



TRANSFER PRICING



REPORT

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Projected and Actual Profits' Impact on Licensees

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Licensee (and licensor) profitability is one of the most debated topics in transfer pricing. Arguments and methodologies have been developed based upon target benchmark companies' profitability, arm's-length profit splits, and other approaches. These analyses typically¹ focus on the profits *actually* earned by the licensee and/or the "system profit" (inclusive of the licensor's costs and profits).² However, the interaction between *projected* and *actual* profits can provide further insight into this debate.

Licenses are generally different than most other intercompany transfers requiring valuations in that their payment terms are set for a relatively longer period of

¹ With some methodologies (*i.e.*, comparable uncontrolled transaction (CUT), for example), profits are not directly considered.

² System profits are generally defined as (and defined for the purposes of this paper as) the overall profits earned on the licensed product by the consolidated multinational company—regardless of transfer price.

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time in comparison to, for example, tangible product sales, provisions of services, etc.³ With that lack of updating, license payments (royalties) are probably more tied to *projected* profits, sales, etc.—vs. actual results—than are other transfer prices. This distinction creates additional risk to a licensee such that:

- A licensee's *projected* post-royalty profit margin (required rate of return) will generally be higher than that of analogous distributors and contractors.
- A licensee will typically be more likely to earn high post-royalty profit margins—or to suffer losses—than a distributor or contractor, depending on whether the business actually generates a profit margin in excess of (or below) projections.

This concept is graphically summarized in **Table 3**, and explored in detail in the discussion that follows.

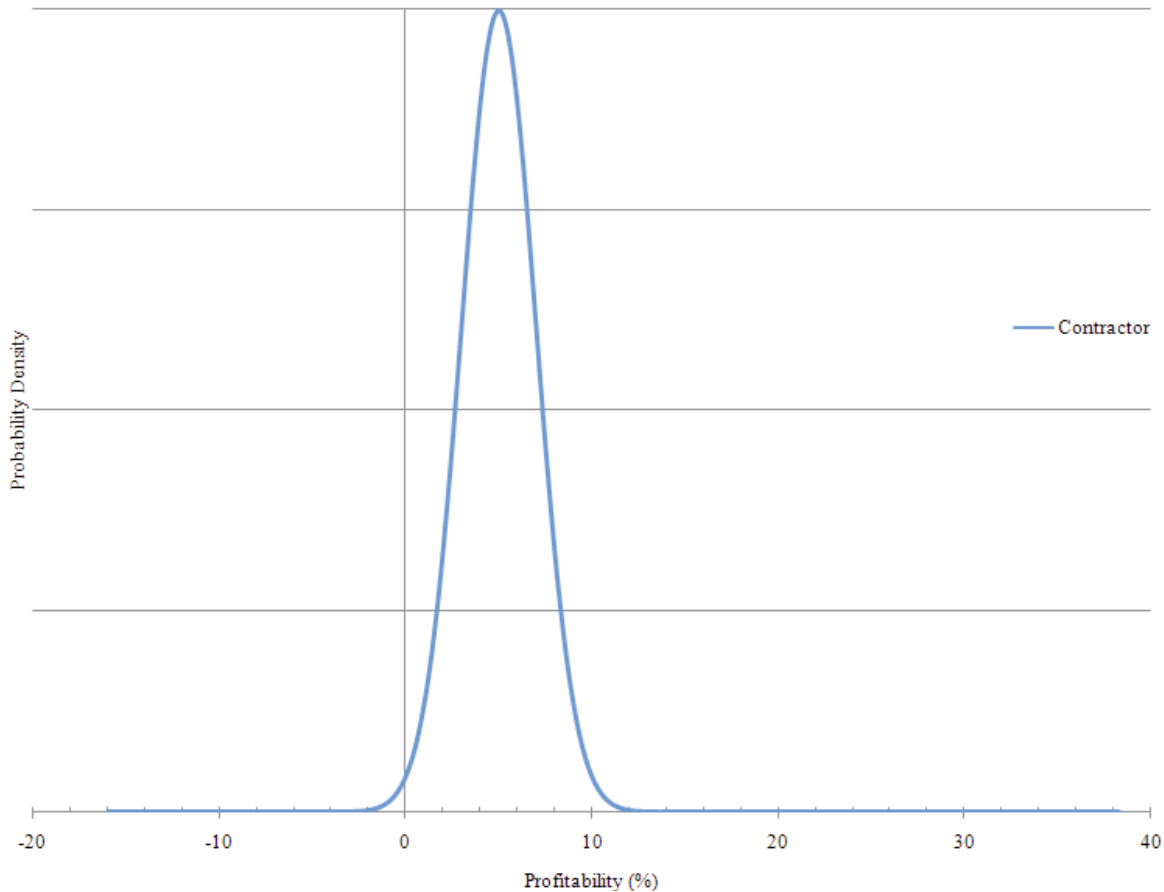
Choices for an Intangible Property Owner

