

August 15, 2017

International Valuation Standards Council

1 King Street

LONDON EC2V 8AU, UK

Reference: *IVSC Invitation to Comment – IVS Agenda Consultation 2017*

Dear Technical Director:

Duff & Phelps is pleased to provide a response to the above-referenced Invitation to Comment (ITC). Duff & Phelps is the premier global valuation and corporate finance advisor with expertise in valuations for financial reporting and tax, complex valuation, dispute and legal management consulting, M&A, restructuring, and compliance and regulatory consulting. Our valuation advice is sought by hundreds of global clients annually as we work with them in developing pragmatic solutions for applying fair value techniques.

We support the objective of developing a set of harmonized global valuation standards and we appreciate the Board's effort in revising, improving and augmenting IVS.

IVS Gap Analysis Summary

General Observations

Guidance Notes

The mechanism by which the Guidance Notes will be issued is not entirely clear. The ITC states that Guidance Notes are not issued by the IVSC, but rather, by Valuation Professional Organizations (VPOs) and National Standard Setters, many of whom are members of the IVSC Advisory Forum Working Group (AFWG). It also appears from the ITC (graphic on p. 13) that the IVSC will have some involvement with the development of exposure drafts of Guidance Notes.

It is therefore unclear, once a Guidance Note has been developed by the above process, would it be issued and adopted simultaneously by the VPOs/National Standard Setters that are members of the AFWG? Once adopted, it would presumably supplement the respective valuation standards of the VPO(s)/national Standard Setter(s). Would that be the end of the process, or would AFWG members then make additional changes to a Guidance Note, as part of their adoption process? How much “divergence” among these organizations is acceptable without compromising the consistency of application guidance for the same valuation purpose? (The way Guidance Notes are described in the ITC is consistent with the notion of best practices, which are often developed for specific valuation purposes.)

It would be helpful if the IVSC lays out this mechanism in a more detailed fashion, and if it indicates whether there is consensus on this process with the members of the AFWG. This is particularly important, since some of the topics in this ITC envision the issuance of Guidance Notes.

Performance Framework

We recommend not referring to a “performance framework” with respect to the possible approach to be taken on certain topics. This would confuse the IVSC standards with an entirely different class of standards – performance standards. Performance standards are not technical standards, rather, they set the minimum scope and extent of documentation requirements to produce a well-supported valuation. One such framework is the Mandatory Performance Framework (MPF) underlying the CEIV (Certified in Entity and Intangible Valuations) credential for financial reporting purposes.

We urge the IVSC to not confuse its constituents with the types of standards it produces, and not utilize the term “performance framework” in relation to IVS or other IVSC output. We understand that the IVSC is focused on issuing *technical* valuation standards.

Questions for Respondents

Question 1: Do you agree with the current categorisation and timings of the topics contained in the gap analysis and if not why?

Response

We generally agree with the categorization, subject to the comments below:

- A clarification of the mechanism for issuing Guidance Notes, as requested earlier.
- It would be helpful to understand what type of implementation guidance (BV/TA) the IVSC is planning to develop in the form of Guidance Notes (p. 18 of the ITC). Also, would this process duplicate any of the efforts of the AICPA and The Appraisal Foundation (TAF) for financial reporting application? Or, is this referring to a way to disseminate the guidance developed by AICPA and TAF to other jurisdictions outside of the U.S.? Certain concepts developed in these best practices may be applicable to purposes outside of financial reporting as well.
- Price vs. Value is perhaps a less critical item in terms of priority, since it is a more conceptual, rather than a practical issue.

IVS 104 *Basis of Value*, contains guidance that relates to the IVS-defined bases of value. Non-IVS bases of value (e.g. Fair Value) are also underpinned by frameworks that explain the value definition and its application. In other words, the respective existing definitions and accompanying guidance already define whether a measurement basis is to be determined as a *price* in a transaction, or otherwise perceived as a *value* by a defined party.

Unless the IVSC has observed diversity in the application of certain bases of value that are due to a misunderstanding of the concept of price vs. value, or unless it plans to introduce a new basis of value, it seems that this topic would be of a lower priority.

- It appears that certain topics in the medium-term category may be better addressed by a Financial Instruments Board, rather than the Business Valuation and Tangible Assets Boards of the IVSC.

Question 2: Are there any other topics which you believe should be included or deleted from the IVS gap analysis and if so why? (Please state the relevant specialism, categorisation and timing for any proposed additional topics).

Response

We believe that another topic that the IVSC should consider addressing is the issue of using market inputs for assets comprising a group or business when economic obsolescence (EO) is present.

Some view the market price of certain assets, and particularly, the orderly liquidation values (OLVs) of tangible assets as the “floor” for their valuation, isolated from the effect of any EO.

Meanwhile, if a business is adversely affected by EO, the overall measure of EO would be estimated by reference to the performance of the entire business (typically on a cash flow basis). If market participants would continue operating the business, all operating assets are burdened by EO, albeit to varying degrees.

Market participants would continue operating a business subject to EO when the overall value created exceeds the net proceeds from liquidating the business. In certain jurisdictions, a major factor in evaluating each alternative is the existence of social liabilities, which would be triggered upon liquidation. When the impact of these liabilities is considered, it becomes apparent that the cost of a

liquidation is prohibitive in some cases and inferior to continuing to operate the business (i.e., the highest and best use of the assets is to continue the operation).

The valuation issue arises when the value of the tangible assets (e.g., fair value) reflecting the impact of EO is below their OLV. There seems to be a belief that one cannot go below what is an “observable input”. However, note that these OLV inputs are not necessarily derived from “comparable assets” - in the sense that the observed assets are not burdened by being employed in a business subject to EO, which cannot be broken up. In other words, one can never realize the OLV in the case when it is not feasible or rational to liquidate the business.

IVS 105, *Valuation Approaches and Methods*, seems to reinforce this perception of the market price being a “floor” in valuation, and par. 80.8 could be read as prohibiting an adjustment for obsolescence below a market price (i.e., OLV):

“80.8. Cash or cash equivalents do not suffer obsolescence and are not adjusted.
Marketable assets are not adjusted below their market value determined using the market approach.” [emphasis in bold added]

The unintended consequences of such a “rule” which ignores highest and best use, premise, and rational behavior by market participants include:

- Misallocation of value among the various assets, and asset classes.
- Outright non-recognition of certain assets or asset classes (because there is “no room” to ascribe value to them as too much value from the BEV was absorbed by the tangibles under an “OLV-floor approach”).
- A “bargain purchase”, whereby the assets acquired are seemingly worth more than the overall business operation, which is in fact not the case, given the EO.

We think this outcome requires some additional thought, evaluation and clarification of the concepts of market prices; comparability; highest & best use and valuation premise; and EO, and how they interact in this case.

I. Non-Financial Liabilities

Questions for Respondents

Question 1.1: Is the valuation of non-financial liabilities a critical area that should be addressed by the IVSC? Please explain why.

Response

- At present, there is not much practical application guidance on the valuation of liabilities in general. However, whether the IVSC should address the topic depends on the type of liability. For example, with respect to the list of liabilities on p. 21 of the ITC:
 - Practice is diverse and, except for draft guidance from TAF on the valuation of contingent consideration, there is not much guidance on the valuation of liabilities arising from contingencies. However, the IVSC should not duplicate TAF's effort on contingent consideration.
 - Given the limited guidance on the valuation of asset retirement obligations (AROs) and similar liabilities, and the general lack of observable inputs, this may be one area of non-financial liabilities that the IVSC could address.
 - Deferred revenue will be addressed by the AICPA in its Valuation and Accounting Guide on *Business Combinations*. There is no need to duplicate this effort.

Therefore, the IVSC should carefully consider which liabilities it will address, considering concurrent efforts by other valuation bodies, and how, if at all, the work of these other bodies may be reflected in an IVS standard on certain liabilities. Also, please see our response to Question 1.6.

- Beyond the general methodology discussion on p. 24 (which essentially addresses the form of the DCF and where certain risks are captured), there are several important issues to consider in a future standard applicable to non-financial liabilities, including:
 - Impact (if any) of restrictions on transfer of the liability;
 - Unit of account (individual liability vs. a pool);
 - Valuation premise;
 - Non-performance risk and components thereof;
 - Inclusion of profit (if any);
 - Inclusion of a risk premium (if any) and in what form;
 - Valuation impact (if any) based on whether the liability is contractual or noncontractual;
 - Settlement vs. transfer of a liability vs. fulfillment by obligor;
 - Use of entity-specific vs. market participant or other assumptions, and impact on all the above; and,
 - Impact of basis of value on all the foregoing
- Additionally, we think that the IVSC should carefully set the criteria for the population of liabilities that would be included in a potential IVS standard on non-financial liabilities. Currently, the list on p. 21 includes certain liabilities that would be considered financial in nature.

One way to differentiate between the two types is that "financial liabilities" tend to be pecuniary in nature and require a transfer of/settlement in cash. (The focus on the pecuniary nature of the liability is also common to the accounting definitions of financial liabilities).

“Non-financial liabilities” could be described as performance obligations, requiring the performance of a certain activity, or the delivery of goods or services, and in the process, entail the use of various (operating) assets to satisfy the obligation.

This type of description and delineation of non-financial liabilities may also impact the consideration of both valuation techniques and inputs (e.g., whether an assumed profit is required in the valuation of the liability when using an income approach).

Question 1.2: Should IVS provide a separate definition of liabilities? If yes, do you agree with the definitions provided by the FASB and IASB, please explain why?

Response

We do not believe that IVS needs to provide a separate definition of liabilities. We recommend this for the following reasons:

- Since the IVS are intended to apply to valuations for a variety of purposes and jurisdictions, we think that a separate IVS definition of a liability would not be warranted. Rather, the purpose of the valuation would determine whether a specific definition of a liability applies, and would also dictate the parameters of the liability that need to be considered in the valuation.
- A “general” IVS definition of liabilities would unnecessarily add to an array of definitions for various purposes.
- IVS does not include a definition of an “asset”. (It only includes a general description of an intangible asset in IVS 200, *Intangible Assets*). Therefore, we do not see a need to include a general definition of a liability when there is no definition of an asset.
- Other generally accepted business valuation glossaries (the International Glossary of Business Valuation Terms¹) do not contain a definition of assets or liabilities.
- While the FASB and IASB definitions are similar, they are not identical. If the IVSC chooses one, a logical question that might then arise is why the IVS has chosen one over the other, as well as why the IVS has settled on a financial reporting definition.

Question 1.3: What non-financial liabilities do you observe in practice? For each liability, what valuation methods do you most commonly see used? Which of the non-financial liabilities you listed have the greatest diversity of valuation in practice?

Response

- *Contingent consideration* is the most common liability arising from a contingency that requires valuation. Contingent consideration is frequently encountered in business combinations, joint ventures and licensing arrangements. There are two valuation methods most commonly used:
 - Option pricing methods (often with simulation to handle path dependencies or correlation between multiple metrics) – used for financial metrics with

¹International Glossary of Business Valuation Terms (IGBVT) was jointly developed by the AICPA, the American Society of Appraisers (ASA), the Canadian Institute of Chartered Business Valuators, the National Association of Certified Valuation Analysts, and the Institute of Business Appraisers.

systematic risks and nonlinear earnout structures (earnout structures are rarely linear, so this is extremely common).

- Scenario-based methods – used for diversifiable risks such as meeting product development milestones, achieving FDA approval, resolution of disputes, timely completion of software development or a construction project, execution of pending contracts, etc.

See TAF's Valuation in Financial Reporting Advisory #4, *Valuation of Contingent Consideration* for more information on the valuation methods used in practice for contingent consideration.

- *Product Warranties* often need to be valued by a company for strategy and operations management purposes as well as for financial reporting purposes. Upon acquisition under business combination accounting, they are recognized at fair value – but unless the difference between book value and fair value is expected to be material (which is often not the case), it is not uncommon to observe acquirers using the acquiree's book value for the warranty liability.

Scenario-based methods (involving expected claim rate, expected cost per claim, trends and inflation over time in costs, etc.) are typically used to fair value warranties, with a premium (or profit margin) added for transferring the liability to a market participant (such as a warranty servicing company), and discounting to include the time value of money and obligor credit risk over the relevant time horizon. Because warranties as a class are more homogenous in character than other liabilities, approaches specific to dealing with the typical issues that arise in valuing them are common.

- *Guarantees and Indemnifications* (other than loan guarantees or other guarantees arising from financial instruments) also regularly need to be valued for financial reporting purposes. Situations requiring fair value of a guarantee include a spinoff of a division (with the former parent providing guarantees of performance of various kinds, or guarantees related to the outcome of pending litigation, uncertain tax positions, or uncertainty about environmental liabilities), and a split of a company into multiple pieces (with cross-indemnifications). The relevant risks are typically diversifiable, and scenario-based methods are often used, with a premium (or profit margin) added for transferring the liability to a market participant such as a commercial insurance company in the business of taking on such risks.

