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**International
Accounting Standards
Board**

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These notes are based on the staff papers prepared for the IASB. Paragraph numbers correspond to paragraph numbers used in the IASB papers. However, because these notes are less detailed, some paragraph numbers are not used.

INFORMATION FOR OBSERVERS

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Project: Conceptual Framework

Subject: Phase C: Evaluation of Measurement Basis Candidates Using Measurement Concepts and Principles (Agenda Paper 2C)

INTRODUCTION

1. The preceding paper, *Measurement 5: Measurement Concepts and Principles*, discussed theories and definitions of measurement, measurement principles, and terms often confused with measurement. That paper concluded that the classical theory of measurement is appropriate as a foundation for accounting measurement and constructed a definition of accounting measurement based on that theory. That paper also set forth several measurement principles and clarified the difference between measurement and other processes such as estimation and calculation.
2. This paper links the discussion of measurement in *Measurement 5* to the objective of Milestone II of the measurement phase, which is to evaluate the measurement basis candidates resulting from Milestone I. The first part of this paper distills a few evaluative criteria from *Measurement 5*. The second part uses those criteria to evaluate the measurement basis candidates.

CRITERIA FROM GENERAL MEASUREMENT DISCUSSION

3. The discussion of measurement in *Measurement 5* was very general in nature. It drew upon measurement theory to determine what *measurement* should mean in the context of accounting, set forth some measurement principles, and clarified the difference between measurement and other processes. On the other hand, the objective of Milestone II is relatively narrow. It is to evaluate the measurement basis candidates from Milestone I in sufficient depth that the Boards can make reasoned conclusions in Milestone III of the measurement phase.
4. Although the purpose of *Measurement 5* was not to derive criteria for evaluating the measurement basis candidates, the staff thinks that, nevertheless, some important criteria may be found there. The staff reviewed that discussion, focusing on those portions that relate to measurement attributes or bases. From that review, the staff gleaned three criteria as follows:

A desirable measurement basis for assets and liabilities should be:

- a. A **real attribute** of assets and liabilities
- b. A **present attribute** of assets and liabilities
- c. An **observable attribute** of assets and liabilities

Each of those criteria is discussed in turn below.

Real Attribute

5. The first criterion relies partly on the definition of financial statement measurement and partly on one of the principles of measurement.
6. The pertinent portion of the definition is the phrase that relates the process of measurement to a *preconceived and defined basis*. That phrase has two parts: (1) the noun *basis* and (2) the adjectives *preconceived* and *defined*. *Basis* refers to the attribute of the asset or liability to be measured, whereas *preconceived and defined* refers to a conceptual link between the measurer and the asset or liability.

7. The classical interpretation of *basis* in the context of measurement in general is as an attribute of the object to be measured that exists as part of the physical reality of the object, or of relations of the object to other objects, independently of the measurer. In other words, the object or relation of the object must be real, the attribute to be measured must be real, and the attribute must be an attribute **of** the object, not an attribute of some other object or of the measurer.
8. In an accounting context, *basis* would be an economic attribute of an asset or liability, or of a relation of an asset or liability, that is part of the reality of the asset or liability, existing independently of the accounting measurer.
9. The terms *preconceived* and *defined* are important because classical theory suggests that the existence of a quantitative attribute is not sufficient for measurement to take place. In addition, the measurer must be able to conceptualize and describe that attribute with sufficient precision that a measurement process can be designed and applied to it. If the measurer's concept and definition of an attribute are too vague, then measurement in the classical sense becomes impossible.
10. It is important also to understand what *preconceived and defined* does not mean. Although the measurer must have a well-defined conception of an attribute before measuring that attribute, the act of conceptualizing and defining does not create the attribute. The attribute exists independently of the measurer before conceptualization and definition take place. For example, the attribute of physical objects called *weight* has always existed. People in various cultures have come to understand that attribute and have created names, measuring scales, units of measure, measuring instruments, and measuring processes for weight, but they have not created weight itself. First comes the basis, and then the conception and definition of it follows.
11. The criterion of a real attribute is also dependent on one of the principles of measurement discussed in *Measurement 5*, namely the principle that an object itself cannot be measured, only a single attribute. Multiple attributes of an object may be measurable, but each must be measured separately.

