"WHAT IS THE VALUE OF A BUSINESS OR ASSET THAT HAS BEEN EXPROPRIATED?"

Treaty Arbitration: Unpacking the Discount Rate – Part I

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A common question faced by tribunals in international arbitration is "what is the value of a business or asset that has been expropriated?" Expert evidence is generally submitted on behalf of both the investor and the state and often the two experts arrive at very different conclusions. A key disagreement is often the discount rate applied in the valuation, and in particular the component of the discount rate referred to as the country risk premium.

This is the first of two articles in which we explain what the discount rate represents, how it is estimated and how it is adjusted when valuing an asset outside mature economic markets such as the United States or United Kingdom. As we discuss, this is particularly salient in the light of recent awards that have taken contrasting approaches to assessing an appropriate discount rate to value investments in Venezuela.

THE BASICS OF DISCOUNT RATES

Discount rates are used in Discounted Cash Flow ("DCF") valuations. The DCF method projects future cash flows that are expected to be generated by an asset, and then converts those future cash flows to a present value at a single point in time by applying a discount rate.

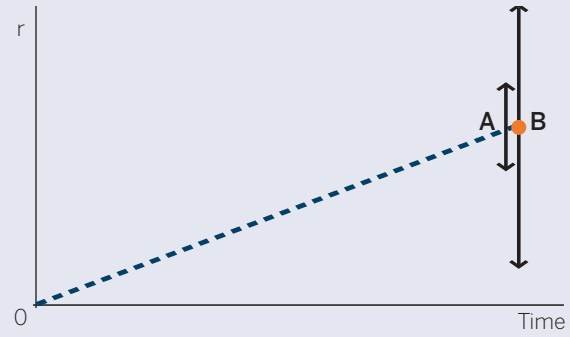
The discount rate is estimated by considering the rate of return, or compensation, that investors require for accepting delayed payment. In other words, the rate of return they require for receiving cash at a future date, rather than cash today.

Two factors affect this rate of return (and therefore the discount rate). The first factor is the **time value of money**. Put simply, cash in the future is worth less than cash today. An investor would rather have $100 today, than $100 in a year's time.

The second factor is **risk**. The term "risk" can have different meanings, but in the context of finance theory, risk can be understood as being the *variability* of future cash flows around anticipated returns. Investors are assumed to be risk averse—given two investments with equivalent expected returns, they will select the investment with less risk. In general, this means that the greater the variability around the anticipated returns from an investment, the greater return an investor will require.

An implication of this definition is that risk includes variability relating to both 'out performance' as well as 'under performance'. This can be contrasted with the use of risk in everyday language, which tends to only be associated with adverse outcomes. Figure 1 illustrates this point. "A" and "B" are two future projected cash flows. Both A and B have the same expected return ("r"), but the variability of future returns around the expected return for B is much higher. In other words, B has greater risk. As a result, the value of A is greater than the value of B.

FIGURE 1: "RISK" IN FINANCE THEORY



Investment A:
50% chance of gaining 25, 50% chance of gaining 35.
Expected outcome of gaining 30 (25 x 50% + 35 x 50%)

Investment B:
50% chance of gaining 10, 50% chance of gaining 50.
Expected outcome of gaining 30 (10 x 50% + 50 x 50%)

Both investments have the same expected outcome, but Investment A has a higher value to a risk averse investor.

APPLICATION TO PROJECTED CASH FLOWS

At least in theory, the cash flows projected in DCF models should be based on their *expected* value, with each possible outcome weighted by the probability that it will occur. In estimating expected cash flows it is necessary to take into account possible outcomes (and their probability of occurring) that are both:

1. specific to the business (e.g. likely success or failure of a new product launch); and
2. related to the market (e.g. expectations of economic growth).

When considering the discount rate to be applied to these projections, the relevant question is how risky are the projections? More precisely, what is the *variability* of anticipated returns around the average expected return? The greater the variability (i.e. the risk), the higher an investor's required return and the greater the discount rate. Importantly, only certain risks are relevant, and in particular finance theory distinguishes between diversifiable risk and **non-diversifiable risk**.

Diversifiable risks can be eliminated by the investor holding a diversified portfolio of investments. These include risks that are specific / unique to the subject investment (for example, the risk of a key product performing better or worse than expected). Since these risks are specific to the business, and the cash flows are central estimates, they are as likely to result in out-performance as underperformance. Over a large enough portfolio of assets the risk can therefore be diversified away.

Other risks cannot be eliminated through diversification. These risks are often called market risks, as they relate to the wider economic market (for example, the risk that economic growth will be higher or lower than expected). These risks affect all businesses to some extent.

