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UNITED STATES COURT OF APPEALS

FOR THE SIXTH CIRCUIT

COLLINS INKJET CORPORATION,

Plaintiff-Appellee,

v.

EASTMAN KODAK CO.,

Defendant-Appellant.

No. 14-3306

Appeal from the United States District Court
for the Southern District of Ohio at Cincinnati.
No. 1:13-cv-00664—Michael R. Barrett, District Judge.

Argued: October 1, 2014

Decided and Filed: March 16, 2015*

Before: DAUGHTREY, ROGERS, and DONALD, Circuit Judges.

COUNSEL

ARGUED: Marc G. Schildkraut, COOLEY LLP, Washington, D.C., for Appellant. W.B. Markovits, MARKOVITS, STOCK & DEMARCO, LLC, Cincinnati, Ohio, for Appellee. **ON BRIEF:** Marc G. Schildkraut, COOLEY LLP, Washington, D.C., Celia Goldwag Barenholtz, COOLEY LLP, New York, New York, James E. Burke, KEATING MUETHING & KLEKAMP PLL, Cincinnati, Ohio, for Appellant. W.B. Markovits, Christopher D. Stock, Paul M. DeMarco, MARKOVITS, STOCK & DEMARCO, LLC, Cincinnati, Ohio, for Appellee.

ROGERS, J., delivered the opinion of the court in which DONALD, J., joined. DAUGHTREY, J. (pg. 22), delivered a separate concurring opinion.

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*This opinion was filed under seal on March 16, 2015 to allow the parties the opportunity to request redactions. On March 25, 2015 the court released the opinion to the public pursuant to notification from the parties that no redactions were requested.

OPINION

ROGERS, Circuit Judge. In a tying arrangement, a seller requires buyers of a product over which it has market power—the "tying product"— also to purchase a product over which it seeks to gain market power—the "tied product." A tying arrangement can be prohibited under § 1 of the Sherman Act even if the tie is not explicit in the seller's contracts, but instead is enforced through informal constraints or pricing policies. This appeal primarily concerns the question of when differential pricing—charging more for the tying product when the customer does not also purchase the tied product—in itself constitutes an unlawful tying arrangement. In short, the answer is that it does so only when the price differential in effect discounts the tied product below the seller's cost. In this case, the possibility that such a showing could be made warranted a preliminary injunction.

Eastman Kodak Company appeals the district court's grant of Collins Inkjet Corporation's motion for a preliminary injunction requiring Kodak to cease charging customers at different rates for Kodak's refurbished printer components depending on whether the customers buy Kodak ink. Collins is Kodak's competitor for selling ink for Versamark printers manufactured by Kodak. Users of Versamark printers must periodically replace a printer component called a printhead; Kodak is the only provider of replacement "refurbished printheads" for such printers. In July 2013, Kodak adopted a pricing policy that raised the cost of replacing Versamark printheads, but only for customers not purchasing Kodak ink. Collins filed suit, arguing that this amounts to a tying arrangement prohibited under § 1 of the Sherman Act, 15 U.S.C. § 1, because it is designed to monopolize the Versamark ink market. Collins sought a preliminary injunction barring Kodak from charging Collins' customers a higher price for refurbished printheads. The district court issued the preliminary injunction, finding a strong likelihood that Kodak's pricing policy was a non-explicit tie that coerced Versamark owners into buying Kodak ink and that Kodak possessed sufficient market power in the market for refurbished printheads to make the tie effective.

On appeal, Kodak challenges both the legal standard the district court applied to find whether customers were coerced into using Kodak ink and the district court's preliminary factual findings. In evaluating the likelihood of success on the merits, the district court applied a standard that unduly favored Collins to determine whether customers were coerced into buying Kodak ink. The court examined whether the policy made it likely that all or almost all customers would switch to Kodak ink, but did not examine whether this would be the result of unreasonable conduct on Kodak's part. A tying arrangement enforced entirely through differential pricing of the tying product contravenes the Sherman Act only if the pricing policy is economically equivalent to selling the tied product below cost. The record makes it difficult to determine conclusively Kodak's ink production costs, but the available evidence suggests that Kodak was worse off when customers bought both products, meaning that it was in effect selling ink at a loss. Thus, Collins was likely to succeed on the merits even under the correct standard. Furthermore, the district court was correct in its consideration of the other factors for a preliminary injunction. Accordingly, the preliminary injunction was not an abuse of discretion.

I. Kodak's pricing policy for Versamark refurbished printheads and ink

A. Versamark Printers, Kodak, and Collins

Kodak is a printing and imaging company that offers a wide range of products and services, including Versamark printers. Collins is a business that manufactures inkjet ink for industrial printing systems. Versamark printers are used by commercial printing companies and can cost in excess of $200,000; a full printing system using Versamark printers can cost ten times that. Kodak sold its last Versamark printer in 2009. It has since introduced a new line of printers under the name "Prosper," intended to replace Versamark. Users of Versamark printers must periodically purchase ink specially formulated for use in Versamark printers and replace specialized printer components, called printheads, through which the ink flows onto the page. Printheads are available in multiple sizes, and ink must be formulated specifically for each type of printhead. Prices for both printheads and ink vary based on the printhead's type, and also (in the ink's case) on the ink's composition. Kodak and Collins both manufacture Versamark ink, but Kodak is the only source of replacement "refurbished" printheads. Customers send old printheads to Kodak, which then refurbishes them and sends them back. Customers are highly sensitive to the total cost of printing, and take into account both the initial purchase price and subsequent costs in making decisions about printers.

