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⁽¹⁾ Text with EEA relevance

II

(Non-legislative acts)

REGULATIONS

COMMISSION DELEGATED REGULATION (EU) 2016/161

of 2 October 2015

supplementing Directive 2001/83/EC of the European Parliament and of the Council by laying down detailed rules for the safety features appearing on the packaging of medicinal products for human use**(Text with EEA relevance)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2001/83/EC of the European Parliament and of the Council of 6 November 2001 on the Community code relating to medicinal products for human use ⁽¹⁾, and in particular Article 54a(2) thereof,

Whereas:

- (1) Directive 2001/83/EC, as amended, provides for measures to prevent the entry into the legal supply chain of falsified medicinal products by requiring the placing of safety features consisting of a unique identifier and an anti-tampering device on the packaging of certain medicinal products for human use for the purposes of allowing their identification and authentication.
- (2) Diverging authentication mechanisms for medicinal products based on different national or regional traceability requirements may limit the circulation of medicinal products across the Union and increase costs for all players in the supply chain. It is therefore necessary to establish Union-wide rules for the implementation of the safety features for medicinal products for human use, with particular regard to the characteristics and technical specifications of the unique identifier, the modalities for the verification of the safety features, and the establishment and management of the repository system containing information on the safety features.
- (3) In accordance with Article 4 of Directive 2011/62/EU of the European Parliament and of the Council ⁽²⁾ and Article 54a(2) and (3) of Directive 2001/83/EC, the Commission has assessed the benefits, costs and cost-effectiveness of different policy options for the characteristics and technical specifications of the unique identifier, the modalities for the verification of the safety features and the establishment and management of the repository system. The policy options identified as the most cost-effective have been introduced as core elements of this Regulation.
- (4) This Regulation sets out a system where the identification and the authentication of medicinal products is guaranteed by an end-to-end verification of all medicinal products bearing the safety features, supplemented by the verification by wholesalers of certain medicinal products at higher risk of falsification. In practice, the

⁽¹⁾ OJ L 311, 28.11.2001, p. 67.⁽²⁾ Directive 2011/62/EU of the European Parliament and of the Council of 8 June 2011 amending Directive 2001/83/EC on the Community code relating to medicinal products for human use, as regards the prevention of the entry into the legal supply chain of falsified medicinal products (OJ L 174, 1.7.2011, p. 74).

authenticity and integrity of the safety features placed on the packaging of a medicinal product at the beginning of the supply chain should be verified at the time the medicinal product is supplied to the public, although certain derogations may apply. However, medicinal products at higher risk of falsification should be additionally verified by wholesalers throughout the supply chain, to minimise the risk of falsified medicinal products circulating undetected for lengthy periods of time. The verification of the authenticity of a unique identifier should be performed by comparing that unique identifier with the legitimate unique identifiers stored in a repositories system. When the pack is supplied to the public, or is distributed outside the Union, or in other specific situations, the unique identifier on that pack should be decommissioned in the repositories system so any other pack bearing the same unique identifier could not be successfully verified.

- (5) It should be possible to identify and verify the authenticity of an individual pack of a medicinal product for the entire time the medicinal product stays on the market and the additional time necessary for returning and disposing of the pack after it has expired. For this reason, the character sequence resulting from the combination of the product code and the serial number sequence should be unique to a given pack of a medicinal product until at least one year after the expiry date of that pack or five years after the product has been released for sale or distribution in accordance with Article 51(3) of Directive 2001/83/EC, whichever is the longer period.
- (6) The inclusion of the product code, the national reimbursement and identification number, the batch number and expiry date in the unique identifier contributes to patient safety by facilitating recall, withdrawal and return procedures and pharmacovigilance in this sector.
- (7) In order to have a negligible probability that a serial number can be guessed by falsifiers, the serial number should be generated according to specific randomisation rules.
- (8) Compliance with certain international standards, while not mandatory, can be used as proof that certain requirements of this Regulation are fulfilled. Where it is not possible to prove compliance with international standards, it should be the responsibility of the persons to whom the obligations are addressed to prove, by verifiable means, that they comply with those requirements.
- (9) The unique identifier should be encoded using a standardised data structure and syntax so that it can be correctly recognised and decoded throughout the Union by commonly-used scanning equipment.
- (10) The global uniqueness of the product code not only contributes to the unambiguity of the unique identifier but also facilitates the decommissioning of a unique identifier when this operation takes place in a Member State different from the Member State where the medicinal product was initially intended to be placed on the market. A product code which conforms to certain international standards should be presumed to be globally unique.
- (11) To facilitate the verification of the authenticity and decommissioning of a unique identifier by wholesalers and persons authorised or entitled to supply medicinal products to the public, it is necessary to ensure that the structure and printing quality of the two-dimensional barcode encoding the unique identifier allow for high-speed reading and minimisation of reading errors.
- (12) The data elements of the unique identifier should be printed on the packaging in human-readable format so to allow the verification of the authenticity of the unique identifier and its decommissioning in case the two-dimensional barcode is unreadable.
- (13) A two-dimensional barcode can store more information than the data elements of the unique identifier. It should be possible to use that residual storage capacity to carry further information and avoid the placing of additional barcodes.
- (14) The presence of multiple two-dimensional barcodes on the packaging can engender confusion with regard to which barcode should be read for the purpose of verifying the authenticity of and identifying a medicinal product. This may lead to mistakes in the verification of the authenticity of medicinal products and to falsified medicinal products being inadvertently supplied to the public. For this reason, the presence of multiple two-dimensional barcodes on the packaging of a medicinal product for the purposes of identification and verification of the authenticity should be avoided.

- (15) The verification of both safety features is necessary to ensure the authenticity of a medicinal product in an end-to-end verification system. The verification of the authenticity of the unique identifier aims at ensuring that the medicinal product originates from the legitimate manufacturer. The verification of the integrity of the anti-tampering device shows whether the packaging has been opened or altered since it left the manufacturer, thereby ensuring that the content of the packaging is authentic.
- (16) The verification of the authenticity of the unique identifier is a critical step to ensure the authenticity of the medicinal product bearing it and should only be based on the comparison with trusted information on the legitimate unique identifiers uploaded in a secure repositories system by verified users.
- (17) It should be possible to revert the status of a unique identifier that has been decommissioned in order to avoid the unnecessary waste of medicinal products. It is however necessary to subject the reverting of the status to strict conditions to minimise the threat to the security of the repositories system that such operation could generate if abused by counterfeiters. Those conditions should apply regardless of whether the decommissioning operation took place at the moment of supply to the public or at an earlier point in time.
- (18) Competent authorities should be able to access information on the safety features of a medicinal product while this product is in the supply chain or after it has been supplied to the public, recalled or withdrawn from the market. To this end, manufacturers should retain records of operations with or on the unique identifier of a given medicinal product after the identifier has been decommissioned from the repositories system for a minimum of one year after the expiry date of that medicinal product or five years after the pack has been released for sale or distribution in accordance with Article 51(3) of Directive 2001/83/EC, whichever is the longer period.
- (19) Past incidents of falsification show that certain medicinal products, such as those returned by persons authorised or entitled to supply medicinal products to the public or wholesalers, or medicinal products distributed by persons who are neither the manufacturer nor a wholesaler holding the marketing authorisation nor a designated wholesaler, are at higher risk of being falsified. The authenticity of those medicinal products should therefore be subject to additional verifications by wholesalers throughout the supply chain to minimise the risk that falsified products entering the legal supply chain freely circulate in the Union territory until they are verified at the time of supply to the public.
- (20) The verification by wholesalers of the authenticity of medicinal products at higher risk of being falsified would be equally effective whether performed by scanning individual unique identifiers or an aggregated code allowing the simultaneous verification of multiple unique identifiers. In addition, the verification could be performed at any time between the reception of the medicinal product by the wholesaler and its further distribution, to equal results. For those reasons, it should be left to the choice of the wholesaler whether to scan individual unique identifiers or aggregated codes, where available, or the timing of the verification, provided that the wholesaler ensures the verification of all unique identifiers of those products at higher risk of falsification in his physical possession, as required by this Regulation.
- (21) In the complex Union supply chain, it may happen that a medicinal product changes ownership but remains in the physical possession of the same wholesaler, or that a medicinal product is distributed within the territory of a Member State between two warehouses belonging to the same wholesaler or the same legal entity, but no sale takes place. In those cases, the wholesalers should be exempted from performing a verification of the unique identifier as the risk of falsification is negligible.
- (22) As a general principle, in an end-to-end verification system, the decommissioning of the unique identifier in the repository system should be performed at the end of the supply chain when the medicinal product is supplied to the public. Certain packs of medicinal products, however, may not eventually be supplied to the public and it is therefore necessary to ensure the decommissioning of their unique identifiers at a different point of the supply chain. This is the case of products which, inter alia, are to be distributed outside the Union, intended for destruction, requested as samples by competent authorities, or are returned products which cannot be returned to saleable stock.
- (23) Although Directive 2011/62/EU introduced provisions to regulate the sale of medicinal products at a distance to the public and mandated the Commission to establish the modalities of verification of the safety features by persons authorised or entitled to supply medicinal products to the public, the supply of medicinal products to the public is still mostly regulated at national level. The end of the supply chain may be organised differently in

the different Member States and involve specific healthcare professionals. It should be possible for the Member States to exempt specific institutions or persons authorised or entitled to supply medicinal products to the public from the obligation of verification of the safety features, in order to accommodate the particular characteristics of the supply chain in their territory and ensure that the impact of the verification measures on those parties is proportionate.

- (24) The verification of the authenticity of a unique identifier is not only paramount to the authentication of a medicinal product but also informs the person performing the operation of whether that product is expired, recalled, withdrawn or indicated as stolen. Persons authorised or entitled to supply medicinal products to the public should verify the authenticity and decommission a unique identifier at the time the medicinal product is supplied to the public so to access the most up-to-date information concerning the product and avoid that products which are expired, recalled, withdrawn or indicated as stolen are supplied to the public.
- (25) In order to avoid an excessive impact on the daily operations of healthcare institutions, it should be possible for the Member States to allow persons authorised or entitled to supply medicinal products to the public operating within healthcare institutions to perform the verification of the authenticity and the decommissioning of a unique identifier earlier than the time the medicinal products is supplied to the public, or exempt them from such an obligation, subject to certain conditions.
- (26) In certain Member States, the persons authorised or entitled to supply medicinal products to the public are allowed to open a pack of a medicinal product in order to supply part of that pack to the public. It is therefore necessary to regulate the verification of the safety features and the decommissioning of the unique identifier in this specific situation.
- (27) The effectiveness of an end-to-end verification system in preventing falsified medicinal products from reaching the public depends upon the systematic verification of the authenticity of the safety features and the subsequent decommissioning of the unique identifier of every supplied pack, so that that unique identifier cannot be re-used by traffickers. It is therefore important to ensure that such operations, should they not be performed at the time the medicinal product is supplied to the public due to a technical problem, are performed as soon as possible thereafter.
- (28) An end-to-end verification system requires the setting up of a repositories system which stores, inter alia, the information on the legitimate unique identifiers of a medicinal product and can be queried for the purposes of verifying the authenticity of and decommissioning a unique identifier. This repositories system should be established and managed by the marketing authorisation holders, since they are responsible for placing the product on the market, and by the manufacturers of medicinal products bearing the safety features, since they bear the costs of the repositories system in accordance with Article 54a(2)(e) of Directive 2001/83/EC. However, wholesalers and persons authorised or entitled to supply medicinal products to the public should be entitled to participate to the establishment and management of the repositories system, should they wish to, as their daily work will depend upon the correct functioning of the repositories system. In addition, national competent authorities should be consulted in the setting up of the repositories system as their early involvement will benefit their subsequent supervision activities.
- (29) Limiting the use of the repository system should not be used for the purpose of gaining market advantage. For this reason, membership of specific organisations should not be a prerequisite for using the repository system.
- (30) The structure of the repositories system should be such as to ensure that medicinal product verification is possible throughout the Union. This may require the transfer of data and information on a unique identifier between repositories within the repositories system. In order to minimise the number of necessary connections between repositories and ensure their interoperability, each national and supranational repository part of the repositories system should connect to and exchange data through a central repository acting as information and data router.
- (31) The repositories system should comprise the necessary interfaces providing access, either directly or by means of software, to wholesalers, persons authorised or entitled to supply medicinal products to the public and national competent authorities so that they can comply with their obligations under this Regulation.

- (32) Given the sensitive nature of the information on the legitimate unique identifiers and the potential negative impact on public health should such information fall in the hands of traffickers, the responsibility for ensuring the upload of such information in the repositories system should be placed on the marketing authorisation holder or the person responsible for placing the product bearing the unique identifier on the market. The information should be retained for a period of time sufficiently long to allow the appropriate investigation of incidents of falsification.
- (33) In order to harmonise the data format and data exchange across the repositories system and guarantee the interoperability of the repositories as well as the readability and the accuracy of the transferred data, each national and supranational repository should exchange information and data using the data format and data exchange specifications defined by the central repository.
- (34) To ensure medicinal product verification without hindering the movement of medicinal products within the single market, it should be possible for wholesalers and persons authorised or entitled to supply medicinal products to the public to verify the authenticity of and decommission a unique identifier in any Member State, regardless of where in the Union the medicinal product bearing that unique identifier was originally intended to be placed on the market. To this end, the status of a unique identifier should be synchronised between repositories and, where necessary, verification queries should be redirected by the central repository to the repositories serving the Member States where the product was intended to be placed on the market.
- (35) In order to ensure that the functioning of the repositories system supports an end-to-end verification of the authenticity of medicinal products, it is necessary to set out the characteristics and operations of the repositories system.
- (36) The investigation of suspected or confirmed incidents of falsification would benefit from knowing as much information as possible on the product subject to the investigation. For this reason, records of all operations concerning a unique identifier, including the users performing those operations and the nature of the operations should be stored in the repositories system, be accessible for the purpose of investigating events flagged as potential incidents of falsification in the repositories system, and be made immediately available to competent authorities upon request.
- (37) In accordance with Article 54a(3) of Directive 2001/83/EC, it is necessary to ensure the protection of personal data as provided for in Union law, the legitimate interests to protect information of a commercially confidential nature and the ownership and confidentiality of the data generated by the use of the safety features. For this reason, manufacturers, marketing authorisation holders, wholesalers and persons authorised or entitled to supply medicinal products to the public should only have ownership of and access to the data they generate when they interact with the repositories system. Although the present delegated Regulation does not require any personal data to be stored in the repositories system, the protection of personal data should be ensured in case users of the repositories use the repositories system for purposes which are outside the scope of this Regulation.
- (38) The information referred to in Article 33(2) of this Regulation and the information on the status of a unique identifier should stay accessible to all parties required to verify the authenticity of medicinal products, as such information is necessary for the proper performing of those verifications.
- (39) In order to avoid potential ambiguities and authentication errors, no unique identifiers having the same product code and serial number should be present in the repositories system at the same time.
- (40) In accordance with Article 54a(1) of Directive 2001/83/EC, medicinal products subject to prescription are to bear the safety features while medicinal products not subject to prescription are not allowed to. However, whether a medicinal product is subject to prescription is most often decided nationally and may vary across Member States. In addition, Member States may extend the scope of application of the safety features in accordance with Article 54a(5) of Directive 2001/83/EC. As a result, the same medicinal product may be required to bear the safety features in one Member State but not in another. In order to ensure the correct application of this Regulation, national competent authorities should, when requested, make available the information on the medicinal products placed on the market on their territory which shall bear the safety features, including those for which the scope of application of the unique identifier or of the anti-tampering device has been extended in accordance with Article 54a(5) of Directive 2001/83/EC, to the marketing authorisation holders, manufacturers, wholesalers and persons authorised or entitled to supply medicinal products to the public.

- (41) Since a repository may use servers physically located in different Member States, or may be physically located in a Member State which is not the Member State it serves, national competent authorities should be allowed to perform or observe inspections in other Member States, subject to certain conditions.
- (42) The lists containing the medicinal products or product categories which, in the case of prescription medicinal products shall not bear the safety features, and in the case of non-prescription medicinal products shall bear the safety features, should be established considering the risk of and the risk arising from falsification of the medicinal products or product categories, in accordance with Article 54a(2)(b) of Directive 2001/83/EC, as amended. Those risks should be assessed on the basis of the criteria referred to in the said Article.
- (43) In order to avoid disruptions in the supply of medicinal products, transitional measures for medicinal products which have been released for sale or distribution without the safety features before the date of application of this Regulation in the Member State or Member States where the product is placed on the market are necessary.
- (44) At the time of entry into force of Directive 2011/62/EU of the European Parliament and of the Council, Belgium, Greece and Italy already had systems in place for the verification of the authenticity of medicinal products and for the identification of individual packs. Directive 2011/62/EU granted such Member States an additional transitional period for adapting to the harmonised Union system for safety features introduced by that Directive for the same purposes, by allowing them to defer their application of the Directive as regards that system. In order to ensure consistency between the national transposition measures adopted pursuant to the Directive, on the one hand, and the rules of this Regulation, on the other hand, those Member States should be allowed the same additional transitional period for the application of the rules of this Regulation regarding that system.
- (45) In the interest of legal certainty and legal clarity with regard to the applicable rules in those Member States which benefit from an additional transitional period in accordance with this Regulation, each of those Member States should be required to notify the Commission of the date from which the provisions of this Regulation subject to the additional transitional period apply in its territory in order for the Commission to publish the date of application in that Member State in the *Official Journal of the European Union* sufficiently in advance,

HAS ADOPTED THIS REGULATION:

CHAPTER I

SUBJECT MATTER AND DEFINITIONS

Article 1

Subject matter

This Regulation lays down:

- (a) the characteristics and technical specifications of the unique identifier that enables the authenticity of medicinal products to be verified and individual packs to be identified;
- (b) the modalities for the verification of the safety features;
- (c) the provisions on the establishment, management and accessibility of the repositories system where the information on the safety features shall be contained;
- (d) the list of medicinal products and product categories subject to prescription which shall not bear the safety features;
- (e) the list of medicinal products and product categories not subject to prescription which shall bear the safety features;
- (f) the procedures for the notification to the Commission by national competent authorities of non-prescription medicinal products judged at risk of falsification and prescription medicinal products not deemed at risk of falsification in accordance with the criteria set out in Article 54a(2)(b) of Directive 2001/83/EC;
- (g) the procedures for a rapid evaluation of and decision on the notifications referred to in point (f) of this Article.

*Article 2***Scope**

1. This Regulation applies to:
 - (a) medicinal products subject to prescription which shall bear safety features on their packaging pursuant to Article 54a(1) of Directive 2001/83/EC, unless included in the list set out in Annex I to this Regulation;
 - (b) medicinal products not subject to prescription included in the list set out in Annex II to this Regulation;
 - (c) medicinal products to which Member States have extended the scope of application of the unique identifier or of the anti-tampering device in accordance with Article 54a(5) of Directive 2001/83/EC.
2. For the purposes of this Regulation, where reference is made to the packaging in a provision of this Regulation, the provision shall apply to outer packaging or to the immediate packaging if the medicinal product has no outer packaging.

*Article 3***Definitions**

1. For the purposes of this Regulation, the definitions in Article 1 of Directive 2001/83/EC shall apply.
2. The following definitions shall apply:
 - (a) 'unique identifier' means the safety feature enabling the verification of the authenticity and the identification of an individual pack of a medicinal product;
 - (b) 'anti-tampering device' means the safety feature allowing the verification of whether the packaging of a medicinal product has been tampered with;
 - (c) 'decommissioning of a unique identifier' means the operation changing the active status of a unique identifier stored in the repositories system referred to in Article 31 of this Regulation to a status impeding any further successful verification of the authenticity of that unique identifier;
 - (d) 'active unique identifier' means a unique identifier which has not been decommissioned or which is no longer decommissioned;
 - (e) 'active status' means the status of an active unique identifier stored in the repositories system referred to in Article 31;
 - (f) 'healthcare institution' means a hospital, in- or outpatient clinic or health centre.

CHAPTER II

TECHNICAL SPECIFICATIONS OF THE UNIQUE IDENTIFIER*Article 4***Composition of the unique identifier**

The manufacturer shall place on the packaging of a medicinal product a unique identifier which complies with the following technical specifications:

- (a) The unique identifier shall be a sequence of numeric or alphanumeric characters that is unique to a given pack of a medicinal product.
- (b) The unique identifier shall consist of the following data elements:
 - (i) a code allowing the identification of at least the name, the common name, the pharmaceutical form, the strength, the pack size and the pack type of the medicinal product bearing the unique identifier ('product code');
 - (ii) a numeric or alphanumeric sequence of maximum 20 characters, generated by a deterministic or a non-deterministic randomisation algorithm ('serial number');
 - (iii) a national reimbursement number or other national number identifying the medicinal product, if required by the Member State where the product is intended to be placed on the market;

- (iv) the batch number;
- (v) the expiry date.
- (c) The probability that the serial number can be guessed shall be negligible and in any case lower than one in ten thousand.
- (d) The character sequence resulting from the combination of the product code and the serial number shall be unique to a given pack of a medicinal product until at least one year after the expiry date of the pack or five years after the pack has been released for sale or distribution in accordance with Article 51(3) of Directive 2001/83/EC, whichever is the longer period.
- (e) Where the national reimbursement number or other national number identifying the medicinal product is contained in the product code, it is not required to be repeated within the unique identifier.

Article 5

Carrier of the unique identifier

1. Manufacturers shall encode the unique identifier in a two-dimensional barcode.
2. The barcode shall be a machine-readable Data Matrix and have error detection and correction equivalent to or higher than those of the Data Matrix ECC200. Barcodes conforming to the International Organization for Standardisation/International Electrotechnical Commission standard ('ISO/IEC') 16022:2006 shall be presumed to fulfil the requirements set out in this paragraph.
3. Manufacturers shall print the barcode on the packaging on a smooth, uniform, low-reflecting surface.
4. When encoded in a Data Matrix, the structure of the unique identifier shall follow an internationally-recognised, standardised data syntax and semantics ('coding scheme') which allows the identification and accurate decoding of each data element of which the unique identifier is composed, using common scanning equipment. The coding scheme shall include data identifiers or application identifiers or other character sequences identifying the beginning and the end of the sequence of each individual data element of the unique identifier and defining the information contained in those data elements. Unique identifiers having a coding scheme conforming to ISO/IEC 15418:2009 shall be presumed to fulfil the requirements set out in this paragraph.
5. When encoded in a Data Matrix as data element of a unique identifier, the product code shall follow a coding scheme and begin with characters specific to the coding scheme used. It shall also contain characters or character sequences identifying the product as a medicinal product. The resulting code shall be less than 50 characters and be globally unique. Product codes which conform to the ISO/IEC 15459-3:2014 and ISO/IEC 15459-4:2014 shall be presumed to fulfil the requirements set out in this paragraph.
6. Where necessary, different coding schemes may be used within the same unique identifier provided that the decoding of the unique identifier is not hindered. In that case, the unique identifier shall contain standardised characters permitting the identification of the beginning and the end of the unique identifier as well as the beginning and the end of each coding scheme. Where containing multiple coding schemes, unique identifiers which conform to ISO/IEC 15434:2006 shall be presumed to fulfil the requirements set out in this paragraph.

Article 6

Quality of the printing of the two-dimensional barcode

1. Manufacturers shall evaluate the quality of the printing of the Data Matrix by assessing at least the following Data Matrix parameters:
 - (a) the contrast between the light and dark parts;
 - (b) the uniformity of the reflectance of the light and dark parts;
 - (c) the axial non-uniformity;

- (d) the grid non-uniformity;
 - (e) the unused error correction;
 - (f) the fixed pattern damage;
 - (g) the capacity of the reference decode algorithm to decode the Data Matrix.
2. Manufacturers shall identify the minimum quality of the printing which ensures the accurate readability of the Data Matrix throughout the supply chain until at least one year after the expiry date of the pack or five years after the pack has been released for sale or distribution in accordance with Article 51(3) of Directive 2001/83/EC, whichever is the longer period.
3. When printing the Data Matrix, manufacturers shall not use a quality of the printing lower than the minimum quality referred to in paragraph 2.
4. A quality of printing rated at least 1,5 in accordance with ISO/IEC 15415:2011 shall be presumed to fulfil the requirements set out in this Article.

Article 7

Human-readable format

1. Manufacturers shall print the following data elements of the unique identifier on the packaging in human-readable format:
- (a) the product code;
 - (b) the serial number;
 - (c) the national reimbursement number or other national number identifying the medicinal product, if required by the Member State where the product is intended to be placed on the market and not printed elsewhere on the packaging.
2. Paragraph 1 shall not apply where the sum of the two longest dimensions of the packaging equals or is less than 10 centimetres.
3. Where the dimensions of the packaging allow it, the human-readable data elements shall be adjacent to the two-dimensional barcode carrying the unique identifier.

Article 8

Additional information in the two-dimensional barcode

Manufacturers may include information other than the unique identifier in the two-dimensional barcode carrying the unique identifier, where permitted by the competent authority in accordance with Title V of Directive 2001/83/EC.

Article 9

Barcodes on the packaging

Medicinal products having to bear the safety features pursuant to Article 54a of Directive 2001/83/EC shall not bear on their packaging, for the purpose of their identification and verification of their authenticity, any other visible two-dimensional barcode than the two-dimensional barcode carrying the unique identifier.

CHAPTER III

GENERAL PROVISIONS ON THE VERIFICATION OF THE SAFETY FEATURES*Article 10***Verification of the safety features**

When verifying the safety features, manufacturers, wholesalers and persons authorised or entitled to supply medicinal products to the public shall verify the following:

- (a) the authenticity of the unique identifier;
- (b) the integrity of the anti-tampering device.

*Article 11***Verification of the authenticity of the unique identifier**

When verifying the authenticity of a unique identifier, manufacturers, wholesalers and persons authorised or entitled to supply medicinal products to the public shall check the unique identifier against the unique identifiers stored in the repositories system referred to in Article 31. A unique identifier shall be considered authentic when the repositories system contains an active unique identifier with the product code and serial number that are identical to those of the unique identifier being verified.

*Article 12***Unique identifiers which have been decommissioned**

A medicinal product bearing a unique identifier which has been decommissioned shall not be further distributed or supplied to the public except in any of the following situations:

- (a) the unique identifier was decommissioned in accordance with Article 22(a) and the medicinal product is distributed for the purpose of exporting it outside the Union;
- (b) the unique identifier was decommissioned earlier than the time of supplying the medicinal product to the public, pursuant to Articles 23, 26, 28 or 41;
- (c) the unique identifier was decommissioned in accordance with Article 22(b) or (c) or Article 40, and the medicinal product is provided to the person responsible for its disposal;
- (d) the unique identifier was decommissioned in accordance with Article 22(d) and the medicinal product is provided to the national competent authorities.

*Article 13***Reversing the status of a decommissioned unique identifier**

1. Manufacturers, wholesalers and persons authorised or entitled to supply medicinal products to the public may only revert the status of a decommissioned unique identifier to an active status if the following conditions are fulfilled:

- (a) the person performing the reverting operation is covered by the same authorisation or entitlement and operates in the same premises as the person that decommissioned the unique identifier;
- (b) the reverting of the status takes place not more than 10 days after the unique identifier was decommissioned;

- (c) the pack of medicinal product has not expired;
 - (d) the pack of medicinal product has not been registered in the repositories system as recalled, withdrawn, intended for destruction or stolen and the person performing the reverting operation does not have knowledge that the pack is stolen;
 - (e) the medicinal product has not been supplied to the public.
2. Medicinal products bearing a unique identifier which cannot be reverted to an active status because the conditions set out in paragraph 1 are not fulfilled shall not be returned to saleable stock.

CHAPTER IV

MODALITIES OF VERIFICATION OF THE SAFETY FEATURES AND DECOMMISSIONING OF THE UNIQUE IDENTIFIER BY MANUFACTURERS

Article 14

Verification of the two-dimensional barcode

The manufacturer placing the safety features shall verify that the two-dimensional barcode carrying the unique identifier complies with Articles 5 and 6, is readable and contains the correct information.

Article 15

Record keeping

The manufacturer placing the safety features shall keep records of every operation he performs with or on the unique identifier on a pack of medicinal product for at least one year after the expiry date of the pack or five years after the pack has been released for sale or distribution in accordance with Article 51(3) of Directive 2001/83/EC, whichever is the longer period, and shall provide those records to competent authorities on request.

Article 16

Verifications to be performed before removing or replacing the safety features

1. Before removing or covering, either fully or partially, the safety features in accordance with Article 47a of Directive 2001/83/EC, the manufacturer shall verify the following:

- (a) the integrity of the anti-tampering device;
- (b) the authenticity of the unique identifier and decommission it if replaced.

2. Manufacturers holding both a manufacturing authorisation according to Article 40 of Directive 2001/83/EC and an authorisation to manufacture or import investigational medicinal products to the Union as referred to in Article 61 of Regulation (EU) No 536/2014 of the European Parliament and of the Council ⁽¹⁾ shall verify the safety features and decommission the unique identifier on a pack of medicinal product before repackaging or re-labelling it for the purpose of using it as authorised investigational medicinal product or authorised auxiliary medicinal product.

⁽¹⁾ Regulation (EU) No 536/2014 of the European Parliament and of the Council of 16 April 2014 on clinical trials on medicinal products for human use, and repealing Directive 2001/20/EC (OJ L 158, 27.5.2014, p. 1).

*Article 17***Equivalent unique identifier**

When placing an equivalent unique identifier for the purposes of complying with Article 47a(1)(b) of Directive 2001/83/EC, the manufacturer shall verify that the structure and composition of the unique identifier placed on the packaging complies, with regard to the product code and the national reimbursement number or other national number identifying the medicinal product, with the requirements of the Member State where the medicinal product is intended to be placed on the market, so that that unique identifier can be verified for authenticity and decommissioned.

*Article 18***Actions to be taken by manufacturers in case of tampering or suspected falsification**

Where a manufacturer has reason to believe that the packaging of the medicinal product has been tampered with, or the verification of the safety features shows that the product may not be authentic, the manufacturer shall not release the product for sale or distribution and shall immediately inform the relevant competent authorities.

*Article 19***Provisions applicable to a manufacturer distributing his products by wholesale**

Where a manufacturer distributes his products by wholesale, Article 20(a), and Articles 22, 23 and 24 shall apply to him in addition to Articles 14 to 18.

CHAPTER V

MODALITIES OF VERIFICATION OF THE SAFETY FEATURES AND DECOMMISSIONING OF THE UNIQUE IDENTIFIER BY WHOLESALERS*Article 20***Verification of the authenticity of the unique identifier by wholesalers**

A wholesaler shall verify the authenticity of the unique identifier of at least the following medicinal products in his physical possession:

- (a) medicinal products returned to him by persons authorised or entitled to supply medicinal products to the public or by another wholesaler;
- (b) medicinal products he receives from a wholesaler who is neither the manufacturer nor the wholesaler holding the marketing authorisation nor a wholesaler who is designated by the marketing authorisation holder, by means of a written contract, to store and distribute the products covered by his marketing authorisation on his behalf.

*Article 21***Derogations from Article 20(b)**

Verification of the authenticity of the unique identifier of a medicinal product is not required under Article 20(b) in any of the following situations:

- (a) that medicinal product changes ownership but remains in the physical possession of the same wholesaler;
- (b) that medicinal product is distributed within the territory of a Member State between two warehouses belonging to the same wholesaler or the same legal entity, and no sale takes place.

*Article 22***Decommissioning of unique identifiers by wholesalers**

A wholesaler shall verify the authenticity of and decommission the unique identifier of the following medicinal products:

- (a) products which he intends to distribute outside of the Union;
- (b) products which have been returned to him by persons authorised or entitled to supply medicinal products to the public or another wholesaler and cannot be returned to saleable stock;

- (c) products which are intended for destruction;
- (d) products which, while in his physical possession, are requested as a sample by competent authorities;
- (e) products which he intends to distribute to the persons or institutions referred to in Article 23, where required by national legislation in accordance with the same Article.

Article 23

Provisions to accommodate specific characteristics of Member States' supply chains

Member States may require, where necessary to accommodate the particular characteristics of the supply chain on their territory, that a wholesaler verifies the safety features and decommisions the unique identifier of a medicinal product before he supplies that medicinal product to any of the following persons or institutions:

- (a) persons authorised or entitled to supply medicinal products to the public who do not operate within a healthcare institution or within a pharmacy;
- (b) veterinarians and retailers of veterinary medicinal products;
- (c) dental practitioners;
- (d) optometrists and opticians;
- (e) paramedics and emergency medical practitioners;
- (f) armed forces, police and other governmental institutions maintaining stocks of medicinal products for the purposes of civil protection and disaster control;
- (g) universities and other higher education establishments using medicinal products for the purposes of research and education, with the exceptions of healthcare institutions;
- (h) prisons;
- (i) schools;
- (j) hospices;
- (k) nursing homes.

Article 24

Actions to be taken by wholesalers in case of tampering or suspected falsification

A wholesaler shall not supply or export a medicinal product where he has reason to believe that its packaging has been tampered with, or where the verification of the safety features of the medicinal product indicates that the product may not be authentic. He shall immediately inform the relevant competent authorities.

CHAPTER VI

MODALITIES OF VERIFICATION OF THE SAFETY FEATURES AND DECOMMISSIONING OF THE UNIQUE IDENTIFIER BY PERSONS AUTHORISED OR ENTITLED TO SUPPLY MEDICINAL PRODUCTS TO THE PUBLIC

Article 25

Obligations of persons authorised or entitled to supply medicinal products to the public

1. Persons authorised or entitled to supply medicinal products to the public shall verify the safety features and decommission the unique identifier of any medicinal product bearing the safety features they supply to the public at the time of supplying it to the public.
2. Notwithstanding paragraph 1, persons authorised or entitled to supply medicinal products to the public operating within a healthcare institution may carry out that verification and decommissioning at any time the medicinal product is in the physical possession of the healthcare institution, provided that no sale of the medicinal product takes place between the delivery of the product to the healthcare institution and the supplying of it to the public.

