IFRS

STAFF PAPER

November 2019

IASB Meeting

Project	**Lack of Exchangeability (IAS 21)**
Paper topic	The exchange rate when exchangeability is lacking

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Introduction

1. As explained in Agenda Paper 12A for this meeting, this paper presents the IFRS Interpretations Committee's (Committee) analysis and recommendations on the spot exchange rate an entity uses when exchangeability of a currency is lacking.

2. We are not asking the Board to make decisions on determining the spot rate discussed in this agenda paper. We think it would be helpful for the Board to first discuss and provide feedback on the Committee's recommendations regarding the spot rate. We will use that feedback to refine the analysis and recommendations and then, at a future meeting, ask the Board whether it agrees with the updated recommendations.

Structure of the paper

3. This paper includes:
   (a) a summary of the Committee's recommendations (paragraphs 5–6); and
   (b) the Committee's analysis and recommendations (paragraphs 7–46).

4. This paper also includes three appendices:
   (a) Appendix A—Flowchart summarising the Committee's recommendations;
   (b) Appendix B—Other considerations; and
   (c) Appendix C—Inflation and exchange rates (educational material).

Summary of Committee's recommendations

5. The Committee recommends that:

   (a) an entity estimate the spot rate when exchangeability of a currency is lacking.

   (b) any proposed amendment set out an objective for the estimation process. The objective would require an entity to estimate a spot rate that:

      (i) the entity would have been able to access at the reporting date had exchangeability (as defined in Agenda Paper 12C) not been lacking;

      (ii) would have arisen in an orderly transaction between market participants; and

      (iii) would faithfully reflect the economic conditions prevailing at that date.

   (c) an entity be permitted to use an observable rate (that does not meet the definition of a spot rate) if that rate approximates the spot rate in the following circumstances:

      (i) when the observable rate meets the definition of a spot rate for particular transactions or balances but not those for which the entity assesses exchangeability; or

      (ii) when the observable rate is the first subsequent rate at which exchanges could be made if exchangeability is restored before financial statements are authorised for issue.

   (d) an entity apply an estimated exchange rate to:

      (i) the entire transaction or balance of an asset or liability (when the entity reports foreign currency transactions in the functional currency), or

      (ii) the financial statements as a whole (when the entity uses a presentation currency other than the functional currency).

6. For ease of reference, the flowchart in Appendix A to this paper provides a summary of the Committee's recommendations.

Committee's analysis and recommendations

Proposed approach

7. The Committee's proposed approach builds on the requirement in IAS 21 to use a spot rate. Paragraph 8 of IAS 21 defines a spot rate as 'the exchange rate for immediate delivery'. Applying the Committee's proposed definition of exchangeability (as set out in Agenda Paper 12C), exchangeability is lacking when an entity would be unable to exchange a currency for another currency at a specified date. Accordingly, a lack of exchangeability results in an entity being unable to observe a spot rate at the reporting date.

8. In the Committee's view, when a currency is not exchangeable, an entity should estimate a spot rate. The objective should be to estimate a spot rate that:

   (a) the entity would have been able to access at the reporting date had exchangeability (as defined in Agenda Paper 12C) not been lacking;

   (b) would have arisen in an orderly transaction between market participants; and

   (c) would faithfully reflect the economic conditions prevailing at that date.

9. The Committee concluded that this approach, together with relevant disclosure (to be discussed at a future Board meeting), would faithfully represent the amounts at which assets and liabilities could have been realised (settled) at the reporting date had the currency been exchangeable.

10. Nonetheless, a lack of exchangeability would not automatically mean that an entity would be required to use an estimation technique to determine the spot rate. There are circumstances in which an entity might use an observable rate (that is not a spot rate) as a proxy for the estimated spot rate. This would be the case when an observable rate meets the objective specified in paragraph 8 of this paper. This could occur when:

    (a) a rate is observable at the reporting date but applies only to transactions or balances other than the transaction or balance for which the entity assesses exchangeability (see paragraphs 26–30 below); or

(b) exchangeability is restored after the end of the reporting period but before financial statements are authorised for issue. In this situation, a rate is observable at a date after the reporting date (see paragraphs 31–34 below).