An owner of intangible property would have a number of options available to exploit (profit from) its assets.⁴ In particular, it could potentially:

- choose to perform all of the business activities (manufacturing, marketing, distribution, etc.) on its own;

³ That is, prices and other contract terms typically get updated quarterly, semi-annually, or some other relatively short time period.

⁴ This article exclusively focuses on the fact pattern where the intangible property is completed, and requires no further development from the contractor, distributor, or licensee.

Table 1: Illustration of Profit Potential of Contractors

- engage contractors to perform some or all of the business activities at a markup on their costs;
- choose to manufacture the product for distributors using a price schedule that gets updated quarterly or semi-annually; or
- license its rights for a set royalty as a percentage of sales that remains stable over the life of the intangible property.⁵

All of these options—and any others available—are potentially feasible at arm’s length, leaving the intangible owner free to choose among them. While there is no single correct choice in all situations—each of these options exist with some frequency among arm’s length parties—they each bring their own potential risks and rewards. Broadly, the intangible owner takes on *less* risk as it moves down the bullet points above. In the first case, the intangible owner takes on *all* of the risk associated with volume and profit margins. By the final bullet point, the intangible owner has no profit margin risk in that it receives the same (unit) payment (royalty) regardless of the profit margin earned from exploiting the intangible.

Perspective of the Contractor, Distributor, Licensee, etc.

Just as the risk profile for the intangible owner changes over the various contractual possibilities, the

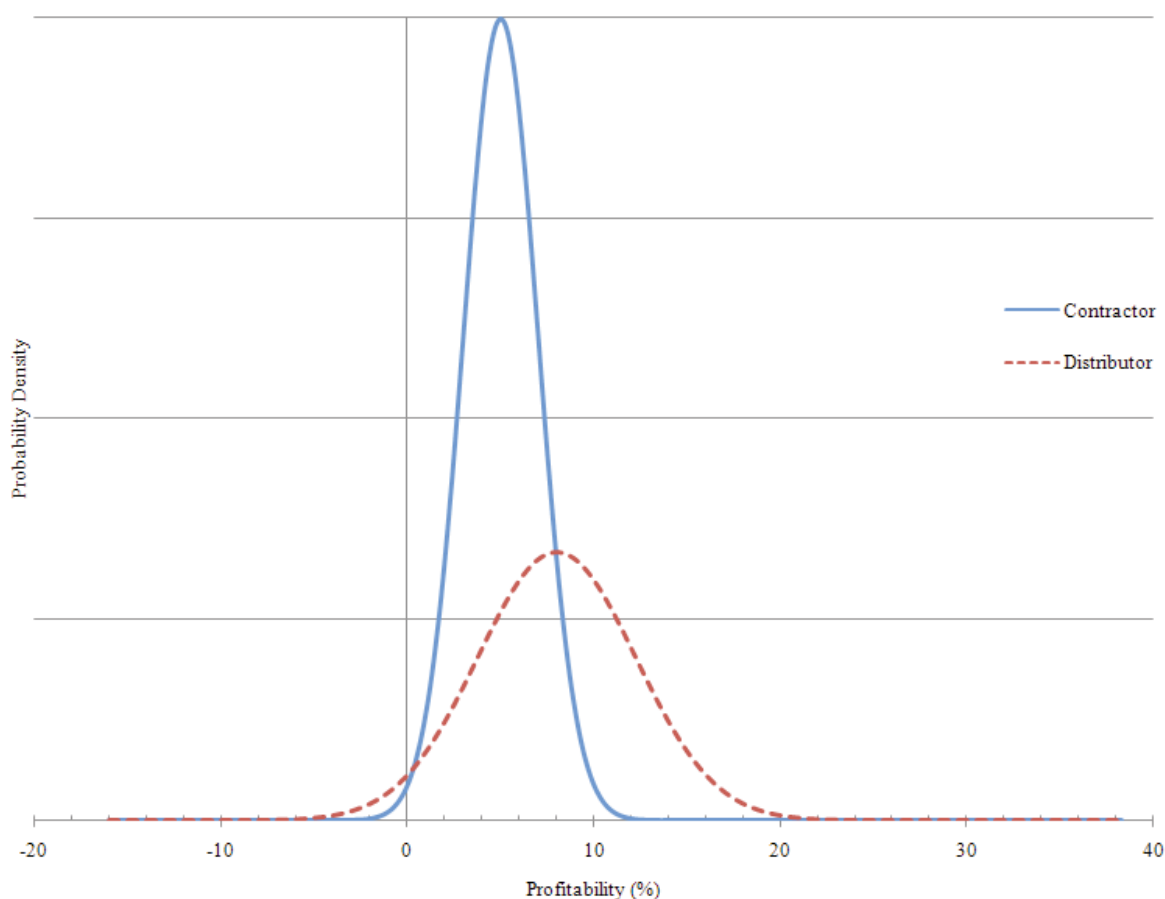
party with whom it is contracting would also see its risk vary—in the opposite direction. That is, the risk of exploiting a particular intangible is a “zero sum game,” making less risky contracts for the intangible owner imply more risky contracts for the other party, and vice versa. As summarized in **Table 1**,⁶ the risk for a contractor is relatively limited, as its contract structure is typically set as a markup on its costs. While it is not clear at the time of contract signing what level of profit the contractor will eventually earn under the terms of the contract, it can typically be predicted within fairly narrow bands⁷—resulting in a forecast of: (a) a relatively narrow probability distribution;⁸ and (b) a relatively low average expected level of profitability. That is, as with any investment, the contractor would not be able to demand a high level of expected profits due to the modest level of risks it is contracting to incur. (Relative bargaining power may also influence the eventual contract terms agreed upon.) In terms of **Table 1**, narrow prob-

