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IFRS™

STAFF PAPER

IFRS® Interpretations Committee meeting

Project	**Lack of exchangeability (IAS 21)**		
Paper topic	Requirements when there is a lack of exchangeability		
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Emerging Economies Group, March 2019, Agenda Paper 7C

The IFRS Interpretations Committee discussed this paper at its meeting in November 2018.

Introduction and purpose

1. Agenda Paper 8A for this meeting presented our analysis and preliminary views on whether, and how, to:
   (a) define exchangeability and, thus, a lack of exchangeability; and
   (b) specify when a lack of exchangeability is temporary and when it is long-term.
2. Based on our analysis in that paper, our preliminary view is that:
   (a) a temporary lack of exchangeability is a situation in which:
      (i) a currency is not exchangeable at the end of the reporting period, thus preventing the reporting entity from observing a spot exchange rate; but

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

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

3. This agenda paper presents our analysis of, and preliminary views on, the exchange rate an entity applies in those circumstances.

4. As a reminder, we are asking the IFRS Interpretations Committee (Committee) members for advice and feedback on our analysis and preliminary views. We are not asking the Committee to make any decisions.

Structure of the paper

5. This paper includes:

(a) a summary of our preliminary views; and

(b) our analysis and preliminary views.

6. This paper also includes two appendices:

(a) Appendix A—Alternative standard-setting approach; and

(b) Appendix B—Inflation and exchange rates (educational material)[1].

Summary of our preliminary views

Long-term lack of exchangeability

7. Our preliminary view is that an entity should estimate a spot exchange rate (spot rate) when a currency is subject to a long-term lack of exchangeability. The entity would use that estimated spot rate both when:

[1] Reproduced from Appendix D to Agenda Paper 3 for the Committee's May 2018 meeting.

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

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

8. In such circumstances, we think any proposed requirements should:

(a) not specify how an entity estimates the spot rate nor prescribe a particular estimation model; and

(b) require an entity to disclose information about the estimation process.

Temporary lack of exchangeability

9. Our preliminary view is that:

(a) an entity should use the first subsequent rate at which exchanges could be made in situations in which there is a temporary lack of exchangeability (as specified in paragraph 26 of IAS 21 *The Effects of Changes in Foreign Exchange Rates*). The entity would use that subsequent rate both when:

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

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

(b) no specific disclosure requirements are necessary in this situation.

Staff analysis

10. As discussed in paragraph 18 of Agenda Paper 8A, we have not reconsidered the requirement to use a spot rate. Rather, the principles and requirements we propose in this paper build on that requirement. This requirement necessarily narrows the standard-setting options available to the Committee. In situations in which there is a lack of exchangeability, an entity could use either:

(a) an estimated spot rate; or

(b) an observable rate at a date that is *not* the end of the reporting period (reporting date). In the light of our proposed definitions for temporary and long-term lack of exchangeability as set out in paragraph 2 above, an entity could use:

(i) either an observable rate *before* or *after* the reporting date if the currency is subject to a temporary lack of exchangeability; and

(ii) an observable rate *before* the reporting date if the currency is subject to a long-term lack of exchangeability.

11. Our analysis separately considers a long-term lack of exchangeability and a temporary lack of exchangeability.

Long-term lack of exchangeability

Estimating the spot rate

12. When there is a long-term lack of exchangeability, an entity is unable to observe a spot rate either at, or after, the reporting date. Accordingly, we think in this situation the entity should estimate a spot rate—both when reporting foreign currency transactions in the functional currency or when using a presentation currency other than the functional currency.

13. The objective of the estimation process would be to estimate the spot rate an entity would have been able to access had:

(a) exchangeability not been lacking; and

(b) the exchange rate been set through a legally permissible exchange mechanism or market to faithfully reflect prevailing economic conditions[2].

[2] In our view, this objective would generally result in computing one spot rate for the currency.

14. In paragraphs 18–22 of this paper, we consider how an entity could estimate the spot rate and whether any proposed requirements should specify how an entity estimates the spot rate.

Other alternatives considered

15. We considered whether an entity could or should be required to use the last observable rate at which it would have been able to exchange foreign currency (ie the spot rate that was available before there was a lack of exchangeability).

16. In our view, in many cases the use of the last observable rate is unlikely to reflect the circumstances that exist at the reporting date. This is because we expect a lack of exchangeability at the reporting date to be the outcome of a significant economic event and, in our view, the last observable rate would generally not reflect this event. Accordingly, using this rate may not provide useful information and thus recommend not exploring this alternative further.