Typical indemnification clauses in a business combination do not often need to be valued. The existence of the indemnification clause usually makes the likelihood of triggering a payment de minimis.

- *Dispute Contingencies* are often valued for purposes including dispute resolution strategy (or settlement negotiation), financial planning, tax planning, solvency opinions, and M&A investment decisions/pricing. It is less common to value liabilities related to unresolved disputes for purposes that might entail public disclosure, such as for financial reporting. However, where an indemnification of the outcome from pending litigation is provided in, for example, a spin-off, for financial reporting purposes that contingent liability would be recognized at fair value, using the methods as described above for *Guarantees and Indemnifications*.

Valuations of dispute contingencies differs from valuations of other liabilities as they must be sensitive to, and are sometimes constrained with respect to input data availability by, any limitations posed by privilege concerns of outside and in-house counsel.

- *AROs* are valued for financial reporting purposes under U.S. GAAP, using an income approach. In certain situations, the measurement of the ARO is considered a fair value measurement, in other cases, the accounting requires a basis other than fair value.

The accounting literature is quite specific about the approach that needs to be followed, including the use of expected present value – which is typically the only feasible valuation technique. The challenges in the projection mainly arise from the uncertainty in the projected cash flows which reflect fulfillment years or decades away. Furthermore, these inputs often require the specialized expertise of geologists and engineers, as part of the estimation of the overall reclamation and remediation costs for the asset.

The ARO accounting fair value guidance is limited on the topic of the credit-adjusted risk free rate used to discount the expected cash flows, and the additional compensation (or “market risk premium” that market participants would presumably require to bear the uncertainty in the cash flow estimates. These are key inputs in the valuation, since hypothetically the ARO is transferred at a fixed price to a market participant at the measurement date (when the required basis is fair value). Observable inputs in this regard are limited to non-existent.

While transactions involving assets subject to reclamation and remediation costs do occur, it is difficult to derive inputs that could be used in the ARO valuation. This is because such transactions often involve multiple assets (or assets and liabilities), and therefore there is a lack of transparency around the valuation inputs, or the price for the liability specifically. In addition, comparability is an issue when analyzing transactions because assets tend to be unique (e.g., each mine is unique - which affects the expectations about total reclamation costs, and any associated ARO as a function of the existing environmental disturbance incurred). Transactions in which one might be able to get relatively more insight into the price paid for the ARO would be when the mine is closed and the ARO is imminent; meanwhile, in most instances for financial reporting purposes the valuation need is for operating mines where the ARO is of a future, and uncertain, timing. While there are third parties who specialize in reclamation and remediation, each project is likewise unique, and in this case as well, reclamation and remediation costs are ultimately analyzed from a cash flow perspective.

- *Decommissioning Liabilities* are valued for financial reporting purposes under IFRS. Fair value as a measurement basis is required only in specific circumstances (e.g. business combination). The comments on AROs above are generally applicable here as well.
- *Other Contractual Liabilities to Repair or Restore an Asset* generally share characteristics with warranties, AROs, or decommissioning liabilities, and as such would be subject to similar valuation issues.
- *Deferred Revenue* is a performance obligation valued for financial reporting purposes and is measured by an income approach. Two methods are usually applied – a bottom-up and a top-down approach:
 - A bottom-up (or cost build-up) approach, requires the estimation of direct and indirect costs expected to be incurred in fulfilling the obligation, plus an appropriate operating margin related to the goods or service provided, all from a market participant perspective. Costs incurred prior to the measurement date of the obligation are excluded from this calculation. The present value of the costs to fulfill the obligation is then computed. Theoretically, the present value of the sum of the costs and operating profit would be the amount that an entity would be required to pay a third party (market participant) to assume the obligation.

- A top-down approach first estimates the revenue the entity would expect to receive for fulfilling the obligation. The estimated revenue is reduced by the costs already incurred (generally any sales & marketing effort, and potentially other costs incurred or otherwise unnecessary to fulfill the deferred revenue obligation), and the profit thereon (or markup on costs), with the balance indicating the cost to fulfill the obligation. The present value of the cost to fulfill the obligation is then computed, which is presumably price the entity would be required to pay a third party (market participant) to assume the obligation.

Some variation in practice may be encountered around the estimation of costs to be included/excluded in either approach, related profit, as well as in the derivation of the discount rate.

Question 1.4: Do you agree with the decision to exclude financial liabilities from this ITC? If yes, do you think IVSC should add financial liabilities as a possible project(s) in the future?

Response

We agree with both. We think that financial liabilities should be addressed by IVSC's Financial Instruments Board.

Question 1.5: Do you think IVSC should add financial instruments, pension liabilities, and insurance liabilities as a possible project(s) in the future?

Response

We believe that financial instruments should be addressed by the IVSC Financial Instruments Board after due outreach to constituents to assess the need for guidance, types of guidance, and the financial instruments types that would be included in IVSC standards.

Valuations of pension and insurance liabilities are the subject of standards and guidance issued by actuarial bodies, for example, the International Actuarial Association. The IVSC should coordinate with these bodies to assess if global standards are needed, and if so, of what nature.

Finally, as the IVSC may be aware, the IASB issued IFRS 17 *Insurance Contracts* in May 2017. This standard introduces significant changes to the recognition and measurement of insurance contracts relative to the prior standard (IFRS 4), as well as US GAAP. In particular, new assets and liabilities will be recognized under the new standard, while others will cease to be recognized. Valuation professionals cannot ignore the fact that assets and liabilities for insurance companies will simply be different under the new standard (e.g. they will capture different projected cash flow streams, exhibit different risk profiles, etc.). Given the transitory nature of financial reporting guidance for the insurance industry, any IVSC efforts in this area may be premature if they limit themselves to the measurement of liabilities (and assets, for that matter) under the standards that are currently effective. We suggest that, at a minimum, the IVSC consults with the IASB, to better understand IFRS 17 requirements and how they may impact valuation practices.

Question 1.6: Of the potential Standard Alternatives outlined above (A, B, C), which do you prefer and why?

Response

We prefer a hybrid approach (C). One should state the broad methodologies to be applied (though the ones specified under A might not necessarily be the right set), and under what circumstances they are appropriate or inappropriate.

It is likely that the recommended approaches will differ by type of liability not because of the nature of the liability (as suggested by Alternative B), but by (i) whether the risks are systematic or diversifiable or a mix, and (ii) whether an active market can be assumed/hypothesized (whereby any profit is built into observable prices), and if not, whether a profit margin should be added for transferring the liability to a third party, over and above the expected NPV of the cashflows after accounting for all risks. As to other key inputs and assumptions, the additional issues presented in our response to Question 1.1 may be relevant.

We believe the IVSC should heavily leverage existing guidance, such as The Appraisal Foundation's Valuation in Financial Reporting Advisory #4, *Valuation of Contingent Consideration* (currently released as an exposure draft), as well as the appropriate portions from the upcoming AICPA Accounting and Valuation Guide, *Business Combinations*. We urge the IVSC to not duplicate effort in the development of guidance in (liability) areas in which other bodies have issued guidance or are close to issuing guidance. Rather, the IVSC can incorporate the relevant concepts from the aforementioned best practices into their standards. Note that this also links the timing of the finalization of the relevant best practices guidance by TAF and the AICPA and the issuance of any IVSC ED on the valuation of certain liabilities.

Question 1.7: Are there methodologies and best practices utilised by the insurance industry that the Boards should consider for inclusion in future standards? If so, please discuss.

Response

We think it would be helpful if the IVSC holds exploratory discussions with the insurance industry in this regard. It is possible that some methodologies and practices could be adapted for other liability valuations, but this may also depend on the nature of the liability. For example, in estimating warranty liabilities, one may look at cohorts, examine claim trends, etc., similar to a perspective the insurance industry would take.

However, we think that the unit of account for the liability being valued should also be considered – the price market participants would demand may depend on whether they are assuming an individual liability or a pool of liabilities. The pricing may also depend on the nature of the market participant assuming the liability. Therefore, these and other issues may need to be kept in mind as the IVSC considers input from the insurance industry.

Miscellaneous Comments on the Non-Financial Liabilities Section

We have provided the comments below to assist the IVSC in the potential development of guidance on the valuation of certain liabilities.

Terminology

- “*Non-financial liabilities*” may not be the most appropriate terminology for this entire set of liabilities captured in Section I of the ITC. Specifically, contingent consideration is often based on financial metrics (revenue, EBITDA, etc.), and typically ends up classified as a financial liability (or asset) for financial reporting purposes.

We recommend that the IVSC fine-tune the population of liabilities to which a new standard would presumably apply, and whether they should be described as “non-financial liabilities”, or in a more aggregated or disaggregated way, e.g., performance obligations; contractual or regulatory requirement liabilities, etc. For example, AROs and deferred revenue are very specific to a financial reporting context, but they would both fall under the “performance obligations” classification, which would be easier to understand by a vast array of readers.

Also, please see our response to Question 1.1.

- We recommend expanding the notion of “*litigation contingencies*” to “*liabilities arising from contingencies*”, which would encompass liabilities arising from the (uncertain) resolution of disputes, contingent consideration arrangements, guarantees (other than those arising from a financial instrument) and indemnifications. Note that dispute is a broader concept than litigation, as the former encompasses arbitration, tax disputes (uncertain tax positions), disputes with regulatory agencies (e.g., regarding liability or restitution for environmental issues), etc.
- The terms “*market information*” and “*market input*” (see p. 21) are used as if they mean market information on transactions for identical or similar liabilities. We would prefer the narrower term “market transaction information” for this concept, as, while directly comparable market transaction information may not be available for non-traded liabilities, there often is market information (correlation, volatility, etc.) that can be used as inputs to value liabilities that are not themselves traded.
- The term “*average outcome*” (p. 24) is open to multiple interpretations. Some would interpret “average” as the most likely, typical, or even base case. A clearer term would be “mean outcome.” “Probability-weighted average” or “expected value of the probability distribution” (the latter is used on p. 24) are also clear.

Specific Comments by Page Number of the ITC

Page 21

- See our earlier comments under *Terminology* in this letter on characterizing contingent consideration as a “non-financial liability.” (also, see p. 21, bulleted list in ITC.)
- While it is true that there is limited or no transaction data on most of the liabilities on the IVS’ list, it is not true that market information provides no useful market inputs for a valuation of such liabilities (p. 21, bottom section).

For example, we regularly use market information to estimate the required metric risk premium for revenue or EBITDA-based earnouts, to estimate the correlation between a company’s performance on multiple earnout metrics, to estimate the premium required to transfer the risk associated with performance on a liability to a third party, and to estimate the premium required for non-performance risk. See terminology discussion above.

- For valuation of a warranty liability (and presumably, for a contractual liability to repair or restore an asset), it is sometimes possible to obtain a quote from an entity in the business of servicing such obligations.
- When valuing a performance obligation, the restriction on transferability is not necessarily relevant. The focus is on fulfilling the liability (whether by the entity or a market participant). A restriction on transfer does not impact the obligation to perform.

Page 22

- We are confused as to what is being referred to in #4 on p. 22 of the ITC. The only traded assets we are aware of related to the liabilities on the IVS' list are Contingent Value Rights (CVRs). It is true that trading information related to CVRs often suffers from perceived information asymmetries, thin trading, and/or trading between related parties, and as such is often not the basis of a reliable estimate of the fair value (of either the asset or the liability).
- The discussion of market participant assumptions in #5 on p. 22 of the ITC may need further consideration to the extent this issue is relevant to development of an IVS standard on the valuation of certain liabilities. We agree there are often misconceptions about who the appropriate market participants are (e.g., for contingent consideration the market participants are potential investors in the standalone earnout asset/liability, but there are often misconceptions that the market participants must be the parties to the transaction.) However, the suggestion that one must “determine how market participants’ assumptions may vary from that of the company recording” the liability might not be the best way of looking at it. The company should value the standalone liability the same way as a market participant would, in a financial reporting context. A couple of examples:
 - It is true that an earnout in conjunction with a transaction has a different value to the company – for example, because without the earnout the sellers might be less motivated and future performance would be worse on an expected value basis. Similarly, such a difference in value could exist for an indemnification, whose very presence in a contract reduces the likelihood that the indemnification-triggering event will occur. However, the value of the earnout or indemnification to a market participant looking to purchase the liability itself on a standalone basis should be the same, no matter whether the company or a market participant is evaluating it.
 - Similarly, a product warranty in conjunction with a business has a different value to the company, because a long warranty conveys a sense of security (and the company’s belief in its own product’s reliability) to a consumer and thereby boosts sales. But the value of the standalone warranty liability itself (separate from the impact having such a warranty has on the sales of the company) is the same, no matter whether the company or a market participant is evaluating it.
- We believe there is significant lack of clarity in the discussion about discount rates and risk on p. 22 of the ITC. In particular, the use of the term “risk” is unclear and inconsistent.

