Insurance Prudential Sourcebook

Chapter 3

Market risk



3.1 Market risk in insurance

- 3.1.1 ■ INSPRU 3.1 applies to an *insurer*, unless it is:
 - (1) a non-directive friendly society; or
 - (2) [deleted]
 - (3) [deleted]
 - (4) a Solvency II firm.

Purpose

- 3.1.7 G
- INSPRU 3.1 addresses the impact of market risk on insurance business in the ways set out below:

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- (1) Any firm that carries on long-term insurance business is required to hold capital to cover *market risk*. ■ INSPRU 3.1.26R makes particular provision for assets invested outside the UK.
- (2) Firms carrying on long-term insurance business that have propertylinked liabilities or index-linked liabilities must cover these liabilities by holding appropriate assets. ■ INSPRU 3.1.57R and ■ INSPRU 3.1.58R set out these cover requirements.
- (3) INSPRU 3.1.61AR(1) applies to *pure reinsurers* "prudent person" investment principles in relation to the investment of their assets.

Market risk scenario for assets invested outside the United Kingdom

3.1.26 R

Where the assets of a *firm* invested in a significant territory for the purposes of *PRA* Rulebook: Non-Solvency II firms: Capital Resources Requirements, 20.10, represent less than 0.5% of the *firm's long-term insurance assets* (excluding assets held to cover *index-linked liabilities* or *property-linked liabilities*), measured by *market value*, the *firm* may assume for those assets the *market risk* scenario for assets of that kind invested in the *United Kingdom* set out in *PRA* Rulebook: Non-Solvency II firms: Capital Resources Requirements, 20.10 instead of the other *market risk* scenarios set out in that provision.

Covering linked liabilities

3.1.57 R

A firm must cover its property-linked liabilities with:

- (1) (as closely as possible) the assets to which those liabilities are linked; or
- (2) a property-linked reinsurance contract; or
- (3) a combination of (1) and (2).
- 3.1.58 R

A firm must cover its index-linked liabilities with:

- (1) either:
 - (a) the assets which represent that index; or
 - (b) assets of appropriate security and marketability which correspond, as closely as possible, to the assets which are comprised in, or which form, the index or other reference of value to which those liabilities are linked; or
- (2) a portfolio of assets whose value or yield is reasonably expected to correspond closely with the *index-linked liability*; or
- (3) an index-linked reinsurance contract; or
- (4) an index-linked approved derivative; or
- (5) an index-linked approved guasi-derivative; or
- (6) a combination of any of (1) to (5).
- 3.1.59 G

For the purposes of ■ INSPRU 3.1.57 R and ■ INSPRU 3.1.58 R, a *firm* is not permitted to hold different assets and to cover the mismatch by holding excess assets.

3.1.60 G

If a *firm* has incurred a *policy* liability which cannot be exactly matched by appropriate assets (for example the Limited Price Index (LPI)), the *firm* should seek to match assets that at least cover the liabilities. For example, an LPI limited to 5% per annum may be matched by an RPI bond or a fixed interest

investment matching cash flows increasing at 5% per annum compound. Orders made by the Department for Work and Pensions under section 148 of the Social Security Administration Act 1992, and which are limited to 5% per annum, may also be matched by a fixed interest investment matching cash flows increasing at 5% per annum compound.

3.1.61

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In selecting the appropriate cover, the firm should ensure that both credit risk, and the risk that the value or yield in the assets will not, in all circumstances, match fluctuations in the relevant index, are within acceptable limits.

3.1.61-A

Where liabilities are linked to orders made under section 148 of the Social Security Administration Act 1992 the risks associated with the business may be mitigated by holding assets to cover an alternative index which is reasonably expected to at least cover the section 148 order (e.g. RPI plus a margin) over the duration of the link. The firm's exposure to an order under section 148 exceeding this index should be appropriately limited by putting a cap on the liabilities linked to the order so that risks are within acceptable

Pure reinsurers

limits.