B. The history of cooperation and competition between Kodak and Collins

Until 2001, Collins and Kodak's predecessor Scitex competed to sell Versamark ink. From 2001 until 2011, Collins and Kodak operated together in the Versamark ink market under a series of Supply and Reseller Agreements. Under these agreements, Collins manufactured ink under both its own name and Kodak's brand, and Kodak sold Collins ink on Collins' behalf. Collins attempted to terminate the last such agreement in 2011 due to concerns about Kodak's financial situation, but was prevented by a court injunction from doing so. The agreement terminated as scheduled in May 2012.

As soon as the agreement terminated in May 2012, Kodak announced that Collins was no longer an approved Versamark ink supplier and that it was implementing a new pricing policy with higher refurbished printhead prices, and no equipment warranty, for Collins ink users. Kodak never actually implemented the policy, apparently because of customer complaints.

C. The pricing policy at issue

In July 2013, Kodak announced a new pricing policy that is the subject of Collins' present tying claim. Under this policy, the difference between what Collins ink customers and Kodak ink customers would pay for refurbished printheads decreased relative to the May 2012 policy, but did not disappear. Kodak ink customers ("matched customers") received a discount on refurbished printheads, while non-Kodak ink customers ("unmatched customers") paid more. Kodak's refurbishment pricing structure used a base charge followed by a calculation based on hourly rates for "run hours" in different amounts, making calculation of the exact price difference difficult. However, in two of the three policy announcements sent to customers in the record, Kodak offered "matched" customers a 4% discount, while raising prices for "unmatched" customers by roughly 30%. In the third announcement, the discount for matched customers appeared to be slightly over 6%, while the price increase for unmatched customers appeared to be over 5%. Kodak delayed implementation until November 1, 2013, and even then some large customers received rebates making up for the price increases in the unmatched rates. In at least some cases, these rebates were granted because the customers made a verbal commitment to switch to Kodak ink. Collins sued, seeking to enjoin the enforcement of this policy.

D. Procedural history

On September 19, 2013, Collins brought suit against Kodak, alleging a violation of § 1 of the Sherman Act, 15 U.S.C. § 1 (for tying), a violation of § 43(a) of the Lanham Act, 15 U.S.C. § 1125 (for false statements about the quality of Collins ink made in justification of its pricing policies), a violation of state deceptive trade practices law (for the same), defamation (for the same), and tortious interference with prospective contractual relations (for both the anticompetitive conduct and the false statements). At the same time, Collins moved for a preliminary injunction preventing Kodak from charging Collins ink customers higher prices for refurbished printheads and from making false statements about Collins. After expedited discovery and a three-day evidentiary hearing, the district court found that Collins had not demonstrated a likelihood of success on the merits on the claims relating to Kodak's alleged false statements, but that it had demonstrated a likelihood of success on the merits on the tying claim and, by extension, the tortious interference claim.

The court first considered whether Kodak had in fact tied ink to refurbished printheads by conditioning access to printheads on purchases of Kodak ink. Relying on *Virtual Maintenance v. Prime Computer*, 957 F.2d 1318, 1323 (6th Cir. 1992) ("*Virtual Maintenance I*"), *vacated and remanded on other grounds*, 506 U.S. 910 (1992), the court assumed that if Kodak's pricing would cause "all rational buyers" to switch to Kodak ink, then Kodak's pricing was sufficiently coercive to be a non-explicit tying arrangement. The court found that Kodak's policy had been adopted too recently to determine whether most of Collins' customers would actually be forced to switch to Kodak ink. However, Collins had presented sufficient evidence to suggest that the additional cost of not switching to Kodak ink would be so great that all rational buyers of Versamark ink would choose Kodak. The court declined Kodak's suggestion that the court take into account Collins' manufacturing costs and ability to compete with Kodak's pricing policy.

The district court next found a strong likelihood that refurbished printheads were a market over which Kodak had monopolistic control. In support of this conclusion the court noted that Kodak controls one hundred percent of the market for refurbished printheads, that high information costs and switching costs for customers reduce the influence of the competitive primary market for printers on Kodak's pricing, and that the barriers to entry to the refurbished printhead market are high. The court also found that a substantial volume of commerce in the tied market was affected, and that Kodak's asserted legitimate business justifications were not convincing.

Having found a likelihood of success on the merits of Collins' tying claim, the court also found that the irreparable harm and public interest factors in the preliminary injunction standard weighed in Collins' favor, while the substantial harm to others factor was roughly evenly balanced or favored Kodak. In particular, the court found that the potential loss of market share, employees, and ink customers would do irreparable and unquantifiable damage to Collins' "goodwill and reputation." The court's conclusion on the public interest favoring a preliminary injunction essentially followed from its analysis of the tie; because antitrust law ensures fair competition, enjoining Kodak's likely antitrust violation would protect consumers.