Present Attribute

12. The second criterion rests on another principle from *Measurement 5*, namely the principle that measurement is a process that occurs only in the present time frame. The staff reasons that if measurement is confined to the present, then the measurement attribute must exist in the present as well as the object (asset, liability) whose attribute is to be measured.
13. In previous discussions, the staff has shared the philosophical view that the concept of a present time frame is largely a useful fiction. With each passing moment, what was the future quickly becomes the past; the present is like a knife's edge between the past and the future. What we call the present is usually the most recent past. Therefore, both attributes that existed in the past and attributes that exist in the present may be thought of as having a present existence. Another way to think of past attributes and measurements is that those attributes existed in what was then the present and, therefore, were present at the time they were measured.

Observable Attribute

14. The third criterion also comes from one of the measurement principles, namely the principle that states, "That which cannot be observed cannot be measured." In this context, *observable* is not intended to have the same meaning as *exists*. In light of the second criterion, that would be redundant. Rather, this criterion allows for the possibility that an attribute exists, but cannot be seen or cannot be seen well enough to be measured.
15. Most, if not all, attributes of interest in classical measurement are not observable in particular instances or under certain circumstances. However, measurers do not dismiss an attribute simply because it cannot be observed in a particular situation. If the attribute is considered sufficiently important, they try to make indirect measurements or estimates of that attribute or wait until circumstances change to allow a direct measurement. Therefore, absolute observability is not required to satisfy the criterion of an observable attribute. What is required is that the attribute be observable **in principle**.

16. An attribute that exists and can be observed in some, though not all, cases is deemed to be observable in principle. For example, the height of a solar flare above the surface of the sun is observable in principle. However, there are instances when that height is not observable in fact, such as when the observer is at a location on the Earth experiencing nighttime, or when clouds obscure a view of the sun.
17. In addition to sometimes being confused with existence, observability is sometimes confused with measurability. An attribute is not measurable, or measurable in all cases, simply because it is observable. Observability is a necessary condition for measurement, but not a sufficient condition. Inability to *observe* an attribute that is otherwise observable in principle is usually due to the nature of the attribute, the nature of the object possessing that attribute, or the circumstances surrounding the object at a particular time. In contrast, inability to *measure* an observable attribute is usually due to limitations in measurement technology, including cost/benefit considerations. As is the case with an attribute that is observable in principle, but not in a particular case, an attribute that is observable, but not measurable, may be either measured indirectly or estimated.
18. Two examples will illustrate the difference between observability and measurability. These examples use either the attribute of length or that of distance, which in its simplest interpretation is the length of an imaginary straight line between two objects. First, consider a herpetologist (one who studies snakes) who is unable to observe the length of a particular giant anaconda snake in the wild because the snake is moving, it is largely concealed by vegetation, and attempts to capture it fail. The herpetologist can only catch glimpses of the snake's head. The snake has length, and that length is observable in principle, but in this particular case it is not observable in fact because the snake is hidden. The length of the snake is also measurable in principle, but not in fact, because the herpetologist cannot catch it. The herpetologist may have to estimate the snake's length based on a photograph of its head, the estimated distance from the herpetologist to the snake's head, and the average relation between the size of measured anacondas' heads and their length.

19. For the second example, consider an astronomer who wishes to ascertain the distance between two very distant galaxies. To date, no one has been able to devise a method or instrument to measure such a distance, even though the two galaxies, as well as the distance between them, are simultaneously observable through a powerful telescope or in a photograph. Therefore, astronomers estimate the distance using the properties of pulsating stars in the galaxies and the known distances between the Earth and pulsating stars nearest it.

APPLICATION TO MEASUREMENT BASIS CANDIDATES

20. There are nine primary measurement basis candidates to consider (See the Appendix for a list of the candidates and their variations). Because of similarities among some of the candidates with respect to the measurement concepts criteria, this paper will evaluate the potential bases in four groups as follows:

- a. Past and present prices (that is, past entry price, past exit price, current entry price, and current exit price)
- b. Modified past amounts (including their variations)
- c. Other present bases (that is, current equilibrium price and value in use)
- d. Future bases (that is, future entry price and future exit price)

Each of the above groups is evaluated using each of the three criteria discussed in the previous part of the paper.

Past and Present Prices

Real attribute

21. Prices, along with quantities, are the most common attributes of assets and liabilities in economics. In the case of assets and liabilities of an entity at a measurement date, an entry or exit price is not an attribute inherent in the asset or liability itself. However, either price is a relational attribute of assets and liabilities. More precisely, either price is an *economic relational attribute*.