3.1.61A R A pure reinsurer must invest its assets in accordance with the following requirements:

- (1) the assets must take account of the type of business carried out by the firm, in particular the nature, amount and duration of expected claims payments, in such a way as to secure the sufficiency, liquidity, security, quality, profitability and matching of its investments;
- (2) the firm must ensure that the assets are diversified and adequately spread and allow the firm to respond adequately to changing economic circumstances, in particular developments in the financial markets and real estate markets or major catastrophic events; the firm must assess the impact of irregular market circumstances on its assets and must diversify the assets in such a way as to reduce such impact;
- (3) investment in assets which are not admitted to trading on a regulated market must be kept to prudent levels;

- (4) investment in derivatives and quasi-derivatives must contribute to a reduction of investment risks or facilitate efficient portfolio management and such investments must be valued on a prudent basis, taking into account the underlying assets, and included in the valuation of the firm's assets. The firm must avoid excessive risk exposure to a single counterparty and to other derivative or quasiderivative operations;
- (5) the assets must be properly diversified in such a way as to avoid:
 - (a) excessive reliance on any one particular asset, issuer or group of undertakings; and
 - (b) accumulations of risk in the portfolio as a whole.

Investments in assets issued by the same issuer or by issuers belonging to the same group must not expose the firm to excessive risk concentration; and

(6) (5) does not apply to investment in government bonds.

Application of INSPRU 3.1 to Lloyd's

3.1.62

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3.2 **Derivatives in insurance**

Application

- 3.2.1 This section applies to an insurer, unless it is:
 - (1) a non-directive friendly society; or
 - (2) [deleted]
 - (3) [deleted]
 - (4) a pure reinsurer; or
 - (5) a Solvency II firm.
- 3.2.2 G [deleted]
- 3.2.3 R (1) This section applies to a firm in relation to the whole of its business, except where a particular provision provides for a narrower scope.
 - (2) Where a firm carries on both long-term insurance business and general insurance business, this section applies separately to each type of business.
- 3.2.3A G [deleted]

Purpose 3.2.4 G PRA Rulebook: Non-Solvency II firms: Insurance Company – Capital Resources 13 provides that a derivative, quasi-derivative or stock lending transaction will only be an admissible asset if it is approved. This section sets out the criteria for determining when a derivative, quasi-derivative or stock lending transaction is approved for this purpose. ■ INSPRU 3.2.5 R to ■ INSPRU 3.2.35 R set out the criteria for derivatives and quasi-derivatives. ■ INSPRU 3.2.36 R to ■ INSPRU 3.2.41 R set out the criteria for stock lending transactions.

Derivatives and quasi-derivatives

3.2.5 R

For the purpose of *PRA* Rulebook: Non-Solvency II firms: Insurance Company – Capital Resources 13 (Admissible assets in insurance), and also in relation to *permitted links*, a *derivative* or *quasi-derivative* is approved if:

- (1) it is held for the purpose of efficient portfolio management
 (■ INSPRU 3.2.6 R to INSPRU 3.2.7 R) or reduction of investment risk
 (■ INSPRU 3.2.8 R to INSPRU 3.2.13 G);
- (2) it is covered (■ INSPRU 3.2.14 R to INSPRU 3.2.33 G); and
- (3) it is effected or issued:
 - (a) on or under the rules of a regulated market; or
 - (b) off-market with an approved counterparty and, except for a forward transaction, on approved terms and is capable of valuation (■ INSPRU 3.2.34 R to INSPRU 3.2.35 R).