⁶ The tables in this article are not intended to be perfectly drawn to scale. In addition, all of the numbers in the paper are intended to be illustrative. They do not represent the financial results of any particular taxpayer.

⁷ It is assumed that the contractors, distributors, and licensees described in **Tables 1-3** do not own any valuable intangible property that would be used in the business operations at issue.

⁸ The width of this graph represents the level of risk.

⁵ This list is not intended to be exhaustive.

Table 2: Illustrative Comparison of Profit Potential between Contractors and Distributors

ability distributions result in relatively low average forecasted profit levels.

The distribution of potential profit margins for the contractor is illustrated in **Table 1** (and the later tables) using a normal probability distribution. It is possible that another distribution/shape would be more appropriate, but the normal distribution is the most commonly applied. Mathematically, it requires the definition of a mean (average) and a standard deviation. The former sets the (x-axis) midpoint of the curve with a mirror image on either side. The standard deviation defines the width of the curve. As there are infinite possibilities for profits (e.g., 4.1 percent, 4.12 percent, 4.123 percent, 4.1234 percent, etc.), the points on the curve do not represent probabilities per se, but probability density. That is, for example in **Table 1**, the distribution reveals that it is more likely to earn profit margins in the range of 3-7 percent than in the range of 13-17 percent. In total, the area between the curve and the x-axis must equal 100 percent.⁹

Due to this increased risk/wider distribution of resulting profit margins, the distributor's average ex-

pected profit level would need to exceed¹¹ that of a corresponding contractor.¹² See **Table 2**.

The migration from a distributor to a licensee does not fundamentally change the analysis in the tables above. Rather, it simply reflects more risk incurred by the licensee than a corresponding distributor. In that sense, the licensee's payment (royalty) is locked in place throughout the life of the intangible property¹³ regardless of its success in the marketplace. With their royalty rates locked in place for a relatively long time period (compared to product prices of a distributor), licensees take on all of the profit margin risk.¹⁴ While this relieves the intangible owner of such risk, the owner

¹¹ That is, a company would not choose to increase its risk without receiving an analogous reward—in the form of increased expected profit margins.