22. An entry price of an entity's asset represents the amount of stored wealth (or cash potential, cash equivalents) in that asset that would have to be sacrificed to obtain an identical asset at the measurement date. Likewise, an exit price of an entity's asset represents the amount of wealth stored in that asset that would be received in a sacrifice of that asset for cash. Thus, both present entry and present exit prices represent economic relations between an entity's assets and liabilities and other scarce resources and economic obligations in terms of the monetary unit.
23. That an attribute is relational rather than inherent does not diminish its reality or importance. Recall that distance is just such an attribute. In fact, the entry and exit prices of assets and liabilities in exchange transactions, which accountants easily accept, are economic relational attributes of the purchased or sold assets and liabilities, too. All past and present price bases, whether determined by stored wealth or transactions, represent economic relational attributes. The difference between a stored-wealth price and a transacted price is in the ease of measurement, not the actuality of the attribute.
24. Both past and present entry and exit prices satisfy the real attribute criterion equally. Again, the pertinent difference between particular prices is not their actuality as attributes of an entity's assets and liabilities, but their differential ease of measurement. Past entry prices are typically measured by comparison to transaction prices for the assets or liabilities at the time of their acquisition or incurrence, whereas past exit prices and present entry and exit prices are measured by comparison to transaction prices for assets or liabilities identical to, but other than, those of the entity.

Present attribute

25. Both present entry and present exit prices satisfy the criterion of present existence by definition. That is, they are both defined as prices that exist in the present time frame. As has been explained in the description of this criterion, the staff thinks that present existence includes past attributes, too.

Observable attribute

26. Past and present entry and exit prices both satisfy the criterion of an observable attribute. Past entry prices have been observed already. Past exit prices were observable, if they have been measured, or were observable in principle. Present entry and present exit prices are presently observable, at least in principle.
27. Recall that this paper has made a distinction between *observability* and *measurability*. To say, for example, that the present entry price of an automobile in an entity's vehicle fleet is observable does not mean that by looking at the automobile one can quantify the amount of its present entry price. To be able to do so would mean that the present entry price of the automobile is *measurable*. Rather, it means that one can determine that the automobile *has* a present entry price. Because prices are relational attributes of an economic kind, that determination cannot be made solely by looking at the automobile. The observer must look at it with an economic context in mind and ask whether it belongs to the class of things that are scarce resources and would command a price if placed in the market.
28. As it happens, not only is the present entry price of an entity's vehicle observable, it is also measurable. There are sufficient transactions in used vehicles that it is easy to determine the price that would have to be paid to replace the entity's automobile with an identical one. That is not the case with every asset or liability, however. To further illustrate the difference between the observability and measurability of price attributes, consider the present exit price of Leonardo da Vinci's famous painting, the *Mona Lisa*. There is obviously a great store of wealth in that painting. It is a highly desired and very scarce economic resource. Thus, it is easy to observe that it has an exit price. However, because it is a unique asset and has not been in the marketplace, at least for a very long time, that exit price is not measurable. There is not another *Mona Lisa* trading in a current transaction to compare it to. Its exit price must be estimated, perhaps by comparing the *Mona Lisa* to a painting of the same genre, size, age, and fame that has recently exchanged hands in the fine art market.

Modified Past Amounts

29. There are four variations of modified past amount, namely (a) accumulated, (b) allocated, (c) amortized, and (d) combined. Each of those variations begins with either a past entry price or a past exit price, both of which meet all three criteria used in this paper. However, the use of either of those prices as an input to a modified past amount does not mean that the qualities of those prices are retained in the output of the transformation that results in the modified past amount. To the contrary, the staff thinks that the modified result does not retain the qualities of interest in this paper in most circumstances, as will be seen below.

Real attribute

30. With respect to accumulated past amounts, the staff thinks that the requirement is met that a proposed measurement basis be a real attribute of the asset or liability to be measured. An accumulated past amount is simply the addition of separate past entry or exit prices that have been observed and measured at different times up to and including the date of representation of an asset or liability in the financial statements. Because accounting measurement uses a monetary ratio scale, addition of separate prices over time differs from addition of separate prices at one time only with respect to the factor of time.

31. If a constant-purchasing-power monetary unit is used to measure the separate prices over time, then the time factor poses no problem. If a nominal monetary unit is used, then the addition of prices over time does present a problem. However, that problem is one of adding measurements of the same attribute using different measurement scales, not one of adding different attributes. Therefore, the problem of the monetary unit does not affect the staff's evaluation. The monetary unit will be discussed in a subsequent paper.