3.2.5A G

- (1) PRA Rulebook: Non-Solvency II firms: Insurance Company Capital Resources 13.3 requires firms to consider first whether an asset is a derivative or quasi-derivative transaction notwithstanding that it is also capable of falling within one or more other categories in PRA Rulebook: Non-Solvency II firms: Insurance Company Capital Resources 13.1. If it is a derivative or quasi-derivative transaction it is only admissible if it satisfies the conditions for it to be approved under ■INSPRU 3.2.5 R. Firms should be able to justify whether or not their assets are derivatives or quasi-derivatives.
- (2) A quasi-derivative is defined as a contract or asset that has the effect of a derivative contract. Quasi-derivatives may be regarded as those contracts or assets which are not derivatives but which effectively contain an embedded derivative component which significantly impacts the contracts or assets cash flow and risk profile so as to mirror the economic effect of a derivative. A derivative is defined in the Glossary as a contract for differences, a future or an option and includes a securitised derivative, which is an option or contract for differences that is listed. A securitised derivative may also be a debenture.
- (3) A deposit with interest or other return calculated by reference to an index or other factor is excluded from the definition of contract for differences by article 85(2) of the Regulated Activities Order.

 However, if the return on the deposit is in the nature of that on a derivative (for example, an option or a future) then the deposit is a quasi-derivative.
- (4) A holding in a fund investing in *derivatives* may or may not be a *quasi-derivative* depending on its ongoing investment policy and governance and any investment decisions from time to time which might deviate significantly from the investment policy. It should be treated as a *quasi-derivative* if its risk profile is such that the value of *units* in the fund is expected to mirror the value of a *derivative*.
- (5) The assets in the following list, which is illustrative and not exhaustive, all have features which could lead to their being assumed to be *quasi-derivatives*:

- (a) a bond whose redemption proceeds are directly linked to the performance of the FTSE 100 index but with a guaranteed minimum:
- (b) an investment fund that is managed to give high leverage that mirrors a call option;
- (c) an investment whose value it is reasonably foreseeable could become negative; and
- (d) a credit-linked note, that is, a security with an embedded credit default swap.

Efficient portfolio management

- A derivative or quasi-derivative is held for the purpose of efficient portfolio 3.2.6 R management if the firm reasonably believes the derivative or quasiderivative (either alone or together with any other covered transactions) enables the firm to achieve its investment objectives by one of the following (or, in relation to permitted links, in a manner which includes but is not limited to):
 - (1) generating additional capital or income in one of the ways described in ■ INSPRU 3.2.7 R; or
 - (2) reducing tax or investment cost in relation to admissible assets or permitted links; or
 - (3) acquiring or disposing of rights in relation to admissible assets or permitted links, or their equivalent, more efficiently or effectively.

Generation of additional capital or income

- 3.2.7 R The generation of additional capital or income falls within ■ INSPRU 3.2.6R (1) where it arises from:
 - (1) taking advantage of pricing imperfections in relation to the acquisition and disposal (or disposal and acquisition) of rights in relation to assets the same as, or equivalent to, admissible assets or permitted links; or
 - (2) receiving a premium for selling a covered call option or its equivalent, the underlying of which is an admissible asset or permitted link, even if that additional capital or income is obtained at the expense of surrendering the chance of greater capital or income.

Reduction of investment risk

- 3.2.8 R A derivative or quasi-derivative is held for the purpose of reducing investment risk if the derivative or quasi-derivative (either alone or together with other fully covered transactions) reduces any aspect of investment risk without significantly increasing any other aspect of that risk.
 - Significant increase in risk
- For the purposes of INSPRU 3.2.8 R, an increase in risk from a derivative or 3.2.9 quasi-derivative is significant unless:

- (1) relative to any reduction in investment risk it is both small and reasonable: or
- (2) the risk is remote.
- 3.2.10 G

■INSPRU 3.2.8 R does not require that a *derivative* or *quasi-derivative* has no possible adverse consequences. Often a *derivative* or *quasi-derivative* is effected to protect against a severe adverse consequence that only arises in one circumstance. In all other circumstances it may itself lead to adverse consequences, even if only because it expires worthless resulting in the loss of the purchase price. Conversely a *derivative* or *quasi-derivative* may reduce risk in a wide range of circumstances but lead to adverse consequences when a particular circumstance arises, e.g. the default of the *counterparty*. Only rarely does a *derivative* or *quasi-derivative* give rise to no adverse consequences in any circumstances. The test is merely that the increase in risk should not be significant, that is it should be both small and reasonable, or the risk should be remote.