Alternative approach considered

11. Paragraph 26 of IAS 21 requires an entity that reports foreign currency transactions in a functional currency to use the first subsequent rate at which exchanges could be made if exchangeability is temporarily lacking. IAS 21 neither defines 'temporarily' nor contains requirements for any other situation in which exchangeability is lacking (ie when an entity uses a presentation currency other than the functional currency or when a lack of exchangeability is other than temporary).

12. The Committee considered but rejected an approach that would:

(a) define 'temporary' and 'long-term' lack of exchangeability; and

(b) specify requirements applying to each of those two types of lack of exchangeability.

13. Appendix B to this paper provides more details on this approach and explains why the Committee did not recommend this approach.

Recommendations

14. The Committee recommends that an entity estimate the spot rate when exchangeability of a currency is lacking. An entity would use that estimated spot rate when:

(a) it reports foreign currency transactions in the functional currency; and

(b) uses a presentation currency other than the functional currency.

15. In such circumstances, the Committee further recommends setting out an objective for the estimation process. The objective would require an entity to estimate a rate that:

(a) the entity would have been able to access at the reporting date had exchangeability (as defined in Agenda Paper 12C) not been lacking;

(b) would have arisen in an orderly transaction between market participants; and

(c) would faithfully reflect the economic conditions prevailing at that date.

Applying the proposed approach

Estimating the spot rate

16. There are many economic models (with varying degrees of complexity) that an entity might use to estimate a spot rate. Those models (or techniques) use one or several of the following economic factors as inputs:

    (a) inflation (or the level of prices).

    (b) interest rates.

    (c) the balance of payments—the jurisdictional money supply and demand.

    (d) a jurisdiction's productivity.

    (e) other factors.

17. For example, one economic theory, the Purchasing Power Parity Theory, highlights inflation as one of the key determinants of exchange rates. Appendix C to this paper provides further information about this theory.

18. Estimating a spot rate could be a complex process that may require the use of judgement. Accordingly, the Committee recommends that any amendment narrow the circumstances in which an entity would use an estimated spot rate. This would mitigate concerns about estimation complexities.

19. The Committee considered two ways of narrowing those circumstances:

    (a) defining narrowly a lack of exchangeability. The Committee's recommendations in Agenda Paper 12C meet this objective.

    (b) permitting the use of an observable rate (that does not meet the definition of a spot rate) if that rate would approximate the spot rate that would have been observed at the reporting date had the currency been exchangeable. Paragraphs 25–36 of this paper discuss this further.

20. The Committee noted that, in estimating the spot rate, an entity would not necessarily need to use a complex estimation technique (that would involve consideration of all possible economic factors). In some situations, an entity could estimate the spot rate by starting with either (a) an observable rate that does not meet the definition of a spot

rate[1], or (ii) a spot rate at a date other than the reporting date. The entity would then adjust that observable rate, as needed, to estimate the spot rate at the reporting date.

Prescriptive requirements regarding estimation

21. The Committee recommends that any amendment neither specify detailed requirements on how to estimate a spot rate, nor prescribe a particular technique for it. The recommendation regarding defining exchangeability (in Agenda Paper 12C) is to be prescriptive in setting the parameters for when an entity would estimate the spot rate, and to set those parameters so that they would be met only in a narrow set of circumstances. Because of that, it would be unnecessary to be more prescriptive than suggested regarding how to estimate the spot rate.

