Price Erosion Infringement Damages

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Economist's insight into proving price erosion due to infringer's actions

The typical lost profits damage calculation can be broken down into two components: (1) lost profits on lost unit sales, and (2) lost profits due to price erosion, or increased costs. Price erosion most often occurs when an alleged infringer introduces a competing product and the plaintiff is forced to lower prices in order to maintain its sales volume. While price erosion generally refers to price concessions on the plaintiff's existing sales, where an infringer takes unit sales from the plaintiff, the price on these units is typically less than the price absent the infringement.

If the features of the infringing product are very similar to the plaintiff's product and the infringer expects to attract sales from the plaintiff's existing customer base, it will need to offer its product at a price below the plaintiff's existing price. Even if the infringer does not price its product below the plaintiff's, the presence of a competing product may give customers leverage in gaining price concessions.

In some situations, the impact of price erosion is felt before the competing product is introduced, since the very announcement of an alternative substitute product provides customers with an advantage in extracting price concessions from the plaintiff. The net effect is usually less revenue for the plaintiff and a lower profit margin on those sales where the price has been reduced in order to keep customers. In many cases the amount of price competition between the plaintiff's product and the alleged infringing product is such that most of the plaintiff's damage comes from price concessions, not from lost unit sales.

Price erosion has long been a recognized legal damage going back to *Yale Lock v. Sargent* in 1886.[1] Many subsequent cases have recognized that price erosion can apply to both the existing sales of the plaintiff and sales lost to the infringer.[2]

To establish lost profits damages where there is a loss of unit sales, the plaintiff must prove with reasonable probability that, except for the infringement, it would have made the infringer's sales.[3] Using the same criteria when applied to price erosion would require that the plaintiff establish with reasonable probability that the alleged infringer caused the plaintiff to reduce prices (causation), and secondly prove with reasonable assurance what the amount of damage is. There are several methods of establishing causation for price (or profit margin) erosion.

One method of establishing causation is to track the prices charged individual customers before and after the introduction of the infringing product (or when there is a subsequent increase in the infringer's unit sales or change in the infringer's price). A reduction in the plaintiff's price following the introduction of the infringing product, may be causal evidence of price erosion, assuming no other factor(s) can account for the price reduction.

In many cases, the salesman responsible for the account may have direct knowledge of the cause of the price reduction. The computation of damages for each customer where there is evidence of price erosion is based on the number of units sold at the eroded price multiplied by the difference between the eroded price and the normal price the units would have been sold at, absent the infringement.

An alternative more macro approach is to track the average unit price of the patented produce or product line before and after the introduction (or announcement) of the infringing product. Because many products are sold under contracts which can last for several years, the average unit price based on product line revenue/total units sold will average prices for both existing and new contracts. Since only the new contract prices are affected by the price concessions, the average unit price based on total revenue may not be immediately impacted by the price concessions. Only when the below-normal revenue per unit from the new contracts dominates the revenue/unit from the existing contracts, will the average unit price decrease. Therefore, using average product line selling price, where there are existing contracts, may not pinpoint the exact time when the price erosion began.

Another consideration when using either the micro or macro approach is that the average unit price based on either total product line revenue or new contract revenue may vary by month depending on the various factors that affect each customer's contract price including location, quantity purchased, contract date, etc. Typically, this is more of a problem when using new contract prices since they are based on fewer observations compared to the average price of all customers. When this situation arises, the trend of new contract average unit price is often used to document the fact that the plaintiff's price was forced down at or near the date the infringing product was introduced.

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◄ Computation ►

The actual computation of the price erosion damages using the macro or product line approach is easier to apply than the micro approach (based on individual customer) since the average unit price based on total unit sales does not vary as much as new contract average prices. Therefore, a sudden deviation from the previous months' average may be an indication of damage, provided no other factor(s) can explain the change. The difference between the below-normal price and the normal price that would have prevailed without the infringement (*e.g.* average of prior months' prices) multiplied by each month's total product line sales (or relevant time period) is the amount of damage due to price erosion for the month. Exactly how long the price erosion persists is a function of the remaining life of the existing contract and the persistence of the eroded prices in future contracts.

The amount of price erosion can change depending on such factors as: further infringing product price reductions, increases in the infringing product units sold, changes in the amount of non-price features the alleged infringer offers, and whether the alleged infringer targets the plaintiff's existing customers or non-plaintiff customers.