17. Appendix A to this paper assesses another standard-setting alternative (a consolidation exception to IFRS 10 *Consolidated Financial Statements*) that could apply when a currency is subject to a long-term lack of exchangeability. We included this assessment in an appendix because this alternative would not amend the requirements in IAS 21. Based on our analysis in Appendix A of this paper, we recommend not exploring this alternative further.

How to estimate the spot rate

18. We are aware that there are many economic models (with various levels of complexity) an entity might use to estimate a ‘theoretical’ spot rate. Those models use one or several of the following economic factors:

    (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; and/or

(e) other factors.

19. For example, Appendix B to this paper presents an economic theory (the Purchasing Power Parity Theory) that highlights inflation as one of the key determinants of exchange rates. That appendix also explains how some entities use this theory to derive an estimated exchange rate.

20. We acknowledge that estimating a spot rate could be a complex process which may require the use of judgement. We think an entity could, in general, estimate a spot rate by either:

(a) inputting the relevant economic factors and other data into an economic model designed to estimate the rate; or

(b) starting with either (i) an observable rate at the reporting date that does not meet the definition of a spot rate[3], or (ii) a spot rate at another date. The entity would then adjust the relevant assumptions to estimate the spot rate. In some situations, the starting rate may already reflect all the relevant economic factors at the reporting date—in this situation, an entity may not need to undergo a complex estimation process and may be able to use that rate as a proxy for the estimated spot rate.

21. Any proposed requirements should not provide detailed requirements on, nor prescribe a particular model for, estimating a spot rate. This is because:

(a) the matter of estimating a rate is debated among economists and we understand there is no consensus on which theory and/or model might provide the best outcome;

(b) estimation may require the use of judgement, considering entity and jurisdiction-specific factors; and

(c) estimation models have differing levels of complexity.

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

22. Furthermore, we note that our preliminary views regarding defining exchangeability is to be prescriptive in setting the parameters for when an entity would use an estimated rate—our preliminary view is also to set those parameters so that a lack of exchangeability would exist only in a narrow set of circumstances. Because of that, it would not be necessary to be more prescriptive than suggested regarding how to estimate the spot rate.

Ability to convert only some amounts of foreign currency

23. As discussed in Agenda Paper 8A for this meeting, our preliminary view is that a lack of exchangeability arises when an entity is unable to exchange more than an insignificant amount of foreign currency. Because in these situations there could be an observable spot rate for some portion of a foreign currency transaction, we considered whether an entity should be required to use:
    - (a) a blended rate (blended approach) that would reflect both:
        - (i) the actual rate that the entity could obtain for the portion it could exchange, and
        - (ii) the estimated rate for the remaining portion; or
    - (b) an estimated rate for the entire balance (estimated approach).

24. We illustrate those two approaches in the following example. This example considers an entity that:
    - (a) has the LC as its functional currency;
    - (b) has a monetary liability denominated in a foreign currency (FC) with a balance of FC1,000 at the reporting date;
    - (c) would be able to obtain only FC50 through a legally permitted exchange mechanism to settle that liability. The spot rate available through this exchange mechanism is FC 1: LC 20; and
    - (d) would estimate a spot rate for the remainder of the balance (ie FC950) at FC 1: LC 30.

25. In this example, we assume there is a lack of exchangeability—ie LC is not exchangeable for settling the monetary liability. Accordingly, the entity would use an estimated spot rate to report the liability in its functional currency. To do so, applying the:

    (a) blended approach, the entity would report the liability at an amount of LC29,500 being (FC50 × 20) + (FC950 × 30).

    (b) estimated approach, the entity would translate the entire liability using the exchange rate of FC 1: LC 30 and would thus report the liability at an amount of LC30,000 being FC1,000 × 30.

26. The use of the blended approach would, in our view, lead to a representationally faithful depiction of any foreign currency balance. However, we think an entity should be required to use the estimated approach and not the blended approach. This is because:

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

    (b) an entity would be able to exchange only an insignificant amount of foreign currency[4]. Accordingly, using the blended approach an entity would apply the actual exchange rate to only an insignificant portion of that balance (and the estimated rate to the remaining portion). In most cases the outcome would not differ significantly from the estimated approach.

Consideration of specific situations

Functional currency is that of a hyperinflationary economy

27. An entity whose functional currency is that of a hyperinflationary economy applies the requirements in IAS 29 *Financial Reporting in Hyperinflationary Economies*.