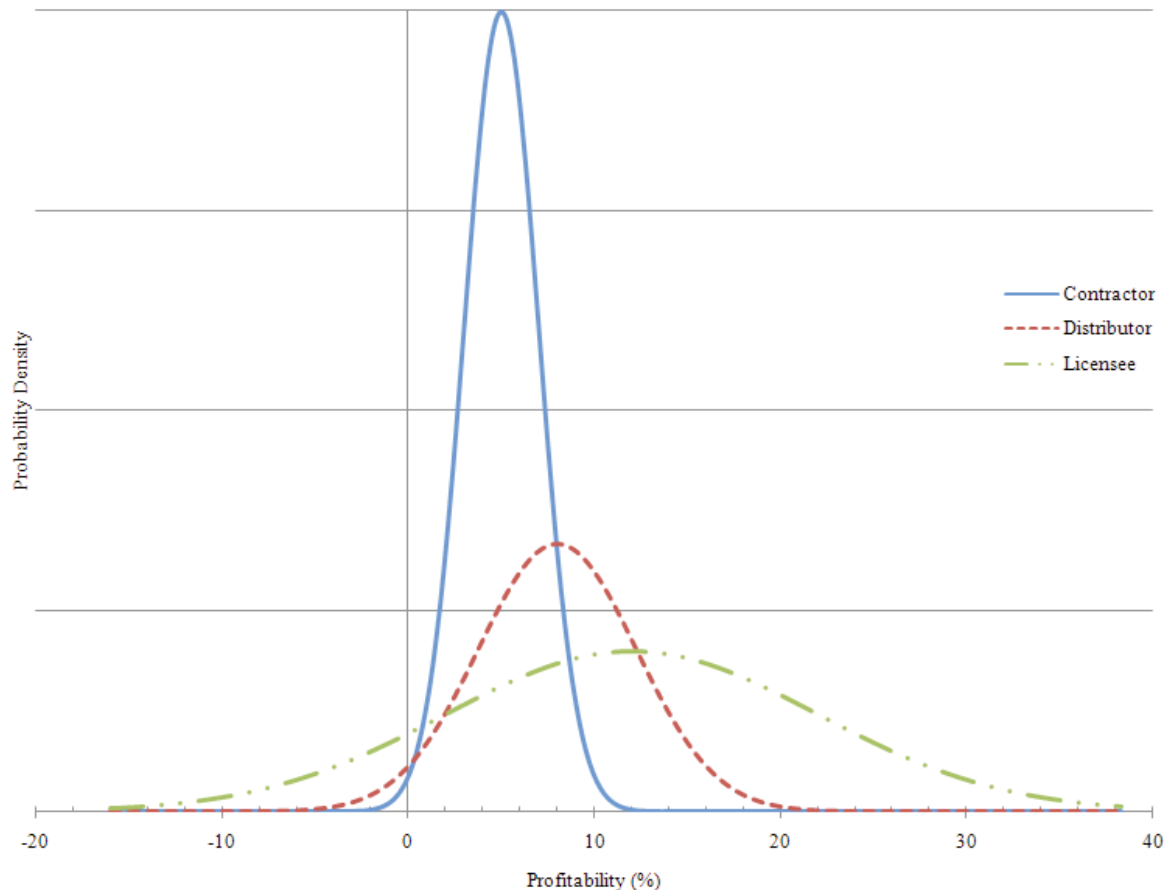
¹² From the perspective of the normal distribution definition, the standard deviation has increased, as well as the mean.

¹³ In point of fact, licenses can be re-negotiated, and some licenses are not designed to last throughout the entire life of the intangible property. The calculations and examples in this paper, however, assume one license covering the entire life of the intangible property.

¹⁴ As described below, the risk level of a particular license may be such that a licensee requires an expected net (after royalty) profit margin of 12 percent. If the (gross) profits of exploiting the intangible are expected to be 32 percent, the royalty would be set at 20 percent. If the actual gross profits turned out to be 52 percent, the licensee would net a profit margin of 32 percent. However, if the actual gross profits

⁹ See, for example, Hamburg, Morris and Young, Peg, (1994) *Statistical Analysis for Decision Making*, Sixth Edition, The Dryden Press, pp. 218-224.

Table 3: Illustrative Comparison of Profit Potential between Contractors, Distributors and Licensees



would *implicitly* pay for this relief. That is, the royalty rate would need to be set such that the average forecasted (post-royalty payment) profits for the licensee would exceed the corresponding average for a distributor.^{15, 16}

As seen in **Table 3**, the increased risks to the licensee would further widen its potential profit distributions—meaning a greater chance of losing money and a greater chance of earning substantial profits.

Thus, not *all* licensees earn higher profit margins than *all* distributors (or contractors). However, *on average* (if actual results meet expectations), licensees will expect to earn higher profit margins.

Royalties in licenses are set in ways such that licensees are appropriately compensated for the risk they are taking from the licensor. **Table 3** compares this risk to other contract possibilities, but it is also worth mention-

turned out to be 10 percent, the licensee would net a loss of 10 percent.