Consider the following statement:

“an increased risk to an investor in an asset is rewarded by an increase in the required return and a corresponding reduction in the asset value”

but

“an increase in the risk associated with a non-financial liability should, all else equal, increase the negative value of the liability, not decrease it.”

- In the first statement, risk appears to refer to systematic risk (e.g., higher beta for a non-diversifiable risk), because the impact is taken in the discount rate.² However, an increase in systematic risk should have the same effect (with opposite sign) on an asset or a liability. If it reduces the value of the asset, it should also decrease the magnitude of the liability. That is, if the payment is more likely to be made when the economy is good, that reduces the value of the asset and the magnitude of the liability.
 - In the second statement, higher risk appears to mean higher likelihood that a liability payment would be made – i.e., “risk” in this context refers to the resolution of uncertainty about the outcome. However, a higher risk (higher likelihood of payment) means the magnitude (negative value) of the liability goes up, and so does the positive value of the asset.
 - The problem is that the author has not defined (and inconsistently uses) the term “risk”. Once “risk” is clearly defined, the issue raised in paragraph 1 under Discount Rates disappears.
- There is a potential additional asymmetry issue not discussed by the IVSC, related to the cost to transfer the liability. If there is no active market for the liability (as happens, for example, with non-financial guarantees), an owner of the asset wishing to transfer that (uncertain) asset to a third party would have to take a reduction in expected present value, to transfer the risk. Similarly, the obligor wishing to transfer that (uncertain) liability to a third party would have to pay a premium above expected present value of the outgoing cash flows, to transfer the risk. This leads to Value (asset) *not* equal to Value (liability).
 - For contingent consideration, the TAF working group decided to envision a hypothetical market. As a result, no such premia were added.
 - For warranties (as one example), there *is* a “market” – there are companies that will accept such liabilities and they charge a premium (profit margin) to do so.
 - For the types of unique risks seen in certain other contingent liabilities, there *is* a market – there are companies who are in the business of taking on risk (insurance companies).
 - Therefore, an issue the IVSC could address is determining when it is appropriate to (a) assume a hypothetical active market of buyers & sellers exists, so there is no transaction cost to transfer the liability to a third party vs. (b) add a premium for transferring the risk to a third party.

² It could also be an alpha meant to reflect a lower probability of receiving the cash flows (not necessarily best practice), but in that case the argument is the same, see the next bullet.

- While the risks relevant for most non-financial guarantees, indemnifications, and contractual or regulatory requirement liabilities are typically not systematic (Discount Rate discussion, p. 22 of the ITC), the opposite is true for most contingent consideration arrangements. Contingent consideration is often based on revenue, EBITDA, or other financial metrics with systematic risk.
- The document seems to imply that accounting for the (not clearly defined) “risk” in the cash flows through probabilities, scenarios, simulations, etc. is inferior to accounting for such risks in the discount rate. In fact, it is considered best practice to address non-systematic risks in this way; trying to account for the likelihood of various non-systematic liability-relevant events by making a qualitative adjustment to the discount rate is very difficult to do with quality (usually requiring having to guess what alpha to add). On the other hand, for *systematic* risks (such as those seen in some contingent consideration arrangements), best practices accounts for those risks in the discount rate (applied to the projections) – even if an option pricing method is used. Thus, Discount Rate paragraph 2 on p. 22 of the ITC does not correctly address the treatment of risk in valuation of the subject liabilities.
- We find the distinctions drawn between the methods under Alternative A - in particular, the distinction between what’s in the numerator vs. what’s in the denominator needing improvement.
 - We have no issues with the Bond Yield Method 1.
 - The Scenario Based Method 2 and Risk-neutral Method 3 (OPM) discussion does not make it clear that counterparty risk could be included in either the numerator or the denominator. In fact, the Bond Yield Method 1 is merely a special case of the Scenario Based Method 2, with fixed payments. Unless the payment is placed in escrow, under an OPM methodology we generally discount contingent consideration at the (subordinated) cost of debt – not at the risk-free rate.
 - More generally, it is typically not very important whether one represents credit risk as a probability of default (and discount at the risk-free rate) or one discounts at the cost of debt. These approaches are largely mathematically equivalent (although there can be some difference caused by how the market prices default probabilities). Therefore, this should not be a major distinguishing factor between methods.
 - Furthermore, the distinction between whether an adjustment is in the numerator or denominator is somewhat arbitrary and could serve to confuse the key issues. At worst, it could encourage the use of a qualitative factor in the discount rate to capture the impact of material uncertainty, which can often result in a significantly incorrect value.
- The term “average outcome” (p. 24, 2a) is vague and open to misinterpretation. See discussion in terminology section.

II. Discount Rates

Questions for Respondents

Question 2.1: Are additional standards related to the derivation of discount rates a critical area that should be addressed by the IVSC? Please explain why.

Response

Duff & Phelps professionals are the co-authors of the annual Duff & Phelps *Valuation Handbook* series, including the *International Guide to Cost of Capital* (John Wiley & Sons, Inc.).³ In preparing the annual update of these publications, we research the latest academic literature and consult with notable academics who work in international cost of capital issues. Examples include, but are not limited to, Professor Elroy Dimson (Cambridge Judge Business School, Emeritus Professor of Finance at London Business School) and Professor Campbell Harvey (Fuqua School of Business at Duke University), who are both well published in the topic of international cost of capital.

We believe that the overwhelming consensus is that there is currently no single approach to estimating the cost of capital that can be applied to all international markets. For instance, Professor Harvey has stated that:

“There is widespread disagreement as to how to approach the international cost of equity capital.”⁴

For some markets, the application of some methods is simply not possible due to data limitations (e.g., few publicly traded firms from which to draw data, poor quality, unreliable, or even non-existing data, etc.). For other markets, investors look to various risk measures (for example, in developing economies, investors tend to be most concerned with downside risk).

As global financial market integration progresses, some countries will begin to have more historical data from which to draw risk and return information, a necessary ingredient to develop cost of capital inputs (e.g., China). However, countries which were previously integrated into global financial markets have suffered some sort of crisis that set them back to a less integrated status, with local country data thus becoming less reliable (e.g., Greece, Venezuela).

Moreover, even in the so-called developed (or advanced) economies, events since the 2008-2009 global financial crisis (2008 Financial Crisis) have fundamentally changed how we need to interpret the inputs to the cost of capital models we use to develop discount rate estimates for companies operating in such countries. It is difficult to predict how future events will impact cost of capital inputs for each country.

A valuation professional's duty is to look at the current environment and evaluate and apply the models that best reflect the risk and return relationships for the specific/subject country, taking into consideration risks already reflected (or missing) in the projected cash flows. It should be emphasized that a discount rate should not be estimated in isolation of the cash flows of the business, asset or project being valued; a careful consideration of the nature of the cash flows is required, including whether they represent expected or conditional cash flows, to avoid any double counting of risk.

³ Roger J. Grabowski, FASA, James P. Harrington, and Carla S. Nunes, CFA are the co-authors of the Duff & Phelps Valuation Handbook series.

⁴ Campbell R. Harvey, “12 Ways to Calculate the International Cost of Capital”, working paper (Revised October 14, 2005).

Our perception is that professionals in certain emerging markets may need additional guidance on which models/methods to employ and where to obtain reliable sources of data, given the data limitations in their home countries. However, care should be taken that when attempting to assist such professionals, IVSC does not issue prescriptive standards that would preclude sufficient flexibility on method or input selection that accommodates changing economic realities over time, as countries develop further and integrate into global financial markets.

Therefore, we recommend that *no IVSC standards are issued* on this topic (beyond the general guidance laid out in IVS 105 *Valuation Approaches and Methods*). Rather, we recommend that a Guidance Note on Discount Rates be considered (subject to our preceding comments about Guidance Notes at the outset of this letter), so that the language is not so prescriptive and allows the flexibility to apply certain models and methods, depending on the market and corresponding availability and reliability of data.

Should standards be developed on discount rates, the IVSC should take significant care to retain a principles-based approach and *avoid prescribing certain methods or models to the detriment of others*.

Question 2.2: Given the extensive use of the CAPM for derivation of discount rates used in business enterprise and asset valuations, do you agree with the Boards proposal to issue new standards to target diversity in practice related to discount rate derivation? Please explain why.

Response

While the CAPM has become the most widely used model to estimate equity discount rates, academic research has overwhelmingly shown that the textbook CAPM is flawed.⁵ Professor John Cochrane (Hoover Institution at Stanford University) recently summarized the changes in our knowledge of estimating rates of return for equity over the last 40 years:

“In the beginning, there was chaos. Practitioners thought that one only needed to be clever to earn high returns. Then came the CAPM. Every clever strategy to deliver high average returns ended up delivering high market betas as well. Then anomalies erupted and there was chaos again.”⁶

Professor Cochrane concluded:

“Discount rates vary a lot more than we thought. Most of the puzzles and anomalies that we face amount to discount-rate variation we do not understand. Our theoretical controversies are about how discount rates are formed. (...) Theories are in their infancy....”

While the CAPM explains how investors *should act* and price risk, empirical research has shown that investors often *act differently than predicted* by CAPM. CAPM can be thought of as a “capital market theory of the two-parameter model.” CAPM simplified Harry Markowitz’ measures of risk, such that the only risk measure that mattered was beta.

The CAPM is one of a series of so-called asset pricing models. The CAPM’s risk measure, beta, is a forward-looking concept as is the equity risk premium (ERP). The true beta must be estimated. Existing techniques for estimating beta generally use historical data and assume that future stock

⁵ See Shannon Pratt and Roger J. Grabowski, *Cost of Capital: Applications and Examples* 5th ed., Chapter 13, “Criticisms of CAPM and Beta versus Other Risk Measures” (John Wiley & Sons, Inc.)

⁶ John C. Cochrane (2011), “Presidential Address: Discount Rates,” *The Journal of Finance*, 66: 1047–1108 <http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6261.2011.01671.x/full>.

returns will be sufficiently similar to past stock returns to justify extrapolation of betas calculated using historical data.

A series of studies have examined the predictive power of beta. Such studies ask: do “high-beta” stocks earn higher returns in future periods? (The theory behind CAPM implies that with a high beta, the market perceives the investment to be riskier.) Similarly: do “low-beta” stocks earn lower returns in future periods? (The theory behind CAPM implies that the lower the beta, the less risky the market perceives the investment to be.)

Many researchers are examining what factors can be identified that explain differences in realized stock returns. That is, what factors can we observe that explain the realized return, R_i , for a stock i ? Using publicly-traded stocks (as those stocks have returns that are most easily observed), researchers have tested the pure (textbook) CAPM to determine whether R_i is a function solely of what is termed the *index model*:

$$(R_i - R_f) = \alpha_i + \beta_i(R_m - R_f) + \varepsilon_i$$

where:

R_i = Realized return for stock of company i

R_f = Risk-free rate of return

α_i = Coefficient on realized return in excess of risk-free rate when β_i = zero

β_i = Beta, the sensitivity of returns of stock of company i to the market risk premium (a.k.a., ERP)

$(R_m - R_f)$ = RP_m or realized market risk premiums on the market index (i.e. excess market returns over the risk-free rate), used as an estimate of the ERP

ε_i = error term, difference between predicted returns and realized returns.

Researchers have predominantly concluded that the textbook CAPM does not fully predict market returns. As stated earlier, stocks with low beta estimates do not always result in low returns and stocks with high estimated betas do not always result in high returns.

These observations result from any number of reasons.

For example, researchers have found that betas for individual stocks (and even industry betas) are very unstable over time. Therefore, using observations from prior periods may lead to inaccurate estimates of expected return.

Research has shown that volatility affects the accuracy of beta estimates. At times when the market is highly volatile, beta estimates are less reliable, as are the correlations of individual stock returns with returns on the market. The research further shows that even though correlations break down in times of high market volatility, volatilities generally move together. That is, when the market volatility increases on the average, so does the volatility on individual stock returns. This means that estimating betas during periods of high volatility of market returns will generally provide less reliable estimates of beta than during periods of low volatility.

Nobel laureate Eugene Fama and Professor Kenneth French (“F-F”) have published several studies critical of the pure CAPM beta. In one study, they stated that:

“The efficiency of the market portfolio implies that (a) expected returns on securities are a positive linear function of their market betas (the slope in the regression of a security’s return on the market’s return), and (b) market betas suffice to describe the cross-section of expected returns.”

F-F observed that the relation between market beta and average return is flat.⁷ In a follow-on study, they found that problems with CAPM using U.S. data show up in the same way in the stock returns of non-U.S. major markets.^{8, 9}

As authors of one valuation textbook put it:¹⁰

“In 1992, Eugene Fama and Kenneth French published a paper in the *Journal of Finance* that received a great deal of attention because they concluded, “In short, our tests do not support the most basic prediction of the SLB [Sharpe-Lintner-Black] Capital Asset Pricing Model that average stock returns are positively related to market betas.” Based on prior research and their own comprehensive regressions, Fama and French concluded that equity returns are inversely related to the size of company (as measured by market capitalization) and positively related to the ratio of a company’s book value to its market value of equity.”