22. The Committee considered the risks of not prescribing detailed requirements regarding estimation—ie that entities use different estimation techniques, possibly leading to a lack of comparability between entities. However, the Committee recommends a principle-based approach to estimation on the grounds that:

    (a) the matter of estimating an exchange rate is debated among economists. The Committee understands there is no consensus on which technique might provide the best outcome;

    (b) the selection of an appropriate estimation technique may require the use of judgement, considering entity and jurisdiction-specific facts and circumstances;

    (c) estimation models have varying degrees of complexity;

    (d) identifying an appropriate estimation technique could result in (i) extensive standard-setting work, and (ii) not capturing all relevant factors for all possible situations; and

    (e) this approach is consistent with the overall approach in IFRS Standards, and with the measurement requirements in particular Standards. For example, IFRS 9 *Financial Instruments* does not specify any particular technique for the measurement of expected credit losses, but instead sets out a clear objective.

[1] For example, an official exchange rate that the entity cannot access.

23. The Committee also considered whether the possible complexity involved in estimating a spot rate, together with no prescribed estimation technique, could result in significant uncertainties about the rate estimated and, thus, could undermine the principle of faithful representation. The Committee concluded that the uncertainties inherent in estimating a spot rate are not different from those that relate to other financial information based on estimates. The use of estimates is embedded in preparing IFRS-compliant financial statements. Paragraph 2.18 of the 2018 *Conceptual Framework* states:

> Faithful representation does not mean accurate in all respects... For example, an estimate of an unobservable price or value cannot be determined to be accurate or inaccurate. However, a representation of that estimate can be faithful if the amount is described clearly and accurately as being an estimate, the nature and limitations of the estimating process are explained, and no errors have been made in selecting and applying an appropriate process for developing the estimate.

24. The Committee recommends that an entity disclose information when it estimates a spot rate—the recommendation in this respect will be discussed at a future Board meeting. Such disclosures would help alleviate concerns regarding faithful representation.

Using an observable rate as an approximation for the spot rate

25. In some situations, an entity might be able to use an unadjusted observable rate that would:

(a) not meet the definition a spot rate for a specified transaction; but

(b) meet the objective of estimating a spot rate (see paragraph 8 of this paper).

Using an observable rate at the reporting date

26. In Agenda Paper 12C, the Committee recommends that the definition of exchangeability includes consideration of the purpose for which an entity obtains foreign currency. Accordingly, a currency may not be exchangeable for a particular purpose but may be exchangeable for other purposes.

27. In some situations, an entity might conclude that the observable rate for some transactions or balances approximates the spot rate for the transaction or balance for which exchangeability is lacking. Therefore, an entity could use the observable rate for those other transactions at the reporting date, without needing to use an estimation technique.

> For example, assume an entity has a foreign operation in a jurisdiction whose currency is free-floating with limited intervention by the jurisdictional authorities. There is one exchange rate that applies to all exchange transactions and this rate faithfully reflects economic conditions prevailing at the reporting date. However, jurisdictional authorities do not allow entities to obtain foreign currency for a purpose that would result in the entity recovering its net investment in the foreign operation (for example, dividend-remittances).
>
> In this example, the facts and circumstances indicate that the observable rate applying to transactions for which the currency is exchangeable could approximate the spot rate for other transactions, such as paying dividends. This is because the facts and circumstances indicate that this rate would have applied at the reporting date (ie there is only one exchange rate for the currency and that rate faithfully reflects economic conditions prevailing at the reporting date).

28. In the Committee's view, an entity could consider the following non-exhaustive list of indicators when assessing whether an observable rate approximates the spot rate:

(a) *the nature of the exchange rate structure*—ie whether several exchange rates exist for the currency. The existence of more than one exchange rate indicates that the monetary or jurisdictional authorities set exchange rates to encourage, or deter, entities from entering into particular transactions. Accordingly, the differing observable rates may include a 'penalty' or 'incentive', and may not faithfully reflect all relevant economic conditions.

(b) *the number and type of transactions for which the currency is exchangeable*—if an entity could obtain foreign currency for only particular types of transactions (such as emergency supplies), the exchange rate observed may not faithfully reflect all relevant economic conditions.