3. In order to verify the authenticity of the unique identifier of a medicinal product and decommission that unique identifier, persons authorised or entitled to supply medicinal products to the public shall connect to the repositories system referred to in Article 31 through the national or supranational repository serving the territory of the Member State in which they are authorised or entitled.

4. They shall also verify the safety features and decommission the unique identifier of the following medicinal products bearing the safety features:

- (a) medicinal products in their physical possession that cannot be returned to wholesalers or manufacturers;
- (b) medicinal products that, while in their physical possession, are requested as samples by competent authorities, in accordance with national legislation;
- (c) medicinal products which they supply for subsequent use as authorised investigational medicinal products or authorised auxiliary medicinal products as defined in Articles 2(2)(9) and (10) of Regulation (EU) No 536/2014.

Article 26

Derogations from Article 25

1. Persons authorised or entitled to supply medicinal products to the public are exempted from the obligation to verify the safety features and decommission the unique identifier of medicinal products provided to them as free samples in accordance with Article 96 of Directive 2001/83/EC.

2. Persons authorised or entitled to supply medicinal products to the public who do not operate within a healthcare institution or within a pharmacy are exempted from the obligation to verify the safety features and decommission the unique identifier of medicinal products where that obligation has been placed on wholesalers by national legislation in accordance with Article 23.

3. Notwithstanding Article 25, Member States may decide, where necessary to accommodate the particular characteristics of the supply chain on their territory, to exempt a person authorised or entitled to supply medicinal products to the public operating within a healthcare institution from the obligations of verification and decommissioning of the unique identifier, provided that the following conditions are met:

- (a) the person authorised or entitled to supply medicinal products to the public obtains the medicinal product bearing the unique identifier through a wholesaler belonging to the same legal entity as the healthcare institution;
- (b) the verification and decommissioning of the unique identifier is performed by the wholesaler that supplies the product to the healthcare institution;
- (c) no sale of the medicinal product takes place between the wholesaler supplying the product and that healthcare institution;
- (d) the medicinal product is supplied to the public within that healthcare institution.

Article 27

Obligations when applying the derogations

Where the verification of the authenticity and decommissioning of the unique identifier is carried out earlier than referred to in Article 25(1), pursuant to Articles 23 or 26, the integrity of the anti-tampering device shall be verified at the time the medicinal product is supplied to the public.

Article 28

Obligations when supplying only part of a pack

Notwithstanding Article 25(1), where persons authorised or entitled to supply medicinal products to the public supply only part of a pack of a medicinal product the unique identifier of which is not decommissioned, they shall verify the safety features and decommission that unique identifier when the pack is opened for the first time.

*Article 29***Obligations in case of inability to verify the authenticity and decommission the unique identifier**

Notwithstanding Article 25(1), where technical problems prevent persons authorised or entitled to supply medicinal products to the public from verifying the authenticity of and decommissioning a unique identifier at the time the medicinal product bearing that unique identifier is supplied to the public, those persons authorised or entitled to supply medicinal products to the public shall record the unique identifier and, as soon as the technical problems are solved, verify the authenticity of and decommission the unique identifier.

*Article 30***Actions to be taken by persons authorised or entitled to supply medicinal products to the public in case of suspected falsification**

Where persons authorised or entitled to supply medicinal products to the public have reason to believe that the packaging of the medicinal product has been tampered with, or the verification of the safety features of the medicinal product indicates that the product may not be authentic, those persons authorised or entitled to supply medicinal products to the public shall not supply the product and shall immediately inform the relevant competent authorities.

CHAPTER VII

ESTABLISHMENT, MANAGEMENT AND ACCESSIBILITY OF THE REPOSITORIES SYSTEM*Article 31***Establishment of the repositories system**

1. The repositories system where the information on the safety features shall be contained, pursuant to Article 54a(2)(e) of Directive 2001/83/EC, shall be set up and managed by a non-profit legal entity or non-profit legal entities established in the Union by manufacturers and marketing authorisation holders of medicinal products bearing the safety features.
2. In setting up the repositories system, the legal entity or entities referred to in paragraph 1 shall consult at least wholesalers, persons authorised or entitled to supply medicinal products to the public and relevant national competent authorities.
3. Wholesalers and persons authorised or entitled to supply medicinal products to the public are entitled to participate in the legal entity or entities referred to in paragraph 1, on a voluntary basis, at no cost.
4. The legal entity or entities referred to on paragraph 1 shall not require manufacturers, marketing authorisation holders, wholesalers or persons authorised or entitled to supply medicinal products to the public to be members of a specific organisation or organisations in order to use the repository system.
5. The costs of the repositories system shall be borne by the manufacturers of medicinal products bearing the safety features, in accordance with Article 54a(2)(e) of Directive 2001/83/EC.

*Article 32***Structure of the repositories system**

1. The repositories system shall be composed of the following electronic repositories:
 - (a) a central information and data router ('hub');
 - (b) repositories which serve the territory of one Member State ('national repositories') or the territory of multiple Member States ('supranational repositories'). Those repositories shall be connected to the hub.
2. The number of national and supranational repositories shall be sufficient to ensure that the territory of every Member State is served by one national or supranational repository.

3. The repositories system shall comprise the necessary information technology infrastructure, hardware and software to enable the execution of the following tasks:

- (a) upload, collate, process, modify and store the information on the safety features that enables the verification of the authenticity and identification of medicinal products;
- (b) identify an individual pack of a medicinal product bearing the safety features and verify the authenticity of the unique identifier on that pack and decommission it at any point of the legal supply chain.

4. The repositories system shall include the application programming interfaces allowing wholesalers or persons authorised or entitled to supply medicinal products to the public to query the repositories system by means of software, for the purposes of verifying the authenticity of the unique identifiers and of decommissioning them in the repositories system. The application programming interfaces shall also allow national competent authorities to access the repositories system by means of software, in accordance with Article 39.

The repositories system shall also include graphical user interfaces providing direct access to the repositories system in accordance with Article 35(1)(i).

The repositories system shall not include the physical scanning equipment used for reading the unique identifier.

Article 33

Uploading of information in the repositories system

1. The marketing authorisation holder or, in case of parallel imported or parallel distributed medicinal products bearing an equivalent unique identifier for the purposes of complying with Article 47a of Directive 2001/83/EC, the person responsible for placing those medicinal products on the market, shall ensure that the information referred to in paragraph 2 is uploaded to the repositories system before the medicinal product is released for sale or distribution by the manufacturer, and that it is kept up to date thereafter.

The information shall be stored in all national or supranational repositories serving the territory of the Member State or Member States where the medicinal product bearing the unique identifier is intended to be placed on the market. The information referred to in paragraphs 2(a) to (d) of this Article, with the exception of the serial number, shall also be stored in the hub.

2. For a medicinal product bearing a unique identifier, at least the following information shall be uploaded to the repositories system:

- (a) the data elements of the unique identifier in accordance with Article 4(b);
- (b) the coding scheme of the product code;
- (c) the name and the common name of the medicinal product, the pharmaceutical form, the strength, the pack type and the pack size of the medicinal product, in accordance with the terminology referred to in Article 25(1)(b) and (e) to (g) of the Commission Implementing Regulation (EU) No 520/2012 ⁽¹⁾;
- (d) the Member State or Member States where the medicinal product is intended to be placed on the market;
- (e) where applicable, the code identifying the entry corresponding to the medicinal product bearing the unique identifier in the database referred to in Article 57(1)(l) of Regulation (EC) No 726/2004 of the European Parliament and the Council ⁽²⁾;
- (f) the name and address of the manufacturer placing the safety features;

⁽¹⁾ Commission Implementing Regulation (EU) No 520/2012 of 19 June 2012 on the performance of pharmacovigilance activities provided for in Regulation (EC) No 726/2004 of the European Parliament and of the Council and Directive 2001/83/EC of the European Parliament and of the Council (OJ L 159, 20.6.2012, p. 5).

⁽²⁾ Regulation (EC) No 726/2004 of the European Parliament and of the Council of 31 March 2004 laying down Community procedures for the authorisation and supervision of medicinal products for human and veterinary use and establishing a European Medicines Agency (OJ L 136, 30.4.2004, p. 1).

- (g) the name and address of the marketing authorisation holder;
 - (h) a list of wholesalers who are designated by the marketing authorisation holder, by means of a written contract, to store and distribute the products covered by his marketing authorisation on his behalf.
3. The information referred to in paragraph 2 shall be uploaded to the repositories system either through the hub or through a national or supranational repository.

Where the upload is performed through the hub, the hub shall store a copy of the information referred to in paragraph 2(a) to (d), with the exception of the serial number, and transfer the complete information to all national or supranational repositories serving the territory of the Member State or Member States where the medicinal product bearing the unique identifier is intended to be placed on the market.

Where the upload is performed through a national or supranational repository, that repository shall immediately transfer to the hub a copy of the information referred to in paragraph 2(a) to (d), with the exception of the serial number, using the data format and data exchange specifications defined by the hub.

4. The information referred to in paragraph 2 shall be stored in the repositories where it was originally uploaded for at least one year after the expiry date of the medicinal product or five years after the product has been released for sale or distribution in accordance with Article 51(3) of Directive 2001/83/EC, whichever is the longer period.

Article 34

Functioning of the hub

1. Each national or supranational repository composing the repositories system shall exchange data with the hub using the data format and data exchange modalities defined by the hub.
2. When the authenticity of the unique identifier cannot be verified because a national or supranational repository does not contain a unique identifier with the product code and serial number that are identical to those of the unique identifier being verified, the national or supranational repository shall transfer the query to the hub in order to verify whether that unique identifier is stored elsewhere in the repositories system.

When the hub receives the query, the hub shall identify, on the basis of the information contained therein, all national or supranational repositories serving the territory of the Member State or Member States where the medicinal product bearing the unique identifier was intended to be placed on the market, and shall transfer the query to those repositories.

The hub shall subsequently transfer the reply of those repositories to the repository which initiated the query.

3. Where notified by a national or supranational repository of the change of status of a unique identifier, the hub shall ensure the synchronisation of that status between those national or supranational repositories serving the territory of the Member State or Member States where the medicinal product bearing the unique identifier was intended to be placed on the market.
4. When it receives the information referred to in Article 35(4), the hub shall ensure the electronic linking of the batch numbers before and after the repackaging or re-labelling operations with the set of unique identifiers decommissioned and with the set of equivalent unique identifiers placed.

Article 35

Characteristics of the repositories system

1. Each repository in the repositories system shall satisfy all of the following conditions:
- (a) it shall be physically located in the Union;
 - (b) it shall be set up and managed by a non-profit legal entity established in the Union by manufacturers and marketing authorisation holders of medicinal products bearing the safety features and, where they have chosen to participate, wholesalers and persons authorised or entitled to supply medicinal products to the public;

- (c) it shall be fully interoperable with the other repositories composing the repositories system; for the purposes of this Chapter, interoperability means the full functional integration of, and electronic data exchange between repositories regardless of the service provider used;
- (d) it shall allow the reliable electronic identification and authentication of individual packs of medicinal products by manufacturers, wholesalers and persons authorised or entitled to supply medicinal products to the public, in accordance with the requirements of this Regulation;
- (e) it shall have application programming interfaces able to transfer and exchange data with the software used by wholesalers, persons authorised or entitled to supply medicinal products to the public and, where applicable, national competent authorities;
- (f) when wholesalers and persons authorised or entitled to supply medicinal products to the public query the repository for the purposes of verification of authenticity and decommissioning of a unique identifier, the response time of the repository, not considering the speed of the internet connection, shall be lower than 300 milliseconds in at least 95 % of queries. The repository performance shall allow wholesalers and persons authorised or entitled to supply medicinal products to the public to operate without significant delay;
- (g) it shall maintain a complete record ('audit trail') of all operations concerning a unique identifier, of the users performing those operations and the nature of the operations; the audit trail shall be created when the unique identifier is uploaded to the repository and be maintained until at least one year after the expiry date of the medicinal product bearing the unique identifier or five years after the product has been released for sale or distribution in accordance with Article 51(3) of Directive 2001/83/EC, whichever is the longer period;
- (h) in accordance with Article 38, its structure shall be such as to guarantee the protection of personal data and information of a commercially confidential nature and the ownership and confidentiality of the data generated when manufacturers, marketing authorisation holders, wholesalers and persons authorised or entitled to supply medicinal products to the public interact with it;
- (i) it shall include graphical user interfaces providing direct access to it to the following users verified in accordance with Article 37(b):
 - (i) wholesalers and persons authorised or entitled to supply medicinal products to the public, for the purposes of verifying the authenticity of the unique identifier and decommissioning it in case of failure of their own software;
 - (ii) national competent authorities, for the purposes referred to in Article 39;

2. Where the status of a unique identifier on a medicinal product intended to be placed on the market in more than one Member State changes in a national or supranational repository, that repository shall immediately notify the change of status to the hub, except in case of decommissioning by marketing authorisation holders in accordance with Articles 40 or 41.

3. National or supranational repositories shall not allow the upload or storage of a unique identifier containing the same product code and serial number as another unique identifier already stored therein.

4. For each batch of repackaged or relabelled packs of a medicinal product on which equivalent unique identifiers were placed for the purposes of complying with Article 47a of Directive 2001/83/EC, the person responsible for placing the medicinal product on the market shall inform the hub of the batch number or numbers of the packs which are to be repackaged or relabelled and of the unique identifiers on those packs. He shall additionally inform the hub of the batch number of the batch resulting from the repackaging or re-labelling operations and the equivalent unique identifiers in that batch.

Article 36

Operations of the repositories system

The repositories system shall provide for at least the following operations:

- (a) the repeated verification of the authenticity of an active unique identifier in accordance with Article 11;
- (b) the triggering of an alert in the system and in the terminal where the verification of the authenticity of a unique identifier is taking place when such verification fails to confirm that the unique identifier is authentic in accordance with Article 11. Such an event shall be flagged in the system as a potential incident of falsification except where the product is indicated in the system as recalled, withdrawn or intended for destruction;

- (c) the decommissioning of a unique identifier in accordance with the requirements of this Regulation;
- (d) the combined operations of identification of a pack of a medicinal product bearing a unique identifier and verification of the authenticity and decommissioning of that unique identifier;
- (e) the identification of a pack of a medicinal product bearing a unique identifier and the verification of the authenticity and the decommissioning of that unique identifier in a Member State which is not the Member State where the medicinal product bearing that unique identifier was placed on the market;
- (f) the reading of the information contained in the two-dimensional barcode encoding the unique identifier, the identification of the medicinal product carrying the barcode and the verification of the status of the unique identifier, without triggering the alert referred to in point (b) of this Article;
- (g) without prejudice to Article 35(1)(h), the access by verified wholesalers to the list of wholesalers referred to in Article 33(2)(h) for the purposes of determining whether they have to verify the unique identifier of a given medicinal product.
- (h) the verification of the authenticity of a unique identifier and its decommissioning by manually querying the system with the data elements of the unique identifier;
- (i) the immediate provision of information concerning a given unique identifier to the national competent authorities and the European Medicines Agency, upon request;
- (j) the creation of reports that allow competent authorities to verify compliance of individual marketing authorisation holders, manufacturers, wholesalers and persons authorised or entitled to supply medicinal products to the public with the requirements of this Regulation or to investigate potential incidents of falsification;
- (k) the reverting of the status of a unique identifier from decommissioned to active, subject to the conditions referred to in Article 13;
- (l) the indication that a unique identifier has been decommissioned;
- (m) the indication that a medicinal product has been recalled, withdrawn, stolen, exported, requested as a sample by national competent authorities, indicated as a free sample by the marketing authorisation holder, or is intended for destruction;
- (n) the linking, by batches of medicinal products, of the information on unique identifiers removed or covered to the information on the equivalent unique identifiers placed on those medicinal products for the purposes of complying with Article 47a of Directive 2001/83/EC.
- (o) the synchronisation of the status of a unique identifier between the national or supranational repositories serving the territory of the Member States where that medicinal product is intended to be placed on the market.

Article 37

Obligations of legal entities establishing and managing a repository which is part of the repositories system

Any legal entity establishing and managing a repository which is part of the repositories system shall perform the following actions:

- (a) inform the relevant national competent authorities of its intention to physically locate the repository or part of it in their territory and notify them once the repository becomes operational;
- (b) put in place security procedures ensuring that only users whose identity, role and legitimacy has been verified can access the repository or upload the information referred to in Article 33(2);
- (c) continuously monitor the repository for events alerting to potential incidents of falsification in accordance to Article 36(b);
- (d) provide for the immediate investigation of all potential incidents of falsification flagged in the system in accordance with Article 36(b) and for the alerting of national competent authorities, the European Medicines Agency and the Commission should the falsification be confirmed;

- (e) carry out regular audits of the repository to verify compliance with the requirements of this Regulation. Audits shall take place at least annually for the first five years after this Regulation becomes applicable in the Member State where the repository is physically located, and at least every three years thereafter. The outcome of those audits shall be provided to competent authorities upon request;
- (f) make the audit trail referred to in Article 35(1)(g) immediately available to competent authorities upon their request;
- (g) make the reports referred to in Article 36(j) available to competent authorities upon their request.

Article 38

Data protection and data ownership

1. Manufacturers, marketing authorisation holders, wholesalers and persons authorised or entitled to supply medicinal products to the public shall be responsible for any data generated when they interact with the repositories system and stored in the audit trail. They shall only have ownership of and access to those data, with the exception of the information referred to in Article 33(2) and the information on the status of a unique identifier.
2. The legal entity managing the repository where the audit trail is stored shall not access the audit trail and the data contained therein without the written agreement of the legitimate data owners except for the purpose of investigating potential incidents of falsification flagged in the system in accordance with Article 36(b).

Article 39

Access by national competent authorities

A legal entity establishing and managing a repository used to verify the authenticity of or decommission the unique identifiers of medicinal products placed on the market in a Member State shall grant access to that repository and to the information contained therein, to competent authorities of that Member State for the following purposes:

- (a) supervising the functioning of the repositories and investigating potential incidents of falsification;
- (b) reimbursement;
- (c) pharmacovigilance or pharmacoepidemiology.

CHAPTER VIII

OBLIGATIONS OF MARKETING AUTHORISATION HOLDERS, PARALLEL IMPORTERS AND PARALLEL DISTRIBUTORS

Article 40

Products recalled, withdrawn or stolen

The marketing authorisation holder or, in case of parallel imported or parallel distributed medicinal products bearing an equivalent unique identifier for the purposes of complying with Article 47a of Directive 2001/83/EC, the person responsible for placing those medicinal products on the market shall promptly take all the following measures:

- (a) ensure the decommissioning of the unique identifier of a medicinal product which is to be recalled or withdrawn, in every national or supranational repository serving the territory of the Member State or Member States in which the recall or the withdrawal is to take place;
- (b) ensure the decommissioning of the unique identifier, where known, of a medicinal product which has been stolen, in every national or supranational repository in which information on that product is stored;
- (c) indicate in the repositories referred to in points (a) and (b) that that product has been recalled or withdrawn or stolen, where applicable.

*Article 41***Products to be supplied as free samples**

The marketing authorisation holder intending to supply any of his medicinal products as a free sample in accordance with Article 96 of Directive 2001/83/EC shall, where that product bears the safety features, indicate it as a free sample in the repositories system and ensure the decommissioning of its unique identifier before providing it to the persons qualified to prescribe it.

*Article 42***Removal of unique identifiers from the repositories system**

The marketing authorisation holder or, in case of parallel imported or parallel distributed medicinal products bearing an equivalent unique identifier for the purposes of complying with Article 47a of Directive 2001/83/EC, the person responsible for placing those medicinal products on the market shall not upload unique identifiers in the repositories system before having removed from therein, where present, older unique identifiers containing the same product code and serial number as the unique identifiers being uploaded.

CHAPTER IX

OBLIGATIONS OF THE NATIONAL COMPETENT AUTHORITIES*Article 43***Information to be provided by national competent authorities**

National competent authorities shall make the following information available to the marketing authorisation holders, manufacturers, wholesalers and persons authorised or entitled to supply medicinal products to the public, upon their request:

- (a) the medicinal products placed on the market on their territory which shall bear the safety features in accordance with Article 54(o) of Directive 2001/83/EC and this Regulation;
- (b) the medicinal products subject to prescription or subject to reimbursement for which the scope of the unique identifier is extended for the purposes of reimbursement or pharmacovigilance, in accordance with Article 54a(5) of Directive 2001/83/EC;
- (c) the medicinal products for which the scope of the anti-tampering device is extended for the purpose of patient safety, in accordance with Article 54a(5) of Directive 2001/83/EC.

*Article 44***Supervision of the repositories system**

1. National competent authorities shall supervise the functioning of any repository physically located in their territory, in order to verify, if necessary by means of inspections, that the repository and the legal entity responsible for the establishment and management of the repository comply with the requirements of this Regulation.
2. A national competent authority may delegate any of its obligations under this Article to the competent authority of another Member State or to a third party, by means of a written agreement.
3. Where a repository not physically located in the territory of a Member State is used for the purpose of verifying the authenticity of medicinal products placed on the market in that Member State, the competent authority of that Member State may observe an inspection of the repository or perform an independent inspection, subject to the agreement of the Member State in which the repository is physically located.
4. A national competent authority shall communicate reports of supervision activities to the European Medicines Agency, which shall make them available to the other national competent authorities and the Commission.

5. National competent authorities may contribute to the management of any repository used to identify medicinal products and verify the authenticity of or decommission the unique identifiers of medicinal products placed on the market in the territory of their Member State.

National competent authorities may participate to the management board of the legal entities managing those repositories to the extent of up to one third of the members of the board.

CHAPTER X

LISTS OF DEROGATIONS AND NOTIFICATIONS TO THE COMMISSION

Article 45

Lists of derogations from bearing or not bearing the safety features

1. The list of medicinal products or product categories subject to prescription which shall not bear the safety features are set out in Annex I to this Regulation.
2. The list of medicinal products or product categories not subject to prescription which shall bear the safety features are set out in Annex II to this Regulation.

Article 46

Notifications to the Commission

1. National competent authorities shall notify the Commission of non-prescription medicinal products which they judge to be at risk of falsification as soon as they become aware of such risk. For that purpose, they shall use the form set out in Annex III to this Regulation.
2. National competent authorities may inform the Commission of medicinal products which they deem not to be at risk of falsification. For that purpose, they shall use the form set out in Annex IV to this Regulation.
3. For the purposes of the notifications referred to in paragraphs 1 and 2, national competent authorities shall conduct an assessment of the risks of and arising from falsification of such products taking into account the criteria listed in Article 54a(2)(b) of Directive 2001/83/EC.
4. When submitting to the Commission the notification referred to in paragraph 1, national competent authorities shall provide the Commission with evidence and documentation supporting the presence of incidents of falsification.

Article 47

Evaluation of the notifications

Where, following a notification as referred to in Article 46, the Commission or a Member State considers, on the basis of casualties or hospitalisations of citizens of the Union due to exposure to falsified medicinal products, that rapid action is required to protect public health, the Commission shall assess the notification without delay and at the latest within 45 days.

CHAPTER XI

TRANSITIONAL MEASURES AND ENTRY INTO FORCE

Article 48

Transitional measures

Medicinal products that have been released for sale or distribution without the safety features in a Member State before the date in which this Regulation becomes applicable in that Member State, and are not repackaged or relabelled thereafter, may be placed on the market, distributed and supplied to the public in that Member State until their expiry date.

*Article 49***Application in Member States with existing systems for the verification of the authenticity of medicinal products and for the identification of individual packs**

1. Each of the Member States referred to in Article 2, paragraph 2, second subparagraph, point (b), second sentence, of Directive 2011/62/EU shall notify the Commission of the date from which Articles 1 to 48 of this Regulation apply in its territory in accordance with the third subparagraph of Article 50. The notification shall take place at the latest 6 months before that application.
2. The Commission shall publish a notice of each of the dates notified to it in accordance with paragraph 1 in the *Official Journal of the European Union*.

*Article 50***Entry into force**

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 9 February 2019.

However, the Member States referred to in Article 2, paragraph 2, second subparagraph, point (b), second sentence, of Directive 2011/62/EU shall apply Articles 1 to 48 of this Regulation at the latest from 9 February 2025.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 2 October 2015.

For the Commission
The President
Jean-Claude JUNCKER

ANNEX I

List of medicinal products or product categories subject to prescription that shall not bear the safety features, referred to in Article 45(1)

Name of active substance or product category	Pharmaceutical form	Strength	Remarks
Homeopathic medicinal products	Any	Any	
Radionuclide generators	Any	Any	
Kits	Any	Any	
Radionuclide precursors	Any	Any	
Advanced therapy medicinal products which contain or consist of tissues or cells	Any	Any	
Medicinal gases	Medicinal gas	Any	
Solutions for parenteral nutrition having an anatomical therapeutical chemical ('ATC') code beginning with B05BA	Solution for infusion	Any	
Solutions affecting the electrolyte balance having an ATC code beginning with B05BB	Solution for infusion	Any	
Solutions producing osmotic diuresis having an ATC code beginning with B05BC	Solution for infusion	Any	
Intravenous solution additives having an ATC code beginning with B05X	Any	Any	
Solvents and diluting agents, including irrigating solutions, having an ATC code beginning with V07AB	Any	Any	
Contrast media having an ATC code beginning with V08	Any	Any	
Tests for allergic diseases having an ATC code beginning with V04CL	Any	Any	
Allergen extracts having an ATC code beginning with V01AA	Any	Any	

ANNEX II

List of medicinal products or product categories not subject to prescription that shall bear the safety features, referred to in Article 45(2)

Name of active substance or product category	Pharmaceutical form	Strength	Remarks
omeprazole	gastro-resistant capsule, hard	20 mg	
omeprazole	gastro-resistant capsule, hard	40 mg	

ANNEX III

Notification to the European Commission of medicinal products not subject to prescription judged to be at risk of falsification, pursuant to article 54a(4) of Directive 2001/83/EC

Member State:

Name of competent authority:

Entry No	Active substance (Common Name)	Pharmaceutical form	Strength	Anatomical Therapeutic Chemical (ATC) Code	Supporting Evidence (please provide evidence of one or more incidents of falsification in the legal supply chain and specify the source of the information).
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Note: The number of entries is not binding.

ANNEX IV

Notification to the European Commission of medicinal products judged not to be at risk of falsification, pursuant to article 54a(4) of Directive 2001/83/EC

Member State:	Name of competent authority:
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Entry No	Active substance (Common Name)	Pharmaceutical form	Strength	Anatomical Therapeutic Chemical (ATC) Code	Comments/Complementary information
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Note: The number of entries is not binding.

COMMISSION IMPLEMENTING REGULATION (EU) 2016/162**of 28 January 2016****entering a name in the register of protected designations of origin and protected geographical indications (Mortadella di Prato (PGI))**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs ⁽¹⁾, and in particular Article 52(2) thereof,

Whereas:

- (1) Pursuant to Article 50(2)(a) of Regulation (EU) No 1151/2012, Italy's application to register the name 'Mortadella di Prato' was published in the *Official Journal of the European Union* ⁽²⁾.
- (2) As no statement of opposition under Article 51 of Regulation (EU) No 1151/2012 has been received by the Commission, the name 'Mortadella di Prato' should therefore be entered in the register,

HAS ADOPTED THIS REGULATION:

Article 1

The name 'Mortadella di Prato' (PGI) is hereby entered in the register.

The name specified in the first paragraph denotes a product in Class 1.2. Meat products (cooked, salted, smoked, etc.) set out in Annex XI to Commission Implementing Regulation (EU) No 668/2014 ⁽³⁾.*Article 2*This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 28 January 2016.

For the Commission,
On behalf of the President,
Phil HOGAN
Member of the Commission

⁽¹⁾ OJ L 343, 14.12.2012, p. 1.

⁽²⁾ OJ C 317, 25.9.2015, p. 9.

⁽³⁾ Commission Implementing Regulation (EU) No 668/2014 of 13 June 2014 laying down rules for the application of Regulation (EU) No 1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs (OJ L 179, 19.6.2014, p. 36).

COMMISSION IMPLEMENTING REGULATION (EU) 2016/163

of 28 January 2016

approving non-minor amendments to the specification for a name entered in the register of protected designations of origin and protected geographical indications (Huile d'olive de Nîmes (PDO))

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs ⁽¹⁾, and in particular Article 52(2) thereof,

Whereas:

- (1) Pursuant to the first subparagraph of Article 53(1) of Regulation (EU) No 1151/2012, the Commission has examined France's application for the approval of amendments to the specification for the protected designation of origin 'Huile d'olive de Nîmes', registered under Commission Regulation (EC) No 148/2007 ⁽²⁾.
- (2) Since the amendments in question are not minor within the meaning of Article 53(2) of Regulation (EU) No 1151/2012, the Commission published the amendment application in the *Official Journal of the European Union* as required by Article 50(2)(a) of that Regulation ⁽³⁾.
- (3) As no statement of opposition under Article 51 of Regulation (EU) No 1151/2012 has been received by the Commission, the amendments to the specification should be approved,

HAS ADOPTED THIS REGULATION:

Article 1

The amendments to the specification published in the *Official Journal of the European Union* regarding the name 'Huile d'olive de Nîmes' (PDO) are hereby approved.

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 28 January 2016.

For the Commission,
On behalf of the President,
Phil HOGAN
Member of the Commission

⁽¹⁾ OJ L 343, 14.12.2012, p. 1.

⁽²⁾ Commission Regulation (EC) No 148/2007 of 15 February 2007 registering certain names in the Register of protected designation of origin and protected geographical indications (Geraardsbergse mattentaart (PGI) — Patata de Galicia or Patata de Galicia (PGI) — Poniente de Granada (PDO) — Gata-Hurdes (PDO) — Patatas de Prades or Patates de Prades (PGI) — Mantequilla de Soria (PDO) — Huile d'olive de Nîmes (PDO) — Huile d'olive de Corse or Huile d'olive de Corse-Oliu di Corsica (PDO) — Clémentine de Corse (PGI) — Agneau de Sisteron (PGI) — Connemara Hill Lamb or Uain Sléibhe Chonamara (PGI) — Sardegna (PDO) — Carota dell'Altopiano del Fucino (PGI) — Stelvio or Stilfser (PDO) — Limone Femminello del Gargano (PGI) — Azeitonas de Conserva de Elvas e Campo Maior (PDO) — Chouriça de Carne de Barroso-Montalegre (PGI) — Chouriço de Abóbora de Barroso-Montalegre (PGI) — Sanguiera de Barroso-Montalegre (PGI) — Batata de Trás-os-Montes (PGI) — Salpicão de Barroso-Montalegre (PGI) — Alheira de Barroso-Montalegre (PGI) — Cordeiro de Barroso, Anho de Barroso or Borrego de leite de Barroso (PGI) — Azeite do Alentejo Interior (PDO) — Paio de Beja (PGI) — Linguíça do Baixo Alentejo or Chouriço de carne do Baixo Alentejo (PGI) — Ekstra deviško oljčno olje Slovenske Istre (PDO)) (OJ L 46, 16.2.2007, p. 14).

⁽³⁾ OJ C 317, 25.9.2015, p. 3.

COMMISSION IMPLEMENTING REGULATION (EU) 2016/164**of 28 January 2016****entering a name in the register of protected designations of origin and protected geographical indications (Cappellacci di zucca ferraresi (PGI))**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs ⁽¹⁾, and in particular Article 52(2) thereof,

Whereas:

- (1) Pursuant to Article 50(2)(a) of Regulation (EU) No 1151/2012, Italy's application to register the name 'Cappellacci di zucca ferraresi' was published in the *Official Journal of the European Union* ⁽²⁾.
- (2) As no statement of objection under Article 51 of Regulation (EU) No 1151/2012 has been received by the Commission, the name 'Cappellacci di zucca ferraresi' should therefore be entered in the register,

HAS ADOPTED THIS REGULATION:

Article 1

The name 'Cappellacci di zucca ferraresi' (PGI) is hereby entered in the register.

The name specified in the first paragraph denotes a product in Class 2.5. pasta set out in Annex XI to Commission Implementing Regulation (EU) No 668/2014 ⁽³⁾.*Article 2*This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 28 January 2016.

For the Commission,
On behalf of the President,
Phil HOGAN
Member of the Commission

⁽¹⁾ OJ L 343, 14.12.2012, p. 1.

⁽²⁾ OJ C 317, 25.9.2015, p. 12.

⁽³⁾ Commission Implementing Regulation (EU) No 668/2014 of 13 June 2014 laying down rules for the application of Regulation (EU) No 1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs (OJ L 179, 19.6.2014, p. 36).

COMMISSION IMPLEMENTING REGULATION (EU) 2016/165**of 5 February 2016****laying down technical information for the calculation of technical provisions and basic own funds for reporting with reference dates from 1 January until 30 March 2016 in accordance with Directive 2009/138/EC of the European Parliament and of the Council (Solvency II)****(Text with EEA relevance)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) ⁽¹⁾, and in particular the third subparagraph of Article 77e(2) thereof,

Whereas:

- (1) In order to ensure uniform conditions for the calculation of technical provisions and basic own funds by insurance and reinsurance undertakings for the purposes of Directive 2009/138/EC, technical information on relevant risk-free interest rate term structures, fundamental spreads for the calculation of the matching adjustment and volatility adjustments should be laid down for every reference date.
- (2) Insurance and re-insurance undertakings should use the technical information, which is based on market data related to the end of the last month preceding the first reporting reference date to which this Regulation applies. On 14 January 2016, the European Insurance and Occupational Pensions Authority (EIOPA) provided the Commission with the technical information related to end December 2015 market data. That information was published on 13 January 2016 in accordance with Article 77e(1) of Directive 2009/138/EC.
- (3) Given the need for the immediate availability of the technical information, it is important that this Regulation enters into force as a matter of urgency.
- (4) For prudential reasons it is necessary that insurance and reinsurance undertakings use the same technical information for calculating technical provisions and basic own funds irrespective of the date on which they report to their competent authorities. This Regulation should therefore apply from the first reporting reference date to which this Implementing Regulation applies.
- (5) To provide legal certainty as soon as possible, it is duly justified on imperative grounds of urgency related to the availability of the relevant risk-free interest rate term structure, that measures provided for in this Regulation be adopted in accordance with Article 8, in conjunction with Article 4, of Regulation (EU) No 182/2011 of the European Parliament and of the Council ⁽²⁾,

HAS ADOPTED THIS REGULATION:

Article 1

1. Insurance and reinsurance undertakings shall use the technical information referred to in paragraph 2 when calculating technical provisions and basic own funds for reporting with reference dates from 1 January until 30 March 2016.