32. Note that whereas the prices that are accumulated over time may not change in nature, the underlying object of which the accumulated price is an attribute does change. For example, in a manufacturing process, an initial raw material input is not the same object as a later work in process or a finished good. The staff does not think that change in the object affects whether an accumulated past amount satisfies the real attribute criterion. However, it may have an effect with respect to future criteria that are used to evaluate this measurement basis candidate.
33. In contrast to accumulated past price, the staff does not think that the other variations of modified past amount meet the real attribute criterion. That is, allocated past price, amortized past price, and combined past price are neither **real** economic attributes nor attributes **of** asset or liabilities. They represent neither inherent quantitative properties of assets and liabilities that exist independently of any measurer nor any economic relation between one asset or liability and another. Instead, they are concepts, abstractions, or mental artifacts **of** accountants. Such things cannot become an attribute in the classical sense by defining them to be so.
34. Although the other modified past amounts begin with a measured attribute of an asset or liability, that measurement is used as an input to a calculation. That calculation is not the same as an indirect measurement, which uses only measurements as inputs. Rather, that calculation uses allocations and/or forecasts, too. It is possible that a calculation associated with an allocated or amortized modified past amount, such as an accounting depreciation calculation, could be refined based on market observations and become a model for estimating an exit price of an asset or liability. However, that is not done currently. Therefore it cannot be said that such modified past amounts rise beyond the level of calculation or forecasting, despite their use of legitimate entry or exit prices as one component of a formula.

Present attribute

35. Given the previous analysis of the relationship of past prices to the present time frame, the staff thinks that accumulated past prices satisfy this criterion because

each separate price in the accumulated amount was a present attribute when it was measured.

36. With respect to other modified past amounts, those measurement basis candidates may be said to satisfy the present existence criterion in only a limited sense. As concepts, abstractions, formulas, or mental artifacts, they may be said to exist presently in the minds of those who use them. However, the full description of this criterion requires that what exists presently be an attribute of an asset or liability. Because the other modified past amounts are not attributes of assets or liabilities, their present existence as something else is not sufficient to satisfy the criterion.

Observable attribute

37. The pattern of evaluation of modified past amounts continues with respect to the observability criterion. The staff thinks that accumulated past amounts satisfy this criterion, but that the other modified past amounts do not.
38. Accumulated past amounts are observable because their component prices were observed or observable in the past. In contrast, allocated, amortized, and combined past amounts are not observable, not even in principle. The results of using those basis candidates are observable in the form of written or printed numerals, but the only physical reality of those results is that of patterns in pencil or ink. The meaning, if any, given to those results resides in the minds of those who create and use them, not in the pencil or ink, and not in the assets and liabilities for which those bases are intended to be attributes.

Other Present Bases

Real attribute

39. The staff thinks that current equilibrium price is not a real attribute of either assets or liabilities, but that value in use is such an attribute.
40. Current equilibrium price is a theoretical or counterfactual mental construct. It describes an economic reality that might possibly exist if conditions were different

from what they are. However, those conditions of a complete and perfect market in a state of equilibrium do not exist. Therefore, while a current equilibrium price may be a useful theoretical tool, it does not define an actual economic relation of assets and liabilities to the monetary unit or to each other.

41. Value in use, in contrast, is an actual economic attribute. Like past and present entry and exit prices, it defines an economic relation involving assets and liabilities. With respect to this criterion, the only difference between past and present entry and exit prices, on the one hand, and value in use, on the other hand, is the nature of that economic relation. In the case of past and present entry and exit prices, the relation is with the marketplace. In the case of value in use, the relation is with individual valuers.

Present Attribute

42. Because current equilibrium price is counterfactual or imaginary, it does not have a present existence. It is true that an individual may think about what a current equilibrium price for an asset or liability would be, but that thinking does not give current equilibrium price a present existence, any more than thinking about a unicorn gives the latter a present existence.
43. In contrast, value in use does exist presently for any asset or liability that is currently valued by one or more individuals. The amount of that value may differ by individual, but the fact that each value presently exists for each individual is the same.