(c) *the nature of the exchange rate arrangement*—a free-floating exchange rate observable on a market would more faithfully reflect economic conditions than an exchange rate set through regular interventions from the monetary or jurisdictional authorities.

(d) *the frequency at which exchange rates are updated*—an exchange rate that is unchanged over a long period of time is less likely to faithfully reflect economic conditions than a rate that is updated every day, or several times per day.

29. The Committee sees benefit in:

(a) explicitly permitting an entity to use an observable rate if that rate would approximate the spot rate; and

(b) listing the indicators in paragraph 28 above as application guidance to help entities assess whether the observable rate approximates the spot rate at the reporting date.

30. Doing so would also address possible concerns about the proposed definitions of exchangeability and a lack thereof (see Agenda Paper 12C). Some entities might experience long delays when realising their net investment in some foreign operations (such as through the remittance of dividends). In such circumstances, entities may conclude that the functional currency of a foreign operation is not exchangeable for transactions that would result in realising the entity's net investment in the foreign operation. However, in many of those jurisdictions the local currency may be exchangeable for other purposes. Applying the proposed approach in paragraph 29, an entity might often be able to use an observable rate as an approximation for the spot rate at the reporting date.

Using the first subsequent rate at which exchanges could be made

31. Paragraph 26 of IAS 21 requires an entity that reports foreign currency transactions in a functional currency to use the first subsequent rate at which exchanges could be made if exchangeability is temporarily lacking. Requiring the use of an estimated exchange rate for all circumstances in which exchangeability is lacking would result in amending those requirements in paragraph 26.

32. That said, there are circumstances in which an entity might conclude that the first subsequent rate at which transactions could be made approximates the spot rate for the transaction or balance for which exchangeability is lacking. Accordingly, an entity could use this rate as the spot rate at the reporting date.

33. In the Committee’s view, an entity could consider the following non-exhaustive list of indicators when assessing whether the first subsequent observable rate approximates the spot rate:

(a) *the time period between the reporting date and the date at which exchangeability is restored*— the likelihood that the first subsequent rate would approximate the spot rate at the reporting date would reduce as the time period that elapses increases. This is because economic conditions could change significantly over a long period.

(b) *whether the currency is the one of a hyperinflationary or highly-inflationary economy*—inflation is a key determinant of the exchange rate. In general, the exchange rate decreases in a manner commensurate with inflation. When a currency is hyperinflationary (or highly-inflationary), prices change quickly and might even change several times per day. Accordingly, the first subsequent rate for a hyperinflationary currency is unlikely to approximate the spot rate at the reporting date.

34. Again, the Committee sees benefit in:

(a) explicitly permitting an entity to use the first subsequent rate for the purpose of a specified transaction if that rate would approximate the spot rate; and

(b) listing the indicators in paragraph 34 above as application guidance to help entities assess whether that rate would approximate the spot rate at the reporting date.

Recommendations

35. The Committee recommends neither specifying how an entity estimates the spot rate at the reporting date nor prescribing a particular estimation technique.

36. The Committee also recommends an entity be permitted to use an observable rate (that does not meet the definition of a spot rate) if that rate approximates the spot rate in the following circumstances:

(a) when the observable rate meets the definition of a spot rate for particular transactions or balances but not those for which the entity assesses exchangeability; or

(b) when the observable rate is the first subsequent rate at which exchanges could be made if exchangeability is restored before financial statements are authorised for issue.

Ability to convert only some amounts of foreign currency

Analysis

37. As discussed in Agenda Paper 12C, the Committee recommends specifying that exchangeability is lacking when an entity would be unable to exchange more than an insignificant amount of foreign currency. Because there could be an observable spot rate for some portion of a foreign currency transaction, the Committee considered whether an entity should be required to use:

(a) a blended rate ('blended approach') that would reflect both:

(i) the rate the entity could obtain for the exchangeable portion of the transaction, and

(ii) an estimated rate for the remaining portion; or

(b) an estimated rate for the entire transaction ('estimated approach').