⁽¹⁾ OJ L 335, 17.12.2009, p. 1.

⁽²⁾ Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p. 13).

2. For each relevant currency, the technical information to calculate the best estimate in accordance with Article 77 of Directive 2009/138/EC, the matching adjustment in accordance with Article 77c of that Directive and the volatility adjustment in accordance with Article 77d of that Directive shall be the following:

- (a) the relevant risk-free rate term structures set out in Annex I;
- (b) the fundamental spreads for the calculation of the matching adjustment set out in Annex II;
- (c) for each relevant national insurance market the volatility adjustments set out in Annex III.

Article 2

This Regulation shall enter into force on the day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 1 January 2016.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 5 February 2016.

For the Commission

The President

Jean-Claude JUNKER

ANNEX I

Relevant risk-free interest rate term structures to calculate the best estimate, without any matching adjustment or volatility adjustment

Term to maturity (in years)	Euro	Czech koruna	Danish krone	Forint	Krona	Kuna
1	– 0,157 %	0,177 %	– 0,167 %	1,033 %	– 0,397 %	2,233 %
2	– 0,129 %	0,310 %	– 0,139 %	1,758 %	– 0,230 %	2,535 %
3	– 0,038 %	0,375 %	– 0,048 %	2,214 %	0,041 %	2,890 %
4	0,096 %	0,454 %	0,086 %	2,423 %	0,344 %	3,193 %
5	0,232 %	0,547 %	0,222 %	2,607 %	0,630 %	3,436 %
6	0,381 %	0,628 %	0,371 %	2,768 %	0,883 %	3,634 %
7	0,526 %	0,682 %	0,516 %	2,931 %	1,096 %	3,800 %
8	0,667 %	0,772 %	0,657 %	3,098 %	1,280 %	3,938 %
9	0,801 %	0,849 %	0,790 %	3,268 %	1,443 %	4,052 %
10	0,921 %	0,916 %	0,911 %	3,414 %	1,581 %	4,143 %
11	1,026 %	0,983 %	1,016 %	3,559 %	1,732 %	4,213 %
12	1,120 %	1,049 %	1,110 %	3,704 %	1,888 %	4,266 %
13	1,208 %	1,115 %	1,198 %	3,840 %	2,036 %	4,308 %
14	1,284 %	1,185 %	1,274 %	3,963 %	2,173 %	4,340 %
15	1,344 %	1,258 %	1,334 %	4,068 %	2,298 %	4,365 %
16	1,388 %	1,335 %	1,378 %	4,154 %	2,410 %	4,385 %
17	1,422 %	1,416 %	1,412 %	4,222 %	2,511 %	4,399 %
18	1,454 %	1,497 %	1,443 %	4,277 %	2,603 %	4,411 %
19	1,488 %	1,577 %	1,477 %	4,322 %	2,685 %	4,419 %
20	1,527 %	1,656 %	1,517 %	4,357 %	2,760 %	4,425 %
21	1,574 %	1,733 %	1,564 %	4,385 %	2,827 %	4,429 %
22	1,627 %	1,807 %	1,617 %	4,408 %	2,889 %	4,432 %
23	1,683 %	1,880 %	1,673 %	4,425 %	2,946 %	4,434 %
24	1,741 %	1,949 %	1,731 %	4,439 %	2,998 %	4,434 %
25	1,800 %	2,016 %	1,791 %	4,449 %	3,045 %	4,434 %
26	1,859 %	2,080 %	1,850 %	4,456 %	3,089 %	4,432 %
27	1,918 %	2,141 %	1,909 %	4,462 %	3,130 %	4,431 %
28	1,976 %	2,200 %	1,967 %	4,465 %	3,168 %	4,429 %
29	2,033 %	2,256 %	2,024 %	4,467 %	3,204 %	4,426 %

Term to maturity (in years)	Euro	Czech koruna	Danish krone	Forint	Krona	Kuna
30	2,088 %	2,309 %	2,079 %	4,468 %	3,237 %	4,424 %
31	2,141 %	2,361 %	2,133 %	4,468 %	3,268 %	4,421 %
32	2,193 %	2,410 %	2,185 %	4,467 %	3,297 %	4,418 %
33	2,243 %	2,457 %	2,236 %	4,465 %	3,324 %	4,415 %
34	2,292 %	2,502 %	2,284 %	4,463 %	3,350 %	4,411 %
35	2,338 %	2,545 %	2,331 %	4,460 %	3,374 %	4,408 %
36	2,383 %	2,586 %	2,376 %	4,457 %	3,397 %	4,405 %
37	2,426 %	2,626 %	2,420 %	4,454 %	3,418 %	4,401 %
38	2,468 %	2,663 %	2,461 %	4,451 %	3,439 %	4,398 %
39	2,508 %	2,700 %	2,502 %	4,447 %	3,458 %	4,395 %
40	2,547 %	2,734 %	2,540 %	4,443 %	3,477 %	4,391 %
41	2,584 %	2,768 %	2,577 %	4,439 %	3,494 %	4,388 %
42	2,619 %	2,799 %	2,613 %	4,436 %	3,511 %	4,385 %
43	2,654 %	2,830 %	2,648 %	4,432 %	3,527 %	4,381 %
44	2,687 %	2,860 %	2,681 %	4,428 %	3,542 %	4,378 %
45	2,719 %	2,888 %	2,713 %	4,424 %	3,557 %	4,375 %
46	2,749 %	2,915 %	2,743 %	4,420 %	3,571 %	4,372 %
47	2,779 %	2,941 %	2,773 %	4,417 %	3,584 %	4,369 %
48	2,807 %	2,966 %	2,802 %	4,413 %	3,597 %	4,366 %
49	2,834 %	2,991 %	2,829 %	4,409 %	3,609 %	4,364 %
50	2,861 %	3,014 %	2,855 %	4,406 %	3,621 %	4,361 %
51	2,886 %	3,037 %	2,881 %	4,402 %	3,632 %	4,358 %
52	2,911 %	3,058 %	2,906 %	4,399 %	3,643 %	4,356 %
53	2,934 %	3,079 %	2,929 %	4,396 %	3,654 %	4,353 %
54	2,957 %	3,100 %	2,952 %	4,392 %	3,664 %	4,350 %
55	2,979 %	3,119 %	2,975 %	4,389 %	3,673 %	4,348 %
56	3,001 %	3,138 %	2,996 %	4,386 %	3,683 %	4,346 %
57	3,021 %	3,156 %	3,017 %	4,383 %	3,692 %	4,343 %
58	3,041 %	3,174 %	3,037 %	4,380 %	3,701 %	4,341 %
59	3,061 %	3,191 %	3,056 %	4,377 %	3,709 %	4,339 %

Term to maturity (in years)	Euro	Czech koruna	Danish krone	Forint	Krona	Kuna
60	3,079 %	3,208 %	3,075 %	4,375 %	3,717 %	4,337 %
61	3,097 %	3,224 %	3,093 %	4,372 %	3,725 %	4,335 %
62	3,115 %	3,239 %	3,111 %	4,369 %	3,733 %	4,333 %
63	3,132 %	3,254 %	3,128 %	4,367 %	3,740 %	4,331 %
64	3,148 %	3,269 %	3,144 %	4,364 %	3,747 %	4,329 %
65	3,164 %	3,283 %	3,160 %	4,362 %	3,754 %	4,327 %
66	3,180 %	3,297 %	3,176 %	4,359 %	3,761 %	4,325 %
67	3,195 %	3,310 %	3,191 %	4,357 %	3,768 %	4,323 %
68	3,210 %	3,323 %	3,206 %	4,355 %	3,774 %	4,322 %
69	3,224 %	3,336 %	3,220 %	4,353 %	3,780 %	4,320 %
70	3,238 %	3,348 %	3,234 %	4,351 %	3,786 %	4,318 %
71	3,251 %	3,360 %	3,248 %	4,349 %	3,792 %	4,317 %
72	3,264 %	3,371 %	3,261 %	4,347 %	3,798 %	4,315 %
73	3,277 %	3,383 %	3,273 %	4,345 %	3,803 %	4,314 %
74	3,289 %	3,394 %	3,286 %	4,343 %	3,808 %	4,312 %
75	3,301 %	3,404 %	3,298 %	4,341 %	3,814 %	4,311 %
76	3,313 %	3,415 %	3,310 %	4,339 %	3,819 %	4,309 %
77	3,325 %	3,425 %	3,321 %	4,337 %	3,824 %	4,308 %
78	3,336 %	3,435 %	3,333 %	4,335 %	3,828 %	4,306 %
79	3,347 %	3,444 %	3,343 %	4,334 %	3,833 %	4,305 %
80	3,357 %	3,454 %	3,354 %	4,332 %	3,838 %	4,304 %
81	3,368 %	3,463 %	3,364 %	4,330 %	3,842 %	4,303 %
82	3,378 %	3,472 %	3,375 %	4,329 %	3,847 %	4,301 %
83	3,388 %	3,481 %	3,385 %	4,327 %	3,851 %	4,300 %
84	3,397 %	3,489 %	3,394 %	4,326 %	3,855 %	4,299 %
85	3,407 %	3,498 %	3,404 %	4,324 %	3,859 %	4,298 %
86	3,416 %	3,506 %	3,413 %	4,323 %	3,863 %	4,297 %
87	3,425 %	3,514 %	3,422 %	4,321 %	3,867 %	4,296 %
88	3,434 %	3,521 %	3,431 %	4,320 %	3,871 %	4,294 %
89	3,442 %	3,529 %	3,439 %	4,319 %	3,874 %	4,293 %

Term to maturity (in years)	Euro	Czech koruna	Danish krone	Forint	Krona	Kuna
90	3,451 %	3,536 %	3,448 %	4,317 %	3,878 %	4,292 %
91	3,459 %	3,544 %	3,456 %	4,316 %	3,881 %	4,291 %
92	3,467 %	3,551 %	3,464 %	4,315 %	3,885 %	4,290 %
93	3,475 %	3,558 %	3,472 %	4,314 %	3,888 %	4,289 %
94	3,482 %	3,565 %	3,480 %	4,312 %	3,892 %	4,288 %
95	3,490 %	3,571 %	3,487 %	4,311 %	3,895 %	4,288 %
96	3,497 %	3,578 %	3,495 %	4,310 %	3,898 %	4,287 %
97	3,504 %	3,584 %	3,502 %	4,309 %	3,901 %	4,286 %
98	3,512 %	3,590 %	3,509 %	4,308 %	3,904 %	4,285 %
99	3,518 %	3,597 %	3,516 %	4,307 %	3,907 %	4,284 %
100	3,525 %	3,603 %	3,523 %	4,306 %	3,910 %	4,283 %
101	3,532 %	3,608 %	3,529 %	4,305 %	3,913 %	4,282 %
102	3,538 %	3,614 %	3,536 %	4,304 %	3,916 %	4,282 %
103	3,545 %	3,620 %	3,542 %	4,303 %	3,919 %	4,281 %
104	3,551 %	3,625 %	3,549 %	4,302 %	3,921 %	4,280 %
105	3,557 %	3,631 %	3,555 %	4,301 %	3,924 %	4,279 %
106	3,563 %	3,636 %	3,561 %	4,300 %	3,926 %	4,279 %
107	3,569 %	3,642 %	3,567 %	4,299 %	3,929 %	4,278 %
108	3,575 %	3,647 %	3,573 %	4,298 %	3,932 %	4,277 %
109	3,581 %	3,652 %	3,578 %	4,297 %	3,934 %	4,276 %
110	3,586 %	3,657 %	3,584 %	4,296 %	3,936 %	4,276 %
111	3,592 %	3,662 %	3,590 %	4,295 %	3,939 %	4,275 %
112	3,597 %	3,666 %	3,595 %	4,294 %	3,941 %	4,274 %
113	3,603 %	3,671 %	3,600 %	4,294 %	3,943 %	4,274 %
114	3,608 %	3,676 %	3,606 %	4,293 %	3,946 %	4,273 %
115	3,613 %	3,680 %	3,611 %	4,292 %	3,948 %	4,272 %
116	3,618 %	3,685 %	3,616 %	4,291 %	3,950 %	4,272 %
117	3,623 %	3,689 %	3,621 %	4,290 %	3,952 %	4,271 %
118	3,628 %	3,693 %	3,626 %	4,290 %	3,954 %	4,271 %
119	3,633 %	3,698 %	3,631 %	4,289 %	3,956 %	4,270 %

Term to maturity (in years)	Euro	Czech koruna	Danish krone	Forint	Krona	Kuna
120	3,637 %	3,702 %	3,635 %	4,288 %	3,958 %	4,269 %
121	3,642 %	3,706 %	3,640 %	4,287 %	3,960 %	4,269 %
122	3,647 %	3,710 %	3,644 %	4,287 %	3,962 %	4,268 %
123	3,651 %	3,714 %	3,649 %	4,286 %	3,964 %	4,268 %
124	3,656 %	3,718 %	3,653 %	4,285 %	3,966 %	4,267 %
125	3,660 %	3,722 %	3,658 %	4,285 %	3,968 %	4,267 %
126	3,664 %	3,726 %	3,662 %	4,284 %	3,970 %	4,266 %
127	3,668 %	3,729 %	3,666 %	4,283 %	3,972 %	4,266 %
128	3,672 %	3,733 %	3,670 %	4,283 %	3,973 %	4,265 %
129	3,677 %	3,737 %	3,675 %	4,282 %	3,975 %	4,265 %
130	3,681 %	3,740 %	3,679 %	4,281 %	3,977 %	4,264 %
131	3,685 %	3,744 %	3,683 %	4,281 %	3,979 %	4,264 %
132	3,688 %	3,747 %	3,686 %	4,280 %	3,980 %	4,263 %
133	3,692 %	3,750 %	3,690 %	4,279 %	3,982 %	4,263 %
134	3,696 %	3,754 %	3,694 %	4,279 %	3,984 %	4,262 %
135	3,700 %	3,757 %	3,698 %	4,278 %	3,985 %	4,262 %
136	3,703 %	3,760 %	3,702 %	4,278 %	3,987 %	4,261 %
137	3,707 %	3,764 %	3,705 %	4,277 %	3,988 %	4,261 %
138	3,711 %	3,767 %	3,709 %	4,277 %	3,990 %	4,260 %
139	3,714 %	3,770 %	3,712 %	4,276 %	3,991 %	4,260 %
140	3,718 %	3,773 %	3,716 %	4,276 %	3,993 %	4,259 %
141	3,721 %	3,776 %	3,719 %	4,275 %	3,994 %	4,259 %
142	3,724 %	3,779 %	3,723 %	4,274 %	3,996 %	4,259 %
143	3,728 %	3,782 %	3,726 %	4,274 %	3,997 %	4,258 %
144	3,731 %	3,785 %	3,729 %	4,273 %	3,999 %	4,258 %
145	3,734 %	3,788 %	3,732 %	4,273 %	4,000 %	4,257 %
146	3,737 %	3,790 %	3,736 %	4,272 %	4,001 %	4,257 %
147	3,741 %	3,793 %	3,739 %	4,272 %	4,003 %	4,257 %
148	3,744 %	3,796 %	3,742 %	4,271 %	4,004 %	4,256 %
149	3,747 %	3,799 %	3,745 %	4,271 %	4,005 %	4,256 %
150	3,750 %	3,801 %	3,748 %	4,270 %	4,007 %	4,255 %

Term to maturity (in years)	Lev	Pound sterling	Romanian leu	Zloty	Króna	Norwegian krone
1	– 0,207 %	0,725 %	0,975 %	1,410 %	5,582 %	0,765 %
2	– 0,179 %	0,978 %	1,393 %	1,553 %	5,663 %	0,815 %
3	– 0,088 %	1,191 %	1,799 %	1,758 %	5,762 %	0,881 %
4	0,046 %	1,349 %	2,197 %	1,971 %	5,778 %	1,008 %
5	0,182 %	1,482 %	2,565 %	2,182 %	5,713 %	1,166 %
6	0,331 %	1,597 %	2,905 %	2,403 %	5,696 %	1,321 %
7	0,475 %	1,700 %	3,201 %	2,636 %	5,712 %	1,467 %
8	0,616 %	1,783 %	3,445 %	2,778 %	5,731 %	1,598 %
9	0,750 %	1,858 %	3,659 %	2,854 %	5,738 %	1,709 %
10	0,870 %	1,917 %	3,868 %	2,992 %	5,732 %	1,806 %
11	0,974 %	1,968 %	4,038 %	3,124 %	5,716 %	1,897 %
12	1,069 %	2,013 %	4,169 %	3,233 %	5,694 %	1,985 %
13	1,156 %	2,049 %	4,270 %	3,324 %	5,666 %	2,069 %
14	1,232 %	2,078 %	4,348 %	3,401 %	5,635 %	2,149 %
15	1,293 %	2,099 %	4,410 %	3,467 %	5,603 %	2,225 %
16	1,336 %	2,115 %	4,457 %	3,524 %	5,569 %	2,297 %
17	1,370 %	2,125 %	4,494 %	3,574 %	5,534 %	2,366 %
18	1,401 %	2,130 %	4,522 %	3,618 %	5,500 %	2,430 %
19	1,435 %	2,133 %	4,544 %	3,656 %	5,466 %	2,492 %
20	1,475 %	2,126 %	4,560 %	3,691 %	5,432 %	2,550 %
21	1,523 %	2,117 %	4,571 %	3,721 %	5,399 %	2,605 %
22	1,576 %	2,108 %	4,579 %	3,749 %	5,366 %	2,657 %
23	1,633 %	2,100 %	4,584 %	3,773 %	5,335 %	2,706 %
24	1,693 %	2,093 %	4,587 %	3,796 %	5,304 %	2,753 %
25	1,753 %	2,086 %	4,587 %	3,816 %	5,274 %	2,798 %
26	1,813 %	2,079 %	4,586 %	3,834 %	5,246 %	2,840 %
27	1,873 %	2,072 %	4,584 %	3,851 %	5,218 %	2,880 %
28	1,932 %	2,065 %	4,581 %	3,867 %	5,191 %	2,919 %
29	1,990 %	2,057 %	4,577 %	3,881 %	5,165 %	2,955 %
30	2,046 %	2,049 %	4,573 %	3,894 %	5,141 %	2,990 %

Term to maturity (in years)	Lev	Pound sterling	Romanian leu	Zloty	Króna	Norwegian krone
31	2,101 %	2,039 %	4,568 %	3,906 %	5,117 %	3,023 %
32	2,154 %	2,029 %	4,563 %	3,918 %	5,094 %	3,054 %
33	2,205 %	2,019 %	4,557 %	3,928 %	5,071 %	3,084 %
34	2,254 %	2,009 %	4,551 %	3,938 %	5,050 %	3,113 %
35	2,302 %	1,999 %	4,545 %	3,947 %	5,030 %	3,140 %
36	2,348 %	1,990 %	4,539 %	3,955 %	5,010 %	3,167 %
37	2,392 %	1,982 %	4,534 %	3,963 %	4,991 %	3,192 %
38	2,434 %	1,974 %	4,528 %	3,970 %	4,973 %	3,216 %
39	2,475 %	1,968 %	4,522 %	3,977 %	4,955 %	3,239 %
40	2,515 %	1,962 %	4,516 %	3,984 %	4,938 %	3,261 %
41	2,552 %	1,956 %	4,510 %	3,990 %	4,922 %	3,282 %
42	2,589 %	1,950 %	4,504 %	3,996 %	4,906 %	3,302 %
43	2,624 %	1,944 %	4,499 %	4,001 %	4,891 %	3,322 %
44	2,657 %	1,936 %	4,493 %	4,007 %	4,877 %	3,340 %
45	2,690 %	1,928 %	4,488 %	4,012 %	4,863 %	3,358 %
46	2,721 %	1,917 %	4,483 %	4,016 %	4,849 %	3,376 %
47	2,751 %	1,907 %	4,477 %	4,021 %	4,836 %	3,392 %
48	2,780 %	1,899 %	4,472 %	4,025 %	4,824 %	3,408 %
49	2,808 %	1,896 %	4,468 %	4,029 %	4,812 %	3,424 %
50	2,835 %	1,897 %	4,463 %	4,033 %	4,800 %	3,439 %
51	2,861 %	1,904 %	4,458 %	4,036 %	4,789 %	3,453 %
52	2,886 %	1,915 %	4,454 %	4,040 %	4,778 %	3,467 %
53	2,910 %	1,931 %	4,449 %	4,043 %	4,768 %	3,480 %
54	2,933 %	1,949 %	4,445 %	4,046 %	4,757 %	3,493 %
55	2,956 %	1,970 %	4,441 %	4,050 %	4,748 %	3,506 %
56	2,977 %	1,992 %	4,437 %	4,052 %	4,738 %	3,518 %
57	2,998 %	2,016 %	4,433 %	4,055 %	4,729 %	3,530 %
58	3,019 %	2,041 %	4,429 %	4,058 %	4,720 %	3,541 %
59	3,038 %	2,066 %	4,426 %	4,061 %	4,711 %	3,552 %
60	3,058 %	2,093 %	4,422 %	4,063 %	4,703 %	3,562 %

Term to maturity (in years)	Lev	Pound sterling	Romanian leu	Zloty	Króna	Norwegian krone
61	3,076 %	2,119 %	4,419 %	4,065 %	4,695 %	3,573 %
62	3,094 %	2,145 %	4,415 %	4,068 %	4,687 %	3,583 %
63	3,111 %	2,172 %	4,412 %	4,070 %	4,679 %	3,592 %
64	3,128 %	2,198 %	4,409 %	4,072 %	4,672 %	3,602 %
65	3,144 %	2,224 %	4,406 %	4,074 %	4,665 %	3,611 %
66	3,160 %	2,250 %	4,403 %	4,076 %	4,658 %	3,619 %
67	3,176 %	2,276 %	4,400 %	4,078 %	4,651 %	3,628 %
68	3,191 %	2,301 %	4,397 %	4,080 %	4,644 %	3,636 %
69	3,205 %	2,326 %	4,394 %	4,082 %	4,638 %	3,644 %
70	3,219 %	2,350 %	4,391 %	4,084 %	4,632 %	3,652 %
71	3,233 %	2,374 %	4,389 %	4,085 %	4,626 %	3,660 %
72	3,246 %	2,398 %	4,386 %	4,087 %	4,620 %	3,667 %
73	3,259 %	2,421 %	4,384 %	4,089 %	4,614 %	3,675 %
74	3,272 %	2,444 %	4,381 %	4,090 %	4,609 %	3,682 %
75	3,284 %	2,466 %	4,379 %	4,092 %	4,603 %	3,688 %
76	3,296 %	2,488 %	4,376 %	4,093 %	4,598 %	3,695 %
77	3,308 %	2,509 %	4,374 %	4,095 %	4,593 %	3,702 %
78	3,319 %	2,530 %	4,372 %	4,096 %	4,588 %	3,708 %
79	3,330 %	2,550 %	4,370 %	4,097 %	4,583 %	3,714 %
80	3,341 %	2,570 %	4,368 %	4,099 %	4,578 %	3,720 %
81	3,352 %	2,590 %	4,366 %	4,100 %	4,573 %	3,726 %
82	3,362 %	2,609 %	4,364 %	4,101 %	4,569 %	3,732 %
83	3,372 %	2,627 %	4,362 %	4,102 %	4,564 %	3,738 %
84	3,382 %	2,646 %	4,360 %	4,104 %	4,560 %	3,743 %
85	3,391 %	2,664 %	4,358 %	4,105 %	4,556 %	3,748 %
86	3,401 %	2,681 %	4,356 %	4,106 %	4,552 %	3,754 %
87	3,410 %	2,698 %	4,354 %	4,107 %	4,548 %	3,759 %
88	3,419 %	2,715 %	4,352 %	4,108 %	4,544 %	3,764 %
89	3,428 %	2,732 %	4,351 %	4,109 %	4,540 %	3,769 %
90	3,436 %	2,748 %	4,349 %	4,110 %	4,536 %	3,773 %

Term to maturity (in years)	Lev	Pound sterling	Romanian leu	Zloty	Króna	Norwegian krone
91	3,444 %	2,763 %	4,347 %	4,111 %	4,532 %	3,778 %
92	3,453 %	2,779 %	4,346 %	4,112 %	4,529 %	3,783 %
93	3,461 %	2,794 %	4,344 %	4,113 %	4,525 %	3,787 %
94	3,468 %	2,809 %	4,343 %	4,114 %	4,522 %	3,791 %
95	3,476 %	2,823 %	4,341 %	4,115 %	4,518 %	3,796 %
96	3,484 %	2,837 %	4,340 %	4,116 %	4,515 %	3,800 %
97	3,491 %	2,851 %	4,338 %	4,117 %	4,512 %	3,804 %
98	3,498 %	2,865 %	4,337 %	4,118 %	4,509 %	3,808 %
99	3,505 %	2,878 %	4,336 %	4,118 %	4,506 %	3,812 %
100	3,512 %	2,891 %	4,334 %	4,119 %	4,502 %	3,816 %
101	3,519 %	2,904 %	4,333 %	4,120 %	4,499 %	3,820 %
102	3,526 %	2,917 %	4,332 %	4,121 %	4,497 %	3,823 %
103	3,532 %	2,929 %	4,330 %	4,122 %	4,494 %	3,827 %
104	3,539 %	2,941 %	4,329 %	4,122 %	4,491 %	3,831 %
105	3,545 %	2,953 %	4,328 %	4,123 %	4,488 %	3,834 %
106	3,551 %	2,965 %	4,327 %	4,124 %	4,485 %	3,838 %
107	3,557 %	2,976 %	4,325 %	4,125 %	4,483 %	3,841 %
108	3,563 %	2,988 %	4,324 %	4,125 %	4,480 %	3,844 %
109	3,569 %	2,999 %	4,323 %	4,126 %	4,477 %	3,848 %
110	3,575 %	3,010 %	4,322 %	4,127 %	4,475 %	3,851 %
111	3,580 %	3,020 %	4,321 %	4,127 %	4,472 %	3,854 %
112	3,586 %	3,031 %	4,320 %	4,128 %	4,470 %	3,857 %
113	3,591 %	3,041 %	4,319 %	4,129 %	4,468 %	3,860 %
114	3,596 %	3,051 %	4,318 %	4,129 %	4,465 %	3,863 %
115	3,602 %	3,061 %	4,317 %	4,130 %	4,463 %	3,866 %
116	3,607 %	3,071 %	4,316 %	4,130 %	4,461 %	3,869 %
117	3,612 %	3,080 %	4,315 %	4,131 %	4,458 %	3,872 %
118	3,617 %	3,090 %	4,314 %	4,132 %	4,456 %	3,874 %
119	3,622 %	3,099 %	4,313 %	4,132 %	4,454 %	3,877 %
120	3,627 %	3,108 %	4,312 %	4,133 %	4,452 %	3,880 %

Term to maturity (in years)	Lev	Pound sterling	Romanian leu	Zloty	Króna	Norwegian krone
121	3,631 %	3,117 %	4,311 %	4,133 %	4,450 %	3,882 %
122	3,636 %	3,126 %	4,310 %	4,134 %	4,448 %	3,885 %
123	3,640 %	3,135 %	4,309 %	4,134 %	4,446 %	3,888 %
124	3,645 %	3,143 %	4,308 %	4,135 %	4,444 %	3,890 %
125	3,649 %	3,152 %	4,307 %	4,136 %	4,442 %	3,893 %
126	3,654 %	3,160 %	4,306 %	4,136 %	4,440 %	3,895 %
127	3,658 %	3,168 %	4,306 %	4,137 %	4,438 %	3,897 %
128	3,662 %	3,176 %	4,305 %	4,137 %	4,436 %	3,900 %
129	3,666 %	3,184 %	4,304 %	4,138 %	4,434 %	3,902 %
130	3,671 %	3,192 %	4,303 %	4,138 %	4,433 %	3,904 %
131	3,675 %	3,199 %	4,302 %	4,138 %	4,431 %	3,907 %
132	3,679 %	3,207 %	4,302 %	4,139 %	4,429 %	3,909 %
133	3,682 %	3,214 %	4,301 %	4,139 %	4,427 %	3,911 %
134	3,686 %	3,222 %	4,300 %	4,140 %	4,426 %	3,913 %
135	3,690 %	3,229 %	4,299 %	4,140 %	4,424 %	3,915 %
136	3,694 %	3,236 %	4,299 %	4,141 %	4,422 %	3,917 %
137	3,698 %	3,243 %	4,298 %	4,141 %	4,421 %	3,919 %
138	3,701 %	3,250 %	4,297 %	4,142 %	4,419 %	3,922 %
139	3,705 %	3,257 %	4,297 %	4,142 %	4,418 %	3,924 %
140	3,708 %	3,263 %	4,296 %	4,142 %	4,416 %	3,925 %
141	3,712 %	3,270 %	4,295 %	4,143 %	4,414 %	3,927 %
142	3,715 %	3,277 %	4,294 %	4,143 %	4,413 %	3,929 %
143	3,719 %	3,283 %	4,294 %	4,144 %	4,411 %	3,931 %
144	3,722 %	3,289 %	4,293 %	4,144 %	4,410 %	3,933 %
145	3,725 %	3,296 %	4,293 %	4,144 %	4,409 %	3,935 %
146	3,728 %	3,302 %	4,292 %	4,145 %	4,407 %	3,937 %
147	3,732 %	3,308 %	4,291 %	4,145 %	4,406 %	3,939 %
148	3,735 %	3,314 %	4,291 %	4,146 %	4,404 %	3,940 %
149	3,738 %	3,320 %	4,290 %	4,146 %	4,403 %	3,942 %
150	3,741 %	3,326 %	4,289 %	4,146 %	4,402 %	3,944 %

Term to maturity (in years)	Swiss franc	Australian dollar	Baht	Canadian dollar	Chilean peso	Colombian peso
1	– 0,795 %	2,043 %	1,257 %	0,645 %	3,816 %	4,474 %
2	– 0,746 %	2,008 %	1,345 %	0,681 %	3,983 %	4,580 %
3	– 0,666 %	2,059 %	1,488 %	0,789 %	4,130 %	4,688 %
4	– 0,543 %	2,153 %	1,731 %	0,909 %	4,248 %	4,853 %
5	– 0,407 %	2,304 %	1,912 %	1,039 %	4,357 %	4,907 %
6	– 0,270 %	2,407 %	1,991 %	1,185 %	4,457 %	5,049 %
7	– 0,143 %	2,534 %	2,032 %	1,336 %	4,595 %	5,199 %
8	– 0,030 %	2,633 %	2,192 %	1,491 %	4,662 %	5,320 %
9	0,071 %	2,741 %	2,274 %	1,644 %	4,757 %	5,536 %
10	0,159 %	2,831 %	2,290 %	1,778 %	4,802 %	5,775 %
11	0,227 %	2,900 %	2,427 %	1,904 %	4,823 %	5,956 %
12	0,317 %	2,960 %	2,613 %	2,019 %	4,836 %	6,081 %
13	0,372 %	3,019 %	2,762 %	2,116 %	4,841 %	6,164 %
14	0,408 %	3,075 %	2,875 %	2,199 %	4,842 %	6,215 %
15	0,481 %	3,124 %	2,965 %	2,269 %	4,839 %	6,243 %
16	0,545 %	3,165 %	3,043 %	2,328 %	4,833 %	6,252 %
17	0,591 %	3,199 %	3,112 %	2,375 %	4,826 %	6,247 %
18	0,624 %	3,229 %	3,173 %	2,412 %	4,817 %	6,232 %
19	0,649 %	3,255 %	3,228 %	2,437 %	4,807 %	6,209 %
20	0,668 %	3,279 %	3,277 %	2,451 %	4,796 %	6,179 %
21	0,684 %	3,301 %	3,321 %	2,454 %	4,784 %	6,146 %
22	0,700 %	3,319 %	3,362 %	2,452 %	4,773 %	6,109 %
23	0,717 %	3,332 %	3,399 %	2,449 %	4,761 %	6,070 %
24	0,739 %	3,339 %	3,433 %	2,449 %	4,749 %	6,029 %
25	0,767 %	3,339 %	3,464 %	2,454 %	4,737 %	5,988 %
26	0,800 %	3,332 %	3,492 %	2,466 %	4,725 %	5,946 %
27	0,839 %	3,321 %	3,519 %	2,484 %	4,713 %	5,905 %
28	0,881 %	3,310 %	3,544 %	2,506 %	4,702 %	5,864 %
29	0,925 %	3,299 %	3,567 %	2,532 %	4,691 %	5,824 %
30	0,970 %	3,292 %	3,588 %	2,559 %	4,680 %	5,784 %