[4] This is based on our preliminary view (as outlined in paragraph 23 of this paper) that a lack of exchangeability arises when an entity cannot exchange more than an insignificant amount of foreign currency. If the Committee were to disagree with this preliminary view, we may need to revisit our conclusion in paragraph 26.

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. These requirements result in an entity's financial statements reflecting the effect of changing prices. Accordingly, some say that if an entity subsequently translates those financial statements into a presentation currency, the exchange rate at which it translates those financial statements should reflect only inflation—ie an entity should apply a real exchange rate (a rate estimated using an economic model that has only inflation as an input).

28. We think no specific requirements are needed when the currency that is subject to a long-term lack of exchangeability is that of a hyperinflationary economy. By requiring entities to faithfully reflect prevailing economic conditions and not prescribing how an entity estimates an exchange rate, an entity would apply judgement in estimating the exchange rate in those situations. We would generally expect inflation to be an important consideration in these circumstances.

Indirect exchange mechanism

29. We 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:

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

    (b) exchange that other foreign currency (Z) into the required foreign currency (Y) through another legally permissible market or jurisdiction.

30. In this situation, we think the local currency (X) is exchangeable. This is because the entity is able to exchange (indirectly) the local currency (X) for the foreign currency (Z). 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. We think no specific requirements would be needed in this respect.

Preliminary view

31. Based on our analysis in paragraphs 12–30 of this paper, our preliminary view is that when a currency is subject to a long-term lack of exchangeability:

(a) an entity should estimate a spot rate, both when it reports foreign currency transactions in the functional currency and when it uses a presentation currency other than the functional currency. The objective of the estimation process would be to estimate the spot rate an entity would have been able to access had (a) exchangeability not been lacking, and (b) the exchange rate been set through a legally permissible exchange mechanism or market to faithfully reflect prevailing economic conditions.

(b) any proposed requirements should not specify how an entity estimates the spot rate nor should they prescribe a particular estimation model.

Temporary lack of exchangeability

32. Paragraph 26 of IAS 21 contains requirements on the exchange rate an entity uses when (a) an entity reports foreign currency transactions in the functional currency, and (b) exchangeability is temporarily lacking. Paragraph 26 requires an entity to use the first subsequent rate at which exchanges could be made—ie a spot rate that an entity observes after the reporting date. However, IAS 21 does not include similar requirements for when an entity uses a presentation currency other than the functional currency.

33. As discussed in Agenda Paper 8A for this meeting, our preliminary view is that a temporary lack of exchangeability is a situation in which:

    (a) a currency is not exchangeable at the end of the reporting period, thus preventing the reporting entity from observing a spot rate; but

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

34. In our view, there are two alternatives the Committee could consider in developing requirements for when exchangeability is temporarily lacking[5]:

   (a) extend the existing requirements in paragraph 26 of IAS 21 (see paragraph 32 of this paper) to situations in which (i) there is a temporary lack of exchangeability and (ii) an entity uses a presentation currency other than the functional currency—ie in these situations an entity would use the first subsequent rate at which exchanges could be made (Alternative I); or

   (b) require an entity to use an estimated rate (Alternative II) both when it reports foreign currency transactions in the presentation currency and when it uses a presentation currency other than the functional currency.

Assessment of the two alternatives

35. We think using an estimated rate (Alternative II) would:

   (a) result in an entity applying similar requirements regardless of whether a lack of exchangeability is temporary or long-term; and

   (b) be more consistent with the general requirement in IAS 21 to use a spot rate (ie the rate for immediate delivery)—using the first subsequent rate (Alternative I) does not necessarily reflect the spot rate at the reporting date and/or the date of the transaction.

36. Nonetheless, we think entities should use the first subsequent rate (ie Alternative I) when there is a temporary lack of exchangeability. This is because:

   (a) Alternative I is simple, does not require use of significant judgement, and thus is less costly to apply. As explained earlier, estimating a spot rate can be complex and the expected benefits of Alternative II may not outweigh the costs.

   (b) Alternative I is consistent with existing requirements in paragraph 26 of IAS 21. Although IAS 21 does not explain the rationale for these

[5] For the same reasons as outlined in paragraph 16 of this paper, we did not further consider an alternative that would require an entity to use the last observable exchange rate in this situation.

requirements, by requiring the use of a spot rate that is not the rate at the reporting date the Board would appear to have prioritised the use of observable rates (the first subsequent rate would be observable while an estimated spot rate would not).