38. The use of the blended approach would, in the Committee's view, faithfully depict a foreign currency transaction or balance. Nonetheless, the Committee recommends the estimated approach on the grounds that:

(a) applying the blended approach could be practically challenging, thereby increasing costs for preparers without providing significant additional benefits.

(b) an entity would be able to exchange only an insignificant amount of foreign currency[2]. Accordingly, applying the blended approach an entity would use the observable spot rate only for an insignificant portion of the transaction or balance (and the estimated rate for the remaining portion). In most cases, we would expect the outcome not to differ significantly from the estimated approach.

[2] This is based on the Committee's recommendation that exchangeability is lacking when an entity cannot exchange more than an insignificant amount of foreign currency.

39. The Committee considered whether to give entities the option of applying either the estimated approach or the blended approach, but decided not to do so. The situation contemplated would be expected to arise infrequently (ie only when an entity is able to exchange some, but less than an insignificant, amount of foreign currency) and allowing an option would increase the complexity of the requirements (and reduce comparability). The Committee is also of the view that there might be situations in which the observable rate (that applies to the exchangeable portion of the transaction) approximates the spot rate for the entire transaction. Accordingly, an entity might be able to use the observable rate with no adjustments, which would result in no difference between the two approaches.

Recommendation

40. When exchangeability is lacking, the Committee recommends that an entity apply an estimated exchange rate to (a) the entire transaction or balance of an asset or liability (when the entity reports foreign currency transactions in the functional currency), or (b) the financial statements as a whole (when an entity uses a presentation currency other than the functional currency).

Other matters

41. Appendix B to this paper analyses two matters relating to estimating the spot rate. In particular, it discusses situations in which:

    (a) the functional currency is that of a hyperinflationary economy; and

    (b) a currency is only indirectly exchangeable into another currency.

42. Based its analysis in Appendix B, the Committee recommends no specific requirements in respect of those matters.

Committee's recommendations

43. The Committee recommends that:

    (a) an entity estimate the spot rate when exchangeability of a currency is lacking. An entity would use that estimated rate both when:

(i) it reports foreign currency transactions in its functional currency; and

(ii) uses a presentation currency other than the functional currency.

(b) any proposed amendment set out an objective for the related estimation process and not specify how an entity estimates the spot rate at the reporting date nor prescribe a particular estimation technique. The objective would require an entity to estimate a rate that:

(i) the entity would have been able to access at the reporting date had exchangeability (as defined in Agenda Paper 12C) not been lacking;

(ii) would have arisen in an orderly transaction between market participants; and

(iii) would faithfully reflect the economic conditions prevailing at that date.

(c) an entity be permitted to use an observable rate (that does not meet the definition of a spot rate) if that rate approximates the spot rate in the following circumstances:

(i) when the observable rate meets the definition of a spot rate for particular transactions or balances but not those for which the entity assesses exchangeability; or

(ii) when the observable rate is the first subsequent rate at which exchanges could be made if exchangeability is restored before financial statements are authorised for issue.

(d) an entity apply an estimated exchange rate to:

(i) the entire transaction or balance of an asset or liability (when the entity reports foreign currency transactions in the functional currency), or