Term to maturity (in years)	Swiss franc	Australian dollar	Baht	Canadian dollar	Chilean peso	Colombian peso
31	1,016 %	3,289 %	3,608 %	2,588 %	4,669 %	5,746 %
32	1,062 %	3,290 %	3,627 %	2,618 %	4,659 %	5,708 %
33	1,108 %	3,294 %	3,644 %	2,648 %	4,648 %	5,671 %
34	1,154 %	3,300 %	3,661 %	2,679 %	4,639 %	5,636 %
35	1,198 %	3,308 %	3,676 %	2,710 %	4,629 %	5,602 %
36	1,242 %	3,318 %	3,691 %	2,740 %	4,620 %	5,569 %
37	1,285 %	3,328 %	3,705 %	2,770 %	4,611 %	5,537 %
38	1,327 %	3,340 %	3,718 %	2,799 %	4,602 %	5,506 %
39	1,367 %	3,352 %	3,731 %	2,828 %	4,593 %	5,476 %
40	1,406 %	3,365 %	3,743 %	2,856 %	4,585 %	5,447 %
41	1,444 %	3,378 %	3,754 %	2,884 %	4,577 %	5,419 %
42	1,481 %	3,391 %	3,765 %	2,911 %	4,570 %	5,393 %
43	1,517 %	3,404 %	3,775 %	2,937 %	4,562 %	5,367 %
44	1,552 %	3,417 %	3,785 %	2,962 %	4,555 %	5,342 %
45	1,585 %	3,430 %	3,794 %	2,986 %	4,548 %	5,318 %
46	1,617 %	3,443 %	3,803 %	3,010 %	4,541 %	5,295 %
47	1,649 %	3,456 %	3,811 %	3,033 %	4,535 %	5,273 %
48	1,679 %	3,469 %	3,819 %	3,056 %	4,528 %	5,251 %
49	1,708 %	3,481 %	3,827 %	3,077 %	4,522 %	5,231 %
50	1,736 %	3,493 %	3,835 %	3,098 %	4,516 %	5,211 %
51	1,764 %	3,505 %	3,842 %	3,119 %	4,511 %	5,192 %
52	1,790 %	3,517 %	3,849 %	3,138 %	4,505 %	5,173 %
53	1,815 %	3,528 %	3,856 %	3,157 %	4,500 %	5,155 %
54	1,840 %	3,540 %	3,862 %	3,176 %	4,495 %	5,138 %
55	1,864 %	3,550 %	3,868 %	3,194 %	4,490 %	5,121 %
56	1,887 %	3,561 %	3,874 %	3,211 %	4,485 %	5,105 %
57	1,909 %	3,571 %	3,880 %	3,228 %	4,480 %	5,089 %
58	1,931 %	3,581 %	3,885 %	3,244 %	4,475 %	5,074 %
59	1,952 %	3,591 %	3,891 %	3,260 %	4,471 %	5,059 %
60	1,972 %	3,601 %	3,896 %	3,275 %	4,466 %	5,045 %

Term to maturity (in years)	Swiss franc	Australian dollar	Baht	Canadian dollar	Chilean peso	Colombian peso
61	1,992 %	3,610 %	3,901 %	3,290 %	4,462 %	5,031 %
62	2,011 %	3,619 %	3,906 %	3,304 %	4,458 %	5,018 %
63	2,030 %	3,628 %	3,911 %	3,318 %	4,454 %	5,005 %
64	2,048 %	3,636 %	3,915 %	3,331 %	4,450 %	4,993 %
65	2,065 %	3,645 %	3,920 %	3,345 %	4,447 %	4,980 %
66	2,082 %	3,653 %	3,924 %	3,357 %	4,443 %	4,969 %
67	2,099 %	3,661 %	3,928 %	3,370 %	4,439 %	4,957 %
68	2,115 %	3,669 %	3,932 %	3,382 %	4,436 %	4,946 %
69	2,130 %	3,676 %	3,936 %	3,394 %	4,433 %	4,935 %
70	2,145 %	3,683 %	3,940 %	3,405 %	4,429 %	4,925 %
71	2,160 %	3,691 %	3,943 %	3,416 %	4,426 %	4,915 %
72	2,174 %	3,697 %	3,947 %	3,427 %	4,423 %	4,905 %
73	2,188 %	3,704 %	3,950 %	3,437 %	4,420 %	4,895 %
74	2,202 %	3,711 %	3,954 %	3,448 %	4,417 %	4,886 %
75	2,215 %	3,717 %	3,957 %	3,457 %	4,414 %	4,876 %
76	2,228 %	3,723 %	3,960 %	3,467 %	4,411 %	4,868 %
77	2,240 %	3,730 %	3,963 %	3,477 %	4,409 %	4,859 %
78	2,253 %	3,736 %	3,966 %	3,486 %	4,406 %	4,850 %
79	2,265 %	3,741 %	3,969 %	3,495 %	4,404 %	4,842 %
80	2,276 %	3,747 %	3,972 %	3,504 %	4,401 %	4,834 %
81	2,288 %	3,753 %	3,975 %	3,512 %	4,399 %	4,826 %
82	2,299 %	3,758 %	3,978 %	3,520 %	4,396 %	4,819 %
83	2,309 %	3,763 %	3,981 %	3,529 %	4,394 %	4,811 %
84	2,320 %	3,768 %	3,983 %	3,537 %	4,391 %	4,804 %
85	2,330 %	3,773 %	3,986 %	3,544 %	4,389 %	4,797 %
86	2,340 %	3,778 %	3,988 %	3,552 %	4,387 %	4,790 %
87	2,350 %	3,783 %	3,991 %	3,559 %	4,385 %	4,783 %
88	2,360 %	3,788 %	3,993 %	3,567 %	4,383 %	4,776 %
89	2,369 %	3,793 %	3,995 %	3,574 %	4,381 %	4,770 %
90	2,378 %	3,797 %	3,998 %	3,581 %	4,379 %	4,764 %

Term to maturity (in years)	Swiss franc	Australian dollar	Baht	Canadian dollar	Chilean peso	Colombian peso
91	2,387 %	3,801 %	4,000 %	3,587 %	4,377 %	4,757 %
92	2,396 %	3,806 %	4,002 %	3,594 %	4,375 %	4,751 %
93	2,405 %	3,810 %	4,004 %	3,601 %	4,373 %	4,745 %
94	2,413 %	3,814 %	4,006 %	3,607 %	4,371 %	4,740 %
95	2,421 %	3,818 %	4,008 %	3,613 %	4,369 %	4,734 %
96	2,429 %	3,822 %	4,010 %	3,619 %	4,368 %	4,728 %
97	2,437 %	3,826 %	4,012 %	3,625 %	4,366 %	4,723 %
98	2,445 %	3,830 %	4,014 %	3,631 %	4,364 %	4,717 %
99	2,453 %	3,834 %	4,016 %	3,637 %	4,363 %	4,712 %
100	2,460 %	3,837 %	4,018 %	3,642 %	4,361 %	4,707 %
101	2,467 %	3,841 %	4,020 %	3,648 %	4,359 %	4,702 %
102	2,475 %	3,844 %	4,021 %	3,653 %	4,358 %	4,697 %
103	2,482 %	3,848 %	4,023 %	3,659 %	4,356 %	4,692 %
104	2,489 %	3,851 %	4,025 %	3,664 %	4,355 %	4,688 %
105	2,495 %	3,854 %	4,027 %	3,669 %	4,353 %	4,683 %
106	2,502 %	3,858 %	4,028 %	3,674 %	4,352 %	4,678 %
107	2,508 %	3,861 %	4,030 %	3,679 %	4,350 %	4,674 %
108	2,515 %	3,864 %	4,031 %	3,684 %	4,349 %	4,669 %
109	2,521 %	3,867 %	4,033 %	3,688 %	4,348 %	4,665 %
110	2,527 %	3,870 %	4,034 %	3,693 %	4,346 %	4,661 %
111	2,533 %	3,873 %	4,036 %	3,697 %	4,345 %	4,657 %
112	2,539 %	3,876 %	4,037 %	3,702 %	4,344 %	4,653 %
113	2,545 %	3,879 %	4,039 %	3,706 %	4,342 %	4,649 %
114	2,551 %	3,882 %	4,040 %	3,711 %	4,341 %	4,645 %
115	2,556 %	3,884 %	4,042 %	3,715 %	4,340 %	4,641 %
116	2,562 %	3,887 %	4,043 %	3,719 %	4,339 %	4,637 %
117	2,567 %	3,890 %	4,044 %	3,723 %	4,338 %	4,633 %
118	2,573 %	3,892 %	4,046 %	3,727 %	4,336 %	4,630 %
119	2,578 %	3,895 %	4,047 %	3,731 %	4,335 %	4,626 %
120	2,583 %	3,898 %	4,048 %	3,735 %	4,334 %	4,622 %

Term to maturity (in years)	Swiss franc	Australian dollar	Baht	Canadian dollar	Chilean peso	Colombian peso
121	2,588 %	3,900 %	4,050 %	3,739 %	4,333 %	4,619 %
122	2,593 %	3,903 %	4,051 %	3,743 %	4,332 %	4,615 %
123	2,598 %	3,905 %	4,052 %	3,746 %	4,331 %	4,612 %
124	2,603 %	3,907 %	4,053 %	3,750 %	4,330 %	4,609 %
125	2,608 %	3,910 %	4,054 %	3,754 %	4,329 %	4,605 %
126	2,612 %	3,912 %	4,055 %	3,757 %	4,328 %	4,602 %
127	2,617 %	3,914 %	4,057 %	3,761 %	4,327 %	4,599 %
128	2,622 %	3,916 %	4,058 %	3,764 %	4,326 %	4,596 %
129	2,626 %	3,919 %	4,059 %	3,767 %	4,325 %	4,593 %
130	2,630 %	3,921 %	4,060 %	3,771 %	4,324 %	4,590 %
131	2,635 %	3,923 %	4,061 %	3,774 %	4,323 %	4,587 %
132	2,639 %	3,925 %	4,062 %	3,777 %	4,322 %	4,584 %
133	2,643 %	3,927 %	4,063 %	3,780 %	4,321 %	4,581 %
134	2,647 %	3,929 %	4,064 %	3,784 %	4,320 %	4,578 %
135	2,651 %	3,931 %	4,065 %	3,787 %	4,319 %	4,575 %
136	2,655 %	3,933 %	4,066 %	3,790 %	4,318 %	4,573 %
137	2,659 %	3,935 %	4,067 %	3,793 %	4,317 %	4,570 %
138	2,663 %	3,937 %	4,068 %	3,796 %	4,317 %	4,567 %
139	2,667 %	3,939 %	4,069 %	3,799 %	4,316 %	4,565 %
140	2,671 %	3,941 %	4,070 %	3,801 %	4,315 %	4,562 %
141	2,675 %	3,943 %	4,071 %	3,804 %	4,314 %	4,559 %
142	2,678 %	3,944 %	4,072 %	3,807 %	4,313 %	4,557 %
143	2,682 %	3,946 %	4,073 %	3,810 %	4,313 %	4,554 %
144	2,686 %	3,948 %	4,074 %	3,812 %	4,312 %	4,552 %
145	2,689 %	3,950 %	4,074 %	3,815 %	4,311 %	4,549 %
146	2,693 %	3,951 %	4,075 %	3,818 %	4,310 %	4,547 %
147	2,696 %	3,953 %	4,076 %	3,820 %	4,309 %	4,545 %
148	2,700 %	3,955 %	4,077 %	3,823 %	4,309 %	4,542 %
149	2,703 %	3,956 %	4,078 %	3,825 %	4,308 %	4,540 %
150	2,706 %	3,958 %	4,079 %	3,828 %	4,307 %	4,538 %

Term to maturity (in years)	Hong Kong dollar	Indian rupee	Mexican peso	New Taiwan dollar	New Zealand dollar	Rand
1	0,461 %	7,178 %	3,347 %	0,257 %	2,430 %	7,354 %
2	0,764 %	7,292 %	3,803 %	0,343 %	2,512 %	8,072 %
3	0,977 %	7,404 %	4,530 %	0,431 %	2,655 %	8,510 %
4	1,182 %	7,513 %	4,956 %	0,520 %	2,812 %	8,814 %
5	1,316 %	7,610 %	5,396 %	0,609 %	2,964 %	9,035 %
6	1,427 %	7,680 %	5,717 %	0,697 %	3,102 %	9,214 %
7	1,524 %	7,752 %	5,879 %	0,786 %	3,222 %	9,353 %
8	1,604 %	7,804 %	6,000 %	0,871 %	3,325 %	9,470 %
9	1,667 %	7,847 %	6,100 %	0,953 %	3,411 %	9,563 %
10	1,715 %	7,882 %	6,206 %	1,032 %	3,485 %	9,646 %
11	1,751 %	7,892 %	6,319 %	1,120 %	3,557 %	9,723 %
12	1,789 %	7,879 %	6,434 %	1,214 %	3,626 %	9,794 %
13	1,839 %	7,851 %	6,547 %	1,310 %	3,689 %	9,860 %
14	1,896 %	7,811 %	6,655 %	1,407 %	3,745 %	9,910 %
15	1,958 %	7,763 %	6,755 %	1,502 %	3,793 %	9,934 %
16	2,021 %	7,709 %	6,846 %	1,594 %	3,833 %	9,928 %
17	2,085 %	7,652 %	6,925 %	1,684 %	3,868 %	9,895 %
18	2,148 %	7,593 %	6,993 %	1,769 %	3,897 %	9,841 %
19	2,210 %	7,533 %	7,046 %	1,851 %	3,923 %	9,772 %
20	2,271 %	7,472 %	7,084 %	1,930 %	3,945 %	9,692 %
21	2,329 %	7,412 %	7,105 %	2,005 %	3,964 %	9,602 %
22	2,386 %	7,352 %	7,113 %	2,076 %	3,982 %	9,507 %
23	2,440 %	7,293 %	7,109 %	2,144 %	3,997 %	9,409 %
24	2,492 %	7,236 %	7,097 %	2,208 %	4,011 %	9,308 %
25	2,543 %	7,180 %	7,077 %	2,270 %	4,023 %	9,206 %
26	2,591 %	7,126 %	7,053 %	2,328 %	4,034 %	9,104 %
27	2,637 %	7,074 %	7,025 %	2,384 %	4,044 %	9,004 %
28	2,681 %	7,023 %	6,994 %	2,437 %	4,053 %	8,905 %
29	2,723 %	6,974 %	6,961 %	2,488 %	4,061 %	8,808 %
30	2,763 %	6,927 %	6,926 %	2,536 %	4,069 %	8,714 %

Term to maturity (in years)	Hong Kong dollar	Indian rupee	Mexican peso	New Taiwan dollar	New Zealand dollar	Rand
31	2,802 %	6,881 %	6,891 %	2,582 %	4,076 %	8,623 %
32	2,839 %	6,838 %	6,856 %	2,625 %	4,082 %	8,534 %
33	2,874 %	6,796 %	6,820 %	2,667 %	4,088 %	8,448 %
34	2,908 %	6,755 %	6,785 %	2,707 %	4,093 %	8,365 %
35	2,940 %	6,717 %	6,750 %	2,745 %	4,098 %	8,285 %
36	2,971 %	6,680 %	6,716 %	2,781 %	4,102 %	8,209 %
37	3,001 %	6,644 %	6,682 %	2,816 %	4,106 %	8,135 %
38	3,029 %	6,609 %	6,650 %	2,850 %	4,110 %	8,064 %
39	3,057 %	6,576 %	6,618 %	2,881 %	4,113 %	7,995 %
40	3,083 %	6,545 %	6,587 %	2,912 %	4,116 %	7,930 %
41	3,108 %	6,514 %	6,557 %	2,941 %	4,119 %	7,866 %
42	3,132 %	6,485 %	6,528 %	2,969 %	4,122 %	7,806 %
43	3,155 %	6,457 %	6,500 %	2,996 %	4,125 %	7,748 %
44	3,178 %	6,430 %	6,472 %	3,022 %	4,127 %	7,692 %
45	3,199 %	6,404 %	6,446 %	3,047 %	4,130 %	7,638 %
46	3,220 %	6,379 %	6,420 %	3,071 %	4,132 %	7,586 %
47	3,240 %	6,355 %	6,396 %	3,094 %	4,134 %	7,537 %
48	3,259 %	6,331 %	6,372 %	3,116 %	4,136 %	7,489 %
49	3,277 %	6,309 %	6,349 %	3,137 %	4,137 %	7,443 %
50	3,295 %	6,287 %	6,327 %	3,158 %	4,139 %	7,398 %
51	3,312 %	6,267 %	6,306 %	3,178 %	4,141 %	7,356 %
52	3,329 %	6,247 %	6,285 %	3,197 %	4,142 %	7,314 %
53	3,345 %	6,227 %	6,265 %	3,215 %	4,144 %	7,275 %
54	3,360 %	6,209 %	6,245 %	3,233 %	4,145 %	7,236 %
55	3,375 %	6,191 %	6,227 %	3,250 %	4,146 %	7,199 %
56	3,389 %	6,173 %	6,209 %	3,267 %	4,147 %	7,164 %
57	3,403 %	6,156 %	6,191 %	3,283 %	4,149 %	7,129 %
58	3,417 %	6,140 %	6,174 %	3,298 %	4,150 %	7,096 %
59	3,430 %	6,124 %	6,158 %	3,313 %	4,151 %	7,064 %
60	3,442 %	6,109 %	6,142 %	3,328 %	4,152 %	7,033 %

Term to maturity (in years)	Hong Kong dollar	Indian rupee	Mexican peso	New Taiwan dollar	New Zealand dollar	Rand
61	3,454 %	6,094 %	6,127 %	3,342 %	4,153 %	7,003 %
62	3,466 %	6,080 %	6,112 %	3,356 %	4,154 %	6,973 %
63	3,478 %	6,066 %	6,098 %	3,369 %	4,155 %	6,945 %
64	3,489 %	6,052 %	6,084 %	3,382 %	4,155 %	6,918 %
65	3,500 %	6,039 %	6,070 %	3,394 %	4,156 %	6,891 %
66	3,510 %	6,027 %	6,057 %	3,406 %	4,157 %	6,865 %
67	3,520 %	6,014 %	6,044 %	3,418 %	4,158 %	6,840 %
68	3,530 %	6,002 %	6,032 %	3,429 %	4,158 %	6,816 %
69	3,540 %	5,991 %	6,020 %	3,440 %	4,159 %	6,793 %
70	3,549 %	5,979 %	6,008 %	3,451 %	4,160 %	6,770 %
71	3,558 %	5,968 %	5,996 %	3,461 %	4,160 %	6,748 %
72	3,567 %	5,958 %	5,985 %	3,472 %	4,161 %	6,726 %
73	3,576 %	5,947 %	5,975 %	3,482 %	4,162 %	6,705 %
74	3,584 %	5,937 %	5,964 %	3,491 %	4,162 %	6,684 %
75	3,592 %	5,927 %	5,954 %	3,501 %	4,163 %	6,665 %
76	3,600 %	5,918 %	5,944 %	3,510 %	4,163 %	6,645 %
77	3,608 %	5,909 %	5,934 %	3,519 %	4,164 %	6,626 %
78	3,616 %	5,899 %	5,925 %	3,527 %	4,164 %	6,608 %
79	3,623 %	5,891 %	5,916 %	3,536 %	4,165 %	6,590 %
80	3,630 %	5,882 %	5,907 %	3,544 %	4,165 %	6,572 %
81	3,637 %	5,873 %	5,898 %	3,552 %	4,166 %	6,555 %
82	3,644 %	5,865 %	5,889 %	3,560 %	4,166 %	6,539 %
83	3,651 %	5,857 %	5,881 %	3,568 %	4,167 %	6,523 %
84	3,657 %	5,849 %	5,873 %	3,575 %	4,167 %	6,507 %
85	3,663 %	5,842 %	5,865 %	3,582 %	4,167 %	6,491 %
86	3,670 %	5,834 %	5,857 %	3,590 %	4,168 %	6,476 %
87	3,676 %	5,827 %	5,850 %	3,597 %	4,168 %	6,461 %
88	3,682 %	5,820 %	5,842 %	3,603 %	4,169 %	6,447 %
89	3,687 %	5,813 %	5,835 %	3,610 %	4,169 %	6,433 %
90	3,693 %	5,806 %	5,828 %	3,617 %	4,169 %	6,419 %

Term to maturity (in years)	Hong Kong dollar	Indian rupee	Mexican peso	New Taiwan dollar	New Zealand dollar	Rand
91	3,699 %	5,799 %	5,821 %	3,623 %	4,170 %	6,406 %
92	3,704 %	5,793 %	5,814 %	3,629 %	4,170 %	6,392 %
93	3,709 %	5,786 %	5,808 %	3,635 %	4,170 %	6,380 %
94	3,715 %	5,780 %	5,801 %	3,641 %	4,171 %	6,367 %
95	3,720 %	5,774 %	5,795 %	3,647 %	4,171 %	6,355 %
96	3,725 %	5,768 %	5,789 %	3,653 %	4,171 %	6,342 %
97	3,730 %	5,762 %	5,783 %	3,659 %	4,172 %	6,331 %
98	3,734 %	5,756 %	5,777 %	3,664 %	4,172 %	6,319 %
99	3,739 %	5,751 %	5,771 %	3,670 %	4,172 %	6,308 %
100	3,744 %	5,745 %	5,765 %	3,675 %	4,172 %	6,297 %
101	3,748 %	5,740 %	5,759 %	3,680 %	4,173 %	6,286 %
102	3,753 %	5,735 %	5,754 %	3,685 %	4,173 %	6,275 %
103	3,757 %	5,729 %	5,749 %	3,690 %	4,173 %	6,264 %
104	3,761 %	5,724 %	5,743 %	3,695 %	4,174 %	6,254 %
105	3,765 %	5,719 %	5,738 %	3,700 %	4,174 %	6,244 %
106	3,769 %	5,714 %	5,733 %	3,704 %	4,174 %	6,234 %
107	3,773 %	5,709 %	5,728 %	3,709 %	4,174 %	6,224 %
108	3,777 %	5,705 %	5,723 %	3,714 %	4,175 %	6,215 %
109	3,781 %	5,700 %	5,718 %	3,718 %	4,175 %	6,206 %
110	3,785 %	5,696 %	5,714 %	3,722 %	4,175 %	6,196 %
111	3,789 %	5,691 %	5,709 %	3,727 %	4,175 %	6,187 %
112	3,792 %	5,687 %	5,704 %	3,731 %	4,175 %	6,179 %
113	3,796 %	5,682 %	5,700 %	3,735 %	4,176 %	6,170 %
114	3,800 %	5,678 %	5,695 %	3,739 %	4,176 %	6,161 %
115	3,803 %	5,674 %	5,691 %	3,743 %	4,176 %	6,153 %
116	3,806 %	5,670 %	5,687 %	3,747 %	4,176 %	6,145 %
117	3,810 %	5,666 %	5,683 %	3,751 %	4,177 %	6,137 %
118	3,813 %	5,662 %	5,679 %	3,755 %	4,177 %	6,129 %
119	3,816 %	5,658 %	5,675 %	3,758 %	4,177 %	6,121 %
120	3,820 %	5,654 %	5,671 %	3,762 %	4,177 %	6,113 %

Term to maturity (in years)	Hong Kong dollar	Indian rupee	Mexican peso	New Taiwan dollar	New Zealand dollar	Rand
121	3,823 %	5,650 %	5,667 %	3,766 %	4,177 %	6,105 %
122	3,826 %	5,647 %	5,663 %	3,769 %	4,177 %	6,098 %
123	3,829 %	5,643 %	5,659 %	3,773 %	4,178 %	6,091 %
124	3,832 %	5,640 %	5,655 %	3,776 %	4,178 %	6,083 %
125	3,835 %	5,636 %	5,652 %	3,780 %	4,178 %	6,076 %
126	3,838 %	5,633 %	5,648 %	3,783 %	4,178 %	6,069 %
127	3,841 %	5,629 %	5,645 %	3,786 %	4,178 %	6,062 %
128	3,843 %	5,626 %	5,641 %	3,789 %	4,179 %	6,056 %
129	3,846 %	5,622 %	5,638 %	3,793 %	4,179 %	6,049 %
130	3,849 %	5,619 %	5,634 %	3,796 %	4,179 %	6,043 %
131	3,851 %	5,616 %	5,631 %	3,799 %	4,179 %	6,036 %
132	3,854 %	5,613 %	5,628 %	3,802 %	4,179 %	6,030 %
133	3,857 %	5,610 %	5,625 %	3,805 %	4,179 %	6,023 %
134	3,859 %	5,607 %	5,621 %	3,808 %	4,180 %	6,017 %
135	3,862 %	5,604 %	5,618 %	3,811 %	4,180 %	6,011 %
136	3,864 %	5,601 %	5,615 %	3,814 %	4,180 %	6,005 %
137	3,867 %	5,598 %	5,612 %	3,816 %	4,180 %	5,999 %
138	3,869 %	5,595 %	5,609 %	3,819 %	4,180 %	5,993 %
139	3,871 %	5,592 %	5,606 %	3,822 %	4,180 %	5,988 %
140	3,874 %	5,589 %	5,603 %	3,825 %	4,180 %	5,982 %
141	3,876 %	5,586 %	5,600 %	3,827 %	4,181 %	5,977 %
142	3,878 %	5,584 %	5,598 %	3,830 %	4,181 %	5,971 %
143	3,881 %	5,581 %	5,595 %	3,832 %	4,181 %	5,966 %
144	3,883 %	5,578 %	5,592 %	3,835 %	4,181 %	5,960 %
145	3,885 %	5,576 %	5,589 %	3,838 %	4,181 %	5,955 %
146	3,887 %	5,573 %	5,587 %	3,840 %	4,181 %	5,950 %
147	3,889 %	5,571 %	5,584 %	3,842 %	4,181 %	5,945 %
148	3,891 %	5,568 %	5,581 %	3,845 %	4,181 %	5,940 %
149	3,894 %	5,566 %	5,579 %	3,847 %	4,182 %	5,935 %
150	3,896 %	5,563 %	5,576 %	3,850 %	4,182 %	5,930 %

Term to maturity (in years)	Real	Renminbi-yuan	Ringgit	Russian rouble	Singapore dollar	South Korean won
1	15,543 %	1,985 %	3,562 %	11,250 %	1,534 %	1,301 %
2	16,275 %	2,000 %	3,614 %	10,692 %	1,740 %	1,301 %
3	16,450 %	2,083 %	3,667 %	11,303 %	1,955 %	1,337 %
4	16,698 %	2,156 %	3,732 %	10,962 %	2,145 %	1,386 %
5	17,140 %	2,265 %	3,797 %	10,098 %	2,281 %	1,433 %
6	17,082 %	2,347 %	3,887 %	10,681 %	2,421 %	1,480 %
7	17,033 %	2,417 %	3,978 %	9,993 %	2,545 %	1,527 %
8	17,014 %	2,460 %	4,064 %	10,011 %	2,642 %	1,569 %
9	16,999 %	2,514 %	4,153 %	10,052 %	2,719 %	1,608 %
10	16,987 %	2,558 %	4,243 %	9,818 %	2,773 %	1,643 %
11	16,928 %	2,602 %	4,291 %	9,552 %	2,830 %	1,675 %
12	16,821 %	2,648 %	4,324 %	9,310 %	2,885 %	1,700 %
13	16,674 %	2,695 %	4,370 %	9,088 %	2,929 %	1,714 %
14	16,495 %	2,741 %	4,428 %	8,882 %	2,963 %	1,721 %
15	16,291 %	2,787 %	4,492 %	8,691 %	2,985 %	1,722 %
16	16,067 %	2,831 %	4,558 %	8,513 %	2,997 %	1,720 %
17	15,827 %	2,874 %	4,622 %	8,346 %	3,003 %	1,718 %
18	15,576 %	2,916 %	4,681 %	8,190 %	3,007 %	1,722 %
19	15,317 %	2,956 %	4,733 %	8,042 %	3,013 %	1,734 %
20	15,053 %	2,995 %	4,775 %	7,903 %	3,021 %	1,755 %
21	14,788 %	3,031 %	4,807 %	7,773 %	3,034 %	1,786 %
22	14,522 %	3,067 %	4,831 %	7,649 %	3,050 %	1,826 %
23	14,259 %	3,101 %	4,846 %	7,532 %	3,069 %	1,870 %
24	14,000 %	3,133 %	4,856 %	7,422 %	3,089 %	1,918 %
25	13,747 %	3,164 %	4,862 %	7,317 %	3,111 %	1,969 %
26	13,499 %	3,193 %	4,863 %	7,218 %	3,133 %	2,020 %
27	13,259 %	3,222 %	4,862 %	7,124 %	3,156 %	2,071 %
28	13,026 %	3,249 %	4,858 %	7,035 %	3,179 %	2,123 %
29	12,801 %	3,275 %	4,852 %	6,950 %	3,202 %	2,173 %
30	12,585 %	3,299 %	4,845 %	6,870 %	3,224 %	2,223 %

Term to maturity (in years)	Real	Renminbi-yuan	Ringgit	Russian rouble	Singapore dollar	South Korean won
31	12,376 %	3,323 %	4,837 %	6,793 %	3,247 %	2,272 %
32	12,176 %	3,346 %	4,828 %	6,720 %	3,268 %	2,319 %
33	11,984 %	3,367 %	4,818 %	6,651 %	3,290 %	2,365 %
34	11,800 %	3,388 %	4,808 %	6,585 %	3,310 %	2,410 %
35	11,624 %	3,408 %	4,797 %	6,522 %	3,331 %	2,453 %
36	11,456 %	3,427 %	4,787 %	6,462 %	3,350 %	2,494 %
37	11,294 %	3,445 %	4,776 %	6,405 %	3,369 %	2,535 %
38	11,140 %	3,463 %	4,765 %	6,350 %	3,388 %	2,573 %
39	10,992 %	3,480 %	4,754 %	6,298 %	3,405 %	2,611 %
40	10,851 %	3,496 %	4,744 %	6,248 %	3,423 %	2,647 %
41	10,716 %	3,512 %	4,733 %	6,200 %	3,439 %	2,681 %
42	10,586 %	3,526 %	4,723 %	6,154 %	3,455 %	2,714 %
43	10,462 %	3,541 %	4,713 %	6,110 %	3,471 %	2,747 %
44	10,343 %	3,555 %	4,703 %	6,068 %	3,486 %	2,777 %
45	10,229 %	3,568 %	4,693 %	6,027 %	3,500 %	2,807 %
46	10,119 %	3,581 %	4,684 %	5,989 %	3,514 %	2,836 %
47	10,014 %	3,593 %	4,675 %	5,951 %	3,528 %	2,863 %
48	9,914 %	3,605 %	4,666 %	5,915 %	3,541 %	2,890 %
49	9,817 %	3,617 %	4,657 %	5,881 %	3,554 %	2,916 %
50	9,724 %	3,628 %	4,649 %	5,848 %	3,566 %	2,940 %
51	9,634 %	3,638 %	4,641 %	5,816 %	3,578 %	2,964 %
52	9,548 %	3,649 %	4,633 %	5,785 %	3,589 %	2,987 %
53	9,465 %	3,659 %	4,625 %	5,755 %	3,600 %	3,010 %
54	9,385 %	3,668 %	4,618 %	5,727 %	3,611 %	3,031 %
55	9,308 %	3,678 %	4,610 %	5,699 %	3,621 %	3,052 %
56	9,233 %	3,687 %	4,603 %	5,673 %	3,631 %	3,072 %
57	9,162 %	3,695 %	4,597 %	5,647 %	3,641 %	3,091 %
58	9,092 %	3,704 %	4,590 %	5,622 %	3,650 %	3,110 %
59	9,025 %	3,712 %	4,584 %	5,598 %	3,659 %	3,128 %
60	8,961 %	3,720 %	4,577 %	5,575 %	3,668 %	3,146 %

Term to maturity (in years)	Real	Renminbi-yuan	Ringgit	Russian rouble	Singapore dollar	South Korean won
61	8,898 %	3,728 %	4,571 %	5,552 %	3,677 %	3,163 %
62	8,838 %	3,735 %	4,565 %	5,530 %	3,685 %	3,179 %
63	8,779 %	3,742 %	4,560 %	5,509 %	3,693 %	3,195 %
64	8,722 %	3,749 %	4,554 %	5,489 %	3,701 %	3,211 %
65	8,667 %	3,756 %	4,549 %	5,469 %	3,708 %	3,226 %
66	8,614 %	3,763 %	4,544 %	5,450 %	3,716 %	3,241 %
67	8,562 %	3,769 %	4,539 %	5,431 %	3,723 %	3,255 %
68	8,512 %	3,775 %	4,534 %	5,413 %	3,730 %	3,269 %
69	8,463 %	3,782 %	4,529 %	5,395 %	3,737 %	3,282 %
70	8,416 %	3,787 %	4,524 %	5,378 %	3,743 %	3,295 %
71	8,370 %	3,793 %	4,520 %	5,361 %	3,749 %	3,308 %
72	8,326 %	3,799 %	4,515 %	5,345 %	3,756 %	3,320 %
73	8,282 %	3,804 %	4,511 %	5,330 %	3,762 %	3,332 %
74	8,240 %	3,810 %	4,507 %	5,314 %	3,768 %	3,344 %
75	8,199 %	3,815 %	4,503 %	5,299 %	3,773 %	3,355 %
76	8,159 %	3,820 %	4,499 %	5,285 %	3,779 %	3,366 %
77	8,120 %	3,825 %	4,495 %	5,271 %	3,784 %	3,377 %
78	8,082 %	3,829 %	4,491 %	5,257 %	3,790 %	3,387 %
79	8,045 %	3,834 %	4,487 %	5,243 %	3,795 %	3,397 %
80	8,009 %	3,839 %	4,484 %	5,230 %	3,800 %	3,407 %
81	7,974 %	3,843 %	4,480 %	5,218 %	3,805 %	3,417 %
82	7,940 %	3,847 %	4,477 %	5,205 %	3,810 %	3,427 %
83	7,906 %	3,852 %	4,474 %	5,193 %	3,814 %	3,436 %
84	7,874 %	3,856 %	4,470 %	5,181 %	3,819 %	3,445 %
85	7,842 %	3,860 %	4,467 %	5,170 %	3,823 %	3,454 %
86	7,811 %	3,864 %	4,464 %	5,158 %	3,828 %	3,463 %
87	7,780 %	3,868 %	4,461 %	5,147 %	3,832 %	3,471 %
88	7,751 %	3,871 %	4,458 %	5,136 %	3,836 %	3,479 %
89	7,722 %	3,875 %	4,455 %	5,126 %	3,840 %	3,487 %
90	7,693 %	3,879 %	4,452 %	5,115 %	3,844 %	3,495 %

