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Project	<b>Financial instruments with characteristics of equity</b>
Topic	<b>Disaggregating changes in fair value—the cost of capital approach</b>

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## Introduction

1. This paper describes how the total changes in the fair values of liabilities might be separated into recurring changes and nonrecurring changes. The approach described in this paper is based on suggestions by three board members who believe it would mitigate concerns about including in profit and loss the total changes in fair values of liability instruments.
2. The approach in this paper, which is loosely described as the cost of capital approach, is not fully developed. This paper is intended to provide enough information for board members to decide whether to pursue it further. We tried our best to explain this approach. If we have misinterpreted the facts or made inaccurate assumptions we are hoping the board members who suggested this approach can help us correct any inaccuracies.

## Objective of the cost of capital approach

3. The cost of capital approach addresses the concern that including the total change in the fair values of liability instruments in profit and loss as a single amount provides little information of value to users and makes earnings per share (EPS) less informative. The reason the total change is not considered informative is that some changes in fair value recur and others do not and, therefore, mixing the two types in a single line item produces a number with no predictive value.

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4. For example, the effect of interest on the fair value of a simple fixed-rate debt instrument can be expected to recur (if there are no credit risk issues) and it has an effect on ultimate cash outflows. For purposes of this approach, interest expense is considered the cost of capital for a simple fixed-rate debt instrument. In contrast, the effects on fair value of changes in market interest rates differ from period to period in unpredictable ways, and if the instrument is paid as contracted, they have no effect on ultimate cash outflows. Thus, those two changes would affect a user's assessment of future cash flow prospects differently. If the two are combined into a single line item, the resulting number has little analytical value.<sup>1</sup>
5. Other instruments raise similar issues even if they do not have a contracted rate of interest. For example, exercise of a fixed-price written call option on an equity instrument will absorb resources that would otherwise be available to be distributed to current investors.<sup>2</sup> The cost of capital approach would involve computing an estimate (negative) return for an option that is analogous to interest expense on a debt instrument. That computation is obviously more difficult for an option. The payments on a simple fixed-rate debt instrument are specified by the contract, and the 'payment' on a written option depends on the share price at the exercise date, which depends on the exercise date, future performance of the issuer, and external market factors.
6. The objective of the approach discussed in this paper is to produce a line item in profit or loss that is similar to accrued interest but can be computed for many types of liability instruments, including derivative instruments with the issuer's own equity instruments as their underlyings. The remainder of the change in fair value would be reported separately as a plug, which presumably would not be considered significant by users.

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<sup>1</sup> Note that users need additional information about terms of the instruments (interest rate, maturity, and so forth) to do a proper analysis whether or not the amounts are combined in profit or loss.

<sup>2</sup> If a written call option requires cash payment, the resources leave the entity and amounts attributable to existing stakeholders declines. If it requires issuance of shares, the resources remain within the entity, but there are new stakeholders who paid less than the proportionate value for their interests; therefore, the share of resources attributable to the existing stakeholders declines.

## What do we mean by *cost of capital*?

7. The term *cost of capital* may be used differently in different contexts and for different purposes. For purposes of this paper, cost of capital is broadly defined as the expected return that a reasonable investor would demand on an investment with a comparable risk. The cost of capital is an estimate based on an expected return. Most of the information for estimating the cost of capital must be derived from the investment markets.

## Calculating the cost of capital

### *Simple Fixed-Rate Debt Instrument*

8. The cost of capital for a simple fixed-rate debt instrument is relatively simple to calculate: it is the effective interest. Obviously, the effective interest paid by the company will include the risk-free rate plus a risk component that incorporates the anticipated probability of default and the probable loss from default if it occurs. The only issue to be resolved is what number to start with. On the day the debt instrument is issued, there is no issue. The amount at which the debt is initially recognized is the starting point (referred to in this paper as the accretion base). If there were no changes in fair value, interest-method accretion to the contracted payment amount would be relatively simple.
9. However, because fair values change regularly an additional decision is required. Should the accretion be determined at Day 1 and held constant or should it be adjusted based on the fair value of the instrument? In theory, the accretion base changes every time fair value changes which could be more than once in a day. However, to reduce operational difficulty, the approach in this paper would require adjustment of the accretion at the beginning of each annual reporting period. That means accretion would be computed at the beginning of the year and would not be adjusted during the year. That convention would be followed not just for debt instruments but for all types of instruments for which cost of capital is computed.