¹⁵ This paper illustratively shows the average forecasted profit margins for contractors, distributors, and licensees as 5 percent, 8 percent, and 12 percent, respectively. Of course, determining such values would be dependent on the facts of any case. In fact, some licensees may be riskier than others.

¹⁶ In economics, it is common to say there is no “free lunch”. That is, the increased expected profit to the licensee (compared to a distributor) is not costless. Rather, the licensee pays for this increased expected profit level by increasing its chance to lose money. Mankiw, N. Gregory. (2007). *Principles of Economics*. 4th Edition. South-Western, p. 4.

ing that not all licenses are equal. That is, some licenses are more risky than others—resulting in a higher average and wider distribution, all else being equal. For example, a license for a product line that has a history of stable volume and profit margins might have a different risk profile (relatively narrow distribution of post-royalty profits for the licensee) than the license of a new technology.¹⁷ In this sense, some licensees might expect higher mean profit margins—and higher risks/wider distributions—than other licensees.¹⁸

Actual vs. Expectations Impacting Licensees’ Profit Margins

The ability of licensees to earn healthy profits or lose significantly is in large part determined by the differences between actual and projected profit margins for the licensed intangible.¹⁹ **Table 4** summarizes an example of a 20 percent royalty rate for a licensed intangible based upon expectations of the intangible gener-

¹⁷ There are, of course other factors that potentially impact the shape of licensee profits.

¹⁸ While a potentially important topic, that discussion is left for future research.

¹⁹ Much of the remaining discussion in this paper considers the contemporaneous profit projections at the time of the original license. It is acknowledged—especially in audits—that the ability to locate such information is sometimes limited, and that hindsight is not always 20/20.

Table 4: Impact of Actual Profits on Resulting Licensee Profits

Financial Item	Lower Profits than Expected	Profits Equivalent to Expectations	Higher Profits than Expected	Formula
Actual Pre-Royalty Profit Margin	12 Percent	32 Percent	52 Percent	A
Royalty Payment	20 Percent	20 Percent	20 Percent	B
Post-Royalty Profit Margin to Licensee	-8 Percent	12 Percent	32 Percent	C = A-B

ating a 32 percent profit margin.²⁰ That is, the licensee was expecting to net a 12 percent profit margin.

Thus, in this example, the licensee earned profit margins ranging from negative 8 percent²¹ to positive 32 percent in the three illustrative scenarios. To achieve higher than expected profit margins, licensees need to “earn” any profits beyond their expectations. That is, they need to either affirmatively operate in such a way (e.g., lower costs, higher sales, etc.) that was better than expected or simply be fortunate that the intangible resulted in a better market than expected on their watch. In this sense, a licensee would not typically net much different than the middle area of their profit distribution curve (12 percent in **Table 3**) without actual results exceeding expectations. Conversely, *the royalty rates do not change as a result of actual financial success or failure*. These royalties are based upon projected/ex-ante profits, and are (generally) not impacted by actual/ex-post results.²²

²⁰ All of the examples in this paper assume that the licensor has no operational role in manufacturing or selling associated with the intangible property at issue.

²¹ Of course, depending on the fixed costs involved, a licensee earning a negative 8 percent profit margin—especially if there is no expectation of improvement in the future—may choose to discontinue its operations associated with this license.

²² In that sense, determining a royalty rate after-the-fact for transfer pricing purposes based upon the actual profits of the licensee would only be appropriate if the actual profits were

Resulting Profit Splits

Licenses may be negotiated in many ways whether it is in the form of a profit split, a level of licensee profit, etc., but any such profit-based mechanism must focus on *forecasted* profits, as actual data would not be available at the time of the negotiation. Actual results varying from projections will change the resulting splits of profits, but in a *predictable* manner. As seen in **Table 5**, the royalty rate structure impacts different types of “gains”—higher volume or higher margins—differently. In essence, only the licensee gains from higher margins,²³ while both parties would gain (in dollars of profits) from higher sales volume.

consistent with those expected at the time of the license negotiation. Otherwise, this process has the potential to over or under estimate the contemporaneous arm’s length royalty rate.

²³ The discussion of licensee payments in this paper is confined to royalty payments as a percentage of sales. It is acknowledged that a licensee might also agree to pay the licensor a percentage of pre-royalty *profits*. (Whether such a contractual structure would be classified as a royalty or a joint venture is another matter.) The latter type of transaction would shift less risk to the licensee than a sales-based royalty, as the licensor would also be sharing in the profit margin risk. Under such a structure, the licensee’s forecasted post-royalty profit margin would have a more narrow distribution than for a sales-based royalty payment—all else being equal.