Term to maturity (in years)	Real	Renminbi-yuan	Ringgit	Russian rouble	Singapore dollar	South Korean won
91	7,666 %	3,882 %	4,450 %	5,105 %	3,848 %	3,503 %
92	7,638 %	3,886 %	4,447 %	5,095 %	3,852 %	3,510 %
93	7,612 %	3,889 %	4,444 %	5,086 %	3,856 %	3,518 %
94	7,586 %	3,892 %	4,442 %	5,076 %	3,859 %	3,525 %
95	7,561 %	3,895 %	4,439 %	5,067 %	3,863 %	3,532 %
96	7,536 %	3,899 %	4,437 %	5,058 %	3,866 %	3,539 %
97	7,511 %	3,902 %	4,434 %	5,049 %	3,870 %	3,546 %
98	7,488 %	3,905 %	4,432 %	5,040 %	3,873 %	3,553 %
99	7,464 %	3,908 %	4,429 %	5,032 %	3,876 %	3,559 %
100	7,441 %	3,911 %	4,427 %	5,024 %	3,880 %	3,565 %
101	7,419 %	3,914 %	4,425 %	5,015 %	3,883 %	3,572 %
102	7,397 %	3,916 %	4,423 %	5,007 %	3,886 %	3,578 %
103	7,375 %	3,919 %	4,420 %	4,999 %	3,889 %	3,584 %
104	7,354 %	3,922 %	4,418 %	4,992 %	3,892 %	3,590 %
105	7,333 %	3,924 %	4,416 %	4,984 %	3,895 %	3,596 %
106	7,313 %	3,927 %	4,414 %	4,977 %	3,898 %	3,601 %
107	7,293 %	3,930 %	4,412 %	4,969 %	3,901 %	3,607 %
108	7,274 %	3,932 %	4,410 %	4,962 %	3,903 %	3,612 %
109	7,254 %	3,934 %	4,408 %	4,955 %	3,906 %	3,618 %
110	7,236 %	3,937 %	4,406 %	4,948 %	3,909 %	3,623 %
111	7,217 %	3,939 %	4,405 %	4,942 %	3,911 %	3,628 %
112	7,199 %	3,942 %	4,403 %	4,935 %	3,914 %	3,633 %
113	7,181 %	3,944 %	4,401 %	4,928 %	3,916 %	3,638 %
114	7,163 %	3,946 %	4,399 %	4,922 %	3,919 %	3,643 %
115	7,146 %	3,948 %	4,397 %	4,916 %	3,921 %	3,648 %
116	7,129 %	3,950 %	4,396 %	4,910 %	3,924 %	3,653 %
117	7,113 %	3,953 %	4,394 %	4,903 %	3,926 %	3,657 %
118	7,096 %	3,955 %	4,392 %	4,898 %	3,928 %	3,662 %
119	7,080 %	3,957 %	4,391 %	4,892 %	3,931 %	3,666 %
120	7,064 %	3,959 %	4,389 %	4,886 %	3,933 %	3,671 %

Term to maturity (in years)	Real	Renminbi-yuan	Ringgit	Russian rouble	Singapore dollar	South Korean won
121	7,049 %	3,961 %	4,388 %	4,880 %	3,935 %	3,675 %
122	7,034 %	3,963 %	4,386 %	4,875 %	3,937 %	3,680 %
123	7,019 %	3,965 %	4,385 %	4,869 %	3,939 %	3,684 %
124	7,004 %	3,967 %	4,383 %	4,864 %	3,942 %	3,688 %
125	6,989 %	3,968 %	4,382 %	4,858 %	3,944 %	3,692 %
126	6,975 %	3,970 %	4,380 %	4,853 %	3,946 %	3,696 %
127	6,961 %	3,972 %	4,379 %	4,848 %	3,948 %	3,700 %
128	6,947 %	3,974 %	4,377 %	4,843 %	3,950 %	3,704 %
129	6,933 %	3,976 %	4,376 %	4,838 %	3,952 %	3,708 %
130	6,920 %	3,977 %	4,375 %	4,833 %	3,953 %	3,712 %
131	6,907 %	3,979 %	4,373 %	4,828 %	3,955 %	3,715 %
132	6,894 %	3,981 %	4,372 %	4,823 %	3,957 %	3,719 %
133	6,881 %	3,982 %	4,371 %	4,819 %	3,959 %	3,723 %
134	6,868 %	3,984 %	4,369 %	4,814 %	3,961 %	3,726 %
135	6,856 %	3,986 %	4,368 %	4,809 %	3,963 %	3,730 %
136	6,843 %	3,987 %	4,367 %	4,805 %	3,964 %	3,733 %
137	6,831 %	3,989 %	4,366 %	4,801 %	3,966 %	3,736 %
138	6,819 %	3,990 %	4,364 %	4,796 %	3,968 %	3,740 %
139	6,808 %	3,992 %	4,363 %	4,792 %	3,969 %	3,743 %
140	6,796 %	3,993 %	4,362 %	4,788 %	3,971 %	3,746 %
141	6,785 %	3,995 %	4,361 %	4,783 %	3,973 %	3,750 %
142	6,773 %	3,996 %	4,360 %	4,779 %	3,974 %	3,753 %
143	6,762 %	3,998 %	4,359 %	4,775 %	3,976 %	3,756 %
144	6,751 %	3,999 %	4,358 %	4,771 %	3,977 %	3,759 %
145	6,741 %	4,000 %	4,357 %	4,767 %	3,979 %	3,762 %
146	6,730 %	4,002 %	4,355 %	4,763 %	3,980 %	3,765 %
147	6,720 %	4,003 %	4,354 %	4,760 %	3,982 %	3,768 %
148	6,709 %	4,004 %	4,353 %	4,756 %	3,983 %	3,771 %
149	6,699 %	4,006 %	4,352 %	4,752 %	3,985 %	3,774 %
150	6,689 %	4,007 %	4,351 %	4,748 %	3,986 %	3,777 %

Term to maturity (in years)	Turkish lira	US dollar	Yen
1	11,900 %	0,770 %	0,015 %
2	11,815 %	1,084 %	0,009 %
3	11,783 %	1,325 %	0,011 %
4	11,702 %	1,503 %	0,033 %
5	11,642 %	1,656 %	0,069 %
6	11,584 %	1,770 %	0,110 %
7	11,529 %	1,880 %	0,158 %
8	11,482 %	1,976 %	0,211 %
9	11,429 %	2,058 %	0,267 %
10	11,357 %	2,151 %	0,325 %
11	11,260 %	2,191 %	0,388 %
12	11,142 %	2,257 %	0,453 %
13	11,010 %	2,312 %	0,523 %
14	10,868 %	2,356 %	0,593 %
15	10,720 %	2,388 %	0,659 %
16	10,569 %	2,418 %	0,725 %
17	10,417 %	2,446 %	0,786 %
18	10,266 %	2,472 %	0,843 %
19	10,116 %	2,496 %	0,895 %
20	9,969 %	2,517 %	0,940 %
21	9,825 %	2,535 %	0,980 %
22	9,686 %	2,550 %	1,015 %
23	9,550 %	2,563 %	1,046 %
24	9,419 %	2,573 %	1,071 %
25	9,293 %	2,580 %	1,092 %
26	9,171 %	2,585 %	1,109 %
27	9,054 %	2,589 %	1,124 %
28	8,942 %	2,594 %	1,139 %
29	8,835 %	2,602 %	1,155 %
30	8,732 %	2,613 %	1,176 %
31	8,633 %	2,627 %	1,200 %

Term to maturity (in years)	Turkish lira	US dollar	Yen
32	8,539 %	2,642 %	1,227 %
33	8,449 %	2,655 %	1,257 %
34	8,362 %	2,664 %	1,289 %
35	8,280 %	2,667 %	1,321 %
36	8,201 %	2,664 %	1,355 %
37	8,125 %	2,656 %	1,388 %
38	8,053 %	2,646 %	1,422 %
39	7,984 %	2,635 %	1,456 %
40	7,917 %	2,624 %	1,489 %
41	7,854 %	2,615 %	1,522 %
42	7,793 %	2,608 %	1,554 %
43	7,734 %	2,603 %	1,585 %
44	7,678 %	2,600 %	1,616 %
45	7,624 %	2,599 %	1,646 %
46	7,573 %	2,600 %	1,675 %
47	7,523 %	2,603 %	1,704 %
48	7,475 %	2,608 %	1,732 %
49	7,429 %	2,615 %	1,759 %
50	7,385 %	2,624 %	1,785 %
51	7,343 %	2,635 %	1,811 %
52	7,302 %	2,649 %	1,835 %
53	7,262 %	2,663 %	1,859 %
54	7,224 %	2,679 %	1,883 %
55	7,187 %	2,695 %	1,905 %
56	7,152 %	2,712 %	1,927 %
57	7,118 %	2,730 %	1,948 %
58	7,084 %	2,748 %	1,969 %
59	7,052 %	2,766 %	1,989 %
60	7,022 %	2,784 %	2,009 %
61	6,992 %	2,802 %	2,028 %
62	6,963 %	2,820 %	2,046 %

Term to maturity (in years)	Turkish lira	US dollar	Yen
63	6,934 %	2,838 %	2,064 %
64	6,907 %	2,856 %	2,081 %
65	6,881 %	2,873 %	2,098 %
66	6,855 %	2,891 %	2,114 %
67	6,830 %	2,908 %	2,130 %
68	6,806 %	2,925 %	2,146 %
69	6,783 %	2,942 %	2,161 %
70	6,760 %	2,958 %	2,175 %
71	6,738 %	2,974 %	2,189 %
72	6,717 %	2,990 %	2,203 %
73	6,696 %	3,005 %	2,217 %
74	6,675 %	3,020 %	2,230 %
75	6,656 %	3,035 %	2,243 %
76	6,636 %	3,050 %	2,255 %
77	6,618 %	3,064 %	2,267 %
78	6,599 %	3,078 %	2,279 %
79	6,582 %	3,092 %	2,291 %
80	6,564 %	3,105 %	2,302 %
81	6,547 %	3,118 %	2,313 %
82	6,531 %	3,131 %	2,324 %
83	6,515 %	3,143 %	2,334 %
84	6,499 %	3,156 %	2,344 %
85	6,483 %	3,168 %	2,354 %
86	6,468 %	3,179 %	2,364 %
87	6,454 %	3,191 %	2,374 %
88	6,439 %	3,202 %	2,383 %
89	6,425 %	3,213 %	2,392 %
90	6,412 %	3,224 %	2,401 %
91	6,398 %	3,234 %	2,410 %
92	6,385 %	3,245 %	2,418 %
93	6,372 %	3,255 %	2,427 %

Term to maturity (in years)	Turkish lira	US dollar	Yen
94	6,360 %	3,265 %	2,435 %
95	6,348 %	3,275 %	2,443 %
96	6,336 %	3,284 %	2,451 %
97	6,324 %	3,294 %	2,459 %
98	6,312 %	3,303 %	2,466 %
99	6,301 %	3,312 %	2,473 %
100	6,290 %	3,320 %	2,481 %
101	6,279 %	3,329 %	2,488 %
102	6,268 %	3,338 %	2,495 %
103	6,258 %	3,346 %	2,502 %
104	6,248 %	3,354 %	2,508 %
105	6,238 %	3,362 %	2,515 %
106	6,228 %	3,370 %	2,521 %
107	6,218 %	3,378 %	2,528 %
108	6,209 %	3,385 %	2,534 %
109	6,200 %	3,393 %	2,540 %
110	6,190 %	3,400 %	2,546 %
111	6,181 %	3,407 %	2,552 %
112	6,173 %	3,414 %	2,558 %
113	6,164 %	3,421 %	2,563 %
114	6,155 %	3,428 %	2,569 %
115	6,147 %	3,435 %	2,574 %
116	6,139 %	3,441 %	2,580 %
117	6,131 %	3,448 %	2,585 %
118	6,123 %	3,454 %	2,590 %
119	6,115 %	3,460 %	2,595 %
120	6,108 %	3,466 %	2,600 %
121	6,100 %	3,472 %	2,605 %
122	6,093 %	3,478 %	2,610 %
123	6,085 %	3,484 %	2,615 %
124	6,078 %	3,490 %	2,620 %

Term to maturity (in years)	Turkish lira	US dollar	Yen
125	6,071 %	3,496 %	2,624 %
126	6,064 %	3,501 %	2,629 %
127	6,057 %	3,507 %	2,633 %
128	6,051 %	3,512 %	2,638 %
129	6,044 %	3,517 %	2,642 %
130	6,037 %	3,523 %	2,646 %
131	6,031 %	3,528 %	2,650 %
132	6,025 %	3,533 %	2,655 %
133	6,018 %	3,538 %	2,659 %
134	6,012 %	3,543 %	2,663 %
135	6,006 %	3,548 %	2,667 %
136	6,000 %	3,552 %	2,671 %
137	5,994 %	3,557 %	2,674 %
138	5,989 %	3,562 %	2,678 %
139	5,983 %	3,566 %	2,682 %
140	5,977 %	3,571 %	2,686 %
141	5,972 %	3,575 %	2,689 %
142	5,966 %	3,580 %	2,693 %
143	5,961 %	3,584 %	2,696 %
144	5,956 %	3,588 %	2,700 %
145	5,950 %	3,592 %	2,703 %
146	5,945 %	3,597 %	2,707 %
147	5,940 %	3,601 %	2,710 %
148	5,935 %	3,605 %	2,713 %
149	5,930 %	3,609 %	2,717 %
150	5,925 %	3,613 %	2,720 %

ANNEX II

Fundamental spreads for the calculation of the matching adjustment

The fundamental spreads set out in this Annex are expressed in basis points and do not include any increase in accordance with Article 77c(1)(c) of Directive 2009/138/EC.

1. Exposures to central governments and central banks

The fundamental spreads apply to exposures denominated in all currencies.

The fundamental spreads for durations from 11 to 30 years are equal to the fundamental spreads for duration 10 years.

Duration (in years)	Austria	Belgium	Bulgaria	Croatia	Czech Republic	Cyprus	Denmark
1	0	0	35	5	2	438	2
2	0	0	43	5	2	260	1
3	0	2	49	5	4	224	1
4	0	4	52	5	6	196	1
5	1	5	57	5	7	177	0
6	2	6	59	6	9	174	0
7	3	7	62	6	11	170	0
8	4	8	64	5	14	176	0
9	4	9	65	5	15	178	0
10	4	9	68	6	16	181	1

Duration (in years)	Estonia	Finland	France	Germany	Greece	Hungary	Ireland
1	0	0	0	0	438	4	19
2	0	0	0	0	260	4	27
3	2	0	0	0	228	4	29
4	4	0	0	0	196	4	31
5	5	0	0	0	177	4	32
6	6	0	0	0	174	4	33
7	7	0	0	0	170	4	33
8	8	1	2	0	176	2	34
9	9	1	3	0	178	0	35
10	9	1	3	0	181	4	35

Duration (in years)	Italy	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Portugal
1	6	6	6	0	19	0	28
2	14	13	13	0	27	0	46
3	18	16	16	0	29	0	51
4	21	18	18	0	31	0	51
5	22	20	20	0	32	0	54
6	23	22	22	0	33	0	56
7	24	23	23	0	33	0	56
8	26	24	24	2	34	0	55
9	27	25	25	3	35	1	51
10	28	26	26	3	35	1	50

Duration (in years)	Rumania	Slovakia	Slovenia	Spain	Sweden	United Kingdom	Liechtenstein
1	10	14	22	6	0	0	0
2	19	19	25	13	0	0	0
3	22	21	30	16	0	0	0
4	23	23	35	18	0	0	0
5	25	24	38	20	0	0	0
6	26	26	42	22	0	0	0
7	28	27	43	23	0	0	0
8	30	28	44	24	0	0	0
9	31	28	45	25	0	0	0
10	29	28	45	26	0	0	0

Duration (in years)	Norway	Australia	Brazil	Canada	Chile	China	Colombia
1	0	0	12	0	17	0	9
2	0	0	12	0	19	0	17
3	0	0	12	0	18	1	29
4	0	0	12	0	17	2	38
5	0	0	12	0	16	2	40

Duration (in years)	Norway	Australia	Brazil	Canada	Chile	China	Colombia
6	0	0	12	0	15	3	43
7	0	0	12	0	14	4	46
8	0	0	12	0	15	8	43
9	0	0	12	0	16	5	40
10	0	0	12	0	13	5	43

Duration (in years)	Hong Kong	India	Japan	Malaysia	Mexico	New Zealand	Russia
1	0	9	0	0	10	0	0
2	0	9	0	0	10	0	0
3	0	9	0	0	10	0	0
4	0	9	0	0	10	0	1
5	0	9	0	0	10	0	3
6	0	9	0	0	10	0	6
7	0	9	0	0	10	0	9
8	0	9	0	0	10	0	14
9	0	9	1	0	10	0	20
10	0	9	1	0	10	0	20

Duration (in years)	Singapore	South Africa	South Korea	Thailand	Taiwan	United States
1	0	2	10	0	4	0
2	0	6	13	0	4	0
3	0	6	13	0	4	0
4	0	5	15	0	4	0
5	0	4	16	0	4	0
6	0	4	16	0	4	0
7	0	6	16	0	4	0
8	0	7	16	0	4	0
9	0	7	16	0	4	0
10	0	8	16	0	4	0

2. Exposures to financial institutions

2.1. Euro

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	6	22	49	132	246	603	1 340
2	6	22	49	132	246	603	1 075
3	7	24	50	123	242	599	873
4	8	27	52	125	241	598	720
5	9	29	58	127	240	598	602
6	11	32	61	131	240	598	598
7	12	34	63	133	240	598	598
8	12	35	62	131	240	598	598
9	12	36	62	129	240	598	598
10	13	37	62	129	240	598	598
11	13	38	62	129	240	598	598
12	14	39	62	129	240	598	598
13	14	39	62	129	240	598	598
14	14	40	62	129	240	598	598
15	14	40	62	129	240	598	598
16	14	40	62	129	240	598	598
17	14	39	62	129	240	598	598
18	14	39	62	129	240	598	598
19	14	40	62	129	240	598	598
20	15	40	62	129	240	598	598
21	15	40	62	129	240	598	598
22	15	40	62	129	240	598	598
23	16	40	62	129	240	598	598
24	16	40	62	129	240	598	598
25	18	40	62	129	240	598	598

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
26	18	40	62	129	240	598	598
27	19	40	62	129	240	598	598
28	19	40	62	129	240	598	598
29	19	40	62	129	240	598	598
30	21	40	62	129	240	598	598

2.2 Czech koruna

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	10	26	53	136	250	607	1 347
2	12	28	55	139	252	609	1 082
3	13	31	57	130	249	606	879
4	15	33	59	131	247	605	724
5	16	36	64	134	247	604	605
6	17	38	67	137	246	604	604
7	17	40	68	138	246	603	603
8	17	40	67	136	245	603	603
9	17	40	67	134	245	603	603
10	17	41	66	133	245	602	602
11	17	41	66	133	244	602	602
12	17	42	66	132	244	601	601
13	16	42	65	132	243	601	601
14	16	42	64	131	242	600	600
15	16	41	64	131	242	600	600
16	15	40	63	130	241	599	599
17	15	40	63	130	241	599	599
18	14	40	63	129	241	598	598
19	14	40	63	129	241	598	598

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
20	15	40	63	130	241	599	599
21	15	41	63	130	241	599	599
22	15	41	64	130	242	599	599
23	16	41	64	130	242	599	599
24	16	41	64	131	242	600	600
25	18	41	64	131	242	600	600
26	18	41	64	131	242	600	600
27	19	41	64	131	242	600	600
28	19	41	64	131	242	600	600
29	20	41	64	131	242	600	600
30	21	41	64	131	242	600	600

2.3 Danish krone

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	5	22	49	132	245	603	1 340
2	5	22	49	132	245	603	1 075
3	6	24	50	123	242	599	873
4	8	26	52	124	240	598	720
5	9	29	58	127	240	598	602
6	11	32	61	131	240	598	598
7	12	34	63	133	240	598	598
8	12	35	62	130	240	598	598
9	12	35	62	129	240	598	598
10	12	37	62	129	240	598	598
11	13	38	62	129	240	598	598
12	13	38	62	129	240	598	598
13	14	39	62	129	240	598	598

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	14	39	62	129	240	598	598
15	14	39	62	129	240	598	598
16	14	39	62	129	240	598	598
17	14	39	62	129	240	598	598
18	14	39	62	129	240	598	598
19	14	39	62	129	240	598	598
20	15	39	62	129	240	598	598
21	15	39	62	129	240	598	598
22	15	39	62	129	240	598	598
23	16	39	62	129	240	598	598
24	16	39	62	129	240	598	598
25	18	39	62	129	240	598	598
26	18	39	62	129	240	598	598
27	19	39	62	129	240	598	598
28	19	39	62	129	240	598	598
29	19	39	62	129	240	598	598
30	21	39	62	129	240	598	598

2.4 Forint

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	90	106	133	216	329	687	1 365
2	84	100	127	211	324	682	1 105
3	88	105	131	204	323	680	902
4	86	104	130	202	318	676	744
5	84	104	132	202	315	673	673
6	83	104	133	203	312	670	670
7	81	103	132	202	310	667	667

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
8	79	102	130	198	308	666	666
9	78	102	128	195	307	664	664
10	74	99	124	191	302	660	660
11	72	96	121	188	299	657	657
12	70	96	119	186	297	655	655
13	70	95	118	185	296	654	654
14	69	95	118	184	296	653	653
15	69	94	117	184	295	653	653
16	68	94	116	183	294	652	652
17	67	93	116	182	294	651	651
18	67	92	115	182	293	651	651
19	66	91	114	181	292	650	650
20	65	90	113	180	291	649	649
21	64	90	113	179	291	648	648
22	63	89	112	178	290	647	647
23	62	88	111	177	289	646	646
24	61	87	110	176	288	645	645
25	60	86	109	175	286	644	644
26	59	85	107	174	285	643	643
27	58	84	106	173	284	642	642
28	57	82	105	172	283	641	641
29	56	81	104	171	282	640	640
30	55	80	103	170	281	639	639

2.5 Krona

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	10	26	53	137	250	607	1 335
2	12	28	55	138	252	609	1 073

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	14	31	57	131	249	606	873
4	16	34	60	132	248	606	721
5	17	37	66	135	248	606	606
6	18	39	69	139	248	605	605
7	19	41	70	140	247	605	605
8	18	41	69	137	247	604	604
9	18	42	68	135	246	604	604
10	18	42	68	134	246	603	603
11	18	43	67	134	245	603	603
12	18	43	67	133	245	602	602
13	18	43	66	133	244	602	602
14	17	43	66	132	244	601	601
15	17	42	65	132	243	601	601
16	16	42	65	131	242	600	600
17	16	41	64	131	242	600	600
18	16	41	64	131	242	600	600
19	16	41	64	131	242	600	600
20	16	42	64	131	242	600	600
21	16	42	65	131	243	600	600
22	17	42	65	132	243	601	601
23	17	42	65	132	243	601	601
24	17	42	65	132	243	601	601
25	18	42	65	132	243	601	601
26	18	42	65	132	243	601	601
27	19	42	65	132	243	601	601
28	19	42	65	132	243	601	601
29	21	42	65	132	243	601	601
30	21	42	65	132	243	601	601

2.6 Kuna

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	54	70	97	180	294	651	1 391
2	57	73	101	184	297	655	1 120
3	63	80	106	179	298	655	913
4	66	85	111	183	299	656	754
5	68	88	116	186	299	657	657
6	69	90	120	190	299	656	656
7	69	92	120	190	298	655	655
8	68	91	118	187	296	654	654
9	66	90	116	184	295	652	652
10	65	89	115	182	293	651	651
11	64	89	113	180	291	649	649
12	63	88	112	178	290	647	647
13	61	87	110	176	288	645	645
14	60	86	108	175	286	644	644
15	59	84	107	174	285	643	643
16	58	83	106	172	284	641	641
17	56	82	105	171	283	640	640
18	56	81	104	171	282	640	640
19	55	80	103	170	281	639	639
20	54	80	103	169	280	638	638
21	53	79	102	168	280	637	637
22	53	78	101	168	279	637	637
23	52	77	100	167	278	636	636
24	51	76	99	166	277	635	635
25	50	76	98	165	276	634	634
26	49	75	98	164	276	633	633
27	48	74	97	163	275	632	632
28	48	73	96	162	274	631	631

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	47	72	95	162	273	631	631
30	46	71	94	161	272	630	630

2.7 Lev

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	5	21	48	131	245	602	1 339
2	5	21	48	131	245	602	1 074
3	6	23	49	122	241	598	873
4	7	26	52	124	240	597	719
5	9	29	57	126	239	597	602
6	10	31	60	130	239	597	597
7	11	33	62	132	239	597	597
8	11	34	61	130	239	597	597
9	11	35	61	128	239	597	597
10	12	36	61	128	239	597	597
11	12	37	61	128	239	597	597
12	13	38	61	128	239	597	597
13	13	38	62	128	239	597	597
14	13	39	62	128	239	597	597
15	13	39	61	128	239	597	597
16	13	39	61	128	239	597	597
17	13	39	61	128	239	597	597
18	13	39	61	128	239	597	597
19	13	39	61	128	239	597	597
20	15	39	61	128	239	597	597
21	15	39	62	128	239	597	597
22	15	39	62	128	239	597	597
23	16	39	62	128	239	597	597

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	16	39	62	128	239	597	597
25	18	39	62	128	240	597	597
26	18	39	62	128	240	597	597
27	19	39	62	128	240	597	597
28	19	39	62	128	240	597	597
29	19	39	62	128	240	597	597
30	21	39	62	128	240	597	597

2.8 Pound sterling

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	7	25	59	163	264	621	1 359
2	7	25	59	163	264	621	1 093
3	8	27	58	146	260	617	890
4	9	30	60	133	258	615	734
5	10	31	60	119	257	614	614
6	13	35	63	110	255	613	613
7	15	37	63	101	254	612	612
8	15	38	61	93	253	611	611
9	17	45	64	87	252	610	610
10	16	44	61	82	251	609	609
11	15	43	59	81	250	608	608
12	15	43	59	82	250	607	607
13	15	43	59	82	249	606	606
14	15	43	59	82	248	606	606
15	15	43	59	82	247	605	605
16	15	43	59	82	246	603	603
17	15	43	59	82	245	602	602

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
18	15	43	59	82	244	602	602
19	15	43	59	82	244	602	602
20	15	43	59	82	245	602	602
21	15	43	59	82	245	603	603
22	16	43	59	82	245	602	602
23	16	43	59	82	244	602	602
24	16	43	59	82	244	602	602
25	18	43	59	82	244	601	601
26	18	43	59	82	243	601	601
27	19	43	59	82	243	600	600
28	19	43	59	82	242	600	600
29	20	43	59	82	242	600	600
30	21	43	59	82	242	599	599

2.9 Romanian leu

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	91	107	135	218	331	689	1 364
2	88	104	131	215	328	685	1 100
3	86	103	129	203	321	679	897
4	84	103	129	201	317	674	742
5	82	102	131	200	313	671	671
6	81	102	132	202	311	668	668
7	79	101	130	200	307	665	665
8	76	99	126	195	305	662	662
9	74	97	124	191	302	660	660
10	72	96	122	189	300	658	658
11	71	95	120	187	298	656	656
12	69	94	118	185	296	654	654

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
13	68	93	116	183	294	652	652
14	66	92	115	181	293	650	650
15	65	90	113	180	291	649	649
16	64	89	112	179	290	648	648
17	62	88	111	177	289	646	646
18	61	87	110	176	288	645	645
19	60	86	109	175	287	644	644
20	59	85	108	174	286	643	643
21	59	84	107	174	285	643	643
22	58	83	106	173	284	642	642
23	57	82	105	172	283	641	641
24	56	81	104	171	282	640	640
25	55	80	103	170	281	639	639
26	54	79	102	169	280	638	638
27	53	78	101	168	279	637	637
28	52	77	100	167	278	636	636
29	51	76	99	166	277	635	635
30	50	75	98	165	276	634	634

2.10 Zloty

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	62	78	105	189	302	660	1 373
2	60	76	104	187	300	658	1 104
3	60	77	103	176	295	652	898
4	59	78	104	176	292	649	741
5	58	78	107	176	289	647	647
6	57	78	108	178	287	644	644
7	57	79	108	178	285	643	643

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
8	55	78	105	173	283	641	641
9	53	77	103	170	281	639	639
10	52	76	102	169	280	638	638
11	52	76	101	168	279	637	637
12	51	76	100	167	278	636	636
13	51	76	99	166	277	635	635
14	50	76	99	165	277	634	634
15	50	75	98	164	276	633	633
16	48	74	97	163	275	632	632
17	48	73	96	163	274	632	632
18	47	72	95	162	273	631	631
19	46	72	95	161	273	630	630
20	46	72	95	161	272	630	630
21	46	71	94	161	272	630	630
22	45	71	94	160	272	629	629
23	45	70	93	160	271	629	629
24	44	70	93	159	271	628	628
25	44	69	92	159	270	628	628
26	43	69	91	158	269	627	627
27	42	68	91	157	269	626	626
28	42	67	90	157	268	626	626
29	41	67	89	156	267	625	625
30	41	66	89	155	267	624	624

2.11 Norwegian krone

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	31	47	74	157	271	628	1 360
2	31	47	75	158	271	629	1 091

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	31	49	74	148	266	624	886
4	31	50	76	148	264	622	731
5	32	52	80	150	263	621	621
6	32	54	83	153	262	620	620
7	33	55	84	154	261	619	619
8	32	55	82	151	260	618	618
9	31	55	81	148	260	617	617
10	31	55	81	147	259	617	617
11	31	56	80	147	258	616	616
12	30	56	79	146	257	615	615
13	30	55	78	145	256	614	614
14	29	55	78	144	256	613	613
15	29	54	77	143	255	612	612
16	27	53	76	142	254	611	611
17	27	52	75	142	253	611	611
18	26	52	75	141	253	610	610
19	26	51	74	141	252	610	610
20	26	51	74	141	252	610	610
21	26	51	74	141	252	610	610
22	26	51	74	141	252	610	610
23	26	51	74	141	252	610	610
24	26	51	74	141	252	610	610
25	25	51	74	140	252	609	609
26	25	51	74	140	251	609	609
27	25	50	73	140	251	609	609
28	25	50	73	140	251	609	609
29	24	50	73	139	251	608	608
30	24	50	73	139	250	608	608

2.12 *Swiss franc*

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	5	28	111	224	582	1 327
2	1	6	29	112	225	583	1 065
3	2	6	30	103	222	579	865
4	2	8	32	105	221	578	713
5	4	9	38	107	220	578	596
6	4	12	41	111	220	578	578
7	4	14	43	113	220	578	578
8	6	15	42	111	220	578	578
9	6	16	42	109	220	578	578
10	7	17	42	109	220	578	578
11	8	19	44	110	222	579	579
12	9	18	42	109	220	578	578
13	9	20	43	110	221	579	579
14	10	20	43	110	221	579	579
15	10	19	42	108	220	577	577
16	12	18	41	107	219	576	576
17	12	19	41	107	219	576	576
18	13	19	41	107	219	576	576
19	13	21	41	108	219	577	577
20	13	21	42	109	220	578	578
21	15	22	43	109	220	578	578
22	15	24	43	109	221	578	578
23	16	24	43	109	221	578	578
24	16	25	44	109	221	578	578
25	18	25	45	109	221	578	578
26	18	27	46	109	221	578	578
27	18	28	47	109	221	578	578
28	19	28	49	109	221	578	578

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	19	29	51	109	221	578	578
30	21	29	52	109	221	578	578

2.13 Australian dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	47	63	91	174	287	645	1 387
2	47	63	91	174	287	645	1 112
3	48	65	91	164	283	640	903
4	48	67	93	165	281	638	744
5	49	68	97	166	279	637	637
6	49	70	99	169	278	636	636
7	49	71	100	170	277	635	635
8	47	70	98	166	276	634	634
9	47	70	97	164	275	633	633
10	46	70	96	163	274	632	632
11	46	71	95	162	273	631	631
12	45	70	94	161	272	630	630
13	45	70	94	160	271	629	629
14	45	70	93	159	271	628	628
15	44	69	92	159	270	628	628
16	43	68	91	158	269	627	627
17	42	68	90	157	268	626	626
18	41	67	90	156	268	625	625
19	41	66	89	156	267	625	625
20	41	66	89	156	267	625	625
21	41	66	89	156	267	625	625
22	40	66	89	155	267	624	624
23	40	65	88	155	266	624	624

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	39	65	88	154	266	623	623
25	39	64	87	154	265	623	623
26	38	64	87	153	265	622	622
27	38	63	86	153	264	622	622
28	37	63	86	152	263	621	621
29	37	62	85	152	263	621	621
30	36	62	84	151	262	620	620

2.14 Baht

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	13	29	57	140	253	611	1 370
2	18	34	61	144	258	615	1 100
3	22	40	65	139	257	615	894
4	26	45	71	143	259	616	738
5	29	49	77	147	260	618	618
6	28	49	79	149	258	615	615
7	34	56	84	155	262	619	619
8	32	55	82	151	260	618	618
9	33	57	83	150	261	619	619
10	35	59	85	152	263	621	621
11	37	62	86	153	264	622	622
12	38	63	87	154	265	623	623
13	39	65	88	154	266	623	623
14	40	65	88	155	266	624	624
15	40	65	88	155	266	624	624
16	39	65	88	154	266	623	623
17	39	65	88	154	266	623	623
18	38	64	87	153	265	622	622

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	38	63	86	153	264	622	622
20	38	63	86	153	264	622	622
21	38	63	86	153	264	622	622
22	38	63	86	153	264	622	622
23	37	63	86	152	264	621	621
24	37	62	85	152	263	621	621
25	36	62	85	151	263	620	620
26	36	61	84	151	262	620	620
27	35	61	84	150	262	619	619
28	35	60	83	150	261	619	619
29	34	60	83	149	261	618	618
30	34	59	82	149	260	618	618