Kodak appeals the grant of the preliminary injunction, challenging the court's conclusions with regard to tying, Kodak's market power, the likelihood of irreparable harm to Collins, and the public interest served by a preliminary injunction. Kodak does not challenge the court's holding on the (un)likelihood of success on Kodak's legitimate business purpose argument.

II. Likelihood of proving an anticompetitive tie by price differentiation

Two of the central elements of a tying claim, both at issue in this appeal, are market power in the tying product market and coercion of buyers of the tying product to buy the tied product. *Jefferson Parish Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 11–12 (1984). Collins has shown a sufficient likelihood of success on the merits of each. We address the coercion element first.

A. The discount attribution standard for coercion in claims of non-explicit tying via differential pricing

It appears likely that Kodak's pricing policy was a tying arrangement involving unlawful coercion, although the district court applied a standard that was unduly generous to Collins in this regard. That Kodak appeared to be offering a better deal to customers than Collins does not in itself constitute an unlawful tying arrangement; Kodak's differential pricing was unlawful only if it might have forced a more efficient competitor out of business. By relying solely on its finding that Kodak's prices made buying Collins ink significantly more expensive than buying Kodak ink, the district court adopted a standard that could too easily treat fair price competition as per se illegal under antitrust law. Competitive sellers generally aim to make their products significantly cheaper than their competitors', and there is nothing inherently wrong with doing so via differential pricing. However, differential pricing becomes equivalent to an unlawful tying arrangement when the price discount, as applied to the original price of the tied product, in effect lowers the price of the tied product below the seller's cost. In that case, differential pricing becomes a predatory investment of monopoly profits from one market aimed at creating a monopoly in another; the seller's monopoly power in the tying product market, rather than its ability to offer the tied product at a competitive price, drives the differential pricing. When differential pricing satisfies this test, it is functionally equivalent to the coercion present in an unlawful tying arrangement. Although the evidence is far from conclusive, it appears that Kodak's profits decreased whenever a customer switched to Kodak ink, which in turn suggests that Kodak's pricing policy was predatory. Therefore there is a likelihood that Collins will succeed on the coercion prong of its tying claim, albeit under a stricter standard than the one applied by the district court.

1. Tying in general

Tying doctrine in antitrust law aims to prohibit a defendant from leveraging monopolistic market power in one market to monopolize another. A tying arrangement exists when the defendant agrees "to sell one product . . . only on the condition that the buyer also purchases a different (or tied) product, or at least agrees that he will not purchase that product from any other supplier." *N. Pac. Ry. Co. v. United States*, 356 U.S. 1, 5–6 (1958). The tie falls foul of antitrust law if "the seller has 'appreciable economic power' in the tying product market and . . . the arrangement affects a substantial volume of commerce in the tied market." *Eastman Kodak Co. v. Image Technical Servs., Inc.*, 504 U.S. 451, 462 (1992) (quoting *Fortner Enters., Inc. v. U. S. Steel Corp.,* 394 U.S. 495, 503 (1969)). Tying arrangements meeting these conditions are condemned under § 1 of the Sherman Act as a "contract, combination . . . or conspiracy in the restraint of trade or commerce among the several States or with foreign nations," language that has been interpreted to prohibit "unreasonable" restraints on trade. 15 U.S.C. § 1; *N. Pac. Ry. Co.*, 356 U.S. at 5.

The "appreciable economic power" and "substantial volume of commerce" conditions seek to ensure that only those tying arrangements that restrict competition over the tied product market are prohibited. If the seller lacks economic power in the tying product market, customers who do not wish to purchase the seller's brand of the tied product face little pressure to buy anything from the seller at all, since they have other options to obtain the tying product. And if the arrangement does not affect a substantial volume of commerce in the tied product market, then clearly the defendant is not significantly affecting competition in that market. In fact, even if the two conditions are met, the defendant is still permitted to argue as a sort of affirmative defense that its tying arrangement has procompetitive effects, or, alternatively, has a valid business justification. *PSI Repair Servs., Inc. v. Honeywell, Inc.*, 104 F.3d 811, 815 n.2 (6th Cir. 1997); *Virtual Maintenance I*, 957 F.2d at 1323.

A tying arrangement that falls foul of these criteria and lacks a valid business justification is anticompetitive because it tends to force more efficient competitors out of the tied product market. Because of the defendant's power in the tying product market, customers who want to buy both the tying and tied product can buy the tying product only from the defendant. The defendant then additionally requires them to buy the tied product from it, meaning that they have no need to buy it from anyone else. This restrains competition in the tied product market because a competing seller of the tied product—in particular one who does not also produce the tying product—is unable to attract customers who additionally require the tying product even if the competing seller's product is superior in price or quality to the defendant's tied product. From the customer's point of view, the practical cost of the competing seller's product is the price the competing seller charges *plus* the cost of forgoing the tying product. With such a thumb on the scale, a competing seller may lose market share even if it can produce the tied product more efficiently than the defendant; the defendant's market power in the tying product, rather than its ability to produce the tied product efficiently, shapes the market for the tied product. *See Fortner Enters.*, 394 U.S. at 498–99.