The calculation of the price erosion damages requires the determination of the price of the plaintiff's product, absent the price erosion. One method is to consider the price or price trend of the plaintiff's product prior to the period of erosion. This price or trend is extrapolated to determine the price during the erosion period. To the extent the pre-erosion prices include factors (general market conditions), which will persist in the future (with the price erosion), the eroded prices should include the impact of those same factors.

If these factors are expected to abate or new factors are expected to come into play, the extrapolated prices (without erosion) will need to be adjusted to reflect these changes. Another method of estimating the plaintiff's price, absent price erosion, is to compare the plaintiff's price with that of a non-infringing competitor(s) or the general market. Assuming there is a consistent relation between the two prices prior to the incidence of price erosion, this relation can be used to establish the plaintiff's price after the onset of price erosion.

One often overlooked byproduct of price erosion (where lost unit sales are involved) is that when the revenue from the plaintiff's product is reduced, the profit margin on the product is also reduced. Since the profit margin is profit/revenue (where profit is revenue minus variable costs), a given percent change in revenue will have a greater effect on the numerator than the denominator. Therefore, when price erosion reduces revenue by x%, the profit margin will generally drop by more than x%. If lost profits on lost unit sales is being determined and price erosion is present, the revenue the plaintiff would have received on the infringer's unit sales is usually determined first.

Next, the profit from this revenue is derived by applying the plaintiff's profit margin. However, with price erosion, the plaintiff's profit margin is less than what it would have been, absent the infringement. Instead of using the plaintiff's existing profit margin, the profit margin needs to be adjusted for the effect of the price erosion. An alternative solution in the case where the plaintiff loses unit sales to the defendant is to adjust profit per unit since profit per unit is the combination of revenue/unit x profit/revenue. In the situation where the plaintiff suffers price erosion on existing sales, the lost revenue per unit due to erosion is pure profit to the plaintiff.

PRICE EROSION AND REASONABLE ROYALTIES

Assuming that price competition from the infringing product has caused the plaintiff to suffer price erosion, the plaintiff's revenue is smaller than it would have been absent the infringement. Applying a given royalty rate to the diminished revenue, provides a diminished amount of royalty payments compared to royalty payments without the infringement. Therefore, the royalty rate with price erosion must be increased above the royalty rate without infringement or the product revenue must be adjusted. If the royalty rate absent infringement and the amount of price erosion were known, the adjustment for the lost revenue could be determined. However, as shown below, royalty rates are often impacted by price erosion.

A customary way of determining a reasonable royalty is to consider rates on comparable licenses of similar products. In reality, there are few situations where there are exact comparable license agreements. Therefore, inexact comparables are often used with adjustments for differences between the inexact comparables and the subject. One method often used to adjust royalty rates is to compare the profit margin of the comparable product to the subject patented product.

In general, the higher the product's profit margin, the more valuable the intellectual property, with the licensor receiving between one-quarter to one-half of the incremental profit margin. Most comparable licenses (if there are any) are based on voluntarily arranged license agreements that proceed any sales (or price erosion) by the licensee (infringer). In such cases the royalty rate agreed to by the two parties divides the product's profit margin so that each party earns a reasonable rate of return.

For example, if a patented product's expected profit margin was 40% and a comparable licensed product had a profit margin (pre-royalty) of 50% with a license royalty rate of 20%, the subject license rate should be less than 20%. Assuming that 50% of the incremental profit is attributed to the difference in technology, then the subject patented technology would receive a royalty rate of 15%. However, with the existence of price erosion, the plaintiff's revenue and profits are impacted, causing margins to decrease. For instance, in the above example assume there is price erosion that causes the subject patented product's revenue to be

10% lower than without price erosion, which in turn reduces the product's profit margin to 33%.

Using the same assumptions, the subject royalty rate would be 11.5%. Since there are rarely exact comparables, using profit margins to adjust comparable license royalty rates, as in this example, will not provide the plaintiff with the royalty rate that it would have received without the infringement. Therefore, price erosion has a double impact, since it affects the amount of revenue that the royalty rate is applied to. But it may also affect the royalty rate itself, since profit margins are often used to adjust inexact comparable license rates.

