Realistic Valuation Of Your IP

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Method provides means for quantifying relative risks, encourages mutual disclosure, and improves decision-making

Intellectual property decisions fall into two classes, strategic and tactical.

At the strategic level, the first concern is always to assess the commercial viability of the intellectual property in question. If it does appear that there are good prospects for its viable exploitation, the issue then arises of the best option for that exploitation. For an existing proprietor, those options are, essentially, self exploitation, licensing out or assignment. For a non-proprietor seeking a new business opportunity, the parallel options are self development, licensing in or purchase of rights by assignment, with the acquisition of a going concern as a further possibility. In any given context, the issue of viability may depend upon the option, *i.e.* some intellectual property may be viable under some options and not under others.

Where licensing, whether in or out, is determined to be the favored option, the tactical issue then arises of license pricing. This includes not only absolute levels of up front fees and running royalties but also the relationship between the two and the general structure of the remuneration.

DETERMINANTS OF STRATEGIC LICENSING DECISIONS

Strategic licensing decisions are influenced by a number of determinants.

To begin, account has to be taken of the outlays and receipts on both capital and revenue accounts associated with exploitation of the intellectual property. Second, an assessment of risk is required. It is characteristic of licensing that, because risks are shared, the risk of a licensing project for both parties is normally less than their overall corporate risk. Further, the risk for the licensor is usually significantly less than the risk for the licensee, given that the licensee takes the eventual product marketing risk and very often has to make substantial initial investments in both fixed assets and working capital in order to launch the project. The use of a corporate cost of capital handed down *ex cathedra* for use as the discount rate in a discounted cash flow analysis is clearly inappropriate in such circumstances.

◄ Capital Requirements ►

Working capital requirements are also an important consideration. While the parties to a license will normally face lower demands for working capital than they would when proceeding independently, the requirements are, nevertheless, not trivial and they need to be taken accurately into account when comparing licensing against other options for exploitation.

Finally, taxation needs careful consideration in the context of licensing because of the special considerations applying in many jurisdictions to the treatment for tax purposes of receipts and payments of both capital and royalties.

What is required for decision-making purposes in licensing, at both strategic and tactical levels, is clearly a single, rankable parameter capable of encompassing all these elements and of identifying the option that offers the best risk/benefit combination, after taking into account all possible mutually exclusive options. It is equally clear that such a parameter would have the character of a valuation.

The search for such a parameter is greatly simplified if the character of intellectual property as a capital asset is recognized.

While the ultimate objective of all economic activity is consumption, intellectual property is not itself directly consumable but is exploited to produce consumables. It is not used up in exploitation, it retains its value over an extended period and both capital and revenue flows influence its value. These considerations apply equally to all classes of intellectual property, whether know-how, patents, registered designs, copyright, trade and service marks, brands, characters or franchises. There exists, of course, a well established technique for assessing capital investment projects. That is discounted cashflow analysis (DCF). Used in conjunction with the capital asset pricing model (CAPM),[1&2] DCF analysis not only allows the timing of different cashflows to be taken into account but also variations in perceived risk from project to project and from period to period. Detailed explanations of DCF analysis and of the CAPM will be found in boxes 1 and 2 respectively. The major points to bear in mind are that the factor beta in the CAPM is the measure of specific project risk and that the net present value (NPV) generated by the DCF analysis is the only unique measure of project viability.[3]

WHY CASH NOT PROFIT?

It is worth examining briefly at this point why the yardstick for the assessment of investment projects, and hence of expenditure on intellectual property, should be cash

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THE DERIVATION OF DCF

The formula for discounting cash flow is derived from classic compound interest as follows:

Compound Interest
If FV = Future Value, then $FV = PV(1+r)^n$ where: -

PV = present value
r = periodic rate of interest expressed as a decimal and representing risk
n = number of periods

Present Value of a Future Payment

It follows from the above that $PV = \frac{FV}{(1+r)^n}$

Present Value of a Stream of n Cash Flows

If C is taken to denote future periodic cash flows, it then also follows that:-

$$PV = \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \ldots\ldots\ldots + \frac{C_n}{(1+r)^n}$$

Net Present Value of an Investment
If then NPV = net present value (i.e. present value of stream of n cash flows net of the initial investment required to generate them.)

$$NPV = C_0 + \frac{C_1}{1+r} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \ldots\ldots\ldots + \frac{C_n}{(1+r)^n}$$

where C_0 represents the initial investment and is negative.