The CAPM cost of equity estimates for high-beta stocks are too high, and estimates for low-beta stocks are too low, relative to historical returns. Finally, CAPM cost of equity estimates for high book value-to-market value of equity stocks (so-called *value stocks*) are too low, and estimates for low book value-to-market value of equity stocks (so-called *growth stocks*) are too high (relative to historical returns).

The implications of their work are that if CAPM betas do not suffice to explain expected returns, the market portfolio is not efficient. If this implication is true, then CAPM has potentially fatal problems, as argued by some authors:¹¹

“...we argue that the CAPM fails as a paradigm for asset pricing... (and) a reexamination of the research of Black et al. (1972), which did much to lay the empirical foundation for the CAPM, reveals that the data do not actually provide a justification of the CAPM as claimed, but rather constitute confirmation of the null hypothesis, namely that investors impose a single expectation of return on assets. Researchers, however, did not wish to abandon the

⁷ Eugene Fama and Kenneth French, “The Cross-Section of Expected Stock Returns,” *The Journal of Finance* (June 1992): 427–486.

⁸ Eugene Fama and Kenneth French, “Value versus Growth: The International Evidence,” *The Journal of Finance* (December 1998): 427–465.

⁹ One author demonstrated that the linear relationship between beta and the expected return is obtained only by using continuously compounded returns. Tests of the CAPM that use, say, monthly returns reflect the variance of returns but not the expected return as required by an asset pricing model. See Carl R. Schwinn, “The Measurement of Returns in Tests of the CAPM,” Working paper (July 2010) available at <http://ssrn.com/abstract=1649478>.

¹⁰ Tim Koller, Marc Goedhart, and David Wessels, *McKinsey & Company’s Valuation – Measuring and Managing the Value of Companies* 6th ed. (Hoboken, NJ: John Wiley & Sons, Inc., 2015): 280.

¹¹ Mike Dempsey, “The Capital Asset Pricing Model (CAPM): The History of a Failed Revolutionary Idea in Finance?” *Abacus* Vol. 49, Supplement (2013): 8.

core paradigm of market rationality. Such paradigm, after all justified the status of finance as a subject worthy of 'scientific inquiry'." ¹²

Despite the widespread use of the CAPM, recent research has shown that CAPM suffers from a fundamental problem --returns on stocks are generally not normally distributed nor lognormally distributed. As such, an underlying assumption upon which the CAPM was built is erroneous.¹³

F-F believe that the results of their research points to the need for pricing risk using a model that is not dependent on beta alone, because beta as traditionally measured is not a complete description of an asset's risk.¹⁴ Their research gave rise to what is now commonly known as the "Fama-French Three-Factor Model". More recently, F-F published a five-factor empirical model that appears to better explain expected returns in some countries relative to CAPM.¹⁵

Practitioners have adopted variations of a modified CAPM to add incremental risk factors (e.g., size premiums) that are intended to cure some of the problems with the textbook CAPM. Other methods, such as the "build-up method" have also surfaced as a commonly used alternative to CAPM when developing cost of equity capital estimates. But such data is often available for only a limited number of markets around the globe and are applied to other countries/markets simply because of the lack of anything better for a specific market.

Given the flaws of the CAPM and the evolving nature of asset pricing models, we recommend that the IVSC exercise extreme care in issuing guidance that relies exclusively in the textbook CAPM as the base model. Observed diversity of practice may be completely warranted given that certain models are not able to be implemented in certain markets.

What is more important is consistency in applying the inputs associated with any model.

Question 2.3: Which inputs have you observed to have diversity in practice that would benefit from additional guidance in IVS and why?

An important issue we have observed in practice deals with the inconsistent application of inputs into a specific model. The remainder of our response to this question will address general inconsistencies, as well diversity in practice in individual inputs.

General Inconsistencies

A crucial notion that many constituents seem to ignore is the need to ensure consistency in the currency used to estimate projected cash flows versus the currency denomination of the inputs used to derive a discount rate estimate. For example, we often see valuations drawing data on risk-free rates and equity risk premium estimates derived from the perspective of investors in one currency and simultaneously applying in the same model data derived for other inputs in a different currency, without converting all inputs into the common currency in which the cash flows are projected.

¹² Note that the 1972 research cited by this author refers to the following academic paper: Black, F., M. Jensen, and M. Scholes, "The Capital Asset Pricing Model: Some Empirical Tests," in M. Jensen (ed.), *Studies in the Theory of Capital Markets* (New York: Praeger Publishers, 1972).

¹³ D. Harris, "Why Heavy Tails?" *Southwestern Economic Review*, 41, 1 (Spring 2014):127-151 and Harris "A Population Test of Distribution Assumptions in Mean-Variance Models for the years 1925-2013" <http://ssrn.com/abstract=2653151>, August 29, 2015.

¹⁴ Eugene Fama and Kenneth French, "The Cross-Section of Expected Stock Returns," *The Journal of Finance* (June 1992), 47 (2), 427-486.

¹⁵ Eugene F. Fama and Kenneth R. French, "A Five-Factor Asset Pricing Model," *Journal of Financial Economics*, 116 (1) April 2015:1-22

As highlighted in our response to Question 2.1, poor quality, unreliable, or even non-existing data may make it impossible to directly derive or source cost of capital inputs in the local currency of an emerging market. In such cases, using mature market data is likely the best available alternative, but such inputs should not be used in the local currency without appropriate adjustments. An example on how to convert such inputs into the local currency would rely on the use of the key theoretical economic relationships in international finance, the International Fisher Effect:¹⁶

$$\text{Interest Rate}_{\text{Local Currency}} = (1 + \text{Interest Rate}_{\text{Home Currency}}) * (1 + \text{Inflation}_{\text{Local Currency}}) / (1 + \text{Inflation}_{\text{Home Currency}}) - 1$$

This relationship can be extended from interest rates into discount rates, thereby allowing one to translate a home currency cost of capital estimate into a foreign currency indication. However, it is crucial to understand that the International Fisher Effect relationship holds only in equilibrium. This presumes that (i) there is no government intervention in capital markets; and (ii) capital can flow freely in international financial markets from one currency to another, such that any potential arbitrage opportunity across countries will be quickly eliminated. In reality, market frictions (e.g., transaction costs, regulations, etc.) and government interventions do exist in practice, which means that using the International Fisher Effect to translate the home currency discount rate into a local currency will result in only an approximation.

Despite these limitations, the International Fisher Effect can be useful in ensuring that inflation assumptions embedded in the projected cash flows are consistent with those implied by the discount rates.

A second source of general inconsistency in the selection of cost of capital inputs stems from local country rules and guidance issued by local institutes or organizations.

A pertinent example is cost of capital guidance issued by Germany's Institute of Public Auditors (Institut der Wirtschaftsprüfer, or IDW), at times translated into English as the Institute of Chartered Accountants). In the past, the IDW has issued several standards on valuations, which contain significant detailed guidance on a variety of valuation inputs. While not legally binding, these standards have broad acceptance in Germany.

If valuations will be reviewed by German-based auditors, it is very likely that they will require the cost of capital inputs to be based on the standard procedures outlined by the IDW. This includes valuations performed for the following purposes (again, provided they are reviewed by a German-based auditor):

- Financial Reporting (e.g. purchase price allocations)
- Tax (e.g. legal entity valuations)
- M&A and transaction opinions, if that valuation ends up in court proceedings (e.g., shareholder squeeze-out proceedings, etc.)

The IDW guidance imposes several constraints on which data and methodology can be used as source for cost of capital inputs, such as the risk-free rate or the ERP. For instance:

- The risk-free rate should be based on a spot yield using the Svensson-methodology to construct the yield curve. In addition, the risk-free rate should be based on a maturity consistent with the remaining useful life (RUL) of the asset / liability being valued. For businesses, a cash-flow-weighted average life is typically used to select the maturity of the

¹⁶ Several international finance textbooks have been written and published which cover this topic extensively. There are five theoretical relationships in international finance that are central to understanding and forecasting foreign exchange rates, as well as the prices of other financial assets denominated in foreign currencies. See for example: 1) Chapters 4 and 19 of Piet Sercu (2009), *International Finance: Theory into Practice*, (Princeton, NJ: Princeton University Press); and 2) Chapter 4 of Alan C. Shapiro (2013), *Multinational Financial Management*, 10th ed. (Hoboken, NJ: John Wiley & Sons, 2013).

risk-free rate along the yield curve, which tends to result in a range of 20 to 30 years according to local practitioners.

- The ERP assumption is always within a certain prescribed range, but discounts / premiums may be applied to take into account the RUL/maturity of the subject interest. Current IDW guidance on ERP for Germany (in euros) is in the range of 5.5% to 7.0% before personal income taxes, and 5.0% to 6.0% after personal income taxes.

This example highlights the fact that it will be difficult to change behavior and local practice in certain countries, particularly, if guidance has been long-established and issued by local institutions or organizations. While this should not be an impediment for any standard-setting activity by the IVSC, it is a factor that should be considered when determining whether to issue a Standard or a Guidance Note on the topic of Discount Rates.

The following section addresses apparent contradictions in input assumptions, but may be well justified depending on the purpose of the valuation engagement and the nature of the subject interest.

Risk-free rate & Equity Risk Premium (ERP)

The risk-free rate and the ERP are interrelated concepts. All ERP estimates are, by definition, developed in relation to the risk-free rate. The first step in developing a discount rate is to estimate a benchmark rate of return on equity capital; that is, a risk-free rate plus ERP.

Until recently, practice had developed to use historical data to estimate the ERP. That data was derived from observed returns on stocks over long periods of time, which in turn exhibited differing periods of inflation. A first step of subtracting the historical market yield from the observed returns on stocks served as an adjustment mechanism for the different inflationary environments over time. This historic ERP data then became the basis for estimating a current discount rate, by adding to it the current risk-free rate (spot rate, or current market yield). The risk-free rate plus ERP estimate in theory serves as the basis for a benchmark (i.e., where the market beta is 1.0) rate of return on equity capital, given the current inflation expectations embedded in the risk-free rate. Thus, the ERP is the extra return investors expect as compensation for assuming the additional risk associated with an investment in a diversified portfolio of common stocks, compared to the return they would expect from an investment in risk-free securities as of the valuation date, where the risk-free rate serves as the mechanism to adjust for current inflation expectations.

When developing cost of capital estimates, the valuation analyst should match the term of the risk-free rate used in the CAPM or build-up method formulas with the duration of the expected net cash flows of the business, asset, or project being evaluated. Further, the term of the risk-free rate should also match the term of the risk-free rate used to develop the ERP. However, in practice we have observed internally inconsistent assumptions used for these two inputs, where the risk-free rate and the ERP were estimated using different maturities.

In many of the cases in which one is valuing a business, a “going concern” assumption is made (the life of the business is assumed to be indefinite), and therefore selecting longer-term bond yields (e.g. 20 years) issued by a government considered to be “safe” (i.e., free of default risk) is appropriate as the proxy for the risk-free rate.

However, in some markets, there is a lack of long-term risk-free instruments, either because of maturity restrictions (e.g. many countries will not issue sovereign debt securities with tenors beyond 10 years, due to lack of investor demand or other reasons), or because the country's sovereign debt is not considered to be free of default risk. In the former case, one should consider whether using a shorter maturity (e.g. 10 years) is still a reasonable assumption for the risk-free rate. In the latter case (i.e. the country's local currency sovereign debt is not risk-free), one should consider developing the discount rate denominated in a mature market currency. The valuation professional should then decide whether to conduct the entire valuation in that mature market currency (e.g. by translating the projected cash flows into the mature market currency at an expected future exchange rate), or to translate the discount rate derived in the mature market currency into the local market currency.