When determining royalty rates for infringements using comparable third-party freely negotiated license rates, the plaintiff is agreeing to hypothetically license a direct competitor at comparable rates (after adjustments for profit margins, etc.). However, most plaintiff's would not agree to such rates without additional compensation for the loss of potential market share and relatively high profit margins. Therefore, many cases recognize that in such situations, royalty rates in excess of the voluntarily negotiated license rates are in order.[4]

An alternative method of determining an infringement royalty rate is to use the infringer's expected or projected product financial information. Most firms will perform an evaluation of the rate of return (or other financial criteria) before actual marketing and manufacturing a new product. Based on this projected financial information, a royalty rate can be determined that will allow the alleged infringer to earn a reasonable rate of return based on comparable rates of return in the industry and the specific risks of the product. The use of projected financial information is consistent with how licensed royalty rates are determined, since licensees can only offer to license a specific intellectual property based on expectations, not actual financial results. This same procedure can be performed using existing and projected financial information from the plaintiff. In many cases even without consideration of price erosion, the plaintiff may be making a higher incremental profit margin (on the infringer's units sales) than the expected profit margin of the defendant. In such cases, the defendant may have to pay a relatively high royalty rate.

LOST PROFITS VERSUS ROYALTIES

The decision to use lost profits instead of royalties as a damage remedy depends on the plaintiff's ability to show with reasonable certainty that the defendant made sales that, absent the infringement, would have been the plaintiff's. With a strict two-competitor market, the defendant's sales would have been the plaintiff's, but in many cases the general market (however this is defined) is made up of many competitors within which there are one or more submarkets. The plaintiff may argue that due to the introduction of its patented product, it has developed a distinct sub-market with a group of customers who demand its patented feature, with little if any substitution between the submarket and the general market.

In many cases the defendant alters an existing product by incorporating the alleged infringing technology in order to dissuade its existing customers from switching to the plaintiff's product. In such a situation, the plaintiff loses the opportunity of gaining additional customers. In addition to showing that the plaintiff and defendant compete in a distinct sub-market, there are other methods of proving that the defendant's unit sales would have been plaintiff sales including comparing sales levels both in the aggregate or by customer to see if there are opposite movements.

In some cases in which the plaintiff is unable to prove that its product belongs to a unique sub-market and that the defendant's unit sales came at its expense, the market shares of the general market participants have been used to distribute the defendant's sales. As first applied in the Mor-Flo case,[5] the plaintiff earns the lost profits on its proportionate market share (after exclusion of the defendant), and a royalty based on the sales made by the defendant that would have been made by the other market participants. It is unclear to what extent this use of market shares will replace the exclusive use of the royalty rate methodology, although *Mor Flo* presented a unique set of circumstances. Ordinarily, a reasonable royalty is used when the plaintiff can not prove the defendant's unit sales came at its expense. The use of the market shares of all the general market participants ignores any unique features of the plaintiff's patented technology and assumes that the demand for the plaintiff's product is the same as its other (usually predecessor non-patented) product.

SUMMARY

Ordinarily, where the plaintiff's patented product is in demand by a certain group of customers, the entry of a second competitor will force the plaintiff to reduce its price in order to maintain sales volume. Proof that the defendant's infringement caused the plaintiff's price reductions often relies on the plaintiff proving that its price reductions were contemporaneous with the introduction of the defendant's product, although there may be a lag between the introduction of the defendant's product and a noticeable price impact. Price erosion affects both the lost profits and reasonable royalty damage remedies.

NOTES

1. 117 U.S. 536 (1886).
2. *TWM Mfg.Co. Inc. v. Dura Corp.*, 789 F.2d 895 (Fed. Cir.) cert. denied 479 U.S. 852 (1986); In re *Mahurkar Double Lumen Hemodialysis Patent Litigation*, 831 F Supp. 1354 (N.D. Ill. 1993).
3. *Minnesota Mining & Man. v. Johnson & Johnson Orthopaedics Inc.*, 976 F 2d 1559, 1577 (Fed. Cir. 1992).
4. *Nickson Industries Inc. Rol Mfg. Co. Ltd.*, 847 F.3d 795, 798 (Fed. Cir. 1988).
5. *State Industries Inc. v. Mor-Flo Industries Inc.* 12 USPQ 2d 1026 CAFC (1989).