Assuming proper selection of r in accordance with the Capital Asset Pricing Model, any project giving a positive NPV will increase the total net present value of an enterprise and should be undertaken. NPVs may be used to rank mutually exclusive projects in order of attractiveness and may be summed to determine the total value to a business of combinations of non-exclusive projects.

Box 1

and not profit.

The major problems with profit as a yardstick of performance are that it is both difficult to define in terms of what precisely is to be charged to profit and what left out, and that it is discretionary in the sense that several of the factors in its calculation, notably stock valuations, work in progress valuations and depreciation, involve an element of judgment in their estimation. Further, some apparently hard figures, such as debtors, may be, in reality, of dubious quality. Ratios such as return on capital employed are doubly suspect not only because the numerator in the fraction (profit) is a variable feast, but because the denominator (capital employed), which is itself a function of declared profits and discretionary distributions, is also variable at will.

Cash, on the other hand, is absolute. It cannot be fudged. Either the business has precisely £320,237.27 to its credit in its bank account or it has some other, equally precise, amount, positive or negative. What happens in cashflow analysis is that the traditional balance sheet identity, which has mixed cash and discretionary items on both sides of the equation (*i.e.* in both assets and liabilities), is rearranged over the equality sign to collect all discretionary items on one side, where the errors in their estimation cancel out, and all cash (*i.e.* absolute) items on the other side. Further, accrued profit can be shown in practice to be consistently higher than cash flow earnings under conditions of growth and/or inflation, due to the need for continual injections of additional working capital, with the result that it tends to overstate the performance of the business. A final reason for preferring cash to profit as the yardstick for decision making is that it lies closer to the ultimate economic objective of consumption, which can only be financed by cash. Try offering share warrants to your BMW dealers; you will find they will insist on cash or cash equivalents before handing over their cars.

STRATEGIC INTELLECTUAL PROPERTY DECISIONS

As discussed above, the strategic decisions that arise in licensing have to do initially with the absolute viability of a project, then with its relative attraction when compared with mutually exclusive alternatives and, finally, with the optimum means of exploitation. At the end of the day, the rational decision is the one that most enhances the present value of the enterprise, all things, non-financial considerations included, considered. On this basis, the process for making strategic intellectual property decision is:

—Prepare cash flow projections for all options.

—Determine beta for all options.

—Apply DCF analysis to all options.

—Rank options on NPVs.

That procedure will not necessarily yield licensing as the preferred option. However, when it does, it would obviously be very attractive

THE CAPITAL ASSET PRICING MODEL

The variable r in the DCF formula is the rate of return required from the project under analysis to compensate the investor for the use of the money (*i.e.* to replace the return which could be earnt by placing the funds in a risk-free investment), for non-diversifiable market risk (*i.e.* risk relating, for instance, to general economic conditions) and for diversifiable or specific risk (*i.e.* risks specific to the nature of the project).

r, which represents total return (*i.e.* the return accruing both from income and from movements in capital value), can be estimated using the CAPM, which postulates that

$$r = r_f + \beta(r_m - r_f) \qquad (1)$$

where:-

r_f = rate of return on risk-free investments such as Treasury bonds

r_m = rate of return on equities

$r_m - r_f$ = premium available for accepting market or non-diversifiable risk

and:-

β = constant reflecting the degree to which the specific or diversifiable risk of the project varies from non-diversifiable or market risk.

$\beta(r_m - r_f)$ therefore represents the premium over the risk-free rate of return available in respect of both specific and market risk. That is to say, the total risk premium element in r, being $r - r_f$ can be expressed as

$$r - r_f = \beta(r_m - r_f) \qquad (2)$$

which is simply a rearrangement of equation (1).