(c) given the relatively short period of time that would generally elapse between the reporting date and the restoration of exchangeability, in many cases we would not expect the use of an estimated rate and the first subsequent rate to result in significantly different outcomes. However, we acknowledge our expectation may not hold true if one of the currencies is the currency of a hyperinflationary economy—this is because the exchange rate of a hyperinflationary currency may devalue quickly.

(d) Alternative I results in minimal standard-setting, which is consistent with the narrow-scope nature of this project. The Committee would simply extend, and not change, existing requirements.

Preliminary view

37. Our preliminary view is that an entity should use the first subsequent rate at which exchanges could be made when there is a temporary lack of exchangeability.

Disclosures

38. In this section we consider whether any specific disclosure requirements are needed for when there is a lack of exchangeability. Our analysis considers temporary and long-term lack of exchangeability separately.

Long-term lack of exchangeability

39. In this situation, we think:

(a) the entity is exposed to risks because the currency is subject to a long-term lack of exchangeability. Accordingly, users of financial statements (users) may be interested in having information about the entity's exposure; and

(b) applying our preliminary views, an entity would estimate a spot rate—users may be interested in information about the estimation process and any uncertainties relating to that process.

40. Before assessing whether the Committee should add specific disclosure requirements to IAS 21 in this regard, we first considered existing requirements that would relate to these matters and then considered any additional disclosures that could be helpful.

Information about risks

41. IFRS 7 *Financial Instruments: Disclosures* applies to financial instruments. Paragraphs 31–42 of IFRS 7 specify disclosure requirements on the nature and extent of risks arising from financial instruments. Paragraphs 40–42 of IFRS 7 set out disclosure requirements for market risk.

42. Appendix A to IFRS 7 specifies that currency risk is a type of market risk and defines it as 'the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates'.

43. Paragraph B23 of Appendix B to IFRS 7 states:

> Currency risk (or foreign exchange risk) arises on financial instruments that are denominated in a foreign currency, ie in a currency other than the functional currency in which they are measured. For the purpose of this IFRS, currency risk does not arise from financial instruments that are non-monetary items or from financial instruments denominated in the functional currency.

44. Accordingly, the disclosures requirements in IFRS 7 enable users to understand the nature and extent of currency risk arising from financial instruments when:

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

(b) those transactions relate to financial instruments that are monetary items.

45. In addition, in its September 2018 Agenda Decision, the Committee observed that some disclosure requirements may be relevant to an understanding of an entity's

financial statements when the entity has a foreign operation whose functional currency is subject to a long-term lack of exchangeability. In particular, the Committee observed that paragraphs 10, 13, 20 and 22 of IFRS 12 *Disclosures of Interests in Other Entities* require an entity to disclose the nature and extent of significant restrictions on its ability to access or use assets and settle liabilities of the group, or in relation to its joint ventures or associates.

46. In our view, the disclosure requirements discussed in paragraphs 41–45 of this paper are sufficient to help users understand a reporting entity's exposure to risk that arises from long-term lack of exchangeability. Accordingly, we think no additional disclosure requirements are necessary in this regard.

Estimating a spot rate

47. Paragraphs 125–133 of IAS 1 *Presentation of Financial Statements* specify requirements applying when an entity identifies sources of estimation uncertainty. In this regard, paragraph 125 of IAS 1 states:

> An entity shall disclose information about the assumptions it makes about the future, and other major sources of estimation uncertainty at the end of the reporting period, that have a significant risk of resulting in a material adjustment to the carrying amounts of assets and liabilities within the next financial year. In respect of those assets and liabilities, the notes shall include details of:
>
> (a) their nature, and
>
> (b) their carrying amount as at the end of the reporting period.

48. Paragraph 129 of IAS 1 provides examples of the types of disclosures an entity makes in this respect. It states:

> …Examples of the types of disclosures an entity makes are:
>
> (a) the nature of the assumption or other estimation uncertainty;

(b) the sensitivity of carrying amounts to the methods, assumptions and estimates underlying their calculation, including the reasons for the sensitivity;

(c) the expected resolution of an uncertainty and the range of reasonably possible outcomes within the next financial year in respect of the carrying amounts of the assets and liabilities affected; and

(d) an explanation of changes made to past assumptions concerning those assets and liabilities, if the uncertainty remains unresolved.