2.15 Canadian dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	12	28	56	139	252	610	1 357
2	14	30	57	140	254	611	1 089
3	16	33	59	133	251	608	885
4	18	36	62	134	250	608	729
5	19	39	68	137	250	608	610
6	21	42	71	141	250	608	608
7	22	44	73	143	251	608	608
8	22	45	72	141	251	608	608
9	22	46	72	140	251	608	608
10	23	47	73	140	251	609	609
11	24	49	73	140	251	609	609
12	25	50	73	140	251	609	609
13	25	50	74	140	252	609	609

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	26	51	74	140	252	609	609
15	26	51	74	140	252	609	609
16	25	51	74	140	252	609	609
17	25	51	74	140	252	609	609
18	25	51	74	140	252	609	609
19	25	51	74	140	252	609	609
20	25	51	74	140	252	609	609
21	26	51	74	140	252	609	609
22	25	51	74	140	252	609	609
23	25	51	74	140	252	609	609
24	25	50	73	140	251	609	609
25	25	50	73	140	251	609	609
26	24	50	73	139	251	608	608
27	24	50	72	139	250	608	608
28	24	49	72	139	250	608	608
29	24	49	72	138	250	607	607
30	23	49	72	138	250	607	607

2.16 Chilean peso

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	49	65	92	175	289	646	1 425
2	52	68	95	178	292	649	1 146
3	56	73	99	172	291	648	932
4	58	77	103	175	291	648	768
5	60	80	108	178	291	648	648
6	62	83	112	182	291	649	649
7	63	85	113	184	291	648	648
8	62	85	112	181	290	648	648

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	62	85	112	179	290	648	648
10	62	86	112	179	290	648	648
11	62	87	112	178	290	647	647
12	62	87	111	177	289	646	646
13	62	87	110	177	288	646	646
14	61	86	109	176	287	645	645
15	60	85	108	175	286	644	644
16	59	84	107	174	285	643	643
17	58	84	106	173	284	642	642
18	57	83	106	172	284	641	641
19	57	82	105	171	283	640	640
20	56	81	104	171	282	640	640
21	55	81	103	170	281	639	639
22	54	80	103	169	281	638	638
23	53	79	102	168	280	637	637
24	53	78	101	167	279	636	636
25	52	77	100	167	278	636	636
26	51	76	99	166	277	635	635
27	50	75	98	165	276	634	634
28	49	74	97	164	275	633	633
29	48	74	96	163	274	632	632
30	47	73	96	162	274	631	631

2.17 Colombian peso

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	80	96	123	207	320	678	1 439
2	84	100	128	211	324	682	1 156

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	85	103	129	202	321	678	940
4	86	104	130	202	318	676	775
5	89	109	137	207	320	678	678
6	91	112	141	211	320	678	678
7	92	114	143	213	321	678	678
8	93	116	143	212	322	679	679
9	94	117	144	211	322	680	680
10	94	119	144	211	322	680	680
11	94	119	144	210	322	679	679
12	94	119	143	209	321	678	678
13	93	118	141	208	319	677	677
14	92	117	140	206	318	675	675
15	90	115	138	205	316	674	674
16	88	114	137	203	315	672	672
17	87	112	135	202	313	671	671
18	86	111	134	201	312	670	670
19	84	110	133	199	311	668	668
20	83	108	131	198	309	667	667
21	82	107	130	196	308	665	665
22	80	106	128	195	306	664	664
23	79	104	127	193	305	662	662
24	77	102	125	192	303	661	661
25	75	101	124	190	302	659	659
26	74	99	122	189	300	658	658
27	72	98	121	187	299	656	656
28	71	96	119	186	297	655	655
29	69	95	118	184	296	653	653
30	68	93	116	183	294	652	652

2.18 Hong Kong dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	5	21	48	132	245	603	1 353
2	8	25	52	135	248	606	1 090
3	12	29	55	129	247	605	886
4	15	34	60	132	248	605	731
5	18	38	67	136	249	607	612
6	20	41	71	141	250	608	608
7	22	44	73	143	250	608	608
8	22	45	72	141	251	608	608
9	22	46	72	140	251	608	608
10	23	47	73	139	251	608	608
11	24	48	73	139	251	608	608
12	24	49	73	139	251	608	608
13	24	49	72	139	250	608	608
14	23	49	71	138	249	607	607
15	22	48	71	137	249	606	606
16	21	47	70	136	248	605	605
17	21	46	69	136	247	605	605
18	20	46	69	135	247	604	604
19	20	45	68	135	246	604	604
20	20	46	69	135	247	604	604
21	20	46	69	135	247	604	604
22	20	46	69	135	247	604	604
23	20	46	69	135	247	604	604
24	20	46	69	135	247	604	604
25	20	46	69	135	247	604	604
26	20	46	68	135	246	604	604
27	20	45	68	135	246	604	604
28	20	45	68	135	246	604	604

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	20	45	68	135	246	604	604
30	21	45	68	134	246	603	603

2.19 *Indian rupee*

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	90	106	134	217	330	688	1 498
2	90	107	134	217	330	688	1 204
3	91	109	134	208	326	684	979
4	92	111	137	209	325	682	807
5	93	113	141	211	324	682	682
6	93	115	144	214	323	681	681
7	94	117	145	215	323	680	680
8	94	117	144	213	322	680	680
9	93	117	143	210	321	679	679
10	92	116	142	208	320	677	677
11	91	115	140	207	318	676	676
12	89	114	138	205	316	674	674
13	88	113	136	203	314	672	672
14	86	111	134	201	312	670	670
15	84	110	132	199	310	668	668
16	82	107	130	197	308	666	666
17	80	106	129	195	306	664	664
18	79	104	127	193	305	662	662
19	77	103	125	192	303	661	661
20	76	102	125	191	302	660	660
21	75	101	124	190	302	659	659
22	74	100	123	189	300	658	658
23	73	99	121	188	299	657	657

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	72	97	120	187	298	656	656
25	71	96	119	186	297	655	655
26	70	95	118	185	296	654	654
27	69	94	117	184	295	653	653
28	68	93	116	183	294	652	652
29	67	92	115	182	293	651	651
30	66	91	114	181	292	650	650

2.20 Mexican peso

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	365	381	409	492	605	963	1 415
2	75	91	118	202	315	672	1 142
3	79	96	122	196	314	671	934
4	83	101	127	199	315	673	773
5	86	106	134	203	317	674	674
6	88	109	138	208	317	675	675
7	89	112	140	210	318	675	675
8	90	113	141	209	319	676	676
9	91	114	141	208	319	677	677
10	91	115	141	207	319	676	676
11	91	116	141	207	319	676	676
12	92	117	141	207	319	676	676
13	93	118	141	208	319	677	677
14	93	119	142	208	320	677	677
15	94	120	142	209	320	678	678
16	95	121	143	210	321	679	679
17	96	122	145	211	322	680	680
18	97	123	146	212	324	681	681

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	98	124	147	213	325	682	682
20	99	124	147	214	325	683	683
21	99	125	148	214	326	683	683
22	99	125	148	214	325	683	683
23	99	124	147	214	325	683	683
24	98	124	146	213	324	682	682
25	97	123	145	212	323	681	681
26	96	122	144	211	322	680	680
27	95	120	143	210	321	679	679
28	94	119	142	209	320	678	678
29	92	118	141	207	319	676	676
30	91	117	139	206	317	675	675

2.21 *New Taiwan dollar*

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	9	37	120	233	591	1 349
2	1	9	37	120	233	591	1 083
3	2	11	37	111	229	586	880
4	2	13	39	111	227	585	725
5	4	15	43	113	226	584	606
6	4	17	46	116	225	583	583
7	5	19	47	117	225	582	582
8	6	18	46	114	224	581	581
9	6	18	45	112	223	580	580
10	7	19	44	111	222	580	580
11	8	20	44	111	222	580	580
12	9	21	44	111	222	580	580
13	9	21	44	111	222	580	580

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	10	22	44	111	222	580	580
15	11	22	45	111	223	580	580
16	12	22	45	111	222	580	580
17	12	22	45	111	223	580	580
18	13	22	45	112	223	581	581
19	13	23	46	112	224	581	581
20	15	24	47	113	225	582	582
21	15	25	48	114	226	583	583
22	15	25	48	115	226	584	584
23	16	26	49	116	227	585	585
24	16	27	50	116	228	585	585
25	18	27	50	117	228	586	586
26	18	28	50	117	228	586	586
27	19	28	51	117	229	586	586
28	19	28	51	118	229	587	587
29	20	29	52	118	230	587	587
30	21	31	53	119	230	588	588

2.22 New Zealand dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	54	70	97	180	294	651	1 395
2	55	71	98	181	295	652	1 120
3	55	73	99	172	291	648	911
4	56	75	100	173	288	646	751
5	56	76	105	174	287	645	645
6	57	78	108	178	287	644	644
7	57	79	108	178	285	643	643
8	56	79	106	175	284	642	642

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	55	79	105	173	284	641	641
10	54	79	104	171	282	640	640
11	53	78	103	169	280	638	638
12	52	77	101	167	279	636	636
13	51	76	99	166	277	635	635
14	49	75	97	164	275	633	633
15	48	73	96	162	274	631	631
16	46	71	94	161	272	630	630
17	44	70	93	159	271	628	628
18	43	69	91	158	269	627	627
19	42	68	90	157	268	626	626
20	41	67	90	156	268	625	625
21	41	66	89	156	267	625	625
22	40	66	89	155	267	624	624
23	40	65	88	154	266	623	623
24	39	64	87	154	265	623	623
25	38	64	86	153	264	622	622
26	37	63	86	152	264	621	621
27	37	62	85	152	263	621	621
28	36	62	84	151	262	620	620
29	35	61	84	150	262	619	619
30	35	60	83	150	261	619	619

2.23 Rand

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	113	129	156	239	353	710	1 502
2	114	130	157	241	354	711	1 216

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	116	134	159	233	351	709	992
4	118	137	163	235	351	708	820
5	120	140	168	237	351	708	708
6	121	142	171	241	350	708	708
7	121	143	172	242	349	707	707
8	120	143	170	239	349	706	706
9	119	143	169	236	348	705	705
10	119	143	168	235	346	704	704
11	117	142	167	233	345	702	702
12	116	141	165	231	343	700	700
13	114	139	163	229	340	698	698
14	112	137	160	227	338	696	696
15	109	135	158	224	336	693	693
16	107	132	155	222	333	691	691
17	104	130	153	219	331	688	688
18	102	127	150	217	328	686	686
19	100	125	148	215	326	684	684
20	98	124	146	213	324	682	682
21	96	122	145	211	323	680	680
22	95	120	143	210	321	679	679
23	93	118	141	208	319	677	677
24	91	117	139	206	317	675	675
25	89	115	138	204	316	673	673
26	88	113	136	203	314	672	672
27	86	112	134	201	312	670	670
28	84	110	133	199	311	668	668
29	83	108	131	198	309	667	667
30	81	107	130	196	308	665	665

2.24 Real

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	172	188	216	299	412	770	1 686
2	182	198	225	309	422	780	1 366
3	187	204	230	304	422	780	1112
4	189	208	234	306	422	779	919
5	190	210	238	308	421	779	779
6	190	211	240	310	419	777	777
7	189	212	240	310	418	775	775
8	188	211	238	306	416	774	774
9	186	210	236	303	414	772	772
10	185	209	235	302	413	771	771
11	184	208	233	300	411	769	769
12	182	207	230	297	408	766	766
13	179	204	227	294	405	763	763
14	176	201	224	291	402	760	760
15	173	198	221	288	399	757	757
16	169	195	218	284	396	753	753
17	166	192	214	281	392	750	750
18	163	188	211	278	389	747	747
19	160	185	208	275	386	744	744
20	157	182	205	272	383	741	741
21	154	179	202	269	380	738	738
22	150	176	199	265	377	734	734
23	147	173	196	262	374	731	731
24	144	170	193	259	371	728	728
25	141	167	189	256	367	725	725
26	138	164	186	253	364	722	722
27	135	161	183	250	361	719	719
28	132	158	181	247	359	716	716

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	130	155	178	244	356	713	713
30	127	152	175	242	353	711	711

2.25 Renminbi-yuan

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	25	41	68	152	265	623	1 386
2	26	42	69	153	266	624	1 112
3	27	45	70	144	262	620	903
4	28	47	73	145	261	618	744
5	29	49	77	147	260	618	622
6	30	51	80	150	259	617	617
7	30	52	81	151	258	616	616
8	29	52	79	148	257	615	615
9	28	52	78	145	256	614	614
10	28	52	77	144	256	613	613
11	28	52	77	144	255	613	613
12	27	53	76	143	254	612	612
13	27	53	76	142	254	611	611
14	27	52	75	142	253	611	611
15	27	52	75	142	253	611	611
16	26	52	75	141	253	610	610
17	26	52	75	141	253	610	610
18	26	52	75	141	253	610	610
19	27	52	75	141	253	610	610
20	27	52	75	142	253	611	611
21	27	52	75	142	253	611	611
22	27	52	75	142	253	611	611
23	27	52	75	142	253	611	611

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	27	52	75	142	253	611	611
25	26	52	75	141	253	610	610
26	26	52	75	141	253	610	610
27	26	52	74	141	252	610	610
28	26	51	74	141	252	610	610
29	26	51	74	141	252	610	610
30	25	51	74	140	252	609	609

2.26 Ringgit

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	20	36	63	147	260	618	1 419
2	22	38	65	149	262	620	1 140
3	25	42	68	142	260	617	926
4	28	46	72	144	260	618	763
5	30	50	78	148	261	619	637
6	32	53	82	152	261	619	619
7	34	56	85	155	262	620	620
8	34	57	84	152	262	620	620
9	34	58	84	151	262	620	620
10	35	59	85	151	263	620	620
11	36	61	85	152	263	621	621
12	37	62	86	152	264	621	621
13	37	62	86	152	264	621	621
14	37	63	85	152	263	621	621
15	37	62	85	152	263	621	621
16	36	62	85	151	263	620	620
17	36	62	85	151	263	620	620
18	36	62	85	151	263	620	620

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	36	62	85	151	263	620	620
20	37	62	85	152	263	621	621
21	37	62	85	152	263	621	621
22	37	62	85	152	263	621	621
23	37	62	85	152	263	621	621
24	36	62	85	151	263	620	620
25	36	62	85	151	262	620	620
26	36	61	84	151	262	620	620
27	35	61	84	150	262	619	619
28	35	60	83	150	261	619	619
29	35	60	83	149	261	618	618
30	34	60	82	149	260	618	618

2.27 Russian rouble

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	120	136	163	247	360	718	1 588
2	119	135	163	246	359	717	1 268
3	120	137	163	236	355	712	1 036
4	120	139	165	237	353	710	850
5	121	141	170	239	352	710	710
6	121	142	172	242	351	708	708
7	122	144	172	243	350	707	707
8	121	144	171	240	349	707	707
9	120	143	170	237	348	706	706
10	120	144	169	236	348	705	705
11	120	144	169	236	347	705	705
12	119	144	168	235	346	704	704
13	118	144	167	234	345	703	703

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	117	143	166	232	344	701	701
15	115	141	164	230	342	699	699
16	113	139	161	228	339	697	697
17	110	136	159	225	337	694	694
18	108	133	156	223	334	692	692
19	106	131	154	221	332	690	690
20	104	129	152	219	330	688	688
21	101	127	150	216	328	685	685
22	99	125	148	214	326	683	683
23	97	123	145	212	323	681	681
24	95	120	143	210	321	679	679
25	93	118	141	208	319	677	677
26	91	116	139	206	317	675	675
27	89	114	137	204	315	673	673
28	87	112	135	202	313	671	671
29	85	110	133	200	311	669	669
30	83	108	131	198	309	667	667

2.28 Singapore dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	7	35	118	231	589	1 376
2	1	9	37	120	233	591	1 107
3	2	13	39	113	231	588	900
4	2	17	43	115	231	589	743
5	4	21	49	119	232	589	621
6	4	24	53	123	232	590	590
7	5	27	55	125	233	590	590
8	6	27	55	123	233	591	591

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	6	28	55	122	233	590	590
10	7	29	55	121	233	590	590
11	8	30	55	121	233	590	590
12	9	31	54	121	232	590	590
13	9	31	54	121	232	590	590
14	10	31	54	121	232	590	590
15	11	31	54	121	232	590	590
16	12	31	53	120	231	589	589
17	12	31	54	120	232	589	589
18	13	31	54	120	232	589	589
19	13	31	54	120	232	589	589
20	15	32	55	121	232	590	590
21	15	32	55	122	233	591	591
22	16	33	56	122	234	591	591
23	16	33	56	123	234	592	592
24	18	33	56	123	234	592	592
25	18	34	57	123	235	592	592
26	18	34	57	123	235	592	592
27	19	34	57	124	235	593	593
28	19	34	57	124	235	593	593
29	21	35	57	124	235	593	593
30	21	35	58	124	236	593	593

2.29 South Korean won

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	35	51	78	161	275	632	1 371
2	35	51	79	162	275	633	1 100

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	35	53	78	152	270	628	893
4	35	54	80	152	268	626	735
5	36	56	84	154	267	624	624
6	39	60	89	159	268	626	626
7	36	58	87	157	265	622	622
8	41	63	91	159	269	627	627
9	40	63	90	157	268	626	626
10	34	58	84	150	262	619	619
11	29	54	78	145	256	614	614
12	26	51	75	141	253	610	610
13	24	49	72	139	250	608	608
14	22	47	70	137	248	606	606
15	20	46	69	135	246	604	604
16	19	44	67	133	245	602	602
17	18	43	66	133	244	602	602
18	17	42	65	132	243	601	601
19	17	42	65	132	243	601	601
20	17	42	65	132	243	601	601
21	17	42	65	132	243	601	601
22	17	42	65	132	243	601	601
23	17	42	65	132	243	601	601
24	17	42	65	132	243	601	601
25	18	42	65	132	243	601	601
26	18	42	65	132	243	601	601
27	19	42	65	131	243	600	600
28	19	42	65	131	243	600	600
29	20	42	65	131	243	600	600
30	21	42	65	131	242	600	600

2.30 Turkish lira

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	185	202	229	312	425	783	1 603
2	183	199	226	310	423	781	1 287
3	180	197	223	297	415	772	1 045
4	177	196	222	294	410	767	860
5	174	194	223	292	405	763	763
6	171	192	222	292	401	758	758
7	168	190	219	289	396	754	754
8	164	187	214	283	392	750	750
9	160	184	210	277	388	746	746
10	157	181	206	273	384	742	742
11	153	178	202	269	380	738	738
12	150	175	198	265	376	734	734
13	146	171	195	261	373	730	730
14	143	168	191	258	369	727	727
15	139	165	187	254	365	723	723
16	136	161	184	251	362	720	720
17	133	158	181	248	359	717	717
18	130	155	178	245	356	714	714
19	127	152	175	242	353	711	711
20	124	150	173	239	351	708	708
21	122	147	170	237	348	706	706
22	119	145	168	234	346	703	703
23	117	142	165	232	343	701	701
24	114	140	163	229	341	698	698
25	112	138	160	227	338	696	696
26	110	135	158	225	336	694	694
27	108	133	156	223	334	692	692
28	106	131	154	220	332	689	689

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	103	129	152	218	330	687	687
30	101	127	150	216	328	685	685

2.31 US dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	8	27	53	114	250	608	1 360
2	8	27	53	114	250	608	1 095
3	9	29	54	107	249	606	891
4	12	34	58	104	249	607	735
5	16	41	63	106	250	608	615
6	18	44	67	101	251	609	609
7	19	46	65	94	252	609	609
8	16	44	64	92	252	610	610
9	17	45	66	95	252	610	610
10	18	48	69	100	252	610	610
11	20	50	70	103	253	610	610
12	21	52	71	104	253	610	610
13	23	54	72	104	253	610	610
14	22	54	72	104	253	610	610
15	22	54	72	104	253	611	611
16	22	54	72	104	253	610	610
17	22	54	72	104	253	610	610
18	22	54	72	104	253	610	610
19	22	54	72	104	253	610	610
20	22	54	72	104	253	611	611
21	22	54	72	104	254	611	611
22	22	54	72	104	254	612	612
23	22	54	72	104	254	612	612

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	22	54	72	104	254	612	612
25	22	54	72	104	254	612	612
26	22	54	72	104	254	612	612
27	22	54	72	104	254	612	612
28	22	54	72	104	254	612	612
29	22	54	72	104	254	612	612
30	22	54	72	104	254	612	612

2.32 Yen

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	5	13	96	209	567	1 344
2	1	6	11	95	208	566	1 078
3	2	6	11	84	203	560	875
4	2	8	12	85	201	558	720
5	4	9	17	86	200	557	601
6	4	9	20	90	199	557	557
7	5	10	22	92	199	557	557
8	6	12	21	90	199	557	557
9	6	12	22	88	200	557	557
10	7	13	23	88	200	557	557
11	8	13	25	89	200	558	558
12	9	15	26	89	200	558	558
13	9	16	27	89	201	558	558
14	10	16	29	90	201	559	559
15	10	18	31	90	202	559	559
16	12	18	33	90	202	559	559
17	12	19	34	91	202	560	560
18	13	19	35	91	203	560	560

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	13	21	37	92	203	561	561
20	15	22	38	93	204	562	562
21	15	22	40	93	205	562	562
22	15	24	41	94	205	563	563
23	16	24	43	94	206	563	563
24	16	25	44	95	206	564	564
25	18	25	45	95	207	564	564
26	18	27	46	95	207	564	564
27	18	28	48	96	207	565	565
28	19	28	49	96	207	565	565
29	19	29	51	96	207	565	565
30	21	29	52	96	207	565	565

3. Other exposures

3.1. Euro

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	15	22	46	170	307	2 944
2	0	15	22	46	170	341	2 202
3	1	16	25	51	164	352	1 670
4	1	17	28	55	162	350	1 296
5	2	19	31	57	162	341	1 031
6	3	22	34	60	162	328	839
7	4	25	36	62	162	313	695
8	4	25	37	65	162	296	586
9	4	26	39	68	162	280	500
10	5	27	40	70	162	264	431
11	5	27	41	71	162	255	375
12	5	27	41	71	162	255	329

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
13	5	27	41	71	162	255	290
14	7	27	41	71	162	255	258
15	7	27	44	71	162	255	255
16	7	27	47	71	162	255	255
17	8	27	50	71	162	255	255
18	8	27	53	71	162	255	255
19	8	27	56	71	162	255	255
20	9	27	58	71	162	255	255
21	9	27	61	71	162	255	255
22	10	27	64	72	162	255	255
23	10	27	66	75	162	255	255
24	10	27	69	77	162	255	255
25	11	27	72	80	162	255	255
26	11	27	74	82	162	255	255
27	12	27	78	85	162	255	255
28	12	27	80	86	162	255	255
29	13	28	83	89	162	255	255
30	13	30	86	92	162	255	255

3.2 Czech koruna

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	4	20	26	50	174	309	2 961
2	7	22	29	52	176	343	2 218
3	6	23	31	58	171	354	1 682
4	6	24	35	62	168	352	1 304
5	7	25	38	63	168	343	1 037
6	8	28	40	66	168	329	843
7	9	30	41	67	167	314	698

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
8	9	30	42	70	167	297	588
9	9	31	43	72	166	280	501
10	9	31	44	74	166	264	432
11	9	31	44	75	165	259	376
12	8	30	44	74	165	258	330
13	7	30	43	74	164	258	291
14	7	29	43	73	164	257	258
15	7	29	44	73	163	257	257
16	7	28	47	72	162	256	256
17	8	28	50	72	162	256	256
18	8	28	53	71	162	255	255
19	8	28	56	71	162	255	255
20	9	28	58	72	162	256	256
21	9	28	61	72	163	256	256
22	10	28	64	73	163	256	256
23	10	29	67	75	163	256	256
24	10	29	69	77	163	256	256
25	11	29	72	80	163	257	257
26	11	29	75	82	163	257	257
27	12	29	78	85	163	257	257
28	12	29	80	87	163	257	257
29	13	29	83	89	163	257	257
30	13	30	86	92	163	257	257

3.3 Danish krone

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	15	22	46	170	307	2 944
2	0	15	22	46	170	341	2 202

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	1	16	24	51	164	352	1 670
4	1	17	28	55	161	350	1 296
5	2	19	31	57	161	341	1 031
6	3	22	34	60	161	328	839
7	4	24	35	62	161	313	695
8	4	25	37	64	161	296	586
9	4	26	38	68	161	280	500
10	4	27	40	70	161	264	431
11	5	27	40	71	161	255	375
12	5	27	40	71	161	255	329
13	5	27	40	71	161	255	290
14	7	27	41	71	161	255	258
15	7	27	44	71	161	255	255
16	7	27	47	71	161	255	255
17	8	27	50	71	161	255	255
18	8	27	53	71	161	255	255
19	8	27	56	71	161	255	255
20	9	27	58	71	161	255	255
21	9	27	61	71	161	255	255
22	10	27	64	72	161	255	255
23	10	27	66	75	161	255	255
24	10	27	69	77	161	255	255
25	11	27	72	80	161	255	255
26	11	27	74	82	161	255	255
27	12	27	78	85	161	255	255
28	12	27	80	86	161	255	255
29	13	28	83	89	161	255	255
30	13	30	86	92	161	255	255

3.4 Forint

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	84	99	106	130	254	349	3 002
2	79	94	101	125	248	350	2 266
3	81	97	106	132	245	363	1 726
4	77	95	106	133	239	362	1 341
5	75	94	106	131	236	353	1 067
6	74	94	106	132	234	340	869
7	73	94	105	131	231	324	720
8	71	93	104	132	229	322	607
9	70	92	105	134	228	321	518
10	66	89	102	132	223	317	447
11	64	86	99	129	220	314	389
12	62	84	97	128	219	312	341
13	61	83	96	127	218	311	311
14	60	83	96	126	217	310	310
15	60	82	95	126	216	310	310
16	59	81	95	125	216	309	309
17	58	81	94	124	215	308	308
18	57	80	93	124	214	307	307
19	56	79	92	123	213	307	307
20	56	78	91	122	213	306	306
21	55	77	91	121	212	305	305
22	54	76	90	120	211	304	304
23	53	75	89	119	210	303	303
24	52	74	88	118	209	302	302
25	51	73	87	117	208	301	301
26	50	72	86	116	207	300	300
27	49	71	84	115	206	299	299
28	48	70	83	114	204	298	298

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	47	69	86	113	203	297	297
30	46	68	89	112	202	296	296

3.5 Krona

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	5	20	27	50	174	306	2 933
2	6	22	28	52	176	340	2 197
3	7	23	32	58	171	352	1 670
4	7	25	35	63	169	351	1 299
5	8	27	39	64	169	343	1 035
6	10	29	41	67	169	330	843
7	11	32	43	69	169	315	699
8	10	32	43	71	168	299	589
9	10	32	44	74	168	282	503
10	10	32	46	75	167	266	434
11	10	32	45	76	166	260	378
12	9	31	45	75	166	259	332
13	9	31	44	75	165	259	293
14	8	30	44	74	165	258	260
15	8	30	45	74	164	258	258
16	7	29	47	73	164	257	257
17	8	29	50	73	163	257	257
18	8	29	53	73	163	257	257
19	8	29	56	73	163	257	257
20	9	29	59	73	164	257	257
21	9	30	62	73	164	257	257
22	10	30	64	74	164	257	257
23	10	30	67	76	164	258	258

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	11	30	71	79	164	258	258
25	11	30	73	81	164	258	258
26	12	30	76	84	164	258	258
27	12	30	78	85	164	258	258
28	12	30	81	88	164	258	258
29	13	30	84	91	164	258	258
30	13	30	87	93	164	258	258

3.6 Kuna

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	48	63	70	94	218	319	3 061
2	52	67	74	98	221	355	2 299
3	56	72	81	107	220	367	1 749
4	58	75	86	113	220	367	1 360
5	59	78	90	115	220	358	1 083
6	60	80	92	118	220	344	881
7	61	82	93	119	219	328	731
8	60	81	93	121	218	311	616
9	59	80	93	122	216	309	525
10	57	79	93	123	214	308	453
11	56	78	91	122	212	306	394
12	54	76	90	120	211	304	345
13	52	75	88	119	209	302	304
14	51	73	87	117	208	301	301
15	50	72	85	116	206	300	300
16	48	71	84	115	205	298	298
17	47	70	83	113	204	297	297
18	46	69	82	113	203	296	296

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	46	68	81	112	202	296	296
20	45	67	81	111	202	295	295
21	44	67	80	110	201	294	294
22	43	66	79	110	200	294	294
23	43	65	78	109	199	293	293
24	42	64	77	108	199	292	292
25	41	63	77	107	198	291	291
26	40	62	78	106	197	290	290
27	39	61	81	105	196	289	289
28	38	61	83	105	195	288	288
29	38	60	86	104	194	288	288
30	37	59	90	103	193	287	287

3.7 *Lev*

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	15	21	45	169	307	2 942
2	0	15	21	45	169	341	2 201
3	1	15	24	50	163	352	1 669
4	1	16	27	54	161	350	1 295
5	2	18	30	56	161	341	1 030
6	3	21	33	59	161	328	838
7	3	24	35	61	161	312	695
8	3	24	36	64	161	296	585
9	4	25	38	67	161	280	500
10	4	26	39	69	161	263	431
11	5	26	40	70	161	254	375
12	5	26	40	70	161	254	329
13	5	26	40	70	161	254	290

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	7	26	41	70	161	254	258
15	7	26	44	70	161	254	254
16	7	26	47	70	161	254	254
17	8	26	50	70	161	254	254
18	8	26	53	70	161	254	254
19	8	26	56	70	161	254	254
20	9	26	58	70	161	254	254
21	9	26	61	70	161	254	254
22	10	26	64	72	161	254	254
23	10	26	66	75	161	254	254
24	10	26	69	77	161	254	254
25	11	26	72	80	161	254	254
26	11	26	74	82	161	254	254
27	12	26	78	85	161	254	254
28	12	27	80	86	161	254	254
29	13	28	83	89	161	254	254
30	13	29	86	92	161	254	254

3.8 Pound sterling

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	11	22	46	188	312	2 987
2	0	11	22	46	188	347	2 241
3	1	10	24	51	182	358	1 702
4	1	13	27	57	179	357	1 322
5	2	15	29	59	178	348	1 051
6	3	18	33	60	177	334	855
7	3	21	36	60	175	318	709
8	3	23	36	59	174	302	597

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	5	31	41	58	173	285	509
10	8	34	40	56	172	268	439
11	6	32	40	55	172	265	381
12	5	31	39	54	171	264	334
13	6	30	39	55	170	263	295
14	7	29	42	55	169	263	263
15	7	29	45	56	168	262	262
16	7	29	47	59	167	260	260
17	8	29	50	61	166	259	259
18	8	29	53	63	165	259	259
19	8	29	56	66	165	259	259
20	9	29	59	68	166	259	259
21	9	29	61	71	166	259	259
22	10	29	64	73	166	259	259
23	10	29	67	75	166	259	259
24	11	29	69	78	165	259	259
25	11	29	73	80	165	258	258
26	11	29	75	82	164	258	258
27	12	29	78	85	164	257	257
28	12	29	81	88	164	257	257
29	13	29	83	89	163	257	257
30	13	30	86	92	163	256	256

3.9 Romanian leu

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	86	101	108	132	255	351	3 000
2	83	98	105	128	252	349	2 255

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	79	95	104	131	243	361	1 717
4	76	93	104	131	238	361	1 336
5	73	92	104	130	234	353	1 066
6	72	92	104	130	232	340	869
7	71	92	103	129	229	325	721
8	68	89	101	129	226	319	608
9	66	88	100	129	223	316	520
10	64	86	100	129	221	314	449
11	63	85	98	128	219	313	391
12	61	83	96	127	217	311	343
13	59	81	95	125	216	309	309
14	57	80	93	123	214	307	307
15	56	78	91	122	212	306	306
16	54	77	90	121	211	304	304
17	53	75	89	119	210	303	303
18	52	74	88	118	209	302	302
19	51	73	87	117	208	301	301
20	50	73	86	117	207	300	300
21	49	72	85	116	206	299	299
22	48	71	84	115	205	299	299
23	47	70	83	114	204	298	298
24	46	69	82	113	203	296	296
25	45	68	81	112	202	295	295
26	44	67	80	111	201	294	294
27	43	66	81	110	200	293	293
28	42	65	83	109	199	292	292
29	41	64	86	108	198	292	292
30	41	63	89	107	197	291	291

3.10 Zloty

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	57	72	79	103	226	322	3 021
2	55	70	77	101	224	350	2 264
3	53	69	78	104	217	362	1 719
4	51	68	79	106	213	360	1 336
5	49	68	80	106	210	351	1 063
6	49	68	80	106	208	338	865
7	48	69	80	107	206	323	718
8	47	68	80	107	204	306	605
9	45	67	80	109	203	296	516
10	44	66	80	110	201	295	445
11	43	66	79	109	200	294	387
12	43	65	78	109	199	293	340
13	42	64	77	108	199	292	300
14	41	63	77	107	198	291	291
15	40	63	76	107	197	290	290
16	39	61	75	105	196	289	289
17	39	61	74	105	195	289	289
18	38	60	73	104	194	288	288
19	37	59	73	103	194	287	287
20	37	59	73	103	194	287	287
21	37	59	72	103	193	287	287
22	36	59	72	103	193	286	286
23	36	58	71	102	193	286	286
24	35	58	71	101	192	285	285
25	35	57	74	101	191	285	285
26	34	56	77	100	191	284	284
27	33	56	79	99	190	283	283
28	33	55	83	99	189	283	283

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	32	54	85	98	189	282	282
30	31	54	89	97	188	281	281

3.11 Norwegian krone

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	25	41	47	71	195	312	2 989
2	26	41	48	72	195	346	2 237
3	24	40	49	76	189	357	1 696
4	23	40	51	79	185	355	1 316
5	23	42	54	79	184	346	1 047
6	24	43	55	82	183	333	852
7	25	45	56	83	182	317	706
8	24	45	57	85	182	301	595
9	23	45	58	87	181	284	508
10	23	45	59	88	180	273	438
11	23	45	58	89	179	273	381
12	22	44	57	88	178	272	334
13	21	43	57	87	178	271	295
14	20	42	56	86	177	270	270
15	19	42	55	85	176	269	269
16	18	41	54	84	175	268	268
17	18	40	53	84	174	268	268
18	17	39	53	83	174	267	267
19	17	39	56	83	173	267	267
20	17	39	59	83	174	267	267
21	17	39	61	83	174	267	267
22	17	39	64	83	173	267	267
23	17	39	67	83	173	267	267