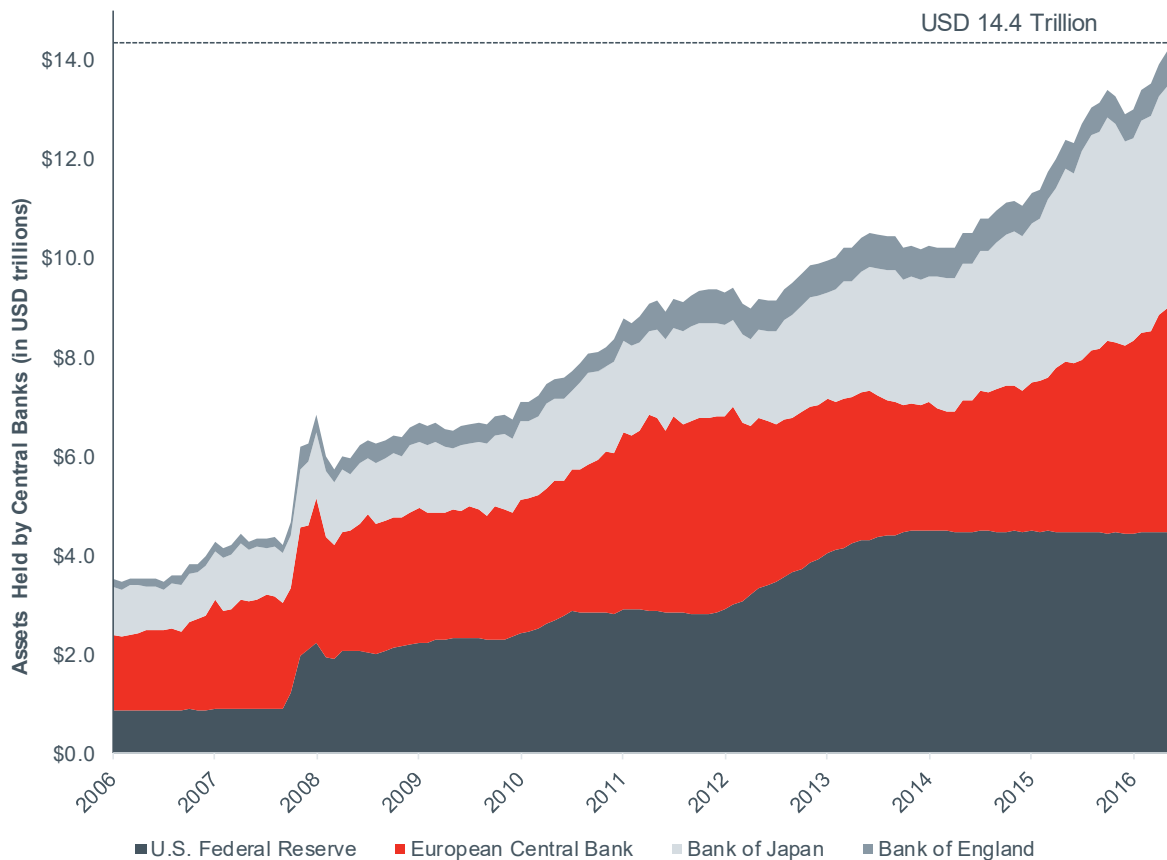
With regards to the risk-free rate assumptions for major developed economies (e.g., United States, United Kingdom, Germany, Australia, Canada), the onset of the 2008 Financial Crisis has led many analysts to reexamine whether the "spot" rate is still a reliable building block upon which to base their cost of equity capital estimates. The 2008 Financial Crisis challenged long accepted practices and highlighted potential problems of simply continuing to use the spot yield-to-maturity on a safe government security as the risk-free rate, without any further adjustments. For example, there were several episodes of "flight to quality"—massive sales of equities and reinvestment in what were seen as risk-free securities, with the intent of capital preservation, rather than a search for yield. The impact was to lower bond yields of "safe" governments dramatically. Adding those spot yields to historical measures of ERP would have implied that the overall cost of equity had declined, when in reality, it was at all-time highs.

In addition, as is practically undisputed, aggressive monetary policies implemented as a response to the 2008 Financial Crisis and the ensuing Euro Sovereign Debt Crisis drove long term interest rates in the U.S. and several advanced economies to historically low levels.

These unconventional monetary policies included so-called quantitative easing (QE) measures, which entailed the purchase of massive quantities of debt securities issued by governments in the United States, Japan, the Eurozone, and the United Kingdom, among others.

For perspective, we have updated a section of our analysis included in the *2017 Valuation Handbook – U.S. Guide to Cost of Capital*, which focuses on the size of the balance sheet of major central banks around the globe, as result of their QE programs implemented since the 2008 Financial Crisis. In Exhibit 2.1, we show how total assets of the U.S. Federal Reserve Bank (the Fed), the Bank of Japan (BOJ), the European Central Bank (ECB), and the Bank of England have evolved from 2006 until May 2017. Note that this is an imperfect measure of sovereign debt instruments held by these central banks, since balance sheets will include other types of assets. Nonetheless, it is striking that at the end of May 2017, the combined assets amounted to approximately \$14.4 trillion, which is more than triple the level registered in August 2008 of \$4.2 trillion, just before the onset of the 2008 Financial Crisis.

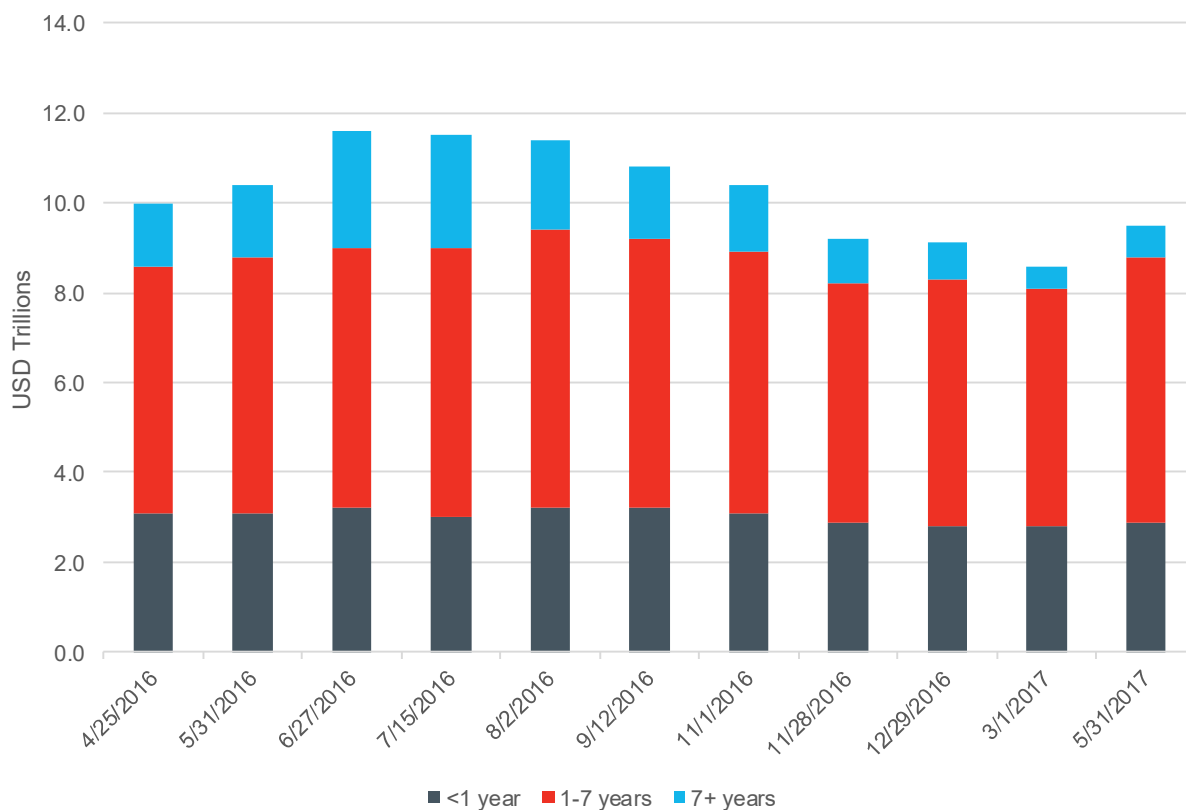
Exhibit 2.1: Total Assets Held by Central Banks in the United States, Eurozone, Japan, and United Kingdom (in U.S. Dollars)
December 2006–May 2017



Source of Underlying Data: Federal Reserve Bank of St. Louis Economic Research, Bank of England. Compiled by Duff & Phelps, LLC.

In addition, unconventional monetary policies took on a whole new meaning when certain major central banks decided to implement a negative interest rate policy (dubbed “NIRP” in the financial press). The BOJ, the ECB, as well as the Danish, the Swedish and the Swiss central banks have all adopted this new form of monetary policies. NIRP entails financial institutions paying interest on the liabilities that the central bank issues to them. The main idea of NIRP is to discourage savings, while creating incentives for consumers to increase their spending and companies to expand their investment. However, the consequence of such measures is to also pressure interest rates further downwards. According to Fitch Ratings, global negative-yielding sovereign debt stood at USD 9.5 trillion at the end May 2017, as can be observed in Exhibit 2.2.

Exhibit 2.2: Global Negative-Yielding Sovereign Debt Outstanding by Maturity (in U.S. Dollars)
April 2016–May 2017



Source of Underlying Data: Fitch Ratings

In addition, in September 2016 the BOJ surprised financial markets by introducing a new “Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control”. The BOJ is targeting the nominal yield of 10-year Japanese government bonds to around 0.0%. No other central bank targets both the level and the slope of the yield curve, to our knowledge.

The combination of all these policies have created significant challenges to valuation professionals when trying to estimate a risk-free rate. The market (spot) yields of U.S., U.K., German, and Japanese government bonds in certain periods during and after the 2008 Financial Crisis (and later the Euro Sovereign Crisis) may have been artificially repressed, and are therefore possibly unsustainable, and certainly poor estimators of long-term inflation expectations.

If one uses a spot rate artificially kept low by actions of central banks and flights-to-quality, but continues to use a long-term average historical ERP (as is common practice) to calculate the base cost of equity, one may end up with illogical results. For example, at year-end 2007 the U.S. 20-year Government bond yield was 4.5% and the long-term historical ERP was 7.1%, giving a base cost of equity capital of 11.6%. But at year-end 2008, during the height of the 2008 Financial Crisis, the U.S. 20-year Government bond yield had decline to 3.0% due to the massive flight to quality and the long-term historical ERP had declined to 6.5% (because of the losses incurred in stocks during 2008), resulting in a base cost of equity capital of 9.5%. Thus, during a period when risks increased greatly, the then-prevailing practice of simply adding the spot rate to the historical ERP created a situation where the base discount rate decreased.

Adjustments to the ERP or to the risk-free rate are, in principle, a response to the same underlying concerns and should result in broadly similar costs of capital. Adjusting the risk-free rate in

conjunction with the ERP is only one of the alternatives available when estimating the cost of equity capital.

For example, one could use a spot yield for the risk-free rate, but increase the ERP or other adjustment to account for higher (systematic) risk. If the valuation professional chooses to use the spot yield to estimate the cost of capital during periods when those yields are less than “normal,” the valuation professional must use an estimated ERP that is matched to (or implied by) those below-normal yields. However we note that the most commonly used data sources for ERP estimates are long-term series measured when interest rates were largely not subject to such market intervention. Using those data series with an abnormally low spot yield creates a mismatch.

Alternatively, if the valuation professional chooses to use a normalized risk-free rate (i.e., a rate that embodies the real rate of return plus inflationary expectations, without influence of Central Bank policies to keep interest rates low) in estimating the cost of capital, the valuation analyst must again use an estimated ERP that is matched to those normalized yields. Normalizing the risk-free rate is likely a more direct (and more easily implemented) analysis than adjusting the ERP due to a temporary reduction in the yields on risk-free securities, while longer-term trends may be more appropriately reflected in the ERP.

In theory, both alternatives are acceptable depending on the purpose of the analysis and the country where the subject company operates.

The bottom line is that it is crucial to use internally-consistent assumptions when selecting risk-free rate and ERP inputs.

Beta

There is no universal method to arrive at a beta estimate. In fact, in some circumstances it may be appropriate to look at different methodologies to understand trends in underlying risk. It should be clear that there is no unique beta estimate that can be considered the “correct” beta.

As highlighted in our response to Question 2.2., beta is a forward-looking concept (similar to the ERP), but that forward-looking beta is not observable. The “true” beta must be estimated. Existing techniques for estimating beta generally use historical data (making estimates using a look-back methodology) and assume that future stock returns will be sufficiently similar to past stock returns to justify extrapolation of betas calculated using historical data.

Various academic studies have attempted to estimate beta using a variety of methods, but none have found the perfect solution. In such cases, using multiple methods to estimate a range of betas may result in a more reliable indication.

Regarding the frequency of return measurement employed in calculating a historical beta, market returns may be measured on a daily, weekly, monthly, quarterly, or annual basis. Some academic papers will now use intra-day data or continuous data from options, although these exercises have not been “translated” to be used by practitioners in valuations of companies.

There is nothing unequivocally established with regards to which period is best in the measurement of historical (i.e. ordinary-least-squares or OLS) betas. Academics will disagree on that assumption, but practice has emerged that looking at 5-year betas using monthly returns and 2 or 3-year betas using weekly returns may be a good starting point.

A well-known valuation textbook, bases its recommendation to use 5 years of monthly data to calculate historical betas on an academic paper published in 1980.¹⁷ The authors of this research

¹⁷ Tim Koller, Marc Goedhart, and David Wessels, McKinsey & Company's *Valuation – Measuring and Managing the Value of Companies* 6th ed. (Hoboken, NJ: John Wiley & Sons, Inc., 2015): 280.

found that 4- and 6-year estimation periods performed the best, but were statistically insignificant from each other (hence, the conclusion of 5 years).¹⁸

When relying on historical betas, it is critical to evaluate whether there have been events in the history of each individual stock that are not repeatable (e.g. merger, acquisition, or disposal of a major business). If that is the case, the historical beta needs to be adjusted somehow to remove those non-repeatable events. Looking at betas calculated using different time periods may help unveil major shifts in underlying risk. Ultimately, the reason to use a raw historical beta is if one believes it is a good proxy for risk in the future. The objective is still to use a forward-looking estimate.