As a result, out-performance or under performance will be correlated across a portfolio of investments and the risk cannot be diversified away. Investors therefore require compensation for these risks.

As a result some experts consider that all *outcomes*, whether specific to the business or related to the overall market, should be taken into account when projecting expected cash flows, but only variability around those expectations that derive from market risk should be taken into account when estimating an appropriate discount rate.

COMPONENTS OF THE DISCOUNT RATE

The return that investors require as compensation for market risk is measured by considering the returns that investors require when they make an alternative investment with similar risks. More formally, the appropriate discount rate should be based on the *opportunity cost of capital*. This is the expected market rate of return on equivalent alternative investments with similar relevant risks.

Such investments typically take the form of either debt or equity investments in companies. Estimating the return that debt investors require is often straightforward—it involves observing the yield to maturity on traded debt.

However, the return that equity investors require (referred to as the "cost of equity") for their investments cannot be directly observed. Instead, there are a number of economic models that attempt to estimate the cost of equity based on the market data that is observable. The most commonly deployed model in international arbitration is the Capital Asset Pricing Model ("CAPM"). Using the CAPM, the required return is calculated using the following formula:

Risk free rate
+
Market Risk Premium x ß
+
[Size Premium]
+
Country Risk Premium

= Required return

The first three components of CAPM, the risk free rate, MRP and ß form the standard CAPM. The Size Premium and the Country Risk Premium are adjustments sometimes made to the CAPM, though their use can be controversial. We explain this formula, and discuss each of these components further below.

Risk-free rate

The starting point of the CAPM is the **risk-free rate**. The risk-free rate measures the return that investors require for investing in a riskless asset, i.e. the compensation that an investor requires for the time value of money component of the discount rate. Typically, this is measured by observing the yield to maturity on government bonds issued by mature economies such as the U.S., UK or Germany.

Market Risk Premium ("MRP")

The **MRP** is an investor's additional required return over the risk-free rate for investing in equity capital. Academics and practitioners often look to historical returns from the market as a basis for estimating future expected returns. Markets with a long history of data (e.g. the U.S. and the UK) are usually used. A key question is, therefore, whether the historically observed MRP is a good guide to the future, and whether the MRP is constant or changes over time.

Depending on the period of time over which historical returns are measured, and the method of measurement applied, there can be large differences in the historical MRPs calculated (ranging from less than 3% to over 8%). In our experience, many practitioners apply a rate between 4% and 6%, but in some circumstances this can be a point of significant divergence between experts.

It is also worth noting that in adding an MRP to the base risk-free rate, the sum is converted to an after-tax return (i.e. MRPs that are observed are based on returns to equity holders which are after-tax returns).

Beta

Beta is a statistical measure which estimates the extent to which a particular asset is exposed to market risk. A beta greater than one implies that the asset is riskier than the overall market, whereas a beta less than one implies that the asset is less risky than the market. Beta is often assessed by reference to the betas of companies in the same sector as the company being valued. As a result, disagreements between experts regarding the comparability of companies can lead to differences of opinion on the appropriate measure of beta.

Size premium

Some experts (and valuation practitioners more generally) add a "size premium" to the cost of equity when assessing the required returns for investments in smaller companies. This adjustment is made by reference to academic studies that show that smaller companies have historically achieved higher returns than the CAPM would predict. More recent studies, however, have suggested this evidence is equivocal and that small companies no longer yield higher returns than an unmodified CAPM would predict. Other studies suggest that to the extent higher returns do exist, they can be explained by the lower liquidity of smaller stocks, rather than being a function of size itself. Not surprisingly, the appropriateness of adding a size premium can sometimes be a contentious issue between experts.

Country Risk Premium ("CRP")

Another premium sometimes added to the discount rate is the "Country Risk Premium" or **CRP**. The measurements of MRP described above are based on observed returns in mature economic markets. Equivalent, reliable data is generally not available for less developed economic markets. At the same time, there are a number of factors that suggest that investments in such markets may expose investors to different (and potentially greater) risks. To account for those risks in the discount rate, experts may add a CRP.

CONCLUSION

The appropriate discount rate depends on the market risks of an investment. In this context, "risk" means the variability of anticipated returns around the average expected return. The most common model used to assess the return that investors require as compensation for market risk is the CAPM. Although this model has been in use for decades, experts often disagree on its application. This can lead to very different assessments of discount rates, and consequently of value.

The scope for disagreement between experts is magnified when attempting to apply the CAPM outside mature economic markets. Many experts add a Country Risk Premium to their estimates of discount rates to take account of additional risks in these markets. In the second part of this article we will explore the notion of country risk in more detail.

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