49. While these disclosure requirements in IAS 1 are helpful, we think specific disclosure requirements would be needed when an entity estimates a spot rate. This is because:

(a) experience with estimated rates for the Venezuelan Bolivar (VEF) indicates that the range of possible outcomes might be wide. In paragraph B6 of Appendix B to Agenda Paper 3 prepared for the May 2018 Committee meeting, we observed that the estimated rates used as at 30 June 2017 ranged from USD 1:VEF 2,852 to USD 1:VEF 4,302.

(b) entities might use different methods to estimate the spot rates.

(c) users may need information that would enable them to assess any measurement uncertainty in the estimation process.

50. In our view, an entity should disclose:

(a) a description of the circumstances that resulted in a long-term lack of exchangeability;

(b) the estimated spot rate;

(c) a description of the estimation methodology and the key inputs used; and

(d) the foreign exchange position on the currency.

Temporary lack of exchangeability

51. We think the existence of a temporary lack of exchangeability does not necessitate any disclosure requirement. This is because, in such a situation:

    (a) the risk of being unable to exchange a currency no longer exists when the financial statements are authorised for issue; and

    (b) the entity uses an observable rate; it does not estimate the rate.

Conclusion

52. Based on our analysis, when there is a long-term lack of exchangeability, we think an entity should be required to disclose the information listed in paragraph 50 of this paper. No specific disclosures should be required when there is a temporary lack of exchangeability.

Our preliminary views

Long-term lack of exchangeability

53. Based on our analysis, our preliminary view is that an entity should estimate a spot rate when a currency is subject to a long-term lack of exchangeability. The entity would use that estimated spot rate both when:

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

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

54. In such circumstances, we think any proposed requirements should:

    (a) not specify how an entity estimates the spot rate nor prescribe a particular estimation model; and

    (b) require an entity to disclose information about the estimation process (as listed in paragraph 50 of this paper).

Temporary lack of exchangeability

55. Based on our analysis, our preliminary view is that:

    (a) an entity should use the first subsequent rate at which exchanges could be made in situations in which there is a temporary lack of exchangeability (as specified in paragraph 26 of IAS 21). The entity would use that subsequent rate both when:

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

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

    (b) no specific disclosure requirements are necessary in this situation.

Question for the Committee
Does the Committee have any advice or feedback on our analysis and preliminary views in this agenda paper?

Appendix A— Alternative standard-setting approach

A1. Any proposed requirements could permit or require entities to deconsolidate foreign operations in situations in which the functional currency of the foreign operation is subject to a long-term lack of exchangeability. IAS 27 *Consolidated and Separate Financial Statements* (as revised in 2000) required a subsidiary to be excluded from consolidation if it operated under severe long-term restrictions that significantly impaired the ability of the subsidiary to transfer funds to its parent.

A2. We recommend that the Committee not explore this option further. This is because:

(a) a long-term lack of exchangeability does not, in and of itself, prevent a reporting entity from controlling a foreign operation. As explained in paragraph BCZ21 of IFRS 10, the Board decided to remove the consolidation exception in IAS 27 because the circumstances to which it applied may not preclude control. We see no basis to reverse this decision.

(b) this approach only addresses the matter of a long-term lack of exchangeability when a reporting entity consolidates a foreign operation whose functional currency is not the reporting entity's presentation currency. This approach would not address circumstances in which:

(i) a reporting entity has a foreign operation that is a joint venture, an associate or a branch;

(ii) a reporting entity translates its financial statements into a different presentation currency; and

(iii) a reporting entity reports foreign currency transactions in the functional currency.

Appendix B—Inflation and exchange rates (educational material)

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

B1. This appendix is designed to provide the Committee with an overview of the economic theory highlighting inflation as one of the main determinant 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.

B2. 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:

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

B3. 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.

B4. The relationship outlined in paragraph D3 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 D3 could be approximated as follows[6]:

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

…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.

B5. 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[7]:

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

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

B6. We understand that the formula in paragraph D5 above can be used to estimate 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

[6] We use the symbol Δ with the meaning 'change in'.
[7] This formula can be used to compute the 'equilibrium' exchange rate used in paragraph C13 of the simplified example shown in Appendix C to this paper. In that example, we had: $0.8 \times (1+0\%) \div (1+110\%) \cong$ € 0.381.

exchange rate as at 31 December 20X6, then adjusted by the inflation rates observed during the year 20X7.

B7. 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 is much debated among economists.