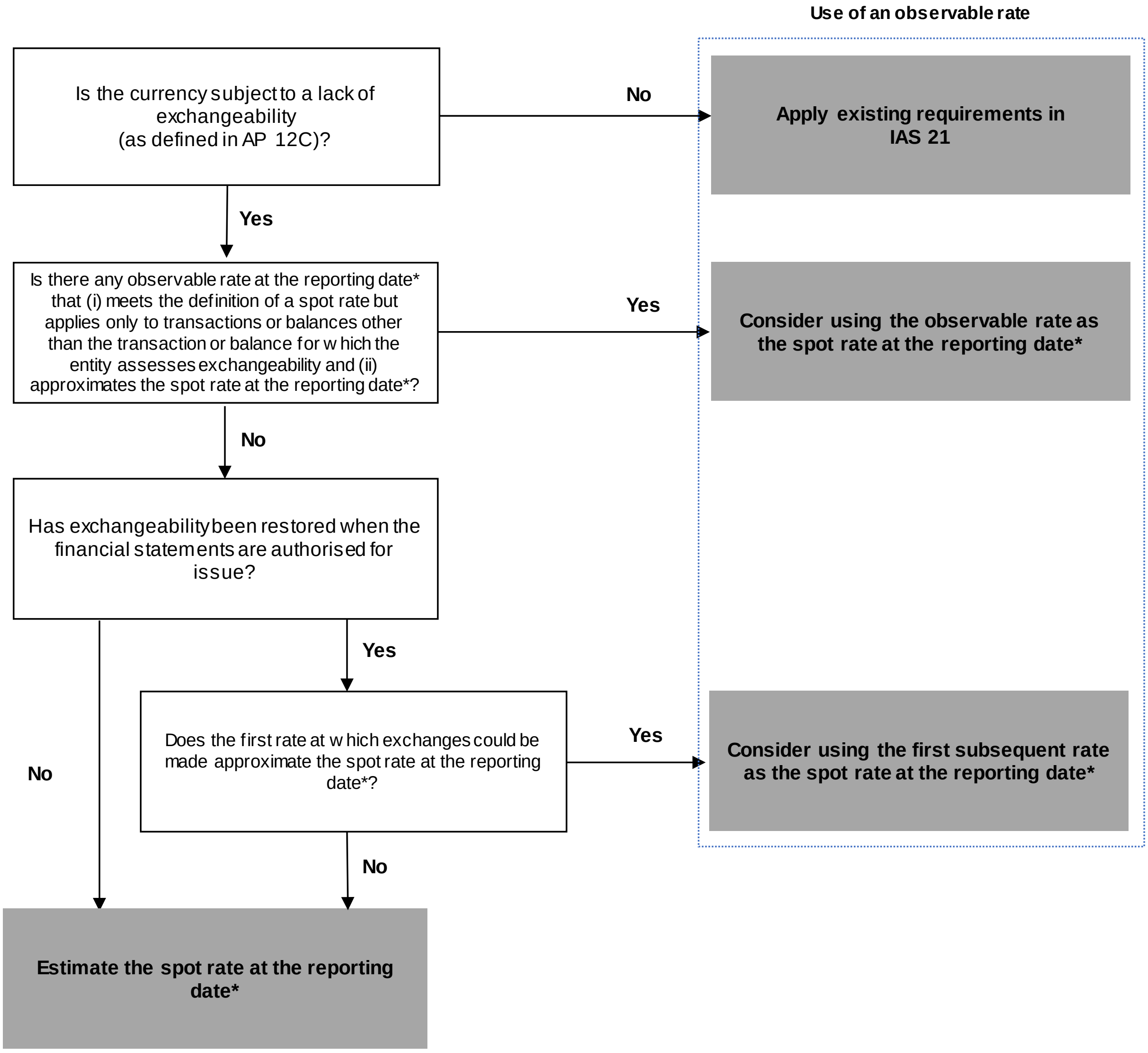
(ii) the financial statements as a whole (when an entity uses a presentation currency other than the functional currency).

44. For ease of reference, the flowchart in Appendix A provides a summary of the Committee’s recommendations.

Question for the Board

Does the Board have any comment or question on the Committee's analysis and recommendations on the spot rate that an entity uses when exchangeability of a currency is lacking?

Appendix A—Flowchart summarising the Committee's recommendations



**or at the date of the transactions*

Appendix B—Other considerations

B1. This appendix:

(a) provides further information about a standard-setting approach that the Committee considered but rejected; and

(b) considers two matters relating to how an entity estimates a spot rate.