Observable attribute

44. The counterfactual or imaginary nature of current equilibrium price leads to its failure to satisfy the observability criterion for a measurement basis, too. A current equilibrium price is not observable, even in principle.
45. The same is not true of value in use. From the fact that an individual or entity is presently willing to keep an asset or maintain a liability, rather than convert that asset to cash or extinguish that liability, one can observe that the individual or entity

finds economic utility in, and therefore values, that asset or liability more than cash. Because value in use is observable, it is also measurable in principle. However, unlike entry and exit prices, it is not measurable in fact. Only when an entity that values a particular asset exchanges that asset in the marketplace at a price equal to the entity's value does the value in use become measurable. Even then, only the entity itself knows whether the value in use and the transaction price are equal.

Future Prices

46. The staff thinks that both future entry price and future exit price are identical with respect to the three criteria of this paper. Therefore, no distinction is made between future entry and future exit prices in the following paragraphs.

Real attribute

47. Future prices will be real attributes of assets and liabilities in the future, just as past prices were attributes of assets and liabilities in the past, and past and present entry and exit prices are attributes of assets and liabilities in the present. Only time differentiates future prices from past and present prices. However, since measurement is a process that happens in the present, time is a critical factor. Because future prices are not attributes of assets and liabilities yet, they do not satisfy this criterion.

Present attribute

48. Although future prices are attributes of assets and liabilities in the future, they do not yet exist. Because measurement is performed in the present, future prices cannot be measured; they can only be forecast.

Observable attribute

49. Again, future entry and exit prices share the same qualities as those same prices in the past and present, except for the factor of time. Therefore, future prices will be observable in the future, but they are not observable, even in principle, in the present.

SUMMARY

50. The table on the following page lists the extent to which the nine primary measurement basis candidates meet the three criteria discussed in this paper. Note that past and present entry and exit prices, accumulated past amount, and value in use meet all three criteria. Other than accumulated past amounts, modified past amounts do not meet any of the criteria. Likewise, current equilibrium price, and future entry and exit prices do not satisfy any of the three criteria.

		CRITERIA		
MEASUREMENT CANDIDATES	BASIS	Real Attribute	Present Attribute	Observable Attribute
Past entry price		YES	YES	YES
Past exit price		YES	YES	YES
Modified past amounts:				
Accumulated past amounts		YES	YES	YES
Other modified past amounts		NO	NO	NO
Present entry price		YES	YES	YES
Present exit price		YES	YES	YES
Current equilibrium price		NO	NO	NO
Value in use		YES	YES	YES
Future entry price		NO	NO	NO
Future exit price		NO	NO	NO

51. The staff concludes by putting the results of the evaluation exercise of this paper in perspective. The three criteria discussed in this paper and used to evaluate the measurement basis candidates are derived from the concepts and principles of measurement discussed earlier. Thus, they may be said to describe desirable qualities for a measurement basis. However, the three criteria of this paper are not alone in that respect; the qualitative characteristics of decision-useful financial reporting information also describe desirable qualities for a measurement basis and will be used to evaluate the measurement basis candidates in later papers.

52. The fact that a particular measurement basis candidate satisfies or fails to satisfy one or more of the three criteria of this paper does not determine the final disposition of that candidate with respect to the outcome of the measurement phase of the conceptual framework project. At the conclusion of Milestone II of the measurement phase, the staff will summarize the results of all the conceptual evaluations made of the basis candidates. That summary will help the Boards and staff during Milestone III, as they discuss whether one or multiple measurement bases is conceptually desirable and what accommodations to what is conceptually desirable might be made in the context of setting accounting standards.

APPENDIX
Measurement Basis Candidates by Time Frame with Their Variations

PAST

1. *Past entry price*
 - a. Without related costs
 - b. With related costs

2. *Past exit price*
 - a. Without related costs
 - b. With related costs

3. *Modified past amount*¹
 - a. Accumulated
 - b. Allocated
 - c. Amortized
 - d. Combined

PRESENT

4. *Current entry price*
 - a. Without related costs
 - b. With related costs
 - i. Identical replacement
 - ii. Identical reproduction
 - iii. Equivalent replacement
 - iv. Productive capacity replacement

5. *Current exit price*
 - a. Without related costs
 - b. With related costs

6. *Current equilibrium price*

7. *Value in use*

FUTURE

8. *Future entry price*
 - a. Without related costs
 - b. With related costs

9. *Future exit price*
 - a. Without related costs
 - b. With related costs

¹ The staff has deleted *entry* from the name of this basis candidate so that it will accommodate amounts derived from either entry prices or exit prices.