3.2.11 G [deleted]

Investment risk

3.2.12 R

For the purposes of ■ INSPRU 3.2.8 R, investment risk is the risk that the assets held by a *firm*:

- (1) (where they are admissible assets held by the firm to cover its technical provisions) might not be:
 - (a) of a value at least equal to the amount of those *technical provisions* as required by *PRA* Rulebook: Non-Solvency II firms: Insurance Company Technical Provisions, 4; or
 - (b) of appropriate safety, yield and marketability as required by *PRA* Rulebook: Non-Solvency II firms: Insurance Company Technical Provisions, 6.2(1); or
 - (c) of an appropriate currency match as required by PRA Rulebook:Non-Solvency II firms: Insurance Company – Risk Management, 3.2;
- (2) (where they are held to cover *index-linked liabilities*) might not be appropriate cover for those liabilities as required by INSPRU 3.1.58 R; and
- (3) (where they are held to cover *property-linked liabilities*) might not be appropriately selected in accordance with contractual and constructive liabilities and appropriate cover for those liabilities as required by *PRA* Rulebook: Non-Solvency II firms: Insurance Company Risk Management, in particular the definition of 'investment risk'.
- 3.2.13 G
- In assessing whether investment risk is reduced, the impact of a transaction on both the assets and liabilities should be considered. In particular, where the amount of liabilities depends upon the fluctuations in an index or other factor, investment risk is reduced where assets whose value fluctuates in the

same way match those liabilities. In appropriate circumstances this may include:

- (1) a derivative or quasi-derivative that is linked to the same index as the liabilities from the index-linked contracts; and
- (2) a derivative or quasi-derivative whose value depends upon the factors which give rise to general insurance claims, e.g. a weather quasiderivative.

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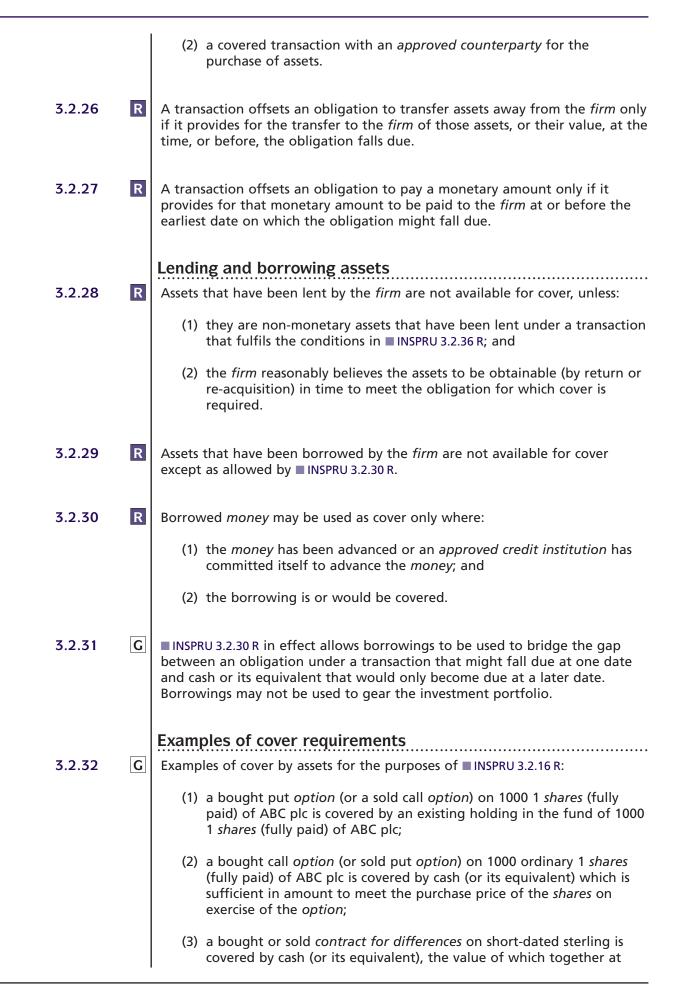
Cover