2. The proper standards for non-explicit tying

Unlawful ties need not be explicit contractual provisions preventing buyers from purchasing the tied product from third parties. The existence of a tying arrangement depends on the "the seller's exploitation of its control over the tying product to force the buyer into the purchase of a tied product that the buyer either did not want at all, or might have preferred to purchase elsewhere on different terms." *Jefferson Parish Hosp.*, 466 U.S. at 12. When a defendant adopts a policy that makes it unreasonably difficult or costly to buy the tying product (over which the defendant has market power) without buying the tied product from the defendant, it "forces" buyers to buy the tied product from the defendant and not from competitors. *Data Gen. Corp. v. Grumman Sys. Support Corp.*, 36 F.3d 1147, 1180 (1st Cir. 1994); *Amerinet, Inc. v. Xerox Corp.*, 972 F.2d 1483, 1500 (8th Cir. 1992).

In the special case of a tie enforced solely through differential pricing, the tie is not unlawful unless the differential pricing is the economic equivalent of selling the tied product below the defendant's cost. This is because differential pricing, unlike other forms of indirect coercion, can be employed legitimately without illegal anticompetitive influence from the defendant's control over the tying product market. In general, the ability of the defendant to impose the threat that creates the "forcing" depends on buyers' not being able to turn elsewhere for the tying product. For example, an explicit tie has a coercive effect so long as buyers cannot turn elsewhere for the tying product because buyers who need the tying product may have no option but to purchase the tied product from the defendant. But if the defendant merely offers a discount on the tying good to buyers who also purchase the tied good, then buyers are only "forced" to buy the tied good from the defendant if they cannot purchase the tied good elsewhere at a price low enough to offset the forgone discount for the tying product. The defendant uses its market power over the tying good to shift the discount from the tied good to the tying good, but this in itself does not "force" buyers to purchase the tied product any more than a discount on the tied product would. It follows that a discount on the tied product amounts to unfair competition only if the defendant is selling below cost. *See Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 222 (1993).

This analysis is the same as the Ninth Circuit's analysis of bundled discounts, an analogous pricing policy governed by § 2 rather than § 1 of the Sherman Act. In a bundled discount, the seller offers two products together (the bundle) at a price lower than the sum of the prices of the two products sold separately. It is the equivalent in economic terms to a tie enforced entirely through differential pricing, since in both cases customers pay less for the tied and tying products if they buy both from the defendant seller. The Ninth Circuit has adopted a "discount attribution" standard to determine whether a bundled discount is an unlawful "attempt to monopolize" under § 2 of the Sherman Act, 15 U.S.C. § 2:

> [T]he full amount of the discounts given by the defendant on the bundle are allocated to the competitive product or products. If the resulting price of the competitive product or products is below the defendant's incremental cost to produce them, the trier of fact may find that the bundled discount is exclusionary for the purpose of § 2. This standard makes the defendant's bundled discounts legal unless the discounts have the potential to exclude a *hypothetical* equally efficient producer of the competitive product.

Cascade Health Solutions v. PeaceHealth, 515 F.3d 883, 906 (9th Cir. 2008) (emphasis in original). The court justified the rule—which is identical to the one we find applicable here—by noting that a bundled discount is only equivalent to an unlawful tie when the discount attribution standard is met. *Id.* at 900–01 (citing 3 Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 749b2, at 332 (Supp. 2006)).

The *Cascade Health* analysis of bundled discounting logically applies to the tying arrangement at issue here—where the only tying mechanism is differential pricing—even though the *Cascade Health* court did not explicitly apply the discount attribution standard to tying. The plaintiff in *Cascade Health* alleged both tying under § 1 and unlawful bundled discounting under § 2. In its analysis of the district court's grant of summary judgment for the defendant on the tying claim, the Ninth Circuit did not directly apply the discount attribution standard, but instead ruled that there was sufficient "evidence of economic coercion" to withstand summary judgment. *Id.* at 915. The court noted, in part, evidence that one of the defendant's sales "made no economic sense," which suggested that the buyer was "coerc[ed]," or did "something that he would not do in a competitive market." *Id.* When differential pricing is the only means of coercion, results other than what a competitive, unbundled market would achieve are possible only if the discount attribution standard is met and the defendant is in effect selling the tied good below cost. Otherwise, the discount on the bundle of the tied and tying products is equivalent to fair price competition in the tied product market. Without this result, economically identical behavior would be treated differently under §§ 1 and 2 of the Sherman Act, even though both portions of the legislation prohibit anticompetitive conduct.

The Ninth Circuit's analysis in *Cascade Health* is more compelling than that of the Third Circuit in *LePage's, Inc. v. 3M*, 324 F.3d 141, 154–57 (3d Cir. 2003) (en banc). In that case, the court declined to apply a cost-based analysis because competitors may be unable to "compensate [buyers] for the foregone [tying product] discount" even when the bundled pricing scheme "yield[s] aggregate prices above cost." *Id.* at 155 (quoting Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶ 794, at 83 (Supp. 2002)). But a bundled pricing scheme may be unlawful under the discount attribution standard even if the bundle's aggregate price is above cost, so long as the discount is significant enough to take the competitive (or tied) product's price below cost. And when the discount attribution standard is met, an equally efficient competitor will be unable to compensate buyers for the forgone tying product discount. Thus the discount attribution standard addresses the concerns that prevented the Third Circuit from applying a cost-based analysis.