***Liability Instruments with Fair Values that Change with Prices of Equity Instruments***

10. Although analysts may consider instruments classified as equity to have associated capital costs, those instruments will not affect profit and loss, and therefore, the approach in this paper does not apply to them. The approach applies to liability instruments whose values change because of changes in the prices of the issuer's own equity instruments. Some examples are written call options on the issuer's equity instruments and debt instruments settled with or convertible to the issuer's equity instruments.<sup>3</sup>
11. Theoretically, to be consistent with the computations for fixed-rate debt instruments, the future value outflow attributable to the equity-related liability would be estimated and the current value would be accreted toward that projected future outflow using the effective yield or interest method. However, it probably is impossible to reliably estimate future values of equity instruments and certainly is beyond our capabilities. For that reason, the cost of capital approach would require inferring a cost of capital and using that rate to accrete toward an implied future value outflow.
12. If the future value outflow will be determined only by the price of the issuer's own equity instruments, as is the case for a written call option on the writer's equity, the cost of capital for equity must be inferred or modeled. The cost for an entity's own equity could be inferred if other instruments exist with similar risk profiles for which the cost of capital is known. Otherwise, an entity would need to use a capital asset pricing model or other similar model to compute a cost of capital for equity.
13. The future value outflow for some liability instruments may be determined either by the price of the issuer's own equity instruments or by something else. An example is a debt instrument convertible to a fixed number of equity instruments at the holder's option. The future value outflow may be based on

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<sup>3</sup> Cost of capital for instruments settled with equity instruments would be computed the same way as for fixed-rate debt if the value of the settlement is fixed and the number of equity instruments to be issued in settlement varies so that the fair value equals the fixed settlement amount.

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the terms of the debt instrument or it may be determined based on the price of the issuer's equity instruments.

14. The cost of capital calculation for convertible debt would require the issuer to separately estimate the cost of capital that would result from exercise of the option and the cost of capital that would result from cash payment according to the terms of the debt instrument. The cost of capital component is weighted based on the cost of the components.

### **Potential EPS Reconsideration**

15. The disaggregation approach raises an issue for the EPS calculation. In the recent EPS Exposure Draft, the boards concluded that “the performance of an entity for the purposes of computing EPS should encompass the benefits received or the detriments incurred by the current shareholders during the period.” The boards further concluded that an instrument's change in fair value appropriately reflects the benefits received or the detriments incurred.
16. However, the boards may want to reconsider whether the total change in the fair value of a liability instrument is the appropriate measure of the detriment or benefit that was intended in that previous decision. If the separation approach in this paper proves to be workable and desirable, the boards might want to reconsider whether the numerator of the EPS computation should include only the cost of capital and not the rest of the fair value change.
17. We are not prepared to discuss the merits of making such a change in EPS as a part of the FI-Equity project, but we felt the boards should be advised of the possibility.

### **Potential challenges that may arise from this approach**

#### ***Comparability***

18. The examples in the appendix to this paper use the capital asset pricing model (CAPM) to determine the cost of equity. However, there are several other

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models to estimate the cost of equity. Many were developed because CAPM was deemed to provide unreliable estimates of the cost of equity. Some of the more common models are the:

- (a) Build up model
  - (b) Arbitrage pricing theory
  - (c) Farma-French 3-factor model
  - (d) Market-derived capital pricing model.
19. Each of the models above have different underlying theories and use different inputs, this will inevitably lead to a different cost of capital estimate. If the models yield drastically different results, comparability among entities will be lost. This issue can be resolved by requiring issuers to use one particular model to calculate the cost of equity. However, the boards would have to evaluate each of the models and decide which one is the most appropriate.

### Question for the Boards

1. Do you want the staff to attempt to further develop the cost of capital approach? If so, which items do you believe need to be addressed to make this disaggregation approach operational? If not, which approach to separating changes in fair value of liability instruments should we pursue?

**Appendix A—Detailed examples**

[Appendix omitted from observer note]