- 3.2.14 R A firm must cover an obligation to transfer assets or pay monetary amounts that arises from:
 - (1) a derivative or quasi-derivative; or
 - (2) a contract (other than a contract of insurance) for the purchase, sale or exchange of assets.
- 3.2.15 R An obligation to transfer assets or pay monetary amounts (see ■ INSPRU 3.2.14 R) must be covered:
 - (1) by assets, a liability or a provision (see INSPRU 3.2.16 R to ■ INSPRU 3.2.24 R); or
 - (2) by an offsetting transaction (see INSPRU 3.2.25 R to INSPRU 3.2.27 R).
- 3.2.16 An obligation to transfer assets (other than money) or to pay monetary amounts based on the value of, or income from, assets is covered if the firm holds:
 - (1) those assets; or
 - (2) in the case of an index or basket of assets, a reasonable approximation to those assets.
- 3.2.17 R An obligation to pay a monetary amount (whether or not falling in ■ INSPRU 3.2.16 R) is covered if:
 - (1) the firm holds admissible assets or permitted links that are sufficient in value so that the firm reasonably believes that following reasonably foreseeable adverse variations (relying solely on cashflows from, or from realising, those assets) it could pay the monetary amount in the right currency when it falls due; or
 - (2) the obligation to pay the monetary amount is offset by a liability. An obligation is offset by a liability where an increase in the amount of that obligation would be offset by a decrease in the amount of that liability; or
 - (3) a provision at least equal to the value of the assets in (1) is implicitly or explicitly set up. A provision is implicitly set up to the extent that the obligation to pay the monetary amount is recognised under PRA Rulebook: Non Solvency II firms: Insurance Company – Overall Resources and Valuation, in particular chapters 3-7, either by offset against an asset or as a separate liability. A provision is explicitly set up if it is in addition to an implicit provision.

- A firm must implicitly or explicitly set up a provision equal to the value of the assets or offsetting transactions held to cover a non-approved derivative or quasi-derivative transaction.
- 3.2.19 G A firm is required to cover a derivative under ■INSPRU 3.2.14R whether it satisfies the other conditions for approval under ■INSPRU 3.2.5R or not. Under ■INSPRU 3.2.17R a firm may cover an obligation to pay a monetary amount by setting up a provision. If the derivative is not covered at any time by other means then a provision needs to be set up to complete the cover taking into account obligations to pay monetary amounts that would arise if, for example, an obligation to transfer assets could not be met in full. By doing so, a derivative becomes covered. If it satisfies the other conditions under ■INSPRU 3.2.5R it is an approved derivative and may be taken into account for solvency purposes to the extent permitted by the large exposure limits and market risk and counterparty limits.
- 3.2.21 G Cover serves three purposes. First, it protects against exposure to loss from the transaction which is being covered. The value of the cover increases (or if the cover is a liability the amount of that liability decreases) to match any increase in obligations under the transaction.
- The second purpose of cover is that it prevents excessive gearing in the investment portfolio by the use of *options* and their equivalent. A *firm* is required to cover all obligations under an admissible transaction including obligations that would arise only at the option of the *firm*, e.g. the liability to pay the exercise price under a bought *option*.
- The third purpose of cover is that it protects against the risk that the *firm* may not be able to deliver assets (including *money* in any currency) of the right type when the obligation falls due under the transaction. An obligation to deliver assets is covered only if the *firm* holds those assets or has entered into an offsetting transaction that would deliver those assets when needed. An obligation to pay *money* is offset only if the *firm* holds cash in the right currency, its equivalent or assets that could reliably be converted into cash in the right currency.
- **R** Cover used for one transaction must not be used for cover in respect of another transaction or any other agreement to acquire, or dispose of, assets or to pay or repay *money*.