The reasoning in our en banc decision in *NicSand, Inc. v. 3M Co.*, 507 F.3d 442 (6th Cir. 2007) (en banc), further supports applying a discount attribution standard for ties enforced purely through differential pricing. In *NicSand*, the defendant 3M entered the automotive sandpaper manufacturing market, in which the plaintiff NicSand had until then been the dominant player, by offering a variety of pricing and contract incentives to retailers to carry its product, often exclusively. These did not include tying or bundled discounts, but instead consisted of rebates and long-term exclusive contracts. *Id.* at 448. NicSand sued, alleging that 3M's contracting practices constituted an unlawful attempt to monopolize the automotive sandpaper market under § 2 of the Sherman Act. *Id.* at 449. NicSand never alleged that 3M's pricing was predatory or below cost. *Id.* at 458. The en banc court held that NicSand had failed to plead an antitrust injury. *Id.* at 459. Although NicSand was obviously injured by competition from 3M, the point was that it was injured by *competition*, not by anticompetitive pricing or conduct. *Id.* at 455. The various incentives and contract structures 3M offered the retailers were in fact typical of the terms required by retailers, so 3M's pricing was simply fair competition. *Id.* at 452–54. This analysis suggests that for Collins to have a case, it must have suffered the type of injury that "the antitrust laws were intended to prevent and that flows from that which makes the defendants' acts unlawful." *Id.* at 450 (*quoting Brunswick Corp. v. Pueblo Bowl–O–Mat, Inc.*, 429 U.S. 477, 489 (1977)). This will be the case if it suffers harm not just "as a competitor in the marketplace," but also "as a defender of marketplace competition." *Id.* at 455 (quoting *Indeck Energy Servs. v. Consumers Energy Co.*, 250 F.3d 972, 977 (6th Cir. 2000)). But so long as Kodak's pricing policy is the equivalent of offering an above-cost discount on ink, equally efficient competitors will not be forced out of the market. The discount attribution standard thus provides the test for determining whether a plaintiff challenging a competitor's tie that is enforced through differential pricing has antitrust standing under *NicSand*.

Relying in part on *NicSand*, Kodak argues that the relevant measure of costs is Collins' costs, not Kodak's. That is, so long as Collins can compete with Kodak, Kodak's pricing structure is not anticompetitive. This position would have unfortunate consequences and misreads *NicSand*. The correct measure of cost is the defendant's—Kodak's—cost. It is true that, in *NicSand*, we referred repeatedly to NicSand's high profit margins and likely ability to compete with 3M. *See id.* at 452–55, 457. However, we implicitly defined predatory pricing as pricing "below cost with the goal of recouping [the defendant's] losses by charging monopolistic prices later." *Id.* at 452. This definition makes no sense if "cost" refers to the plaintiff's cost, because then it is not certain that the defendant would have a loss to recoup. The defendant suffers a loss in this context if and only if it sells below its own cost. The better reading of *NicSand* is that we referred to NicSand's profit margins in order to illustrate the point that 3M's pricing policy opened the door for healthy price competition benefitting consumers. Kodak suggests that Collins' costs be used on the assumption that Collins has a lower cost of production than Kodak, in which case selling below Collins' cost would always leave Kodak with a loss. But this finds no support in *NicSand* (or other caselaw), which never considers whether the plaintiff or the defendant is in fact the more efficient producer. Rather, Supreme Court precedent on predatory pricing explicitly states a requirement that a plaintiff suing its rival "must prove that the prices complained of are below an appropriate measure of its rival's costs." *Brooke Grp.*, 509 U.S. at 222.

Worse, relying on the plaintiff's costs, or the more efficient competitor's costs, would produce an unclear standard that might permit anticompetitive conduct. In setting prices, it is important for companies to have clear guidelines. *Pac. Bell Tel. Co. v. Linkline Commc'ns, Inc.*, 555 U.S. 438, 453 (2009). Every company knows its own cost of production, but the cost of production of its competitors may be less clear. *See Cascade Health*, 515 F.3d at 908 n.16. Further, because competitors often do not sell exactly the same product, using the plaintiff's costs may ignore differences in the competitors' products' value to consumers that might affect the analysis. For example, suppose that Collins has lower ink manufacturing costs than Kodak, but its ink gives off fumes during printing that necessitate increased ventilation in printing facilities. In that case, if Kodak can use a bundled discount to effectively sell its ink at a price equal to Collins' incremental cost, Collins will have to sell ink at a loss to maintain market share because it will have to offset buyers' increased ventilation costs. It would be difficult for courts to determine the hidden costs of a slightly inferior but cheaper product, particularly when, because of idiosyncratic customer preferences, these costs may be different for each customer. When the defendant effectively sells below its own costs, it puts pressure on its competitors to lower prices without actually lowering its own costs or otherwise creating a market efficiency. This is sufficient for the competitors to have antitrust standing.