Specific risk, as quantified by B, can itself be decomposed into a number of elements, being the risks associated with the business of the industry, entity or project, the risks associated with its operating leverage and the risks associated with its financial leverage.

Box 2

if the procedure adopted gave an insight to the tactical issue of license pricing and help in negotiation.

DCF ANALYSIS APPLIED TO TACTICAL LICENSING ISSUES

Fortunately, tactical licensing issues, and, indeed, all pricing issues, can also be handled by DCF analysis.[4] The technique used is to reformulate the classic DCF question, which is to ask whether a given set of cashflows will yield a positive NPV when discounted at the appropriate rate, and to ask instead which sets of cashflows will yield NPV = 0 when discounted at the rate appropriate to the project's risks. This technique yields rational bounds for negotiation, remembering that any project is worthwhile if it yields a positive NPV, however small. Note that an infinite number of sets of cashflows will yield NPV = 0 in the analysis of a license, reflecting the infinite possible combinations of lump sum and running payments. This feature is of great importance. It provides means of compensating for changes of the payment profile during negotiation.

The principle is the same for both parties to a licensing deal, regardless of whether it relates to technology, know-how, copyright, brands or any other form or combination of rights. The method for the parties is to first determine their own limiting position and then to estimate the limiting position of their potential partners. For potential licensees, the procedure in detail is as follows:-

1. Determine their own project beta.

2. Project their own project cashflows, assuming initially that the license is available free of charge, and discount. If the resulting NPV is negative, the negotiation can be abandoned immediately as the project is not viable.

3. Assuming the NPV from stage (2) is positive, insert putative lump-sum and running revenues until the NPV has been reduced to zero. This identifies, in terms of one possible combination of lump sum and running royalties, the licensees' maximum position, beyond which the project would not remunerate its perceived risk, and can be designated as the rational upper bound for the negotiation.

4. Check the project against mutually exclusive options by charging the NPVs of those options against the project NPV obtained from stage two above and solving for NPV equal to zero again. Where such options exist, this will have the effect of reducing the remuneration package the licensees can afford to pay and will set their practical upper negotiating limit.

Having determined the upper bounds for negotiation, the licensees can proceed to estimate the licensors' position as follows:

5. Estimate the project beta appropriate to the project seen from the licensors' point of view.

6. Estimate their licensors' likely project cashflows, assuming that the license is made available free of charge, and discount. This will yield an NPV that will inevitably be less than zero, since the projections at this stage contain only costs.

7. Insert putative revenues, at an estimated split between lump sum and running, until the NPV has increased to zero. This identifies, in terms of one possible combination of lump sum and running revenues, the licensors' minimum position, beyond which the project would not remunerate its perceived risk for them, and can be designated as the rational lower bound for the negotiation.

8. Check the project against the licensors' mutually exclusive options, to the extent that they are known, by charging the NPVs of those options against the project NPV obtained from stage 7 above and solving for zero again. Where such options exist, this will have the effect of increasing the minimum compensation acceptable to the licensors and will set their lower practical negotiating limit.

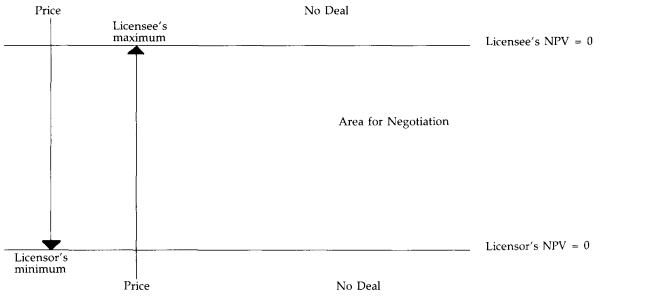
The procedure for potential licensors seeking to evaluate a licensing proposition is simply the reverse of that set out above. Note that in evaluating their lower bounds, licensors may seek to make allowance for the risk of abuse of trust by the licensees by including in their analysis an additional sum by way of insurance. This sum itself can be determined by DCF analysis and the application of simple Bayesian probability theory, and will normally be included in the initial capital payment demanded for the license. It should be noted that, if included in the pricing model, this addition will be offset in the calculation of royalties and other running charges and will represent an increase in the overall cost of the license only in so far as it involves a timing difference in favor of the licensors.