Offsetting transactions

- 3.2.25 R An offsetting transaction means:
 - (1) an approved derivative, approved stock lending transaction or an approved quasi-derivative; or



least match the notional principal of the contract. For example, a LIFFE short sterling contract, or a successive series of such contracts, is covered by 500,000; and

- (4) a sold *future* on the FT-SE 100 index is covered by holdings of equities, which satisfy the reasonable approximation test for cover in ■INSPRU 3.2.16R (2) in relation to that *future*, and the values of which together at least match the current mark to market valuation of the *future*. For example, if the multiplier per full point is 10, and if the eventual obligation under the *future* is currently 2800, the valuation of the *futures* position is 2800 x 10 = 28,000.
- Examples of cover by offsetting transactions for the purpose of

 INSPRU 3.2.25 R would include a bought *future* which is guaranteed to deliver to the *firm* at the relevant time sufficient assets to cover liabilities under a sold call *option*.

Off-market transactions

- For the purpose of ■INSPRU 3.2.5R (3)(b), a derivative or quasi-derivative is on approved terms only if the firm reasonably believes that it could, in all reasonably foreseeable circumstances and under normal market conditions, readily enter into a further transaction with the counterparty or a third party to close out the derivative or quasi-derivative at a price not less than the value attributed to it by the firm, taking into account any valuation adjustments or reserves established by the firm under PRA Rulebook: Non-Solvency II firms: Insurance Company Overall Resources and Valuation, in particular chapter 7.
- 3.2.34A G In considering whether the first transaction could be readily closed out in all reasonably foreseeable circumstances under normal market conditions, the firm should satisfy itself that it cannot reasonably foresee any circumstances in which it would need to close out all or part of the contract at a few days' notice, and would not be able to do so.
- 3.2.35 Represented For the purpose of INSPRU 3.2.5R (3)(b), a derivative or quasi-derivative is capable of valuation only if the firm:
 - (1) is able to value it with reasonable accuracy on a reliable basis in compliance with *PRA* Rulebook: Non-Solvency II firms: Insurance Company Overall Resources and Valuation, 3.1; and
 - (2) reasonably believes that it will be able to do so throughout the life of the transaction.
- 3.2.35A G The purpose of ■INSPRU 3.2.34 R and ■INSPRU 3.2.35 R is to ensure the appropriate application of *PRA* Rulebook: Non-Solvency II firms: Insurance Company Overall Resources and Valuation, to *derivatives* and *quasiderivatives* effected or issued off-market with an *approved counterparty*.

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Stock lending

3.2.36



- (1) For the purposes of PRA Rulebook: Non-Solvency II firms: Insurance Company - Capital Resources 13 (Admissible assets in insurance), a stock lending transaction (including a repo transaction) is approved if:
 - (a) the assets lent are admissible assets;
 - (b) the counterparty is an authorised person, an approved counterparty, a person registered as a broker-dealer with the Securities and Exchange Commission of the United States of America or a bank, or a branch of a bank, supervised, and authorised to deal in investments as principal, with respect to OTC derivatives by at least one of the following federal banking supervisory authorities of the United States of America:
 - (i) the Office of the Comptroller of the Currency;
 - (ii) the Federal Deposit Insurance Corporation;
 - (iii) the Board of Governors of the Federal Reserve System; and
 - (c) adequate and sufficiently immediate collateral (■ INSPRU 3.2.38 R to ■INSPRU 3.2.41 R) is obtained to secure the obligation of the counterparty.
- (2) INSPRU 3.2.36R (1)(c) does not apply to a stock lending transaction made through Euroclear Bank SA/NV's Securities Lending and Borrowing Programme.

