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CHAIRMAN

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Subject **Unsolicited letter to the EB on Determination of
Benchmarks**

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Dear Chairman de Jonge and Members of the CDM Executive Board,

The Project Developers Forum (PD Forum) is writing to request greater clarity on the determination of benchmarks for the purposes of demonstrating financial additionality.

Numerous requests for review have revolved around the question of financial additionality and investment analysis. There is a need to develop a deeper common understanding of the principles of financial analysis and the appropriate means for determining benchmarks for the demonstration of financial additionality between project developers, DOEs and the CDM Executive Board and Secretariat. The "Guidance on Assessment of Investment Analysis" from EB 41, as an accompaniment to the Additionality tool, is a helpful document promoting this shared understanding. This base of knowledge and principles shared amongst the CDM community will reduce the need for project reviews, enable consistency and transparency in decision-making, and help to ensure that the financial additionality of projects can be clearly assessed.

One commonly used approach to determining a benchmark discount rate for the demonstration of financial additionality is the weighted average cost of capital (WACC). A WACC is calculated to establish an appropriate required return on an investment, given the balance of financing between debt and equity.

A WACC calculation is typically given by the following formula:

$$WACC = (k_d \times (1-t) \times D/(D+E)) + (k_e \times E/(D+E)) \quad \text{where:}$$

k_d = Cost of debt financing

k_e = Cost of equity financing

D = Estimated market value (or book value) of debt

E = Estimated market value of equity

t = Corporate tax rate

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In this calculation, the cost of debt (k_d) is derived by reference to the interest rate payable on debt finance available to the investor, and the debt and equity ratios would be determined by looking at the capital structure typical to the project type/sector.

The most complex element of the WACC calculation relates to establishing a cost of equity. There are various established methods for calculating the cost of equity which might be applicable depending on the circumstances. For example, there are methods which build on an estimate for the cost of capital from combining an estimate of the observed risk-free rate with a series of risk premiums which reflect the nature of the entity. The most popular of these methods is the Capital Asset Pricing Model (CAPM).

The general idea behind CAPM is that investors need to be compensated in two ways: time value of money and risk. The time value of money is represented by the risk-free (r_f) rate in the formula and compensates the investors for placing money in any investment over a period of time. The other half of the formula represents risk and calculates the amount of compensation the investor needs for taking on additional risk. This is calculated by taking a risk measure (beta) that compares the returns of the asset to the market over a period of time and to the market premium ($R_m - r_f$).

A second type of model tries to estimate an investor's returns directly and consider plausible estimates of an investor's growth expectations to arrive at a total expected return. These approaches are all based on discounted cash flow models and its variants and include the Gordon's Growth Model and its variants.

It can also be appropriate to compare an expected return on equity (a cost of equity benchmark, i.e. not a WACC) to the equity IRR. Required/expected returns on equity are appropriate benchmarks for an equity IRR, and are commonly used in a project financing (or 'off-balance sheet') model (when the loan is secured against the project assets).

Although we are seeking clarification on the CAPM approach in particular, we also recognize that other approaches can be valid. By seeking clarification on this approach, we do not suggest that the CAPM model is the only legitimate approach to determine benchmarks for financial additionality. There are many well-established asset evaluation methods which could also be valid for the purposes of demonstrating financial additionality. We also recognize that many project developers lack understanding of these financial techniques at present, and note that there is a need for capacity building to help those unfamiliar with these valuation approaches to use them correctly.

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Whatever the method, a reliable estimate for the cost of equity is a complex and technical task and we recommend that the following actions be taken by the Executive Board:

1. Ensure that an appropriate level of expertise is available at all levels (EB, Secretariat, DOE community) to ensure that calculations are reviewed and guidelines developed with a strong grasp of the financial technicalities required
2. Develop further guidelines, following expert input, for the determination and application of benchmarks

Recognizing these provisions, the Capital Asset Pricing Model (CAPM) is one commonly-used method of determining the cost of equity which has been used in a number of registered projects. The CAPM demonstrates how a benchmark is constructed from first principles and indicates how the total risk of an investment can be broken down into component parts; in this respect it is a transparent means of determining the expected rate of return on an equity investment.