Table 5: Changes to Profit and Profit Splits When Actual Results Exceed Expectations

	Projected Results	Actual Results with Higher Margins	Actual Results with Higher Volume	Actual Results with Higher Volume and Margins	Formula
Sales	100	100	200	200	A
Costs	68	36	136	72	B
Profit (Pre-Royalty)	32	64	64	128	C = A-B
20% Royalty To Licensor	20	20	40	40	D = 20%*A
Licensee Profit	12	44	24	88	E = C-D
Licensee Share Of Profit	37.5%	68.8%	37.5%	68.8%	F = E/C
Licensor Share Of Profit*	62.5%	31.3%	62.5%	31.3%	G = D/C

* The licensor’s share would be lower if this table included its development costs, and would also change if the license required ongoing (post-license) development costs for the licensor or licensee.

Thus, the higher volume allows both parties to earn more *absolute* dollars, but it does not impact the splits of profit. By contrast, differences in profit margins cause the changes in resulting profit splits.²⁴

This concept can also be seen when analyzing the situation “backwards”—*i.e.*, beginning with the actual profit margin. To further this discussion, take three licensees (A, B, and C), each of whom *actually* earned (pre-royalty) profit margins of 32 percent, but had projected to earn profit margins of 17 percent, 32 percent, and 47 percent, respectively. Licensee A’s relatively strong performance would likely earn it a high post-royalty profit margin, while Licensee C’s relatively lackluster performance might actually place it in a loss situation. That is, Licensee A would have likely paid a lower royalty than Licensee B or C due to its relatively modest contemporaneous projections at the time of negotiation, resulting in differentiated *post-royalty* profit margins for the licensee. Thus, as seen in **Table 6** below, a licensee can earn only modest profits and/or lose money even when its (pre-royalty) profit margin appears to be healthy—if such actual results fall noticeably below the

levels forecasted at the time of signing the royalty rate agreement.²⁵

5. Summary

The above discussion first describes the returns to licensees from the perspective of both licensors and licensees. Like all investments/businesses, licensees have an expectation of future profit that can be characterized by a distribution and compared to the analogous distributions of distributors and contractors. Relative to distributors and contractors, the actual returns to licensees have the potential to vary significantly. Successful/lucky licensees can earn significant profits, while unsuccessful/unlucky licensees are more likely to lose money than distributors or contractors.

These dynamics can also be seen when comparing licensee and licensor profits. The latter are only influenced by volume, while the former are influenced by both volume and profit margin. As such, *resulting profit margin*—relative to the forecasted profit margin—is the driving force behind the returns to licensees and the resulting splits of licensor/licensee profits.

²⁴ This discussion and table focuses only on actual results *exceeding* expectations. Similar results—in the opposite direction—are seen when actual results fall below expectations. For example, if the actual (pre-royalty) profit margin was only 20 percent, the licensor would receive a 100 percent profit split.

²⁵ **Table 6** computes the royalty for each licensee at a level designed to provide each with an average forecasted post-royalty profit margin of 12 percent. That is, it implicitly assumes, for example, that licensees under similar risk conditions (*i.e.*, standard deviations or width of the probability distribution curve) would be indifferent between forecasting a (pre-royalty) 47 percent profit margin with a 35 percent royalty and a 17 percent profit margin with 5 percent royalty. While this assumption is consistent with economic and financial logic, there have been arguments raised in transfer pricing against such an assumption (higher forecasted pre-royalty profit margins translate into higher forecasted post-royalty profit margins). Formal analysis of this issue is deferred for future research.

Table 6: Differences in Post-Royalty Profits to Licensees with Similar Pre-Royalty Profits, Different Projected

Profit Description	Licensee A	Licensee B	Licensee C	Formula
Actual Pre-Royalty Profit Margin	32%	32%	32%	A
Projected Pre-Royalty Profit Margin	17%	32%	47%	B
Royalty Set at Time of Projections ²⁶	5%	20%	35%	C = B-12%
Actual Post-Royalty Profit Margin (Licensee Profit)	27%	12%	-3%	D = A-C
Licensee Share of Profit	84.4%	37.5%	-9.4%	E = D/A
Licensor Share of Profit²⁷	15.6%	62.5%	109.4%	F = C/A

²⁶ Keeping consistency with the above tables, the royalty rate is set so that the licensee is forecasted to earn a post-royalty profit margin of 12 percent.

²⁷ The licensor’s share would be lower if this table included the licensor’s development costs.