3.2.36A



- (1) For the purposes of the rules on permitted links, a stock lending transaction (including a repo transaction) is approved if:
 - (a) the assets lent are permitted links;
 - (b) the counterparty is an authorised person, an approved counterparty, a person registered as a broker-dealer with the Securities and Exchange Commission of the United States of America or a bank, or a branch of a bank, supervised, and authorised to deal in investments as principal, with respect to OTC derivatives by at least one of the following federal banking supervisory authorities in the United States of America:
 - (i) the Office of the Comptroller of the Currency;
 - (ii) the Federal Deposit Insurance Corporation;
 - (iii) the Board of Governors of the Federal Reserve System; and
 - (c) adequately and sufficiently immediate collateral (■ INSPRU 3.2.38 R to INSPRU 3.2.41 R) is obtained to secure the obligation of the counterparty; and
 - (d) provided that, for the purposes of *property-linked assets* only:
 - (i) where the *linked policyholder* bears the whole of the risk associated with the stock lending transaction, they must receive the whole of the recompense (net of fees and expenses);
 - (ii) the extent of any risk that the linked policyholder bears in relation to the stock lending transaction must be disclosed to them: and
 - (iii) where the risk associated with the stock lending transaction is borne outside the linked fund, the linked fund should

receive a fair and reasonable recompense for the use of the *linked policyholders*' funds.

- (2) INSPRU 3.2.36R (1)(c) does not apply to a *stock lending* transaction made through Euroclear Bank SA/NVs Securities Lending and Borrowing Programme.
- 3.2.37 INSPRU 3.2.36 R refers only to *stock lending* transactions where the *firm* is the lender. There are no special *rules* for a transaction under which the *firm* borrows securities.

Collateral

- 3.2.38 R For the purposes of INSPRU 3.2.36R (1)(c), collateral is adequate only if it:
 - (1) is transferred to the *firm* or its agent or, in the case of a letter of credit, meets the conditions described in ■INSPRU 3.2.38A R;
 - (2) is, at the time of the transfer or, in the case of a letter of credit, at the time of issue, at least equal in value to the value of the securities transferred, or consideration provided, by the *firm*; and
 - (3) is of adequate quality.
- 3.2.38A R The conditions referred to in INSPRU 3.2.38R (1) are that the letter of credit is:
 - (1) direct, explicit, unconditional and irrevocable; and
 - (2) issued by an undertaking which is:
 - (a) not a related undertaking of the counterparty; and
 - (b) either an approved credit institution or a bank, or a branch of a bank, whether chartered by the federal government of the United States of America or a US state, that is supervised and examined by at least one of the following US federal banking supervisory authorities:
 - (i) the Office of the Comptroller of the Currency;
 - (ii) the Federal Deposit Insurance Corporation;
 - (iii) the Board of Governors of the Federal Reserve System
- 3.2.39 G For the purposes of assessing adequate quality in ■INSPRU 3.2.38R (3), reference should be made to the criteria for credit risk loss mitigation set out in ■INSPRU 2.1.16 R. The valuation rules in *PRA* Rulebook: Non-Solvency II firms: Insurance Company Overall Resources and Valuation apply for the purpose of determining the value of both *collateral* received, and the *securities* transferred, by the *firm*. In addition, where *collateral* takes the form of assets transferred, under the *rules* in the *PRA* Rulebook: Non-Solvency II firms: Insurance Company Capital Resources 13 any such asset that is not an *admissible asset* does not have a value.

- 3.2.40 For the purposes of ■ INSPRU 3.2.36R (1)(c), collateral is sufficiently immediate only if:
 - (1) it is transferred or, in the case of a letter of credit, issued before, or at the same time as, the transfer of the securities by the firm; or
 - (2) it will be transferred or, in the case of a letter of credit, issued, at latest, by the close of business on the day of the transfer.
- 3.2.41 R Collateral continues to be adequate only if its value is at all times at least equal to the value of the securities transferred by the firm. This will be satisfied in respect of collateral where the validity of the collateral or the firm's interest in the collateral is about to expire or has expired if sufficient collateral will again be transferred or issued at the latest by the close of business on the day of expiry.
- 3.2.42 G References in ■ INSPRU 3.2.40R (2) and ■ INSPRU 3.2.41 R to the close of business on the day of the transfer or the day of expiry are to close of business on that day in all time regions.