Licensors will reasonably look to recoup their initial investments in the intellectual property from their licensing programs. However, they should understand that these sunk costs are no measure of the value of that property. It may be, with hindsight, that they spent a great deal more than was justified in its development. However that may be, any remuneration achieved from a license in excess of the incremental costs of setting it up will contribute at least partially to the recovery of the initial investment.

Assuming that the licensees' upper bounds exceed the licensors' lower bounds, which is a prerequisite for any successful negotiation, the rational bounds to negotiation can be represented diagrammatically as shown in Figure 1.

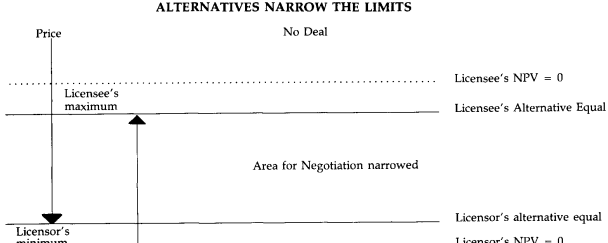
The gap between the outer, rational bounds represents the economic rent of the project, being the remuneration over and above that needed to compensate for the perceived risks that is available to the parties from the markeplace by virtue of the natural and statutory monopolies inherent in the intellectual property. It is thus the area available for negotiation, if neither side has any mutually exclusive alternative project competing for the same funds. In practice, as indicated above, licensors may well have alternative licensees interested in their license and licensees may have alternative licensing proposals to consider. Both sides may equally have mutually exclusive alternative projects that have been considered at the strategic level. Under these circumstances, licensors will not want to accept any deal that provides a lower NPV than their best alternative and licensees will not wish to pay any prices that leaves them with a lower NPV than their best alternative. These are the considerations that reduce the area for negotiation and introduce the practical negotiating limits within the outer, rational bounds, shown in Figure 2.

STRIKING A LICENSE BARGAIN



Price is a combination of upfront and running payments yielding an NPV

Figure 1



Price is a combination of upfront and running payments yielding an NPV

Figure 2

VALUATION FOR BALANCE SHEET AND ASSET MANAGEMENT PURPOSES

The inclusion in balance sheets of intellectual property assets, such as brands, which have been built up in house is a matter of some controversy in the accounting profession because it can easily conflict with the prudence principle. However, following some high-profile cases, such as the successful bid for Rowntrees by Nestle some years ago, finance directors of public companies whose shareholders are not necessarily fully aware of the value in exchange of the brands their companies own are increasingly tempted to include such assets in their balance sheets at a full valuation in order to warn off predators.

Whatever the merits of including such valuations in published financial accounts, there is a strong case for developing them for management accounting purposes in order to ensure the proper management of brands and other intangible assets. Strategic decisions concerning investment in the support of such assets can only be made rationally in the light of a considered estimate of their value.

The method proposed here is equally applicable to the valuation of intellectual property rights of all kinds for both balance sheet and asset management purposes.

CONCLUSION

The valuation method described is applied to data responsible licensors or licensees will generate in respect of any significant licensing project and one of its merits is the discipline it imposes in researching such projects. Objections are often raised to the need to generate medium-term forecasts, but it should be remembered that all physical investment decisions are based on such forecasts, whether explicit or implicit.

The procedure cannot, of course, correct for false assumptions in the underlying projections but it does prevent false conclusions being drawn from the assumptions which are made. In particular, it provides a means of quantifying relative risk, which is the key to improving the quality of decision making, even when absolute levels are uncertain. Further, it encourages mutual disclosure of assumptions between licensors and licensees, usually to the benefit of their accuracy. Above all, it improves the quality of decision making by preventing the rejection of propositions that would, in fact, be worth accepting and by ensuring the rejection of propositions, which, on the assumptions made, would be disadvantageous. At the same time, it is infinitely flexible and capable of taking account of all complexities such as the possible influences positive or negative, of a brand license on the original brand.

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