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	16	39	70	83	173	266	266
25	16	39	73	82	173	266	266
26	16	38	76	84	173	266	266
27	16	38	78	85	172	266	266
28	16	38	81	88	172	266	266
29	15	38	84	91	172	265	265
30	15	37	87	92	172	265	265

3.12 Swiss franc

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	0	3	25	148	304	2 913
2	0	1	6	26	150	338	2 179
3	1	2	10	31	144	349	1 653
4	1	3	13	35	142	347	1 282
5	2	4	16	37	142	338	1 020
6	2	5	19	40	142	325	830
7	3	6	22	42	142	309	688
8	3	7	25	45	142	293	579
9	4	8	27	48	142	277	494
10	4	9	30	50	142	261	426
11	5	11	33	52	143	245	371
12	5	11	36	51	141	235	325
13	5	13	38	52	143	236	287
14	6	13	41	52	143	236	254
15	7	14	44	54	141	234	234
16	7	16	47	57	140	233	233
17	8	16	50	60	140	233	233
18	8	17	52	62	140	233	233

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	8	18	54	65	140	234	234
20	9	19	57	67	141	235	235
21	9	20	60	69	142	235	235
22	10	21	63	71	142	235	235
23	10	22	65	74	142	235	235
24	10	23	68	77	142	235	235
25	11	24	70	78	143	235	235
26	11	25	74	81	144	235	235
27	12	26	76	83	145	235	235
28	12	27	79	86	147	235	235
29	13	28	82	88	148	235	235
30	13	28	84	90	148	235	235

3.13 Australian dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	42	57	64	88	212	318	3 052
2	42	57	64	88	212	352	2 283
3	41	57	66	92	205	363	1 731
4	40	57	68	95	202	362	1 342
5	40	58	70	96	201	352	1 068
6	40	60	72	98	199	338	868
7	41	61	72	99	198	323	719
8	39	61	72	100	197	306	606
9	39	61	73	102	196	289	517
10	38	60	74	104	195	289	445
11	38	60	73	104	194	288	387
12	37	59	72	103	193	287	340
13	36	58	72	102	193	286	299

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	35	58	71	101	192	285	285
15	35	57	70	101	191	285	285
16	34	56	69	100	190	284	284
17	33	55	69	99	190	283	283
18	32	55	68	99	189	282	282
19	32	54	68	98	189	282	282
20	32	54	67	98	188	282	282
21	32	54	67	98	188	282	282
22	31	54	67	97	188	281	281
23	31	53	68	97	188	281	281
24	30	53	71	96	187	280	280
25	30	52	73	96	186	280	280
26	29	51	77	95	186	279	279
27	29	51	79	95	185	279	279
28	28	50	82	94	185	278	278
29	27	50	85	94	184	277	277
30	27	49	88	94	184	277	277

3.14 Baht

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	8	23	30	54	178	314	3 013
2	12	28	34	58	182	349	2 257
3	15	31	40	67	179	360	1 713
4	18	35	46	73	180	359	1 331
5	20	39	51	76	181	350	1 059
6	19	39	51	77	179	336	861
7	25	46	57	84	183	320	713
8	24	45	57	85	182	304	601

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	25	47	60	89	183	287	512
10	27	50	63	93	184	278	441
11	29	51	64	95	186	279	384
12	30	52	65	96	186	280	337
13	30	52	66	96	187	280	298
14	31	53	66	97	187	281	281
15	31	53	66	97	187	281	281
16	30	52	66	96	187	280	280
17	30	52	66	96	187	280	280
18	29	51	65	95	186	279	279
19	29	51	64	95	185	279	279
20	29	51	64	95	185	279	279
21	29	51	64	95	185	279	279
22	28	51	65	95	185	278	278
23	28	50	68	94	185	278	278
24	28	50	71	94	184	278	278
25	27	50	73	93	184	277	277
26	27	49	77	93	183	277	277
27	26	49	79	92	183	276	276
28	26	48	82	92	182	276	276
29	25	48	85	91	182	275	275
30	25	47	88	94	181	275	275

3.15 Canadian dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	7	22	29	53	177	311	2 983
2	8	24	30	54	178	345	2 232

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	9	25	34	60	173	356	1 693
4	9	27	38	65	171	355	1 314
5	11	29	41	67	172	345	1 045
6	12	32	44	70	172	332	850
7	14	35	46	72	172	317	705
8	14	35	47	75	172	300	594
9	15	36	49	78	172	284	507
10	15	37	51	81	172	267	437
11	16	38	51	82	172	266	381
12	16	38	52	82	173	266	334
13	16	38	52	82	173	266	295
14	16	39	52	82	173	266	266
15	16	39	52	83	173	266	266
16	16	38	52	82	173	266	266
17	16	38	52	82	173	266	266
18	16	38	53	82	173	266	266
19	16	38	56	82	173	266	266
20	16	39	59	82	173	266	266
21	16	39	61	83	173	266	266
22	16	39	64	82	173	266	266
23	16	38	67	82	173	266	266
24	16	38	69	82	173	266	266
25	15	38	73	82	172	266	266
26	15	37	75	83	172	265	265
27	15	37	78	85	172	265	265
28	15	37	81	88	171	265	265
29	14	37	84	90	171	264	264
30	14	36	87	92	171	264	264

3.16 Chilean peso

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	43	59	65	89	213	326	3 140
2	46	62	68	92	216	362	2 356
3	49	65	74	100	213	375	1 788
4	50	67	78	105	212	373	1 388
5	51	69	82	107	212	363	1 103
6	53	73	85	111	212	349	896
7	54	75	86	113	212	333	743
8	54	75	87	115	212	315	625
9	54	76	88	118	211	305	533
10	54	76	90	120	211	304	459
11	54	76	90	120	211	304	399
12	53	76	89	120	210	303	350
13	53	75	88	119	209	303	308
14	52	74	87	118	208	302	302
15	51	73	86	117	207	301	301
16	50	72	85	116	206	300	300
17	49	71	85	115	206	299	299
18	48	70	84	114	205	298	298
19	47	70	83	114	204	297	297
20	47	69	82	113	203	297	297
21	46	68	82	112	203	296	296
22	45	67	81	111	202	295	295
23	44	67	80	110	201	294	294
24	43	66	79	110	200	293	293
25	42	65	78	109	199	292	292
26	42	64	78	108	198	292	292
27	41	63	81	107	197	291	291
28	40	62	84	106	197	290	290

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	39	61	87	105	196	289	289
30	38	60	90	104	195	288	288

3.17 Colombian peso

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	75	90	97	121	244	340	3 173
2	79	94	101	125	249	366	2 379
3	78	95	103	130	243	378	1 805
4	77	95	106	133	239	376	1 401
5	80	98	111	136	241	366	1 113
6	82	102	114	140	242	352	905
7	84	105	116	142	242	336	750
8	85	106	118	146	243	336	632
9	86	108	120	150	243	337	539
10	86	109	122	152	243	337	466
11	86	108	122	152	243	336	405
12	85	107	121	151	242	335	355
13	84	106	119	150	240	334	334
14	82	105	118	148	239	332	332
15	81	103	116	147	237	331	331
16	79	102	115	145	236	329	329
17	78	100	113	144	235	328	328
18	76	99	112	143	233	326	326
19	75	97	111	141	232	325	325
20	74	96	109	140	230	324	324
21	72	95	108	139	229	322	322
22	71	93	107	137	228	321	321
23	69	92	105	136	226	319	319

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	68	90	103	134	225	318	318
25	66	89	102	132	223	316	316
26	65	87	100	131	221	315	315
27	63	85	99	129	220	313	313
28	62	84	97	128	218	312	312
29	60	82	96	126	217	310	310
30	59	81	94	125	215	309	309

3.18 Hong Kong dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	15	22	46	169	310	2 974
2	3	18	25	49	173	345	2 233
3	5	21	30	57	169	357	1 696
4	7	24	35	62	169	356	1 318
5	9	28	40	66	170	347	1 048
6	12	31	43	70	171	333	852
7	14	34	46	72	172	317	706
8	14	35	47	75	172	301	595
9	15	36	49	78	172	284	507
10	15	37	51	80	172	267	437
11	15	38	51	81	172	265	380
12	15	37	51	81	172	265	333
13	15	37	50	81	171	265	294
14	14	36	49	80	171	264	264
15	13	35	49	79	170	263	263
16	12	34	48	78	169	262	262
17	12	34	50	78	168	262	262
18	11	33	53	77	168	261	261

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	11	33	56	77	168	261	261
20	11	33	59	77	168	261	261
21	11	33	61	77	168	261	261
22	11	34	64	77	168	261	261
23	11	33	67	77	168	261	261
24	11	33	69	79	168	261	261
25	11	33	73	81	168	261	261
26	11	33	75	83	168	261	261
27	12	33	78	85	167	261	261
28	12	33	81	88	167	261	261
29	13	33	84	90	167	261	261
30	13	33	87	92	167	260	260

3.19 Indian rupee

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	85	100	107	131	254	350	3 310
2	85	100	107	131	255	380	2 484
3	84	100	109	136	248	393	1 885
4	84	101	112	139	246	391	1 463
5	84	103	115	140	245	381	1 162
6	85	105	117	143	244	366	944
7	86	107	118	144	244	349	782
8	86	107	119	147	244	337	657
9	85	107	120	149	243	336	560
10	84	106	120	149	241	334	482
11	83	105	118	148	239	333	419
12	81	103	116	147	237	331	367
13	79	101	114	145	235	329	329

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	77	99	112	143	233	327	327
15	75	97	110	141	232	325	325
16	73	95	108	139	229	323	323
17	71	93	107	137	228	321	321
18	69	92	105	136	226	319	319
19	68	90	104	134	225	318	318
20	67	89	103	133	224	317	317
21	66	88	102	132	223	316	316
22	65	87	101	131	222	315	315
23	64	86	100	130	221	314	314
24	63	85	98	129	220	313	313
25	62	84	97	128	218	312	312
26	61	83	96	127	217	311	311
27	60	82	95	126	216	310	310
28	59	81	94	125	215	309	309
29	58	80	93	124	214	308	308
30	57	79	93	123	213	307	307

3.20 Mexican peso

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	360	375	382	406	529	625	3 117
2	69	85	91	115	239	361	2 346
3	72	88	97	123	236	376	1 792
4	75	92	103	130	236	376	1 396
5	77	95	107	133	238	367	1 113
6	79	99	111	137	239	354	907
7	81	102	113	139	239	338	752
8	82	103	115	143	240	333	634

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	83	105	117	146	240	333	540
10	83	105	119	148	240	333	466
11	83	105	119	149	240	333	406
12	83	105	119	149	240	333	356
13	84	106	119	150	240	334	334
14	84	106	120	150	241	334	334
15	85	107	121	151	242	335	335
16	86	108	122	152	243	336	336
17	87	109	123	153	244	337	337
18	88	110	124	154	245	338	338
19	89	111	125	155	246	339	339
20	90	112	125	156	247	340	340
21	90	112	126	156	247	340	340
22	90	112	126	156	247	340	340
23	90	112	125	156	246	340	340
24	89	111	124	155	246	339	339
25	88	110	124	154	245	338	338
26	87	109	123	153	244	337	337
27	86	108	121	152	242	336	336
28	84	107	120	151	241	335	335
29	83	106	119	149	240	333	333
30	82	104	118	148	239	332	332

3.21 New Taiwan dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	3	10	34	157	309	2 965
2	0	3	10	34	157	343	2 219

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	1	3	12	38	151	354	1 683
4	1	3	14	42	148	353	1 306
5	2	5	17	42	147	343	1 038
6	3	7	19	45	146	330	844
7	3	9	22	46	146	314	699
8	3	9	25	48	145	298	589
9	4	9	28	50	144	281	502
10	4	9	30	52	144	264	433
11	5	11	33	53	144	249	377
12	5	11	36	53	143	237	330
13	5	13	39	53	144	237	291
14	7	14	42	53	144	237	259
15	7	14	44	56	144	237	237
16	7	16	47	58	144	237	237
17	8	17	50	60	144	237	237
18	8	17	53	63	144	238	238
19	8	19	56	65	145	238	238
20	9	20	59	68	146	239	239
21	9	20	61	70	147	240	240
22	10	22	64	73	148	241	241
23	10	23	67	75	148	241	241
24	11	23	69	77	149	242	242
25	11	25	72	80	149	243	243
26	11	25	75	82	150	243	243
27	12	26	78	85	150	243	243
28	12	28	80	88	150	244	244
29	13	28	84	89	151	244	244
30	13	30	86	92	152	244	244

3.22 New Zealand dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	48	64	70	94	218	320	3 071
2	49	64	71	95	219	355	2 301
3	48	65	73	100	213	367	1 746
4	48	65	76	103	210	365	1 355
5	47	66	78	104	208	356	1 078
6	48	68	80	106	208	342	877
7	49	69	80	107	206	326	727
8	48	69	81	109	206	309	612
9	48	69	82	111	205	298	522
10	46	69	82	112	203	297	450
11	45	67	81	111	202	295	391
12	43	66	79	109	200	293	343
13	42	64	77	108	198	292	302
14	40	62	76	106	197	290	290
15	38	61	74	105	195	288	288
16	37	59	72	103	193	287	287
17	35	57	71	101	192	285	285
18	34	56	70	100	191	284	284
19	33	55	69	99	190	283	283
20	32	55	68	98	189	282	282
21	32	54	67	98	188	282	282
22	31	53	67	97	188	281	281
23	30	53	68	97	187	280	280
24	30	52	72	96	186	280	280
25	29	51	74	95	186	279	279
26	28	51	77	94	185	278	278
27	28	50	80	94	184	278	278
28	27	49	83	93	184	277	277

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	26	49	86	93	183	276	276
30	26	48	89	94	182	276	276

3.23 Rand

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	107	123	129	153	277	373	3 319
2	109	124	131	154	278	384	2 508
3	109	125	134	161	274	398	1 911
4	110	127	138	165	272	398	1 486
5	111	129	142	167	272	388	1 182
6	112	132	144	170	271	373	961
7	113	134	145	171	271	364	797
8	112	133	145	173	270	363	671
9	111	133	146	175	269	362	572
10	111	133	146	176	268	361	493
11	109	132	145	175	266	359	428
12	107	130	143	173	264	357	375
13	105	127	141	171	262	355	355
14	103	125	138	169	259	353	353
15	100	123	136	166	257	350	350
16	97	120	133	164	254	347	347
17	95	117	131	161	252	345	345
18	93	115	128	159	249	343	343
19	91	113	126	157	247	341	341
20	89	111	125	155	246	339	339
21	87	110	123	153	244	337	337
22	85	108	121	152	242	335	335
23	84	106	119	150	240	334	334

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	82	104	118	148	239	332	332
25	80	102	116	146	237	330	330
26	78	101	114	145	235	328	328
27	77	99	112	143	234	327	327
28	75	98	111	141	232	325	325
29	74	96	109	140	230	324	324
30	72	95	108	138	229	322	322

3.24 *Real*

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	167	182	189	213	336	432	3 749
2	177	192	199	223	346	442	2 839
3	180	196	205	232	344	445	2 159
4	181	198	209	236	343	444	1 677
5	181	200	212	237	342	435	1 336
6	181	201	213	239	341	434	1 083
7	181	202	213	239	339	432	895
8	180	201	213	240	337	431	752
9	178	200	213	242	336	429	640
10	177	200	213	243	334	428	551
11	175	198	211	241	332	426	478
12	173	195	209	239	330	423	423
13	170	192	206	236	327	420	420
14	167	189	202	233	323	417	417
15	163	186	199	230	320	413	413
16	160	182	196	226	317	410	410
17	157	179	193	223	314	407	407
18	154	176	189	220	310	404	404

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	151	173	186	217	307	401	401
20	148	170	183	214	304	398	398
21	144	167	180	211	301	394	394
22	141	164	177	207	298	391	391
23	138	160	174	204	295	388	388
24	135	157	171	201	292	385	385
25	132	154	168	198	289	382	382
26	129	151	165	195	286	379	379
27	126	148	162	192	283	376	376
28	123	145	159	189	280	373	373
29	120	143	156	186	277	370	370
30	118	140	153	184	274	368	368

3.25 Renminbi-yuan

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	20	35	42	66	189	317	3 049
2	21	36	43	67	190	352	2 282
3	20	36	45	72	185	364	1 731
4	20	37	48	75	182	362	1 342
5	20	39	51	76	181	352	1 067
6	21	41	53	79	180	338	867
7	22	43	54	80	180	322	718
8	21	42	54	82	178	305	604
9	20	42	55	84	178	288	515
10	20	42	55	85	177	271	444
11	19	42	55	85	176	269	386
12	19	41	54	85	176	269	338
13	18	41	54	84	175	268	298

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	18	40	53	84	175	268	268
15	17	40	53	84	174	267	267
16	17	40	53	83	174	267	267
17	17	40	53	83	174	267	267
18	17	40	54	83	174	267	267
19	17	40	57	84	174	267	267
20	18	40	60	84	174	268	268
21	18	40	63	84	174	268	268
22	18	40	65	84	174	268	268
23	18	40	68	84	174	268	268
24	17	40	71	84	174	267	267
25	17	40	73	83	174	267	267
26	17	39	77	84	174	267	267
27	17	39	79	87	174	267	267
28	17	39	82	88	173	267	267
29	16	39	85	91	173	266	266
30	16	38	87	94	173	266	266

3.26 Ringgit

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	15	30	37	61	184	325	3 127
2	17	32	39	63	186	361	2 343
3	18	34	43	69	182	372	1 776
4	19	36	47	75	181	370	1 378
5	21	40	52	77	182	360	1 094
6	23	43	55	81	183	346	889
7	26	46	57	84	183	330	737
8	26	47	59	86	183	313	620

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	26	48	61	90	184	295	529
10	27	49	63	92	184	278	456
11	28	50	63	94	185	278	396
12	28	50	64	94	185	278	347
13	28	50	64	94	185	278	306
14	28	50	64	94	185	278	278
15	28	50	63	94	184	278	278
16	27	49	63	93	184	277	277
17	27	49	63	93	184	277	277
18	27	49	63	93	184	277	277
19	27	49	63	93	184	277	277
20	27	50	63	94	184	278	278
21	28	50	64	94	184	278	278
22	28	50	67	94	184	278	278
23	28	50	70	94	184	278	278
24	27	50	72	93	184	277	277
25	27	49	75	93	184	277	277
26	27	49	78	93	183	277	277
27	26	48	81	92	183	276	276
28	26	48	84	92	182	276	276
29	25	48	87	93	182	275	275
30	25	47	90	96	182	275	275

3.27 Russian rouble

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	115	130	137	161	284	380	3 521
2	114	129	136	160	284	399	2 625

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
3	113	129	138	164	277	415	2 003
4	112	129	140	167	274	411	1 547
5	112	131	143	169	273	397	1 217
6	113	132	144	170	272	383	993
7	113	134	145	172	271	364	816
8	113	134	146	174	270	364	686
9	112	134	146	175	269	363	584
10	112	134	148	177	269	362	501
11	112	134	147	177	268	362	434
12	110	133	146	177	267	361	379
13	109	132	145	176	266	359	359
14	108	131	144	174	265	358	358
15	106	128	142	172	263	356	356
16	104	126	140	170	261	354	354
17	101	123	137	167	258	351	351
18	99	121	135	165	256	349	349
19	97	119	132	163	253	347	347
20	95	117	130	161	251	345	345
21	92	115	128	158	249	342	342
22	90	112	126	156	247	340	340
23	88	110	124	154	245	338	338
24	86	108	121	152	242	336	336
25	84	106	119	150	240	334	334
26	81	104	117	148	238	332	332
27	79	102	115	146	236	329	329
28	77	100	113	144	234	327	327
29	75	98	111	142	232	326	326
30	74	96	109	140	230	324	324

3.28 Singapore dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	1	8	32	155	315	3 027
2	0	3	10	34	158	351	2 270
3	1	5	14	40	153	363	1 725
4	1	7	18	45	152	361	1 339
5	2	10	23	48	153	352	1 065
6	3	14	26	52	154	338	866
7	3	17	28	54	154	322	718
8	4	18	29	57	154	306	605
9	4	19	31	60	154	288	516
10	4	19	33	62	154	272	444
11	5	19	34	63	154	255	387
12	5	19	36	63	154	247	339
13	6	19	40	63	153	247	299
14	7	19	43	63	153	247	265
15	7	19	46	63	153	246	246
16	7	18	48	62	153	246	246
17	8	18	51	62	153	246	246
18	8	18	54	65	153	246	246
19	8	19	57	67	153	246	246
20	9	20	60	70	154	247	247
21	9	20	63	72	154	248	248
22	10	22	65	74	155	248	248
23	10	23	68	77	155	249	249
24	11	23	71	79	156	249	249
25	11	25	73	82	156	249	249
26	12	26	77	84	156	249	249
27	12	27	79	87	156	250	250
28	12	28	82	88	156	250	250

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
29	13	28	85	91	157	250	250
30	13	30	87	94	157	250	250

3.29 South Korean won

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	29	44	51	75	199	314	3 016
2	30	45	52	76	199	348	2 256
3	28	44	53	80	193	359	1 710
4	27	44	55	82	189	357	1 326
5	27	45	58	83	188	348	1 053
6	30	50	62	88	190	334	856
7	28	49	60	86	186	318	709
8	32	54	65	93	190	301	596
9	32	54	66	95	189	284	508
10	26	48	62	91	183	276	438
11	21	43	57	87	178	271	381
12	17	40	53	84	174	267	334
13	15	37	50	81	171	265	294
14	13	35	48	79	169	263	263
15	11	33	47	77	168	261	261
16	9	32	47	76	166	259	259
17	9	31	50	75	165	259	259
18	8	30	53	74	165	258	258
19	8	30	56	74	164	257	257
20	9	30	58	74	164	258	258
21	9	30	61	74	164	258	258
22	10	30	64	74	164	258	258
23	10	30	67	75	164	258	258

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
24	10	30	69	77	164	258	258
25	11	30	72	80	164	258	258
26	11	30	75	82	164	257	257
27	12	30	78	85	164	257	257
28	12	30	81	88	164	257	257
29	13	29	83	89	164	257	257
30	13	30	87	92	164	257	257

3.30 Turkish lira

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	180	195	202	226	350	445	3 555
2	178	193	200	224	347	443	2 666
3	173	189	198	224	337	433	2 021
4	169	186	197	224	331	425	1 564
5	165	184	196	222	326	420	1 241
6	163	182	194	220	322	415	1 006
7	160	181	192	218	318	411	831
8	156	177	189	217	314	407	698
9	152	174	187	216	310	403	594
10	149	171	184	214	306	399	511
11	145	167	181	211	302	395	443
12	141	163	177	207	298	391	391
13	137	159	173	203	294	387	387
14	133	156	169	200	290	383	383
15	130	152	166	196	287	380	380
16	127	149	162	193	283	377	377
17	124	146	159	190	280	374	374
18	121	143	156	187	277	371	371

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
19	118	140	154	184	275	368	368
20	115	138	151	181	272	365	365
21	113	135	148	179	269	363	363
22	110	133	146	176	267	360	360
23	108	130	143	174	264	358	358
24	105	128	141	171	262	355	355
25	103	125	139	169	260	353	353
26	101	123	136	167	257	351	351
27	98	121	134	165	255	348	348
28	96	119	132	162	253	346	346
29	94	117	130	160	251	344	344
30	92	115	128	158	249	342	342

3.31 US dollar

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	15	27	55	175	312	2 990
2	0	15	27	55	175	347	2 245
3	1	17	29	58	171	359	1 706
4	1	19	32	63	170	358	1 325
5	2	22	37	69	171	348	1 054
6	3	26	40	70	172	335	857
7	5	30	42	72	173	319	710
8	7	33	45	74	173	302	598
9	8	35	49	75	173	286	510
10	9	37	50	75	174	269	440
11	10	39	52	76	174	267	383
12	11	40	53	78	174	267	335
13	12	41	54	78	174	267	296

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
14	12	42	54	78	174	267	267
15	12	42	54	78	174	267	267
16	12	42	54	78	174	267	267
17	12	42	54	78	174	267	267
18	12	42	54	78	174	267	267
19	12	42	56	78	174	267	267
20	12	42	59	78	175	268	268
21	12	42	61	78	175	268	268
22	12	42	64	78	175	269	269
23	12	42	67	78	175	269	269
24	12	42	70	79	175	269	269
25	12	42	73	81	176	269	269
26	12	42	75	83	176	269	269
27	12	42	78	85	176	269	269
28	12	42	81	88	175	269	269
29	13	42	84	91	175	269	269
30	13	42	87	92	175	269	269

3.32 Yen

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
1	0	0	4	13	134	308	2 953
2	0	1	6	17	132	342	2 208
3	1	2	10	20	125	352	1 673
4	1	3	13	23	122	350	1 297
5	2	4	16	27	121	341	1 030
6	3	5	19	30	121	327	837
7	3	6	22	33	120	311	693
8	3	7	25	36	121	295	583

Duration (in years)	Credit quality step 0	Credit quality step 1	Credit quality step 2	Credit quality step 3	Credit quality step 4	Credit quality step 5	Credit quality step 6
9	4	8	27	39	121	278	498
10	4	9	30	42	121	262	429
11	5	11	33	44	121	246	373
12	5	11	36	47	122	231	327
13	5	13	39	50	122	217	288
14	6	13	41	52	122	216	256
15	7	14	44	55	123	216	228
16	7	16	47	57	126	216	216
17	8	16	50	60	128	217	217
18	8	17	53	62	130	217	217
19	8	19	54	65	133	218	218
20	9	19	57	67	135	219	219
21	9	20	60	69	137	219	219
22	10	21	63	72	138	220	220
23	10	22	65	75	140	220	220
24	10	23	69	77	142	221	221
25	11	24	71	79	143	221	221
26	11	25	74	81	144	221	221
27	12	26	76	83	146	221	221
28	12	27	80	86	147	222	222
29	13	28	82	88	148	222	222
30	13	28	84	90	150	222	222

ANNEX III

Volatility adjustment to the relevant risk-free interest rate term structure

Currency	National insurance market	Volatility adjustment (in bps)
Euro	Austria	22
Euro	Belgium	22
Euro	Cyprus	22
Euro	Estonia	22
Euro	Finland	22
Euro	France	22
Euro	Germany	22
Euro	Greece	55
Euro	Ireland	22
Euro	Italy	22
Euro	Latvia	22
Euro	Lithuania	22
Euro	Luxembourg	22
Euro	Malta	22
Euro	Netherlands	22
Euro	Portugal	22
Euro	Slovakia	22
Euro	Slovenia	22
Euro	Spain	22
Czech koruna	Czech Republic	6
Danish krone	Denmark	60
Forint	Hungary	19
Krona	Sweden	6
Kuna	Croatia	12
Lev	Bulgaria	29
Pound sterling	United Kingdom	31
Romanian leu	Romania	1
Zloty	Poland	8
Króna	Iceland	12

Currency	National insurance market	Volatility adjustment (in bps)
Norwegian krone	Norway	18
Swiss franc	Liechtenstein	9
Swiss franc	Switzerland	9
Australian dollar	Australia	11
Canadian dollar	Canada	6
US dollar	United States	78
Yen	Japan	3

COMMISSION IMPLEMENTING REGULATION (EU) 2016/166**of 8 February 2016****laying down specific conditions applicable to the import of foodstuffs containing or consisting of betel leaves ('*Piper betle*') from India and amending Regulation (EC) No 669/2009****(Text with EEA relevance)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety ⁽¹⁾, and in particular Article 53(1)(b)(ii) thereof,

Having regard to Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules ⁽²⁾, and in particular Article 15(5) thereof,

Whereas:

- (1) Article 53 of Regulation (EC) No 178/2002 provides for the possibility to adopt appropriate Union emergency measures for feed and food imported from a third country in order to protect human health, animal health and the environment, where the risk cannot be contained satisfactorily by means of measures taken by the Member States individually.
- (2) Commission Regulation (EC) No 669/2009 ⁽³⁾ provides for an increased level of official controls on imports of certain feed and food of non-animal origin listed in Annex I to that Regulation. Betel leaves (*Piper betle* L.) originating from India are subject as of 1 April 2014 to an increased frequency of official controls as regards the presence of many *Salmonella* strains.
- (3) The results from the increased frequency of controls carried out by the Member States in the framework of Regulation (EC) No 669/2009 on those foodstuffs show a continuous high frequency of non-compliance with microbiological criteria for foodstuffs established in Union legislation. Since 2011, around 90 notifications ⁽⁴⁾ have been issued to the Rapid Alert System for Food and Feed due to the presence of a wide range of pathogenic *Salmonella* strains in foodstuffs containing or consisting of betel leaves originating in or consigned from India.
- (4) Those results provide evidence that the import of those foodstuffs constitutes a risk for human health. Despite the increased frequency of controls at Union borders in place the situation has been not improved. Furthermore, the Indian authorities have not provided a concrete and satisfactory action plan to remediate the shortcomings and deficiencies in the production and control systems, despite the European Commission's explicit request.
- (5) To protect human health in the Union, it is necessary to provide for additional guarantees in relation to those foodstuffs from India. Therefore all consignments of betel leaves from India should be accompanied by a health certificate stating that those foodstuffs were produced in line with the hygiene provisions set up in Regulation (EC) No 852/2004 of the European Parliament and of the Council ⁽⁵⁾, sampled and analysed for the presence of *Salmonella* and were found compliant with Union legislation, and by the results of the analytical tests.

⁽¹⁾ OJ L 31, 1.2.2002, p. 1.

⁽²⁾ OJ L 165, 30.4.2004, p. 1.

⁽³⁾ Commission Regulation (EC) No 669/2009 of 24 July 2009 implementing Regulation (EC) No 882/2004 of the European Parliament and of the Council as regards the increased level of official controls on imports of certain feed and food of non-animal origin and amending Decision 2006/504/EC (OJ L 194, 25.7.2009, p. 11).

⁽⁴⁾ From 2011 till 15 October 2015 (12 in 2011, 6 in 2012, 13 in 2013, 17 in 2014 and 43 on 15.10.2015).

⁽⁵⁾ Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs (OJ L 139, 30.4.2004, p. 1).

- (6) It is appropriate to exclude non-commercial consignments from the application of the provisions of this Regulation.
- (7) The sampling and the analysis of consignments should be performed in accordance with the relevant Union legislation. Commission Regulation (EC) No 2073/2005 ⁽¹⁾ lays down both the microbiological criteria for foodstuffs and the provisions on sampling for the official control of microbiological criteria for foodstuffs applicable in the Union.
- (8) The Indian authorities have informed the Commission of the name of the competent authority whose authorised representative is entitled to sign the health certificate.
- (9) Regulation (EU) No 669/2009 should be amended accordingly.
- (10) The measures provided for in this Regulation are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

HAS ADOPTED THIS REGULATION:

Article 1

Scope

1. This Regulation shall apply to consignments of foodstuffs containing or consisting of betel leaves (*Piper betle* L.' commonly known as 'Paan leaf' or 'Betel quid') including those declared under CN codes 1404 90 00, originating in or consigned from India, set out in Annex I to this Regulation.
2. This Regulation shall not apply to consignments of foodstuffs referred to in paragraph 1 which are destined to a private person for personal consumption and use only. In case of doubt, the burden of proof lies with the recipient of the consignment.

Article 2

Definitions

For the purpose of this Regulation, the definitions laid down in Articles 2 and 3 of Regulation (EC) No 178/2002, Article 2 of Regulation (EC) No 882/2004 and Article 3 of Regulation (EC) No 669/2009 shall apply.

Article 3

Import into the Union

Consignments of foodstuff referred to in Article 1(1) may only be imported into the Union in accordance with the procedures laid down in this Regulation.

Consignments of such foodstuff may only enter the Union through the Designated Point of Entry (DPE) as defined in Regulation (EC) No 669/2009.

⁽¹⁾ Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs (OJ L 338, 22.12.2005, p. 1).

*Article 4***Results of sampling and analysis**

1. Consignments of the foodstuff referred to in Article 1(1) shall be accompanied by the results of sampling and analysis performed by the competent authorities of India, to ascertain compliance with Union legislation on microbiological criteria of *Salmonella*, for the foodstuff referred to in Article 1(1).
2. The sampling referred to in paragraph 1 must be performed in accordance with Regulation (EC) No 2073/2005.

*Article 5***Health certificate**

1. The consignments shall also be accompanied by a health certificate in accordance with the model set out in Annex II.
2. The health certificate shall be completed, signed and verified by an authorised representative of the competent authority of India.
3. The health certificate shall be drawn up in the official language, or in one of the official languages, of the Member State where the DPE is located. However, a Member State may consent to health certificates being drawn up in another official language of the Union.

*Article 6***Identification**

Each consignment of the foodstuff referred to in Article 1(1) shall be identified with an identification code which corresponds to the identification code mentioned on the results of the sampling and analysis referred to in Article 4 and the health certificate referred to in Article 5. Each individual bag, or other packaging form, of the consignment shall be identified with that identification code.

*Article 7***Prior notification of consignments**

1. Food business operators or their representatives shall give prior notification of the estimated date and time of physical arrival of consignments of the foodstuff referred to in Article 1(1) to the competent authorities at the DPE and of the nature of the consignment.
2. For the purpose of prior notification, they shall complete Part I of the common entry document (CED) laid down in Article 3(a) to Regulation (EC) No 669/2009 and transmit that document to the competent authority at the DPE, at least one working day prior to the physical arrival of the consignment.
3. For the completion of the CED in application of this Regulation, food business operators shall take into account for the foodstuff referred to in Article 1(1), the notes for guidance for the CED laid down in Annex II to Regulation (EC) No 669/2009.