CAPM is expressed arithmetically by the following equation:

$$K_e = r_f + \beta_R (R_m - R_f) \text{ where}$$

- K_e = cost of equity
 R_f = risk-free rate of return
 R_m = market rate of return
 $(R_m - R_f)$ = the difference between the risk-free rate and the market rate of return is known as the Equity Risk Premium (ERP)
 β = beta, a measure of the volatility, of a security or a portfolio in comparison to the market as a whole. It reflects systematic or market risk, as opposed to company-specific risk

At the present time, we request further guidelines on specific elements of the CAPM calculation, including

- the requirements for selection and validation of a proxy beta, and
- the requirements for selection and validation of risk premiums

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Beta

We would note the following, with respect to the treatment of the beta of a given investment:

1. Beta, noted as β , is a measure of the systematic risk of a particular security as part of a diversified portfolio, in comparison to the market as a whole. It is commonly calculated by regression analysis on a particular equity's returns against returns on a market index.
2. For companies or individual projects which are not publicly listed, a proxy beta can be determined by referring to the beta values of publicly listed companies that are engaged in a similar business. A beta of 1 indicates that the return of the security follows exactly the movements of the whole market. A beta higher than 1 indicates that the returns of the security move more than the market (i.e. if the market index increases/decreases by x%, then the security returns will increase/decrease by more than x%)
3. The proxy beta will be influenced by the capital structure of a given analogue company and it is necessary to correct for the effect of financial gearing specific to that company. The levered company beta would then be converted into unlevered beta or "asset" beta using the following formula:

$$B_U = \frac{B_L}{[1 + (1 - T_c) \times (D/E)]}$$

B_U = Beta un-geared	B_L = Beta geared
T_c = Corporate Tax Rate	
D = Value of Debt	E = Value of Equity

4. If a Project IRR (as defined in the guidance in EB 41) is used, the beta should be re-levered or "geared" to reflect the typical capital structure of entities engaged in the sector

$$\beta_R = \beta_U \times (1 + (1-t) \times D/E)$$

5. If an Equity IRR approach is used, the post tax project cash flows will be adjusted by interest payments and loan repayments to determine the equity cash flows; the loan repayments and interest payments are accounted for as cost (or cash outflow) to the equityholder. In this case, the cash flow to equity is subject to a certain financing risk. The beta will be adjusted to reflect the leverage assumed in adjusting the project cash flows to equity cash flows; and the resulting cost of equity will be used as the benchmark required rate of return.

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We would like to request further guidance from the EB on the following:

Question	Proposed Guidance
Whether betas should be taken by referencing companies quoted on larger “Annex I” stock exchanges (such as the New York Stock Exchange) or those quoted on the stock exchanges of the host-country	We propose that this be at the discretion of the project developer, recognizing that many less developed countries have very small stock exchanges and no companies active in some CDM sectors. The project developer should justify their choice based on the sector in question.
The time frame appropriate for determining the beta of analogue companies, noting that historical data published on Bloomberg and other similar equity research data providers is usually presented for a maximum of three years	We propose that the project developer be asked to justify their choice based on the project, with one to three years worth of data generally considered acceptable
The number of analogue companies the EB would suggest is an appropriately large sample to reasonably determine the sectoral beta, noting that the number of companies active in the space of alternative energy/waste management/ other CDM sectors is often very small, even in developed markets and that sectoral indices are not always available or indicative of the risk profile of the specific project	We propose to leave the determination of the appropriate number to the project owner/developer’s discretion, providing justification of the choices made, with a suggestion that at least three individual companies be selected, or alternatively, reference to a sectoral index (for example, the indices provided free of cost on this academic’s website) ¹
Clarification that betas obtained from Bloomberg and equity research firms should be un-levered to reflect their specific capital structure	
Clarification that the un-levered beta should be re-levered (or “geared”)	<p>We propose to allow the project developer to re-lever the beta to reflect either the capital structure typical of the project sector, or the financing structure for the specific project. If the typical financing structure of the project sector is applied to determine the applicable beta value, the same financing structure has to be consistent between the IRR calculation and the benchmark calculation.</p> <p>Using the financing structure of the specific project in question reflects the risk profile of the project activity being assessed. This is distinct from using an internal company benchmark, and should still be an option when there is more than one possible project developer.</p>

¹ http://pages.stern.nyu.edu/~adamodar/New_Home_Page/

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A beta does not reflect an individual's risk perception rather it reflects the markets risk perception of an investment. The total risk profile of a project activity being assessed is determined by the market risk and financing risk. An unlevered beta measures the relative market risk and is not subject to an individual's risk perception The financing risk is imposed on equity holders as a consequence of taking on a specific level of leverage and has to be addressed independently to the market risk.