Approach that the Committee considered but rejected

B2. As explained in paragraphs 11–13 of this paper, the Committee considered but rejected an approach that would:

(a) define 'temporary' and 'long-term' lack of exchangeability; and

(b) specify requirements applying to each of those two types of lack of exchangeability.

B3. In particular, the Committee considered defining:

(a) a temporary lack of exchangeability as a situation in which:

(i) a currency is not exchangeable at the reporting date; but

(ii) the exchangeability of the currency is restored after the reporting date and before the date on which the financial statements are authorised for issue.

(b) a long-term lack of exchangeability as a lack of exchangeability that is other than temporary.

B4. The Committee considered specifying that if a currency were subject to:

(a) a temporary lack of exchangeability, an entity would use the first subsequent rate at which exchanges could be made (as currently specified in paragraph 26 of IAS 21 for foreign currency transactions reported in the functional currency); and

(b) a long-term lack of exchangeability, an entity would estimate a spot rate.

B5. The Committee acknowledged that this approach would:

(a) not require the use of extensive judgement—this is because the proposed definitions would set the date on which financial statements are authorised for issue as ‘a bright line’ to distinguish temporary and long-term lack of exchangeability. Accordingly, the use of judgement would be limited only to assessing exchangeability (or a lack thereof).

(b) limit the use of an estimated spot rate to the circumstances in which a currency is subject to a long-term lack of exchangeability.

(c) result in minimal change to IAS 21, which is consistent with the objective of a narrow-scope project.

B6. However, the Committee was concerned that this approach might:

(a) result in an entity not always using a rate that reflects conditions existing at the reporting date when exchangeability is temporarily lacking.

(b) affect comparability between entities—this is because entities might use different rates solely because of differing dates of authorising financial statements for issue. For example, if exchangeability is lacking at the reporting date and is restored only some months later, an entity that issues financial statements before exchangeability is restored would estimate the spot rate while an entity that issues its financial statements after exchangeability is restored would use the first subsequent rate at which exchanges could be made.

B7. Furthermore, the Committee saw no conceptual reason for distinguishing temporary and long-term lack of exchangeability.

B8. Accordingly, the Committee decided not to proceed with this approach.

Matters relating to how an entity estimates a spot rate

Functional currency is that of a hyperinflationary economy

B9. An entity whose functional currency is that of a hyperinflationary economy applies IAS 29 *Financial Reporting in Hyperinflationary Economies*. IAS 29 specifies requirements that result in restating such an entity’s financial statements in terms of the measuring unit current at the reporting date. As a consequence, the entity's financial statements reflect the effect of changing prices (in other words, inflation). Because of this, some say if an entity translates those financial statements into a presentation currency, the exchange rate used for translation should reflect only inflation—ie the entity should apply a rate estimated using a model with only inflation as an input.

B10. The Committee recommends no specific requirements when exchangeability is lacking for a currency of a hyperinflationary economy. By requiring entities to faithfully reflect prevailing economic conditions and not prescribing how an entity estimates a spot rate, an entity would apply judgement in estimating the spot rate in those situations. The Committee would generally expect inflation to be an important consideration in those circumstances.

Indirect exchange mechanism

B11. The Committee considered a situation in which an entity might not be able to directly exchange a local currency (X) for a particular foreign currency (Y). However, it might be able to:

(c) exchange the local currency (X) for another foreign currency (Z); and

(d) exchange that other foreign currency (Z) for the required foreign currency (Y).

B12. In this situation, the Committee concluded the local currency (X) is exchangeable because the entity is able to exchange (indirectly) the local currency (X) for the foreign currency (Y). In this case, an entity would derive the applicable exchange rate by using the spot rates between (a) currencies X and Y, and (b) currencies Y and Z. Accordingly, the Committee recommends no specific requirements in this respect.