Depending on the sources used, the valuation professional can obtain different betas, both historical (e.g. due to selection of different inputs such as frequency of returns, period used to calculate returns, market index, etc.) and predicted (e.g. multi-factor models relying on different risk factors) for the exact same company. Therefore, practitioners should not use betas retrieved from different sources within the same WACC calculation (although we have often observed that inconsistency). Instead, one can perform a sensitivity to different sources and accordingly compute different WACCs, but one must always be consistent within the same WACC calculation.

Finally, we have observed that many practitioners often cite Bloomberg as some sort of proprietary methodology, which is a misconception. Bloomberg is simply a calculator, whose beta outputs will depend on the user's selected inputs (even if the user simply uses the default Bloomberg choices). One can get two distinct betas from Bloomberg's calculator:

- 1) **Raw Beta**, which is their "code" word for historical OLS regression betas. As indicated earlier, the potential problem with historical (raw) betas is that they cannot really capture changes in underlying business risk when major structural shifts have occurred to the company (i.e., underlying business risk may have changed because of a big merger, acquisition disposal, etc.). This is also relevant during market-wide financial crises, when historical betas may not be a good proxy for the forward-looking beta. Therefore, it is advisable when looking at historical betas to examine betas over different time periods and try to ascertain if an event has occurred such that the measured historical beta is unreliable as a proxy for future risk.
- 2) **Adjusted Beta**: This is based on an old academic paper by Professor Blume.¹⁹ The idea of this paper is that betas tend to revert to the market mean (i.e., 1.0). At the time of this paper, Blume found the following factors could be used to adjust a historical beta:

$$\text{Prospective Beta} = (0.33) * 1.0 + (0.67 * \text{historical beta})$$

Bloomberg's Adjusted Beta is based on this Blume adjustment. However:

- These factors (1/3 - 2/3) may now be obsolete;
- Some industries will never revert to a beta of 1.0, but rather will revert to a peer average (e.g., regulated utilities typically have betas below 1.0). This concept was advanced by another academic researcher, Prof. Vasicek.²⁰ However, this is a more complex adjustment to implement and works best when we have a large peer group set (e.g. an entire industry segment). This is because the adjusted beta for the company is the weighted average of the company's historical beta and beta for the market, the industry, or the peer group:

$$\text{Adjusted Beta} = (1 - \text{weight}) * \text{Peer Group (or Market) beta} + \text{weight} * \text{company beta}$$

¹⁸ Alexander, Gordon J. and Chervany, Norman L., "On the Estimation and Stability of Beta", *Journal of Financial and Quantitative Analysis*, Volume 15, Issue 01, March 1980, pp 123-137

¹⁹ Blume, Marshal E., "On the Assessment of Risk", *The Journal of Finance*, Vol. 26, No. 1, (March 1971), pp. 1-10.

²⁰ Vasicek, Oldrich A., "A Note on Using Cross-Sectional Information in Bayesian Estimation of Security Betas", *The Journal of Finance*, Vol. 28, No. 5 (Dec., 1973), pp. 1233-1239.

Where:

$$\text{weight} = \frac{(\text{cross-sectional standard error})^2}{[(\text{cross-sectional standard error})^2 + (\text{time series beta standard error})^2]}$$

Both industry-focused publications within the Duff & Phelps *Valuation Handbook* series (i.e., the *U.S. Industry Cost of Capital* and the *International Industry Cost of Capital*) contain beta estimates for a variety of industries calculated using several methodologies, including but not limited to, historical (OLS), Blume-adjusted, and Vasicek-adjusted betas.

There can be more basic issues when estimating betas using look-back methods. For example, during periods when a specific company's stock price is readjusting downward because the company is suffering business or financial duress even while the general stock market is rising, one obtains a beta estimate that is less than 1.0 (indicating a lower than market risk) even though the company is in fact experiencing increased risks. Thus, blindly applying a look-back method to estimating beta provides an erroneous estimate of risk.

Size Premium

Practitioners often incorporate a size premium when developing their cost of capital estimates using the modified capital asset pricing model (MCAPM). However, the existence or application of a size premium when estimating the cost of equity of small companies is not without controversy.

Periodically, academic and practitioner articles are written questioning whether a size premium still exists. Although it is not our intent to discuss this issue at length, there are some misconceptions on what the size premium really represents.²¹

The apparent contradictory evidence on the existence of a size effect has led a researcher who surveyed the literature to argue that (i) the assertion that the size effect has disappeared is premature, and (ii) more empirical research is needed to establish the validity of the size effect in both U.S. and international stock returns.²² Other researchers reasonably argue that if firm size measures and observable risk characteristics are closely correlated, empirically disentangling the effects of size and risk on returns becomes a difficult task.²³ More recent research has argued that the size of a company does matter, if certain factors are controlled for appropriately.²⁴

In addition, as highlighted in our response to Question 2.2, given the flaws of CAPM and the evolving nature of asset pricing models, the exclusive reliance on the pure textbook CAPM as the base model will likely lead to misestimation of risk and discount rates.

From a practical standpoint, while over the long run the size effect has been shown to be present in markets such as the United States or the United Kingdom, lack of reliable data for small-cap stocks over an extended historical period for most countries makes it difficult to categorically conclude on the magnitude of the size premium, even if it does exist. Due to those data deficiencies, we often observe that size premiums estimated using U.S. stock return data are also used as the basis for making size adjustments to cost of equity estimates in other countries.

²¹ For a good summary of these misconceptions, refer to Grabowski, R. "The Size Effect—It Is Still Relevant", *Business Valuation Review*, Volume 35, Number 2 (Summer 2016).

²² van Dijk, M.A., "Is size dead? a review of the size effect in equity returns," *Journal of Banking and Finance*, 35: 3263–3274, 2011.

²³ Jegadeesh, N., "Does market risk really explain the size effect?", *Journal of Financial and Quantitative Analysis*, 27(3): 337–351, 1992.

²⁴ Asness, Clifford S. and Frazzini, Andrea and Israel, Ronen and Moskowitz, Tobias J. and Pedersen, Lasse Heje, "Size Matters, If You Control Your Junk" (January 22, 2015). Fama-Miller Working Paper. Available at SSRN: <https://ssrn.com/abstract=2553889>.

Germany is once again a special case with regards to this input. While some academic researchers have found evidence that the size effect is present in Germany, other research has casted doubts on its existence.^{25 26 27} The IDW does not recommend the use of size premia in Germany and this is a broadly-accepted local practice. Therefore, if valuations will be reviewed by German-based auditors, it is very likely that a size premium adjustment will not be accepted (see earlier discussion on German local practices under “General Inconsistencies”).

Country Risk Premium

Please refer to our response to Question 2.4.

Company-specific Risk Premium (CRSP)

Analysts are confronted with estimating the risk of a subject data with incomplete data. If all companies were publicly held and risk measures (e.g., beta estimate) were observable, then the analyst could rely on those observations in estimating company discount rates as the changes in stock market prices embody the market’s assessment of company risk. But most companies or businesses being valued are not publicly held. Analysts are forced to estimate company risk measures by employing proxy data drawn from publicly-traded company data. However, there can easily be a mismatch: the subject company risk may not match any of the public companies available from which proxy estimates can be developed. The size premium is one adjustment designed to account for differences in risk between the subject company and the publicly-held firms used to develop proxy risk measures. But size premium data are averages and a further adjustment may be justified. The goal is to mimic the market’s assessment of risk as if the subject company were publicly held and market observed risk measures were available.

A CSRP can be a justified adjustment in developing discount rates particularly where there are few publicly held companies to use to develop proxy risk measures and where the risks of the publicly held companies are significantly different from the risks of the subject company.

However, we observe that in cases where a CSRP may be warranted, many analysts simply apply *ad hoc* adjustments rather than develop a case for the magnitude of the CRSP. They assume that the size premium does not adequately account for the risk differences, without examining quantitative indicators of specific company risk compared to companies of a comparable size.

Data published in the Duff & Phelps *Valuation Handbook – U.S. Guide to Cost of Capital* demonstrates the differences in certain risk measures among the companies comprising the portfolios of comparably-sized companies, so the analyst can determine if the subject company’s risk warrants an added (or a negative) CRSP.

Guidance could be useful as to the factors that should be considered in applying a CSRP and the level of care that is needed in estimating CSRP (for example, examining whether the size premium already embodies an appropriate adjustment to the discount rate).

²⁵ Baetge, Jorg and Kirsch, Hans-Jurgen and Koelen, Peter and Schulz, Roland, “On the Myth of Size Premiums in Corporate Valuation: Some Empirical Evidence from the German Stock Market”, *Journal of Applied Research in Accounting and Finance* (JARAF), Vol. 5, No. 1, pp. 2-15, 2010.

²⁶ Artmann, Sabine and Finter, Philipp and Kempf, Alexander, “Determinants of Expected Stock Returns: Large Sample Evidence from the German Market”, *Journal of Business Finance & Accounting*, Vol. 39, Issue 5-6, pp. 758-784, 2012.

²⁷ Amel-Zadeh, Amir (2011), “The Return of the Size Anomaly: Evidence from the German Stock Market”, *European Financial Management*, 17 (1), pp. 145-182.

Ultimately, careful consideration of the nature of the cash flows is required, including an assessment if they are expected or conditional cash flows, so that risk adjustments are not double-counted. It should also be noted that at least in valuations for certain purposes, there is a general preference to capture non-systematic risks in the projected cash flows, and use an expected case.

Capital Structure

While the IVSC has highlighted differences in the assumptions used when selecting a capital structure, we would expect that the capital structure should indeed vary depending on the purpose of the valuation and the subject interest being valued.

For instance, when valuing a non-controlling (or minority) equity interest where the investor has little or no ability to induce a change to the capital structure (e.g. stock-based compensation for financial reporting purposes, certain tax valuations, etc.), the subject company's existing (or projected) capital structure should be used until a liquidation event is expected.

In contrast, when valuing a controlling equity interest, one would consider that investors have generally the ability to change the capital structure to an optimal level that maximizes shareholders' value and minimizes the WACC. Practitioners often use industry averages (or medians) as a proxy for the optimal capital structure. However, such an assumption is not always accurate. For example, several casino operators in the immediate aftermath of the 2008 Financial Crisis were clearly overlevered and suffering from financial distress. Using an average capital structure of such companies during that time period would clearly be inappropriate if valuing a casino company not suffering from financial distress.

We also note that in industries with significant levels of debt, the issue of overlevering may be exacerbated by the common practice of using the book value of interest-bearing debt as a proxy for its fair value. While this assumption is often reasonable or does not have a material impact on the measurement of debt and equity weights, when dealing with overleverage this is no longer the case. As a reminder, finance theory requires the use of market value weights, when measuring the capital structure of a company.

Cost of Debt

Some of the same issues highlighted under the "Risk-free rate & Equity Risk Premium (ERP)" section are also pertinent here.

The cost of debt is often estimated based on long-term market yields observed for publicly-traded corporate debt instruments with a similar credit rating (or credit worthiness) as the subject company. However, in most countries, there is a lack of publicly-traded corporate debt instruments in sufficient numbers to develop aggregate yields by rating category, particularly for non-investment grade issuers, i.e. those with S&P (or equivalent) credit rating below BBB-. There are a variety of reasons for such data shortage, which include but are not limited to (i) market structure issues (e.g., companies tend to prefer the use bank financing in some countries); (ii) undeveloped or small corporate debt market, due to high barriers (e.g. regulations) or high perceived risk of local issuers; or (iii) maturity restrictions (e.g. in many countries, corporations will not issue debt securities with long maturities, due to lack of investor demand or other reasons).

When longer term yields are not available, one should consider whether using a shorter maturity (e.g. 10 years) is still a reasonable assumption for the cost of debt. However, the maturity used for the cost of debt should in principle match the maturity selected for the risk-free rate.

In other cases (i.e. when local currency denominated market yields are unavailable), one should consider developing the discount rate denominated in a mature market currency. The valuation professional should then decide whether to conduct the entire valuation in that mature market

currency (e.g. by translating the projected cash flows into the mature market currency at an expected future exchange rate), or to translate the discount rate derived in the mature market currency into the local market currency.

It is noted that in advanced economies, QE programs implemented by certain central banks have included the purchase of investment-grade corporate bonds. Purchases by the ECB, BOJ and the Bank of England have contributed to distortions in the yields observed for investment-grade corporate debt securities denominated in EUR, JPY, and GBP.