*Article 8***Official controls**

1. The competent authority at the DPE shall carry out documentary checks on each consignment of the foodstuff referred to in Article 1(1) to ascertain compliance with the requirements laid down in Articles 4 and 5.
2. The identity and physical checks on the foodstuff referred to in Article 1(1) of this Regulation shall be carried out in accordance with Articles 8, 9 and 19 of Regulation (EC) No 669/2009 at the frequency set out in Annex I to this Regulation.
3. After completion of the checks, the competent authorities shall:
 - (a) complete the relevant entries of Part II of the CED;
 - (b) join the results of sampling and analysis carried out in accordance with paragraph 2 of this Article;
 - (c) provide and fill the CED reference number on the CED;
 - (d) stamp and sign the original of the CED;
 - (e) make and retain a copy of the signed and stamped CED.
4. The original of the CED and of the health certificate with the accompanying results of sampling and analysis referred to in Article 4 shall accompany the consignment during its transport until it is released for free circulation. For foodstuff referred to in Article 1(1), in case of authorisation of onward transportation of the consignments pending the results of the physical checks, a certified copy of the original CED shall be issued for that purpose.

*Article 9***Splitting of a consignment**

1. Consignments shall not be split until all official controls have been completed, and the CED has been fully completed by the competent authorities as provided for in Article 8.
2. In the case of subsequent splitting of the consignment, an authenticated copy of the CED shall accompany each part of the consignment during its transport until it is released for free circulation.

*Article 10***Release for free circulation**

The release for free circulation of consignments shall be subject to the presentation (physically or electronically) by the food business operators or their representative to the custom authorities of a CED duly completed by the competent authority once all official controls have been carried out and favourable results from physical checks, where such checks are required, are known. The custom authorities shall only release the consignment for free circulation if a favourable decision by the competent authority is indicated in box II.14 and signed in box II.21 of the CED.

*Article 11***Non-compliance**

If the official controls establish non-compliance with the relevant Union legislation, the competent authority shall complete Part III of the CED and action shall be taken pursuant to Articles 19, 20 and 21 of Regulation (EC) No 882/2004.

*Article 12***Reports**

Member States shall submit to the Commission every three months a report of all analytical results of official controls on consignments of foodstuff pursuant to this Regulation. That report shall be submitted during the month following each quarter.

The report shall include the following information:

- the number of consignments imported,
- the number of consignments subjected to sampling for analysis,
- the results of the checks as provided for in Article 8(2).

*Article 13***Costs**

All costs resulting from the official controls including sampling, analysis, storage and any measures taken following non-compliance, shall be borne by the food business operators.

*Article 14***Transitional measures**

By way of derogation from Articles 4(1) and 5(1), Member States shall authorise the imports of consignments of food referred to in Article 1(1) which left the country of origin prior to the entry into force of this Regulation without being accompanied by a health certificate and the results of sampling and analysis.

*Article 15***Amendment of Regulation (EC) No 669/2009**

Regulation (EC) No 669/2009 is amended in accordance with Annex III to this Regulation.

*Article 16***Entry into force**

This Regulation shall enter into force on the third day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 8 February 2016.

For the Commission
The President
Jean-Claude JUNKER

ANNEX I

Food of non-animal origin subject to the measures provided for in this Regulation:

Feed and food (intended use)	CN code (*)	TARIC sub- division	Country of origin or dispatch	Hazard	Frequency of physical and iden- tity checks (%) at import
Betel leaves (<i>Piper betle</i> L.) — (Food)	ex 1404 90 00	10	India (IN)	Salmonella (**)	10

(*) Where only certain products under any CN code are required to be examined and no specific subdivision under that code exists, the CN code is marked 'ex'.

(**) Reference method EN/ISO 6579 or a method validated against it as referred to in Article 5 of Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs (OJ L 338, 22.12.2005, p. 1).

ANNEX II

Health Certificate for the importation into the European Union of

.....⁽¹⁾

Consignment Code **Certificate Number**

According to the provisions of Commission Implementing Regulation (EU) 2016/166 laying down specific conditions applicable to the import of Betel leaves (*Piper betle*) from India the

.....

.....(Competent authority referred to in Article 5(2) of Regulation (EU) 2016/166)

CERTIFIES that the

.....(insert food referred to in Article 1(1) of Regulation (EU) 2016/166)

of this consignment composed of:

.....

.....(description of consignment, product, number and type of packages, gross or net weight)

embarked at (embarkation place)

by (identification of transporter)

going to (place and country of destination)

which comes from the establishment

.....(name and address of establishment)

have been produced, under conditions which comply with Regulation (EC) No 852/2004.

From this consignment, samples were taken in accordance with Regulation (EC) No 2073/2005 in view to check the presence of salmonella strains

on.....(date), subjected to laboratory analysis on.....

(date) in the

(name of laboratory). The details of sampling, methods of analysis used and all results are attached.

Done at..... on.....

Stamp and signature of authorised representative of competent authority
referred to in Article 5(2) of Regulation (EU) 2016/166

⁽¹⁾ Product and country of origin.

ANNEX III

In Annex I to Regulation (EC) No 669/2009, the following entry is deleted:

Feed and food (intended use)	CN code ⁽¹⁾	TARIC sub- division	Country of origin	Hazard	Frequency of physical and iden- tity checks (%)
'Betel leaves (<i>Piper betle</i> L.) — (Food)	ex 1404 90 00	10	India (IN)	Salmonella ⁽¹⁰⁾	50'

⁽¹⁾ Where only certain products under any CN code are required to be examined and no specific subdivision under that code exists, the CN code is marked 'ex'.

⁽¹⁰⁾ Reference method EN/ISO 6579 or a method validated against it as referred to in Article 5 of Commission Regulation (EC) No 2073/2005 of 15 November 2005 on microbiological criteria for foodstuffs (OJ L 338, 22.12.2005, p. 1).

COMMISSION IMPLEMENTING REGULATION (EU) 2016/167**of 8 February 2016****establishing the standard import values for determining the entry price of certain fruit and vegetables**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 ⁽¹⁾,

Having regard to Commission Implementing Regulation (EU) No 543/2011 of 7 June 2011 laying down detailed rules for the application of Council Regulation (EC) No 1234/2007 in respect of the fruit and vegetables and processed fruit and vegetables sectors ⁽²⁾, and in particular Article 136(1) thereof,

Whereas:

- (1) Implementing Regulation (EU) No 543/2011 lays down, pursuant to the outcome of the Uruguay Round multilateral trade negotiations, the criteria whereby the Commission fixes the standard values for imports from third countries, in respect of the products and periods stipulated in Annex XVI, Part A thereto.
- (2) The standard import value is calculated each working day, in accordance with Article 136(1) of Implementing Regulation (EU) No 543/2011, taking into account variable daily data. Therefore this Regulation should enter into force on the day of its publication in the *Official Journal of the European Union*,

HAS ADOPTED THIS REGULATION:

Article 1

The standard import values referred to in Article 136 of Implementing Regulation (EU) No 543/2011 are fixed in the Annex to this Regulation.

Article 2

This Regulation shall enter into force on the day of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 8 February 2016.

*For the Commission,
On behalf of the President,*

Jerzy PLEWA
Director-General for Agriculture and Rural Development

⁽¹⁾ OJ L 347, 20.12.2013, p. 671.

⁽²⁾ OJ L 157, 15.6.2011, p. 1.

ANNEX

Standard import values for determining the entry price of certain fruit and vegetables

(EUR/100 kg)		
CN code	Third country code ⁽¹⁾	Standard import value
0702 00 00	EG	253,6
	IL	236,2
	MA	89,7
	TR	117,0
	ZZ	174,1
0707 00 05	MA	92,2
	TR	178,7
	ZZ	135,5
0709 91 00	EG	194,3
	ZZ	194,3
0709 93 10	MA	39,8
	TR	158,9
	ZZ	99,4
0805 10 20	EG	46,1
	MA	59,8
	TN	49,5
	TR	55,6
	ZZ	52,8
0805 20 10	IL	123,2
	MA	77,7
	ZZ	100,5
0805 20 30, 0805 20 50, 0805 20 70, 0805 20 90	EG	62,3
	IL	131,3
	JM	156,4
	MA	125,2
	TR	58,0
	ZZ	106,6
	ZZ	106,6
0805 50 10	TR	93,6
	ZZ	93,6
0808 10 80	CL	87,5
	ZZ	87,5
0808 30 90	CN	93,5
	TR	81,0
	ZA	106,0
	ZZ	93,5

⁽¹⁾ Nomenclature of countries laid down by Commission Regulation (EU) No 1106/2012 of 27 November 2012 implementing Regulation (EC) No 471/2009 of the European Parliament and of the Council on Community statistics relating to external trade with non-member countries, as regards the update of the nomenclature of countries and territories (OJ L 328, 28.11.2012, p. 7). Code 'ZZ' stands for 'of other origin'.

DECISIONS

COMMISSION IMPLEMENTING DECISION (EU) 2016/168

of 5 February 2016

amending the Annexes to Decision 2003/467/EC establishing the official tuberculosis, brucellosis and enzootic-bovine-leukosis-free status of certain Member States and regions of Member States as regards bovine herds

(notified under document C(2016) 602)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Directive 64/432/EEC of 26 June 1964 on animal health problems affecting intra-Community trade in bovine animals and swine ⁽¹⁾, and in particular paragraph 4 of Annex A.I., paragraph 7 of Annex A.II. and paragraph E in conjunction with paragraph G. of Annex D.I. thereto,

Whereas:

- (1) Directive 64/432/EEC applies to trade within the Union in bovine animals. It lays down the conditions whereby a region of a Member State may be declared officially tuberculosis-free, brucellosis-free or enzootic-bovine-leukosis-free as regards bovine herds and it lays down the conditions whereby the officially disease-free status of a region of a Member State is to be suspended.
- (2) Commission Decision 2003/467/EC ⁽²⁾ provides that the regions of the Member States listed in Chapter 2 of Annex I thereto are declared officially free of tuberculosis as regards bovine herds.
- (3) Italy has submitted to the Commission documentation demonstrating compliance for several regions with the conditions laid down in Directive 64/432/EEC for officially tuberculosis-free status as regards bovine herds. Those regions are the Provinces of Genova, Imperia, La Spezia and Savona of the Region Liguria, the Provinces of Alessandria, Cuneo and Torino of the Region Piemonte and the Provinces of Pesaro-Urbino and Ancona of the Region Marche.
- (4) The Provinces of Asti, Biella, Novara, Verbania and Vercelli of the Region Piemonte are already listed in Chapter 2 of Annex I to Decision 2003/467/EC as officially tuberculosis-free regions. Accordingly, the entire Region Liguria, the Provinces of Pesaro-Urbino and Ancona of the Region Marche and the entire Region Piemonte should be listed in that Chapter as officially tuberculosis-free regions as regards bovine herds.
- (5) Regulation (EEC) No 706/73 of the Council ⁽³⁾ provides that for the purpose of applying rules concerning the animal health legislation, the United Kingdom and the Isle of Man are to be treated as a single Member State.
- (6) The United Kingdom has submitted to the Commission documentation demonstrating compliance for the Isle of Man with the conditions laid down in Directive 64/432/EEC for officially tuberculosis-free status as regards bovine herds. Accordingly, the Isle of Man should be listed in Chapter 2 of Annex I to Decision 2003/467/EC as an officially tuberculosis-free region as regards bovine herds.
- (7) Chapter 2 of Annex II to Decision 2003/467/EC lists the regions of Member States which are declared officially brucellosis-free as regards bovine herds.

⁽¹⁾ OJ L 121, 29.7.1964, p. 1977/64.

⁽²⁾ Commission Decision 2003/467/EC of 23 June 2003 establishing the official tuberculosis, brucellosis and enzootic-bovine-leukosis-free status of certain Member States and regions of Member States as regards bovine herds (OJ L 156, 25.6.2003, p. 74).

⁽³⁾ Regulation (EEC) No 706/73 of the Council of 12 March 1973 concerning the Community arrangements applicable to the Channel Islands and the Isle of Man for trade in agricultural products (OJ L 68, 15.3.1973, p. 1).

- (8) Spain has submitted to the Commission documentation demonstrating compliance for the Autonomous Community of Navarra with the conditions laid down in Directive 64/432/EEC for officially brucellosis-free status as regards bovine herds. Accordingly, that region should be listed in Chapter 2 of Annex II to Decision 2003/467/EC as an officially brucellosis-free region as regards bovine herds.
- (9) Chapters 1 and 2 of Annex III to Decision 2003/467/EC list the Member States and the regions thereof which are declared officially enzootic-bovine-leukosis-free as regards bovine herds. France is listed in Chapter 1 of that Annex as an officially enzootic-bovine-leukosis-free Member State.
- (10) France has submitted to the Commission documentation notifying non-compliance for La Réunion with the requirements for retaining enzootic-bovine-leukosis-free status as provided for in Directive 64/432/EEC. The enzootic-bovine-leukosis-free status of La Réunion should therefore be suspended. Accordingly, France should no longer be listed in Chapter 1 of Annex III to Decision 2003/467/EC as an officially enzootic-bovine-leukosis-free Member State, but instead the regions of that Member State that are free from that disease should be listed in Chapter 2 of that Annex.
- (11) The Annexes to Decision 2003/467/EC should therefore be amended accordingly.
- (12) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

HAS ADOPTED THIS DECISION:

Article 1

The Annexes to Decision 2003/467/EC are amended in accordance with the Annex to this Decision.

Article 2

This Decision is addressed to the Member States.

Done at Brussels, 5 February 2016.

For the Commission
Vytenis ANDRIUKAITIS
Member of the Commission

ANNEX

The Annexes to Decision 2003/467/EC are amended as follows:

(1) In Annex I, Chapter 2 is amended as follows:

(a) the entry for Italy is replaced by the following:

‘In Italy:

- Region Abruzzo: Province of Pescara,
- Province of Bolzano,
- Region Emilia-Romagna,
- Region Friuli-Venezia Giulia,
- Region Lazio: Provinces of Rieti, Viterbo,
- Region Liguria,
- Region Lombardia,
- Region Marche: Province of Ancona, Ascoli Piceno, Fermo, Pesaro-Urbino,
- Region Piemonte,
- Region Sardegna: Provinces of Cagliari, Medio-Campidano, Ogliastra, Olbia-Tempio, Oristano,
- Region Toscana,
- Province of Trento,
- Region Veneto.’

(b) the entry for the United Kingdom is replaced by the following:

‘In the United Kingdom:

- Great Britain: Scotland,
- Isle of Man.’

(2) In Annex II, in Chapter 2, the entry for Spain is replaced by the following:

‘In Spain:

- Autonomous Community of the Canary Islands: Provinces of Santa Cruz de Tenerife, Las Palmas,
- Autonomous Community of the Balearic Islands,
- Autonomous Community of Pais Vasco,
- Autonomous Community of Murcia,
- Autonomous Community of La Rioja,
- Autonomous Community of Navarra.’

(3) In Annex III, Chapter 1 is replaced by the following:

‘CHAPTER 1

Officially enzootic-bovine-leukosis-free Member States

ISO code	Member State
BE	Belgium
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
ES	Spain
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
NL	Netherlands
AT	Austria
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden
UK	United Kingdom’

(4) In Annex III, in Chapter 2, the following entry for France is inserted before the entry for Italy:

‘In France:

- Région Alsace, Champagne-Ardenne et Lorraine,
- Région Aquitaine, Limousin et Poitou-Charentes,
- Région Auvergne et Rhône-Alpes,
- Région Bourgogne et Franche-Comté,

- Région Bretagne,
 - Région Centre,
 - Région Corse,
 - Région Île-de-France,
 - Région Languedoc-Roussillon et Midi-Pyrénées,
 - Région Nord — Pas-de-Calais et Picardie,
 - Région Basse-Normandie et Haute-Normandie,
 - Région Pays de la Loire,
 - Région Provence-Alpes-Côte d'Azur,
 - Région Guadeloupe,
 - Région Martinique,
 - Région Guyane,
 - Région Mayotte.'
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COMMISSION IMPLEMENTING DECISION (EU) 2016/169**of 5 February 2016****amending Decision 2010/221/EU as regards national measures for preventing the introduction of certain aquatic animal diseases into Ireland, Finland, Sweden and the United Kingdom***(notified under document C(2016) 605)***(Text with EEA relevance)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Directive 2006/88/EC of 24 October 2006 on animal health requirements for aquaculture animals and products thereof, and on the prevention and control of certain diseases in aquatic animals ⁽¹⁾, and in particular Article 43(2) thereof,

Whereas:

- (1) Commission Decision 2010/221/EU ⁽²⁾ allows certain Member States to apply placing on the market and import restrictions on consignments of aquatic animals in order to prevent the introduction of certain diseases into their territory, provided that they have either demonstrated that their territory, or certain demarcated areas of their territory, are free of such diseases or that they have established an eradication or surveillance programme to obtain such freedom. Member States which have an approved eradication programme for one or more of those diseases, may according to Article 3(2) of that Decision only apply placing on the market and import restrictions with regard to those diseases until 31 December 2015.
- (2) Decision 2010/221/EU provides that the Member States and parts thereof listed in Annex I thereto are to be regarded as free from the diseases listed in that Annex. In addition, that Decision approved the eradication programmes adopted by certain Member States in respect of the areas and the diseases listed in Annex II thereto. That Decision also approves the surveillance programmes regarding ostreid herpes virus 1 μ var (OsHV-1 μ Var) adopted by certain Member States in respect of the areas set out in Annex III thereto.
- (3) Finland has in accordance with Article 43 of Directive 2006/88/EC submitted an application to the Commission for approval of placing on the market and import restrictions on consignments of aquatic animals in order to prevent the introduction of salmonid alphavirus (SAV) into the continental parts of its territory. The main justification for Finland's application is that SAV may cause serious fish diseases like Pancreas disease (PD) and Sleeping disease (SD) in susceptible species. Those diseases are easily transmitted and are shown to cause substantial losses in particular to farms rearing Atlantic salmon (*Salmo salar*), but also populations of rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) may be heavily affected. Finland has a substantial yearly production of those species reared both for food production and for restocking purposes. Those species need to be protected from introduction of SAV.
- (4) Infection with SAV is defined in the Aquatic Animal Health Code (Aquatic Code) of the World Organisation for Animal Health (OIE) as an infection with any subtype of SAV of the genus *Alphavirus* of the family *Togaviridae*. Such infections are notifiable to the OIE since 2014 and diagnostic methods to detect and identify the pathogen are set out in the OIE Manual of Diagnostic Test for Aquatic Animals (OIE Aquatic Manual). Furthermore, the Aquatic Code contains specific recommendations for achieving and maintaining disease free status with regard to SAV, and for importation and transit of aquatic animals and products thereof from a country not declared free from infections with SAV.

⁽¹⁾ OJ L 328, 24.11.2006, p. 14.

⁽²⁾ Commission Decision 2010/221/EU of 15 April 2010 approving national measures for limiting the impact of certain diseases in aquaculture animals and wild aquatic animals in accordance with Article 43 of Council Directive 2006/88/EC (OJ L 98, 20.4.2010, p. 7).

- (5) Finland has provided information describing its system of control and compulsory notification of aquatic animal diseases, and furthermore describing the surveillance schemes which has been in place to document which continental parts of Finland are SAV-free. That information, confirming that passive surveillance for SAV has been in place since the disease was made notifiable in accordance with Finnish legislation in 2010 and targeted surveillance over a period of two years from 2013 to 2014, both using diagnostic methods in accordance with the OIE Aquatic Manual, supports the assessment of the continental parts of Finland being free of SAV.
- (6) Finland has furthermore provided information describing the epidemiological situation with regard to SAV in water catchment areas shared with Norway, Sweden and Russia and the biosecurity measures in place to prevent possible transfer of SAV from the coastal areas into the continental areas of Finland. That information shows that the measures in place are in line with the OIE recommendations, and thus also supports the position that the continental parts of Finland may be regarded as free of SAV.
- (7) Based on the OIE's recognition of SAV as a serious infectious disease affecting certain salmonid species and the information provided from Finland with regard to the current health status as regards SAV and the possible economic and ecological impact of the introduction of SAV into the continental parts of Finland, it is justified that the application of certain placing on the market and import restrictions in accordance with Article 43 of Directive 2006/88/EC to prevent such introduction should be approved. Consequently, salmonid alphavirus (SAV) should be listed in Annex I to Decision 2010/221/EU for the continental parts of the territory of Finland.
- (8) The United Kingdom is listed in Annex I to Decision 2010/221/EU with the territory of Great Britain, except Whitstable Bay in Kent, Blackwater Estuary and River Crouch in Essex and Poole Harbour in Dorset as recognised as free of OSHV-1 μ Var.
- (9) The United Kingdom has notified to the Commission that OSHV-1 μ Var recently is detected in The River Roach in Essex and in an area outside Whitstable Bay at the north coast of Kent. Furthermore as a result of an epidemiological evaluation following the detection in The River Roach, the non-disease-free compartment in Essex is enlarged to incorporate the existing non-disease free compartment in the Blackwater and River Colne. Finally, The United Kingdom has notified the detection of OSHV-1 μ Var in the River Teign in Devon. Those areas should therefore no longer be recognised as being free of that disease. The geographical demarcations for the territory of the United Kingdom recognised as free of OSHV-1 μ Var should be amended accordingly.
- (10) The continental part of the territory of Sweden is listed in Annex II to Decision 2010/221/EU as a territory with an approved eradication programme for bacterial kidney disease (BKD). Likewise, the coastal parts of the territory of Sweden are listed in that Annex with an approved eradication programme with regard to infectious pancreas necrosis (IPN).
- (11) Sweden has reported to the Commission that over the last three years of surveillance in areas subject to the approved eradication programme five farms have tested positive with regard to BKD. Those farms are currently being subject to control and eradication measures in order to establish disease free status. In order to follow up on these farms and to be able to make an overall evaluation of the entire BKD-programme, Sweden has requested an extension of the period for which it may apply placing on the market and import restrictions with regard to that disease as set out in Decision 2010/221/EU. In view of the results of the programme such prolongation is appropriate.
- (12) As regards IPN, both Finland and Sweden have previously asked the Commission for an evaluation of the further approach and scope of the surveillance and eradication programmes for that disease. At current the definition of IPN includes all genogroups of IPN. Only strains of IPN-virus genogroup 5 are known to cause mortality and clinical disease in farmed salmonids in Europe. Therefore, other genogroups should not be included in those eradication programmes. A decision on this issue can, however, only be made on the basis of a comprehensive scientific evaluation. Such evaluation has not been carried out so far. Until such evaluation is completed it is appropriate to prolong Sweden's ongoing IPN eradication programme and consequently the possibility to apply placing on the market and import restrictions as set out in Decision 2010/221/EU.
- (13) Evaluations concerning transmissible animal diseases which may be subject to national measures will be carried out by the Commission within the framework of the foreseen new Union legislation on animal health. In view of that it is appropriate to prolong the time limit set out in Article 3(2) of Decision 2010/221/EU for authorisation to apply certain national measures until those evaluations are concluded and the new Union animal legislation enters into force, which is foreseen to take place in 2021.

- (14) Annex III to Decision 2010/221/EU lists seven compartments in the territory of Ireland with an approved surveillance programme as regards OsHV-1 μ Var. Ireland has recently informed the Commission that OsHV-1 μ Var was detected in Gweebarra Bay (Compartment 2) and Kenmare Bay (Compartment 7). Consequently those compartments should be removed from the areas listed in Annex III.
- (15) Ireland has further submitted a declaration of disease freedom with regard to OsHV-1 μ Var for the remaining five compartments listed in Annex III to Decision 2010/221/EU and for a new Compartment A: Tralee Bay Hatchery. That declaration complies with the requirements for a declaration of freedom of disease laid down in Directive 2006/88/EC. Accordingly the following compartments of the territory of Ireland: Compartment 1: Sheephaven Bay, Compartment 3: Killala, Broadhaven and Blacksod bays, Compartment 4: Streamstown Bay, Compartment 5: Bertraghboy and Galway bays, Compartment 6: Poulunashary Bay and Compartment A: Tralee Bay Hatchery should be regarded as free of OsHV-1 μ Var and consequently listed in Annex I to Decision 2010/221/EU.
- (16) As the declaration from Ireland demonstrates disease freedom of all five remaining compartments listed in Annex III to Decision 2010/221/EU, the surveillance programme for OsHV-1 μ Var for demonstration of freedom from disease as indicated in that Annex will no longer be applicable for the listed Irish compartments. The entry for Ireland in Annex III should therefore be deleted.
- (17) Article 3(2) of Decision 2010/221/EU limits the authorisation to apply certain national measures in accordance with Article 43 of Directive 2006/88/EC in time until 31 December 2015. In order to avoid disruption in the application of those measures, the proposed amendments should apply from 1 January 2016.
- (18) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

HAS ADOPTED THIS DECISION:

Article 1

In Article 3(2) of Decision 2010/221/EU, the date '31 December 2015' shall be replaced by '1 July 2021'.

Article 2

Annexes I and III to Decision 2010/221/EU are replaced by the text in the Annex to this Decision.

Article 3

This Decision shall apply from 1 January 2016.

Article 4

This Decision is addressed to the Member States.

Done at Brussels, 5 February 2016.

For the Commission
Vytenis ANDRIUKAITIS
Member of the Commission

ANNEX

Decision 2010/221/EU is amended as follows:

(1) Annex I to Decision 2010/221/EU is replaced by the following text:

‘ANNEX I

Member States and areas regarded as being free of diseases listed in the table and approved to take national measures to prevent the introduction of those diseases in accordance with Article 43(2) of Directive 2006/88/EC

Disease	Member State	Code	Geographical demarcation of the area with approved national measures
Spring viraemia of carp (SVC)	Denmark	DK	Whole territory
	Ireland	IE	Whole territory
	Hungary	HU	Whole territory
	Finland	FI	Whole territory
	Sweden	SE	Whole territory
	United Kingdom	UK	The whole territory of the United Kingdom The territories of Guernsey, Jersey and the Isle of Man
Bacterial kidney disease (BKD)	Ireland	IE	Whole territory
	United Kingdom	UK	The territory of Northern Ireland The territories of Guernsey, Jersey and the Isle of Man
Infectious pancreatic necrosis (IPN)	Finland	FI	The continental parts of the territory
	Sweden	SE	The continental parts of the territory
	United Kingdom	UK	The territory of the Isle of Man
Infections with <i>Gyrodactylus salaris</i> (GS)	Ireland	IE	Whole territory
	Finland	FI	The water catchment areas of the Tenojoki and Näätämöjoki; the water catchment areas of the Paatsjoki, Tuulomajoki, and Uutuanjoki are considered as buffer zones
	United Kingdom	UK	The whole territory of the United Kingdom The territories of Guernsey, Jersey and the Isle of Man

Disease	Member State	Code	Geographical demarcation of the area with approved national measures
Ostreid herpesvirus 1 μ var (OsHV-1 μ Var)	Ireland	IE	Compartment 1: Sheephaven Bay Compartment 3: Killala, Broadhaven and Blacksod Bays Compartment 4: Streamstown Bay Compartment 5: Bertraghboy and Galway Bays Compartment 6: Poulmasharry Bay Compartment A: Tralee Bay Hatchery
	United Kingdom	UK	The territory of Great Britain, except The River Roach, River Crouch, Blackwater Estuary and River Colne in Essex, the north Kent Coast, Poole Harbour in Dorset and The River Teign in Devon The territory of Northern Ireland except Dundrum Bay, Killough Bay, Lough Foyle, Carlingford Lough and Strangford Lough The territory of Guernsey
Infection with Salmonid alphavirus (SAV)	Finland	FI	The continental parts of the territory'

(2) Annex III to Decision 2010/221/EU is replaced by the following text:

'ANNEX III

Member States and areas with surveillance programmes regarding ostreid herpesvirus 1 μ var (OsHV-1 μ Var) and approved to take national measures to control that disease in accordance with Article 43(2) of Directive 2006/88/EC

Disease	Member State	Code	Geographical demarcation of the area with approved national measures (Member States, zones and compartments)'

COMMISSION IMPLEMENTING DECISION (EU) 2016/170**of 5 February 2016****authorising methods for grading pig carcasses in Finland***(notified under document C(2016) 658)***(Only the Finnish and Swedish texts are authentic)**

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 ⁽¹⁾, and in particular Article 20(p) thereof,

Whereas:

- (1) Point 1 of Section B.IV of Annex IV to Regulation (EU) No 1308/2013 provides that, for the classification of pig carcasses, the lean-meat content has to be assessed by means of grading methods authorised by the Commission and only statistically proven assessment methods based on the physical measurement of one or more anatomical parts of the pig carcass may be authorised. The authorisation of grading methods should be subject to compliance with a maximum tolerance for statistical error in assessment. That tolerance is defined in Article 23(3) of Commission Regulation (EC) No 1249/2008 ⁽²⁾.
- (2) By Commission Decision 96/550/EC ⁽³⁾, the use of three methods for grading pig carcasses in Finland was authorised.
- (3) Finland has requested the Commission to authorise the replacement of the lean meat assessment formula used in the 'Hennessy Grading Probe 4 (HGP4)' method and to authorise one new method 'AutoFOM III' that should replace the currently used 'Autofom' method, for grading pig carcasses on its territory. Finland has presented a detailed description of the dissection trial, indicating the principles on which the new formula are based, the result of its dissection trial and the equations used for assessing the percentage of lean meat in the protocol provided for in Article 23(4) of Regulation (EC) No 1249/2008. Finland has also asked the Commission not to include the 'Intrascop/Optical probe' method in this Decision as that method is not used anymore.
- (4) Examination of that request has revealed that the conditions for authorising those new formula and grading method are fulfilled. Those formula and grading method should therefore be authorised in Finland.
- (5) Modifications of the apparatuses or grading methods should not be allowed, unless they are explicitly authorised by Commission Implementing Decision.
- (6) For reasons of clarity and legal certainty, a new decision should be adopted. Decision 96/550/EC should therefore be repealed.
- (7) In view of the technical circumstances while introducing new methods and formula, the methods for grading pig carcasses authorised under this Decision should apply from 1 February 2016.
- (8) The measures provided for in this Decision are in accordance with the opinion of the Committee for the Common Organisation of Agricultural Markets,

⁽¹⁾ OJ L 347, 20.12.2013, p. 671.

⁽²⁾ Commission Regulation (EC) No 1249/2008 of 10 December 2008 laying down detailed rules on the implementation of the Community scales for the classification of beef, pig and sheep carcasses and the reporting of prices thereof (OJ L 337, 16.12.2008, p. 3).

⁽³⁾ Commission Decision 96/550/EC of 5 September 1996 authorising methods for grading pig carcasses in Finland (OJ L 236, 18.9.1996, p. 47).

HAS ADOPTED THIS DECISION:

Article 1

The use of the following methods is authorised for grading pig carcasses pursuant to point 1 of Section B.IV of Annex IV to Regulation (EU) No 1308/2013 in Finland:

- (a) the 'Hennessy Grading Probe 4 (HGP4)' apparatus and the assessment methods related thereto, details of which are given in Part I of the Annex;
- (b) the 'AutoFOM III' apparatus and the assessment methods related thereto, details of which are given in Part II of the Annex.

Article 2

Modifications of the authorised apparatus or grading methods shall not be allowed, unless those modifications are explicitly authorised by Commission Decision.

Article 3

Decision 96/550/EC is repealed.

Article 4

This Decision shall apply from 1 February 2016.

Article 5

This Decision is addressed to the Republic of Finland.

Done at Brussels, 5 February 2016.

For the Commission
Phil HOGAN
Member of the Commission

ANNEX

METHODS FOR GRADING PIG CARCASSES IN FINLAND

PART I

Hennessy Grading Probe 4 (HGP4)

1. The rules provided for in this Part shall apply when the grading of pig carcasses is carried out by means of the apparatus termed 'Hennessy Grading Probe 4 (HGP4)'.
2. The apparatus Hennessy Grading Probe shall be equipped with a probe of 5,95 mm diameter with an abutting blade of 6,3 mm containing a photodiode (Siemens LED of the type LYU 260-EO and photo detector of the type 58 MR) and having an operational distance between 0 and 120 mm.
3. The lean meat content of the carcass shall be calculated according to the following formula:

$$Y = 67,091 - 0,566 \times S1 - 0,381 \times S2 + 0,078 \times M$$

where:

S1: the thickness of back fat (including rind) in millimetres measured at 8 cm off the midline of the carcass behind the last rib (between the 14th rib and the 1st lumbar vertebra);

S2: the thickness of back fat (including rind) in millimetres measured at 6 cm off the midline of the carcass between the 3rd and 4th ribs;

M: the thickness of muscle in millimetres measured at 6 cm off the midline of the carcass between the 3rd and 4th ribs.

4. The formula shall be valid for carcasses weighing between 50 and 120 kg.

PART II

AutoFOM III

1. The rules provided for in this Part shall apply when the grading of pig carcasses is carried out by means of the apparatus termed 'AutoFOM III' (fully automatic ultrasonic carcass grading).
2. The apparatus shall be equipped with 16 transducers embedded in a stainless steel array. The measurements used for the models shall be an overall size assessment and properties derived from two selected cross-sections. The two selected cross-sections shall be at the minimum fat in the loin and at the loin to ham intersection. The apparatus shall transmit sound waves through the tissues. The echoes emitted by the bones, muscles and fat shall be converted into an image of the interior. Based on the image a digital image and data analysis shall be performed.
3. The lean meat content of the carcass shall be calculated according to the following formula:

$$Y = 63,2758 + 0,081174 \times R2P1 - 1,11488 \times R2P5 - 0,89933 \times R2P10 + 0,057066 \times R3P3 + 0,097869 \times R3P5$$

where:

R2P1: the average thickness of the skin.

R2P5: the skin at the selected P2 position in mm.

R2P10: minimum fat of the cross-section in mm.

R3P3: the meat measured at the selected MFT point in mm.

R3P5: the maximum meat measured in mm.

4. The formula shall be valid for carcasses weighing between 50 and 120 kilograms.
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