Applying the discount attribution standard to the present case, there is a likelihood that Collins will be able to prove coercion because the record suggests (though it does not at present prove) that Kodak was in effect selling ink below its incremental cost. Kodak appears to have admitted in its appellate brief and provided proof before the district court that it stood to make more money if customers bought ink from Collins and paid Kodak's unmatched printhead refurbishment price than if they bought Kodak ink and paid the matched printhead refurbishment price. On its face, this suggests, at least as a matter of formal logic,[1] that Kodak's pricing is coercive under the discount attribution standard. Of course, such reasoning must yield to any actual evidence of Kodak's ink costs; the record at a preliminary injunction stage is not complete, and conclusions reached at this stage "are not binding at trial." *Univ. of Texas v. Camenisch*, 451 U.S. 390, 395 (1981). But the evidence presently in the record suggests that Collins will be able to prove the coercion element of its tying claim.

Use of the discount attribution test is neither contradicted nor controlled by our analysis of coercion in *Virtual Maintenance I*, 957 F.2d 1318. In *Virtual Maintenance I*, we stated that the enormous difference in price between the tying product sold on its own and the tying product sold with the tied product was sufficient to establish a tying arrangement because "all rational buyers" of the tying product would also choose to buy the tied product. *Id.* at 1323. But this does not amount to a holding that there is coercion whenever there is a significant price difference, for two reasons.

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[1]Kodak's apparent admission is, in effect, that its profit from an unmatched customer is greater than its profit from a matched customer, or that its profit when it is not selling ink is greater than when it is. Treating profit as the price of a good less its cost, the profit from an unmatched customer is the difference between the unmatched price of refurbished printheads (*UPR*) and the cost of refurbished printheads (*CR*):

$$UPR - CR$$

The profit from a matched customer (who buys both ink and refurbished printheads) is the sum of the difference between the matched price of refurbished printheads (*MPR*) and the cost of refurbished printheads (*CR*) and the difference between the price of ink (*PI*) and the cost of ink (*CI*):

$$(MPR - CR) + (PI - CI)$$

Kodak's admission can therefore be expressed as an inequality stating that the latter expression—profit from a matched customer—is less than the former—profit from an unmatched customer:

$$(MPR - CR) + (PI - CI) < UPR - CR$$

This is equivalent to

$$PI - (UPR - MPR) < CI$$

[This is achieved by adding *CR* + *CI* to each side and subtracting *UPR* from each side.]

Under the discount attribution standard, Kodak's pricing is coercive if it is in effect selling ink below cost, that is, if the price of ink less the total discount (*D*) is less than the cost of ink:

$$PI - D < CI$$

Since the difference between the unmatched price of refurbishment and the matched price of refurbishment (*UPR* – *MPR*) is the total discount (*D*) in Kodak's scheme, the above two expressions are identical. Kodak's admission thus logically implies that the pricing structure is coercive under the discount attribution standard. The above analysis is general and may ignore salient features of the Versamark printer aftermarket (for example, the fact that different customers may require different amounts and types of ink per refurbished printhead). But at this preliminary stage, Kodak's statements about its own business provide some evidence that Kodak's pricing policy fails the discount attribution test.

First, under the facts of *Virtual Maintenance I*, the pricing structure was so obviously coercive that there was no need to consider exactly how much of a price differential would constitute coercion giving rise to a tying arrangement. The cost of the tying product on its own ranged from $80,000 to $160,000, whereas the tied and tying product together cost $16,000; it was between five and ten times more expensive not to buy the tied product, even leaving aside the separate cost of the competitor's tied product. *Id.* at 1322. This pricing policy would self-evidently fail the discount attribution standard. Under such circumstances, there was little need to determine exactly when a pricing structure "coerces" buyers to buy the package of the tied and tying products rather than the tying product alone. We also made no attempt to do so, as our analysis on this point consisted of a single sentence with no supporting authority: "A tying arrangement clearly exists here because the large price differential between software support alone and the software support/hardware maintenance package induces all rational buyers of Prime's software support to accept its hardware maintenance." *Id.*

Second, in the logical framework of the decision, this analysis was dicta, unnecessary to determining the outcome of the appeal. The bulk of our opinion focused on the definition of the relevant market and the question of whether the defendant had sufficient market power in the tying product market to enforce a tie. *Id.* at 1323–29. We concluded that the defendant lacked market power, *id* at 1329, meaning that the defendant was entitled to judgment notwithstanding a general jury verdict against it regardless of whether it had attempted to impose a tying arrangement. The Supreme Court vacated our decision and remanded for reconsideration in light of the market power analysis in *Eastman Kodak Co. v. Image Technical Services Inc.*, 504 U.S. 451 (1992). *Virtual Maint., Inc. v. Prime Computer, Inc.*, 506 U.S. 910 (1992). On remand, we found that the plaintiff had made a sufficient showing of market power, meaning that a jury could find in its favor *provided that the other elements of an illegal tying arrangement could also be proved*. *Virtual Maint., Inc. v. Prime Computer, Inc.*, 11 F.3d 660, 667 (6th Cir. 1993) (*Virtual Maintenance II*). We did not revisit our analysis of conditioning from *Virtual Maintenance I*, instead "reaffirm[ing] and reinstat[ing]" that portion of the opinion. *Id.* Thus our one-sentence analysis of conditioning in *Virtual Maintenance I* was technically part of the holding in *Virtual Maintenance II*, but in neither opinion did we seriously consider exactly what the standard should be or articulate a clear test.

Thus, although our legal analysis differs from that of the district court, there is a likelihood that Collins can meet the coercion part of a claim for anticompetitive tying.