Finally, we have also observed the following misapplications of finance theory:

- Using a current variable/floating rate (e.g. LIBOR + spread) for short to medium term debt obligations to represent the company's cost of debt. However, long-term (ideally matching the maturity of the risk-free rate instrument) market rates for fixed coupon instruments should be used instead.
- Using a simplifying assumption of a BBB rating for the industry when the selected guideline companies have clearly a different average/median rating.
- Using the industry average debt rating, even when the subject company's credit worthiness is very different from the industry. For instance, a highly-levered company would have a below-investment grade rating, with a corresponding higher cost of debt. In that case, making the assumption that the better industry credit rating and associated lower cost of debt should be used, while simultaneously using a highly-levered capital structure, would be internally inconsistent (and lead to the erroneous conclusion that the WACC appears to be lower than it really is). Nevertheless, using an industry average/median debt rating may be appropriate when dealing with financial reporting engagements where it is reasonable to assume that other market participants would also use the lower WACC (associated with a better credit worthiness) to acquire the target business (i.e., it is a source of a market participant synergy).

Question 2.4: What other methods of deriving discount rates for business enterprise valuation do you commonly observe in practice? For each method, do you commonly observe diversity in practice in its application?

Response

Based on academic research we continuously review and practical observations from finance professionals, we have concluded that there is no one method that is superior to other methods in estimating equity discount rates.

In a recent Duff & Phelps interview of Professor Campbell Harvey (forthcoming), we asked whether he recommends the use of multiple risk models in the context of estimating discount rates. His answer was as follows:

“If you've got some credible models that have good economic foundation, but not sure which model is the true model – indeed it's likely that none of them are – then the best thing that you can do, as a Bayesian, is to average those models. So, it's important to look at multiple inputs and make a decision based upon the average. It doesn't have to be an equally-weighted average. But, it's important to diversify your model risk.”

One can use multiple methods based on the quality of the data available for a particular market, especially if dealing with cross-border valuations. Depending on the valuation and where the operations are located, different international cost of equity models may be used:

- 1) Single Country CAPM Model
- 2) Global CAPM Model
- 3) Country (a.k.a. Sovereign) Yield Spread Model
- 4) Relative Volatility Model
- 5) Erb-Harvey-Viskanta Country Credit Rating Model

In the annual Duff & Phelps *Valuation Handbook – International Guide to Cost of Capital* we discuss the pros and cons of using each of the above models, as well as the *Damodaran Local Country Risk Exposure Model*. This Duff & Phelps publication also provides inputs necessary to apply some of these models to a variety of countries and includes the following Data Exhibits: (i) International Equity Risk Premiums; (ii) Country Yield Spread Model; (iii) Relative Volatility Model; (iv) Erb-Harvey-Viskanta Country Credit Rating Model; and (v) summary statistics from research conducted by Professor Erik Peek (Rotterdam School of Management, Erasmus University) about the size effect in Europe.

The companion *Valuation Handbook – International Industry Cost of Capital* contains data which the valuation analyst will find useful in benchmarking, augmenting, and supporting his or her own international cost of capital estimates. For example, we estimate betas using multiple techniques for three currencies (USD, EUR, and GBP) within four economic regions: (1) European Union, (2) Eurozone; (3) United Kingdom; and (4) the “World”.

We recommend examining the results from applying multiple models; then, examining the quality of the data available and the range of estimates provided by the various models for the subject country; and finally, recommend either (1) choosing among the one or two “best model estimates”, or (2) calculating an average of the discount rate estimates (where the average can be “weighted” rather than calculated as a straight/simple average).

In our experience, one of the most common inconsistencies we observe in cross-border valuations is a mismatch between the currency used to project the cash flows vs. the currency used for the inputs in the discount rate. So, the problem does not reside simply on the choice of available cost of equity models. It goes beyond that. There is a lack of knowledge of crucial international finance concepts by many constituents. This can partly be attributed to such trends as the globalization of financial markets, the rising of cross-border M&A activity, and the increased need for fair (market) value indications, which have not (yet) been accompanied by an education of finance professionals in international valuation concepts at a meaningful level.

Note: We would be happy to provide the IVSC with copies of the above reference books, to assist in this and other related questions.

Question 2.5: Of the potential Standard Alternatives outlined above (A, B, C), which do you prefer and why?

Response

We strongly advise against Option C, for reasons highlighted in our response to Question 2.1. We would prefer the issuance of a Guidance Note – subject to our preceding comments about Guidance Notes at the outset of this letter – as this would address some of the educational needs underscored in our response to Question 2.4, as well as avoid prescriptive guidance as highlighted in our response to Question 2.1. But if a standard (rather than a Guidance Note) is to be issued on Discount Rates, then Option B would be preferred, as textbook CAPM should not be the only available method to valuation professionals (see our response to Question 2.2).

III. Early Stage Valuation

Questions for Respondents

Question 3.1: Are additional standards for the valuation of early-stage companies a critical area that should be addressed by the IVSC? Please explain why.

Response

No, we do not believe so. The IVSC has historically looked to the IPEV Board as the principal provider of valuation guidance for the alternative asset industry. To the extent that additional guidance is deemed necessary, the IVSC should request the IPEV Board to update their guidelines for specific concerns.

Further, as noted, the AICPA PE/VC Valuation Guide, which is expected to be issued for public comment in early 2018, will extensively address valuation matters pertaining to early stage investments, especially the five stages of development described in this ITC.

Given the multitude of items which the IVSC could address, it would not seem to be prudent to incur the effort creating a third version of guidance for valuing early stage investments, beyond that of the IPEV Guidelines and the AICPA PE/VC Guide.

Question 3.2: In which areas of the valuation of early-stage companies do you see the greatest diversity in practice? Are there additional areas of concern not noted above in this ITC? If so, please discuss.

Response

Practice in the valuation of early stage investments is not overly diverse. That being said, we note three primary concerns with existing practice which some may consider diversity in practice. These include:

- a. The tendency to use the latest round of financing as the primary input in estimating fair value;
- b. A reluctance to move value up or down between financing dates;
- c. The need to use market participant assumptions in estimating fair value, yet investors in early stage companies often invest based on “gut feel” rather than based on some type of numerical analysis

It is appropriate to use observable transaction information in estimating fair value. Therefore, an arm’s length round of financing should be used as a primary valuation input for a period of time. However, at subsequent measurement dates, if there are indications that value has changed, to comply with IFRS 13 *Fair Value Measurement*, and ASC Topic 820 *Fair Value, Fair Value Measurements & Disclosures*, the resultant fair value may differ from the last transaction price.

Question 3.3: Of the potential Standard Alternatives outlined above (A, B, C), which do you prefer and why?

Response

To avoid undue effort and the potential for competing standards, we recommend adopting Alternative A, no new standard. The multiyear effort of the AICPA which will result in a new PE/VC Guide next year and the existing body of work from IPEV (already endorsed by the IVSC), are sufficient.

IV. Biological Assets

Are the valuation topics described in this ITC areas for which there is potential for significant improvement as compared to IVS 2017?

Response

Given that IVS 2017 has no standards specific to the valuation of biological assets, adding this topic would be a significant improvement.

What is the priority of addressing each topic?

Response

Per the ITC, the feedback received from the Exposure Draft in November 2012 revealed inconsistencies both in terms of valuation and level of due diligence required, and the Tangible Assets Board has recognized there is a significant market need for guidance in this area.

Additionally, we observe that the IASB has included Biological Assets as one of the topics comprising its post-implementation review of IFRS 13, and has requested feedback from constituents on whether educational materials would be useful. This indicates guidance in the area is probably a critical priority, consistent with the current IVSC categorization.

Questions for Respondents

Question 4.1: Should IVS provide a standard of Biological Assets? If yes, do you agree with the title of this standard and the distinction provided by the FASB and IASB between Biological Assets and Agricultural Produce, please explain why?

Response

A standard regarding the valuation of Biological Assets would be a helpful addition to the IVS. Assuming the focus of the standard is to be solely Biological Assets, then the title of the contemplated standard is appropriate. If, however, the contemplated standard will discuss the valuation of both Biological Assets and Agricultural Produce, the title should be changed accordingly.

In addition, the distinction between Biological Assets and Agricultural Produce appears to be more fully developed in IAS 41 and this discussion should be included in the standard as it would clarify exactly what a Biological Asset is for valuation purposes.

Question 4.2: Do you observe a significant variation in valuation practice for Biological Assets? For each type of Biological Asset, what methods do you most commonly see used? Which type of the Biological Asset you listed have the greatest diversity in practice?

Response

We have observed some variation in valuation practice for Biological Assets. We have seen companies that hold timber assets who value Biological Assets differently than those who hold vineyard assets.

When considering the valuation of just Biological Assets as described in IAS 41, the methods we see used most often for timber estimates are a sampling and indexing methodology with stratification based on the different types of timber on the stand and market pricing. For vineyards and citrus fruits by contrast, we typically see a noticeably different methodology utilized in the valuation of these assets that incorporates more detail. The expected yield for a given vineyard or orchard is largely driven by the expected end use of the fruit and the farming practices of the grower. The valuation of the assets is determined using a cash flow forecast by planting area, which will incorporate date of planting and varietal and the expected yield per acre. These forecast cash flows are derived using the contracted price to be paid for the harvested fruit over the term of the contract between the buyer and grower that considers supply and demand. The forecast cash flows are discounted to the present value using a risk appropriate discount rate to determine the value of the assets as of the measurement date.

Question 4.3: Do you observe a significant variation in valuation practice for Agricultural Produce? For each type of Agricultural Produce, what methods do you commonly see used? Which type of the Agricultural Produce you listed have the greatest diversity in practice?

Response

Valuation methodologies used to determine the value of Agricultural Produce appear to depend on the type of Agricultural Produce. From our experience, valuation methods for these assets have been largely driven by market pricing. There is ample market data for timber products, which provides plenty of reference points to establish the value of timber-related Agricultural Produce.

For vineyard assets, the valuation of assets appears to depend on the purpose for which the Agricultural Produce is being grown. If the grapes are grown for bulk sale, the value is most often based on their value in the bulk market and based on market data. In the event grapes are grown for and owned by a specific winery, the value is often based on their value to the winery as a specific wine and the revenue from the wine and the costs to harvest the grapes.

Question 4.4: Is the valuation of Biological Assets a critical area that should be addressed by the IVSC? Please explain why?

Response

To the extent that the IVSC is seeing a wide variation in practice regarding the valuation of Biological Assets, it is certainly worthwhile addressing the valuation of these assets and establishing a standard to provide guidance to valuation providers so they are aware of best practices with respect to the valuation of Agricultural Produce as presented in IAS 41. These best practices could be used as a basis in establishing the standards for the valuation of Biological Assets. Consideration should be given to differences in valuation methodologies used for different types of Biological Assets. A valuation method used to value one type of asset may not be appropriate for others.

Question 4.5: Does the separation of value between the agricultural produce and its bearer plants cause issues within your market? Please explain why?

Response

In our experience, separation of value has not caused any issues.

Question 4.6: Do you feel that there is conceptual issue in allocating components of Fair Value? Please explain why together with your recommendations for resolving these issues.

Response

On the surface, allocating components of fair value between land, Biological Assets, and Agricultural Produce makes sense. However, there may be some difficulty separating the fair value of the Biological Assets from the fair value of land and the improvements necessary to develop the Biological Assets. Additionally, there may be differing levels of improvements and assets required for certain Biological Assets. For example, the improvements to land will be different for timber assets and vineyard assets. Through a cost segregation exercise, it may be more straightforward to ascertain the fair value of the improvements required for a vineyard since those improvements appear to be easier to identify and value as compared to an improvement like a logging trail in a timber stand.

Some consideration should be given to the differences in these various improvements when developing the standard for valuing Biological Assets. It generally seems that a comprehensive real estate appraisal can address these issues and allocate value to land, improvements, and Biological Assets.

Question 4.7: Do you think that potential alternative uses should be considered when valuing land as part of a Biological Asset valuation? Please explain why.

Response

When valuing land as part of the Biological Asset valuation, consideration should be given to the highest and best use of the land if it is valued in accordance with ASC 820.

Generally, in developing a Biological Asset – whatever it may be – the land would generally be assumed to be developed for its highest and best use. However, there may be cases such as encroaching real estate development where the land in question may have more value were it to be used in a different manner. In these and similar situations, consideration should be given to alternative uses.

Question 4.8: Do you think there are four basic sampling and measuring techniques for the valuation of Biological Assets? If not, please explain what sampling techniques you have seen used in practice.

Response

The sampling techniques presented in the ITC are consistent with what we have seen in practice applied by companies who hold biological assets. That said, there may be other methods in use that we have not encountered that may be equally viable.

Question 4.9: Do you think that there are four basic sampling and measurement techniques for the valuation of Biological Assets? Do you think that the inclusion of information on generally accepted sampling and measurement techniques would substantially reduce diversity of valuation practice and if so, how?

Response

As discussed in Question 4.8, those four sampling techniques appear to be those most often used in our experience. If those techniques are generally considered to be the industry norm and considered to be best practice, it would be appropriate to include discussion of these four techniques as the preferred sampling methods in a standard regarding the valuation of Biological Assets. Such discussion would conceivably reduce any diversity of practice.