Appendix C—Inflation and exchange rates (educational material)

This appendix reproduces Appendix D to Agenda Paper 3 of the Committee's May 2018 meeting

C1. This appendix is designed to provide the Committee with an overview of the economic theory highlighting inflation as one of the main determinants of exchange rates. This appendix is not a comprehensive study discussing all the determinants of exchange rate (interest rates, growth, etc.). It aims only to provide an overview of the theories setting out a link between inflation and the changes in exchange rates, thereby supporting the analysis that an estimated exchange rate would generally be expected to reflect inflation.

C2. The Law of One Price (an economic theory) says in the absence of transportation costs, tariffs and restrictions on the movement of goods, identical goods should sell for the same price—expressed in terms of a common currency—on two separate markets. If goods were to trade at different prices, there would be opportunities for arbitrage and prices would eventually become equal. In other words, this law says the price of a good is the same wherever it is sold.

For example, if $P'_{€}$ is the selling price of a good in the Eurozone, $P'_{\$}$ is the selling price in the US and $FX_{\$/€}$ is the US dollar/Euro exchange rate, the relationship is as follows:

$$P'_{€} = P'_{\$} \times FX_{\$/€} \Leftrightarrow FX_{\$/€} = P'_{€} \div P'_{\$}$$

C3. The Purchase Power Parity (PPP) theory is derived by applying the Law of One Price to multiple commodities in an international environment. In other words, the PPP theory is the Law of One Price applied to the entire consumption basket of a jurisdiction (or monetary area). If $P_{€}$ is the price index in the Eurozone, $P_{\$}$ is the price index in the US and $FX_{€/\$}$ is the US dollar/Euro exchange rate, the equation shown in paragraph D2 can be restated as follows:

$$P_{€} = P_{\$} \times FX_{\$/€} \Leftrightarrow FX_{\$/€} = P_{€} \div P_{\$}$$

Said differently, $FX_{\$/€}$ is the spot exchange at which prices in the Eurozone are equal to prices in the US.

C4. The relationship outlined in paragraph C3 is referred to as the 'absolute PPP'. The 'relative PPP' model is derived from the 'absolute PPP' relationship. The relative PPP model predicts that, over time, the exchange rate between two currencies will adjust to offset inflation differences between the two underlying jurisdictions (or monetary areas). In other words, according to the relative PPP model the change in the exchange rate between two currencies over any period is entirely driven by differences in the changes in price levels in the two underlying jurisdictions (or monetary areas). If inflation rates are very small, the equation shown in paragraph C3 could be approximated as follows[3]:

$$\Delta\, FX_{\$/€} = \Delta\, P_{€} \div \Delta\, P_{\$} \Leftrightarrow \Delta\, FX_{\$/€} \cong i_{€} - i_{\$}$$

…where $i_{€}$ is in the inflation rate in the Eurozone over a period and $i_{\$}$ is the inflation rate in the US over that same period. In this case, the change in the exchange rate is approximately equal to the difference between the inflation rates in the US and the Eurozone.

C5. Assuming the exchange rate between two currencies is entirely determined by inflation, the relative PPP model could be used to compute a forward exchange rate taking into account the anticipated inflation rates of the jurisdictions (or monetary areas). For example, assuming that inflation rates are not small, the forward exchange rate in 12 months' time ($FX'_{\$/€}$) could be derived as follows:

$$\mathbf{FX'_{\$/€} = FX_{\$/€} \times (1+ \boldsymbol{i}_{€}) \div (1+ \boldsymbol{i}_{\$})}$$

… where $FX_{\$/€}$ is the spot exchange rate.

C6. We understand that the formula in paragraph C5 above can be used to estimate a spot rate at a specific reporting date—ie 'ex post'. For instance, the 'theoretical' spot exchange rate as at 31 December 20X7 is computed by using as a starting point the spot exchange rate as at 31 December 20X6, then adjusted by the inflation rates observed during the year 20X7.

C7. The 'relative PPP' model provides a framework to explain the changes in exchange rates over the long-term. However, over the short-term, its predictive capabilities are much debated among economists.

[3] We use the symbol Δ with the meaning 'change in'.