B. Kodak's market power over printheads

There is also a strong likelihood of Collins' success on a finding that Kodak had sufficient market power over printheads to sustain a tying arrangement with ink. Without substantial market power over refurbished printheads, Kodak would be unable to use a threatened printhead price increase to "force" buyers to buy its ink; buyers could simply choose not to buy its printheads. *See generally Jefferson Parish Hosp.*, 466 U.S. at 17–18. Kodak concedes that it has a one-hundred-percent share of the refurbished printhead market. However, Kodak argues that it lacks market power over refurbished printheads because competition in the primary printer market and the possibility of customers' ending their use of Versamark printers restrain its ability to raise prices for printheads, while information costs for Kodak's sophisticated Versamark customers are not so high that customers could be unfairly locked in to Kodak's pricing policy. Finally, Kodak also points to the recent history of its printhead and ink pricing in an attempt to argue that it was not able to raise prices. The district court correctly rejected these arguments; none of the facts Kodak points to reflects clear restraint on its market power over Versamark printheads.

The classic indicators of market power in an aftermarket—high information costs and switching costs—are present here. The availability of information about aftermarket pricing in the primary market (information costs) and the difficulty of switching to a different primary market supplier (switching costs) can both serve to insulate a primary market from the effects of aftermarket price increases, thus increasing the seller's market power in the aftermarket. *Kodak*, 504 U.S. at 477. There may also be other "actual market realities" (in the words of the *Kodak* Court) serving either to restrict or protect market power in an aftermarket. *Id.* at 466.

Even though Kodak's customers are sophisticated, information costs here are still high because the customers have been locked in to high aftermarket prices without prior warning. Kodak argues that since its customers were sophisticated businesses intensely concerned with limiting total printing costs, these customers would be able to gather the information about aftermarket pricing they would need to make fully informed decisions. While it is true that the

Kodak Court emphasized the fact that Kodak's customers in that case were not all sophisticated and that less sophisticated customers would be particularly unable to make decisions that incorporated aftermarket prices, *id.* at 475–76, that does not prevent information costs from being high even for sophisticated customers. Under a fair interpretation of *Kodak*, aftermarket price increases are problematic in particular when they are introduced after customers have been "locked in" to the primary market product. *PSI Repair Servs.*, 104 F.3d at 820. The increases are problematic because in that case information about aftermarket costs is hard to come by precisely because of the change in price; the customers do not know and have no way of knowing that the seller will increase aftermarket prices. *Id.* When relevant information is simply unavailable, it is fair to say that information costs are high. This is true even when customers are otherwise sophisticated. Of course if there is a strong suggestion that aftermarket prices may vary in the future, sophisticated customers will be able to negotiate stable prices via contract or else will willingly accept the risk that prices may increase. But there is no indication that Kodak's Versamark customers had any reason to expect sharp variations in aftermarket prices. In particular, as the district court noted, customers had no reason to expect the particular pricing policy Kodak adopted; when the last Versamark printer sold in 2009, Collins and Kodak were not even in direct competition. Thus the district court's finding of likely significant information costs was reasonable.

The district court's finding that the cost of switching from Versamark printers to a competitor was high enough to dampen pressure on aftermarket pricing was also reasonable. The record suggests that a full Versamark system could cost in excess of $2 million, and Collins' expert's report provided analysis indicating that switching costs, including but not limited to the price of a new printing system, could be a significant insulating factor for the aftermarket. Versamark systems typically function for 10-20 years, and users would prefer not to replace them until necessary. It thus appears that Collins will have a strong argument that switching costs might dampen primary market reactions to an increase in printhead costs.

It is far from clear that Kodak's plan to sell its new printer, Prosper, to former Versamark customers significantly disciplines its behavior in the Versamark aftermarket. It is not clear why price increases in *Versamark* printheads would affect the market for *Prosper* printers. The lifecycle pricing analysis of the Supreme Court in *Kodak* under which, when consumers are informed of service market prices, "the service-market price . . . affect[s] equipment demand" applies to a situation in which the equipment whose service cost is increasing is still being sold. *Kodak*, 504 U.S. at 473. That is, if Kodak increases the price of Prosper printheads, potential Prosper printer buyers will know that Prosper printheads are expensive and account for this in their decisionmaking. On the other hand, increasing the price of Versamark printheads at worst hurts Kodak's reputation in the marketplace and hints that something similar might be possible in the future with Prosper printheads, but it certainly does not directly affect the price of Prosper printers or printheads. With the notice provided by the Versamark printhead policy, Prosper customers (who are presumably as sophisticated as Versamark customers) should be able to negotiate guarantees of fair aftermarket pricing. If some evidence suggests that Kodak was concerned about Versamark customers' not buying Prosper printers, that does not in itself prove a lack of market power. The Versamark printhead market thus appears to have been insulated from Kodak's primary markets.