Risk Premiums

By the nature of the CDM, CDM projects face usually high risks and barriers relative to most other private sector investments. Risk premiums are a means of quantifying that risk, and can be estimated to reflect the increase in the expected rate of return to compensate for risk caused by an investment's specific sub-sector, regional location, illiquidity, or small size relative to other investments in the sector. For example, given that beta figures may only be available for a broad sector (i.e. power rather than wind power) and due to the lack of companies operating exclusively in one technology area (a "pure-play" comparison), a risk-premium to reflect the wind sector might be estimated.

We would like to request from the EB guidance on how to estimate and add a risk premium in determining the WACC, to account for these risks.

The EB guidance in Annex 45 issued at EB 41 states that "Risk premiums applied in the determination of required returns on equity shall reflect the risk profile of the project activity being assessed, established according to national/international accounting principles." However, there is significant variation in approaches to determining risk premia, and therefore we would also like to request guidance on:

Question	Proposed Guidance
How to incorporate the additional risks of non-traditional projects for companies involved in an otherwise low-risk sector, for example a landfill gas power projects which faces greater technical risk than the overall sector of waste/landfill management, or the "power" sector as a whole	We propose that appropriate justification include but not be limited to academic studies and other independent analysis, comparisons to individual companies in other markets
Acceptable sources for small-company/small investment, illiquidity and other risk premia	As an example we would expect a statistical compilation or other corporate finance reference book like Ibbotson Valuation Yearbook to be an appropriate reference source

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Equity vs. Project IRR

It has been observed in the past that there is a lack of clarity as to when the Equity approach can be used. Although para10 of the 'investment guidance' suggests that a levered project can apply the equity IRR, it should be better formalised as to when project participants are allowed to use the equity IRR.

Question	Proposed Guidance
<p>Clarify in which cases project participants can use:</p> <ul style="list-style-type: none"> • Equity IRR and Required/expected return on equity. • Project IRR and Local commercial lending rates or weighted average costs of capital (WACC) 	<p>We propose to amend the Investment guidance to read:</p> <p>“When there is more than one party that could develop the project, the equity IRR should be compared to a justified benchmark (e.g. explained via CAPM or another model, or referenced in an independent source). Alternatively, the project IRR should be compared to the WACC reflecting the cost of equity as described and a reference cost of debt.</p> <p>In the case where the project developer is the only possible party to develop this project, there is the additional option for the benchmark to be determined using the developer’s internal cost of equity and the developer’s cost of debt (commercial bonds or bank lending rates).”</p>

The PDF again welcomes the clarity provided by the “Guidance on the Assessment of Investment Analysis” and requests the EB to continue providing public guidance on the accepted standards and methods of demonstrating financial additionality. Given the importance of establishing an investment benchmark for the demonstration of financial additionality, we especially urge that the Executive Board provide extended guidance in addition to existing guidance.

We further encourage the EB to seek out financial experts to assist them in their task of overseeing financial additionality, to ensure that CDM guidance is consistent with that of standard corporate finance theory and practice. We would also urge the EB to consider further training for Secretariat staff as well as the DOEs to ensure that oversight of financial analysis is conducted in a uniform and predictable manner, and to the EB’s standards.

The Project Developer Forum was founded in 2008 and is incorporated as a non-profit company in the UK. It is open for full membership to all entities specialised in the development and implementation of emission reduction projects under the CDM framework and encourages affiliate membership for all other interested organisations. The Forum's membership has been growing in 2009 and an active outreach programme is now underway to invite members from CDM host countries. Founding members include AES Climate Solutions, Camco, Climate Change Capital, EcoSecurities, EEA, First Climate, Sindicatum Carbon Capital and Tricorona.

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Thank you sincerely for your consideration, and we hope this input helps to stimulate discussion and dialogue on the determination and use of financial benchmarks.

Kind regards,

A handwritten signature in black ink, appearing to read 'M. Enderlin', written in a cursive style.

Martin Enderlin
Chair of the PD Forum