, particularly if the change affects other areas of the legal contract.

It would also be useful for technology developers to familiarize themselves with some of the defined terms within the ISDA Master Agreement and definitions booklets. For example, definitions of 'general business day', 'local business day' and 'local delivery day' are relevant in the context of payments and deliveries. They are generally linked to the days on which commercial banks or settlement systems that are necessary to make the relevant payment or accomplish the relevant delivery are open for business. They do not currently account for payments or deliveries being made on an automated platform, so they may need to be amended or revised if used in this context.

The ability in certain scenarios to transfer an ISDA Master Agreement to another party without consent should also be considered, particularly where the platform does not provide for this level of portability between other platforms or the removal of transactions from the platform more generally.

CONTRIBUTORS

ISDA greatly appreciates the efforts of everyone who contributed to preparation of these ISDA Legal Guidelines for Smart Derivatives Contracts.

ISDA would like to offer special thanks to the following individuals who contributed substantively to these guidelines at various stages of the process:

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Since both the individual participants and their employers contributed towards the preparation of these guidelines, participants are identified by reference to the organization with which they were associated during the preparation process.

ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has more than 900 member institutions from 69 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on Twitter @ISDA.

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