V. Extractive Industries

Are the valuation topics described in this ITC areas for which there is potential for significant improvement as compared to IVS 2017?

Response

Given that IVS 2017 has no standards specific to extractive industries, adding this topic would be a significant improvement.

What is the priority of addressing each topic?

Response

Per the ITC, the feedback received from the Discussion Paper in July 2012 revealed inconsistencies both in terms of valuation and level of due diligence required. This seems to make a project on extractive industries a critical priority, which is the categorization ascribed by the ITC.

Questions for Respondents

Question 5.1: Should IVSC produce combined standards and guidance for Extractive Industries or produce separate pronouncements for mining and for oil and gas? If you believe the latter, please indicate the reasons why you consider separate guidance is appropriate.

Response

IVSC could consider differences between mining oil and gas within a larger single framework. While there are enough similarities between the subsectors to warrant combined consideration, it would be a disservice to ignore differences in valuation approaches or economics that do or may exist.

- For example, both subsectors regularly use an income approach to estimate value. The income approach in both cases is highly dependent on commodity price forecasts. Due to active and deep futures markets for oil and gas, a futures curve may be used to estimate prices for those industries. For metals and other mined commodities however, production prices can rarely be hedged beyond a short period and futures prices have little relation to expectations regarding forecast spot prices.
- Another example relates to capital expenditures to develop and maintain production. This may be more related to differences in extraction method than extracted commodity, but certain methods may have large up front capital requirements with very little thereafter. Other methods may require regular re-builds or expansion projects throughout the reserve life. In considering what valuation method to apply, these differences may be necessary to consider.

Question 5.2: Should the standards focus just on the valuation of reserves and resources or should it extend to other assets employed in the industry and to entire businesses in the sector? Please provide reasons for your answer.

Response

Buildings, machinery and equipment play a major role in the economics of an extractive project. While the standard may not need to address basic equipment valuation methods (which would be addressed in their own section), there may be a need to discuss how allocation of value to equipment and minerals can be accomplished.

For example, an equipment valuation may suggest a depreciated replacement cost of \$100 million for the PP&E at a specific project. The cash flows for that project (which rely on the mineral interests and the PP&E) are estimated at \$90 million. Does this imply that the PP&E is worth \$90 and the mineral interests are worth \$0? Is there some optionality in the minerals that would need to be considered? What if the cash flows were estimated at \$30 million and the PP&E liquidation value is \$35 million? Should the cash flows be ignored even if management does not intend to liquidate the PP&E? If so, would any value then be placed on the minerals?

An additional complication in this area relates to reclamation. What effect would liquidation have on the need to reclaim the ground, and how would that affect the minerals. While accrued reclamation obligations have very specific accounting rules on how they are estimated, the impact of this liability and reclamation costs on the value of the minerals need to be addressed. Should the effect of reclamation costs in estimating the value of mineral interests be entirely independent of recorded ARO liabilities? Should an ARO asset be incorporated to offset an ARO liability that may be double counted?

Question 5.3: Which classification code or codes are most commonly used in your industry / sector? Which code do you normally use or rely on? Are you aware of differences across your / industry sector on the classification codes used? If so please indicate whether these differences cause problems in undertaking or understanding valuations.

Response

The three main reserve/resource classifications for mining properties are NI 43-101, JORC, and SAMREC. These three classifications are generally considered reasonably comparable in reserve and resource classification that we place equal reliance on any of the three. Other resource estimates that are not compliant with one of these standards are considered by us to be highly uncertain.

There are differences between these three standards, however, we have not seen that to lead to a difference in valuation.

Other standards, such as Valmin or ImVal relate more specifically to valuation reporting and are not focused on geologic/economic classification of reserves or resources. We do not rely on these standards when preparing valuations generally, however, we may consider requirements within these standards if requested that a report be compliant with one of them.

Question 5.4: When valuing with a discounted cashflow do you use internal production forecasts developed by the entity's own geological and engineering specialists, external forecasts, or a combination of both and you adjust the production forecasts for risk by reserve category?

Response

We are likely to use a combination of both externally developed forecasts and management's own estimates. Specifically, if a mine has been in production for any material length of time, there may have been new issues or positives that have come up that would not have been included or considered at the time when the last external report had been done. Management may incorporate this information in their update mine forecasts, even though it may no longer tie to previous third party estimates. We would consider this updated guidance from management to determine the appropriateness of any deviation from third party forecasts.

We may adjust the discount rate or production volumes for less certain resources depending on facts and circumstances specific to the project. We may consider management's historic ability to convert resources to reserves, location of resources, and the reasoning that the resources had not been originally included as reserves.

Question 5.5: Please indicate what methods you use or are familiar with that fall under the Cost Approach and that are used in valuing assets in the Extractive Industries. Please indicate in your experience how the cost of an equivalent asset is determined and please indicate the three most common adjustments that are made in your experience to reflect physical, functional or economic obsolescence, and what metrics are used to determine these adjustments?

Response

There are two types of cost for mineral interest:

- The first represents an acquisition cost. If a property is acquired from another company or as part of the acquisition of the company itself, the cost at the time of the acquisition may be a good indicator of Fair Value. As time passes, changes may happen in the market (i.e. changes in commodity price forecasts, discount rates, etc.) or in the project itself (i.e. additional drilling with positive or negative results, permitting, depletion through production, development expenditures post acquisition, etc.). Any incorporation of the cost approach would need to take into consideration these changes in some way. If a cash flow forecast is possible, it may be more appropriate than trying to adjust the cost approach.
- The other cost type represents exploration cost. While insights (positive, negative or neutral) gained from exploration expenditures can be very important in valuing a mining investment, the actual amount spent to gain those insights is generally irrelevant to the valuation of the project.

Question 5.6: Please identify any intangible assets that are normally separately identified and valued; i. In transactions between entities in the Extractive Industries and ii. When accounting for the acquisition of a business in the Extractive Industries.

Response

Intangible assets/liabilities are rarely part of extractive industries unless significant supply contracts/offtakes are in place. Those contracts may be above or below market rates and thus constitute contract assets and liabilities.

There may also be agreements in place to acquire services at discounted pricing, such as a marketing arrangement. However, these instances are uncommon and would generally not be subject to different valuation methods than would be seen in any other industry.

Trade names, technology, and customer relationships are not typically valuable within extractive industries due to the commodity nature of the products.

Question 5.7: In your experience what, if any, value is attributed to components of goodwill, eg an assembled skilled workforce, in corporate transactions in the Extractive Industries. Please briefly indicate any valuation techniques used to establish the value of goodwill in such circumstances.

Response

An assembled workforce is not usually considered to have significant value due to the nature of the workforce (i.e. readily available hourly employees).

Goodwill (if any) in mining transactions generally relates to the ability to identify additional resources in the future and/or some willingness of the acquiring company to pay for upside on commodity prices. This would-be value that is not captured within the forecast cash flows of the company. In some legal jurisdictions (Western Australia), there have been court decisions suggesting that no goodwill is appropriate and that any upside value is related to the mineral interests.

Whether the “additional value” beyond the cash flows of the company is called goodwill or mineral interests, a net asset value (NAV) multiple is a common valuation approach to establish such value. Specifically, it is common for publicly traded mining companies to be analyzed relative to their NAV. For example, an investment banking firm covering a major gold producer may do research and develop a cash flow estimate for the company. They may then add any other non-operating asset values and deduct liabilities to get an estimate of the NAV of the company. They may then compare the NAV developed to the market cap of the company and determine that there is a gap. If the market cap is 50% greater than the NAV, a 1.5x NAV multiple is implied. Observing implied NAV multiples for similar companies may corroborate additional value or goodwill associated with a transaction. This should also be qualitatively considered. For example, a project that is closed in all directions with no hope of finding additional resources and a short mine life would be unlikely to warrant a large NAV multiple, even if other companies extracting the same material have high multiples.

Generally, NAV multiples of greater than 1 are more likely to be associated with precious metals only. This is also where we tend to see the most likelihood for goodwill. Base metal and industrial mineral transactions rarely have any goodwill or unexplained purchase price.

Question 5.8: Please provide any examples of which you are aware of significant differences between the value of otherwise similar resources arising solely from different Governmental policies. Please indicate how “country risk” factors are reflected in the way in which you price or value extractive assets.

Response

Fruta Del Norte is a high quality underground gold project in Ecuador that has not been developed largely due to government difficulty. This project was recently acquired by Lundin mining. If this project were in a friendlier mining jurisdiction, it likely would have been acquired for a much higher price.

Appropriate consideration of “country risk” may have many different aspects to it.

If a market approach is used (as would be most likely for an early stage project), it would be appropriate (if possible) to consider comparable companies or transactions that have similar early stage projects in similar (or ideally the same) jurisdiction. For example, one should look to comparable exploration transactions in Argentina if one is trying to value an exploration company in Argentina.

For projects where engineering studies have been done and cash flow estimates developed, but where permits may not be complete or production has not been established, it may be appropriate to consider some risk adjustment to the cash flows for uncertainty regarding the ability to get the mine into production. This could be done based on a scenario probability, where multiple scenarios are developed related to production timing/governmental costs/etc. Each scenario could be weighted and a weighted average cash flow could be used with a standard discount rate. Country risk premia may also be used, but this may not be appropriate if the country exposure factors have already been built into the cash flows.

For projects that are and have been producing, there should be enough information to estimate the ongoing costs associated with business in that country (i.e. taxes, regulatory fees, governmental royalties, etc.). While the government may change its policies, that could be the case for any world government and should not need to be incorporated as an additional risk factor. If the government has proven to be particularly unstable in its policies, it may be appropriate as above to consider multiple cash flow scenarios and weight each one according to probability.

Our experience generally has been that a once a mining company makes a decision to invest in a project in a specific country, the return the company expects is no different than the return they would expect anywhere else. However, the costs of doing business in certain countries may be higher and thus reduce the value of the project. If possible, these costs should be incorporated into the cash flow estimates. If not possible, then the consideration of a country risk premium on the discount rate may be considered.

One specific area of country risk worth mentioning is expropriation. Expropriation risk should always be considered. In countries with high risk in this area, cash flow scenarios could include situations in which expropriation occurs.

Exchange rate considerations and inflation forecasts should be incorporated into any cash flow that has some component of exposure to the local currency.

VI. Inventory

Are the valuation topics described in this ITC areas for which there is potential for significant improvement as compared to IVS 2017?

Response

Given that IVS 2017 has no standards specific to the valuation of inventory, adding this topic would be a significant improvement.

What is the priority of addressing each topic?

Response

From a valuation industry perspective, the topic has a high priority. However, given the current efforts of the AICPA Task Force in this regard, it should be a low priority for the IVSC.

What should be IVSC's next step to address each topic? For example, should IVSC issue a discussion paper, an exposure draft, or take some other action?

Response

The AICPA Business Combinations Task Force has spent a considerable amount of time discussing and evaluating current inventory valuation practice and developing best practices for the same. As noted by the Business Valuation Board, the most common context for the valuation of inventory is financial reporting related to a business combination. Therefore, we think it prudent to await the outcome of the AICPA efforts before taking any substantive steps to address this topic. It would be counterproductive to develop parallel guidance on the same topic for the same or similar purposes. The IVSC should focus its efforts on other topics in the interim.

Questions for Respondents

Question 6.1: Should IVS provide separate standards for valuing inventory? Please explain why.

Response

Yes, the valuation of inventory utilizes unique techniques or methods not often applied to other assets. Many of the subtleties mentioned in the ITC are not fully appreciated in practice and a separate standard reinforcing the AICPA guidance would expand that coverage beyond U.S. financial reporting.

Question 6.2: What methods for the valuation of inventory do you most commonly see used in practice?

Response

Finished goods and WIP inventory are typically valued using the Comparative Sales Method (Top-down Method) and raw materials are typically valued using the Replacement Cost Method, (Bottom-up Method). Historically, the Bottom-up Method has not been used as often as the Top-down Method for finished goods and WIP inventory; however, the value derived should be the same as the Top-down Method.

Question 6.3: Do you agree with the decision to focus on the application of the Comparative Sales Method? If not, please discuss the other methods that should be included in the performance framework.

Response

No, we do not agree with this focus. Even though the Boards noted little divergence in practice related to the application of the Replacement Cost Method, its specific application to inventory should be included to provide linkage and consistency with the Comparative Sales Method.

The two methods begin at different points so there are certain elements unique to each (e.g. the selling price for the Comparative Sales Method). However, there are several shared elements (such as G&A and corporate overhead), some or all of which are incurred or completed prior to the measurement date (captured in the Replacement Cost Method) and the remaining portion which is deducted from the selling price in the Comparative Sales Method. Therefore, any standard should be placed in the context of a continuum of value creation beginning with raw materials and concluding with the inventory delivery. Conceptually, either approach should yield the same result, whether one starts from the top-down or from the bottom-up.

We would be pleased to further discuss our comments with the IVSC staff. Please direct any questions to either of us via the contact information set forth below.

Sincerely,



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