The district court was also correct to place little weight on Kodak's "natural experiments" showing a lack of market power; these are simply inconclusive as to Kodak's market power over Versamark printheads. Kodak's first such "experiment," the fact that its first attempt at a differential pricing policy had failed due to customer resistance, is undercut by its decision to try a similar, though toned-down policy a second time. And the failure itself can be explained by Kodak's marketing department's fear of harming Kodak's reputation—a significant concern, but not one that necessarily reflects a limit on market power. Kodak's second "experiment," the suggestion that Kodak did not raise ink prices after Kodak and Collins began cooperating in the ink market in 2001, also does not show a lack of market power. It is not clear that Kodak's incentives changed when it began cooperating formally. Even without formal agreement, the players in a two-party market may realize that their interests are not served by aggressive price competition, and indeed this might explain why they agreed to cooperate formally. These facts may be relevant to whether Kodak has market power, but on their own they do little to undermine the conclusion that Kodak's one-hundred-percent control of an aftermarket with high information and switching costs constitutes market power.

Because Collins appears to have a relatively strong likelihood of success on the two elements of unlawful tying challenged in this appeal, the district court's finding of likelihood of success on the merits—though not its reasoning as to coercion—was correct.

III. The remaining preliminary injunction factors

Turning to the other factors for granting the preliminary injunction at issue in this appeal, the balance of equities supports granting a preliminary injunction in favor of Collins.

A. The harm to Collins

First, absent a preliminary injunction, Collins faces a realistic prospect of irreparable harm. *See Chabad of S. Ohio & Congregation Lubavitch v. City of Cincinnati*, 363 F.3d 427, 432 (6th Cir. 2004) (quoting *Blue Cross & Blue Shield Mut. of Ohio v. Blue Cross & Blue Shield Ass'n*, 110 F.3d 318, 322 (6th Cir. 1997)) (listing the preliminary injunction factors). Kodak claims that Collins' claim of irreparable harm is speculative at best, because Collins could cut prices to maintain market share, and lost profits are fairly easily calculated and remedied through damages. However, to the extent there is a realistic prospect of lost sales and market share, these losses would harm Collins' goodwill and competitive position in ways that would be hard to compensate and that would support a preliminary injunction. It is appropriate to use a preliminary injunction to avoid harms to goodwill and competitive position. *Basicomputer Corp. v. Scott*, 973 F.2d 507, 512 (6th Cir. 1992). On the other hand, the record does not conclusively show that, in the early days of the policy, Collins lost a significant amount of sales or market share. Kodak alleges that it had significant difficulty implementing the policy and that relatively few customers switched from Collins to Kodak ink. But Collins need not suffer harm in order to justify a preliminary injunction, so long as there is a realistic prospect of harm in the immediate future. Whether Kodak's policy was ill-conceived or simply a slow starter is difficult to tell, but it was designed in part to encourage customers to switch to Kodak. Given Kodak's significant power in the printhead market, it is at least a reasonable prospect that its policy would eventually have succeeded in cutting into Collins' market share.

B. Threat of harm to others

Second, though the factor is not explicitly addressed on appeal, we consider the threat of harm to others, in particular Kodak, posed by the preliminary injunction. Although the injunction as issued by the district court does not perfectly reflect the legal analysis we apply, it is an appropriate interim measure under the circumstances and does not unduly threaten Kodak's interests.

The injunction presently "requires non-differential pricing of Kodak's Versamark printhead refurbishment services for Collins-brand Versamark ink and Kodak-brand Versamark ink customers." Under our analysis, Kodak should be permitted to offer a lower matched price, so long as the pricing policy is not coercive under the discount attribution standard. However, without a measure of Kodak's incremental costs, it is not possible to ascertain whether that standard is complied with. The present injunction, assuming it permits Kodak to negotiate individually with customers so long as Kodak does not condition a lower price on purchases of Kodak ink, prevents Kodak from using an unlawful tying arrangement against Collins but does not prevent it from competing with Collins on a fair playing field. The injunction does not prevent Kodak from discounting its ink across the board to compete with Collins, and Kodak is free (as far as the injunction is concerned) to reap a monopoly profit from its refurbished printhead sales as well, by maintaining high prices across the board for refurbished printheads. Thus it is highly unlikely that the injunction will have the effect of preventing Kodak from competing with Collins.

C. The public interest

Finally, the public interest will be served by the injunction exactly to the extent that Collins ought to prevail on the merits. The public interest is served by the injunction if the injunction is itself pro-competitive; neither side identified additional factors affecting the public interest. This is the case if the behavior the injunction prevents is anticompetitive, which is essentially the question posed by the tying analysis.

The district court accordingly did not abuse its discretion in balancing the equities to grant Collins a preliminary injunction. Collins has shown that it is sufficiently likely to succeed on the merits of its tying claim and that it faces a realistic possibility of irreparable harm absent a preliminary injunction. Further, it has shown that Kodak and others will not be unduly harmed by the injunction. Lastly, the preliminary injunction is in the public interest. The preliminary injunction order of the district court is **AFFIRMED**.

CONCURRENCE

MARTHA CRAIG DAUGHTREY, Circuit Judge, concurring. I concur in the majority's determination that the district court did not abuse its discretion in granting Collins Inkjet Corporation a preliminary injunction in this matter. I write separately, however, to express my belief that the majority's discussion expounds upon considerations not necessary to resolve the dispute now before us. Rather than subscribe to the majority's formulation of a decisional framework applicable to *all* tying arrangements—a broader sweep than is required—I would simply hold that where a defendant, like Eastman Kodak Company, has a 100-percent monopolistic share of the market for a tying product, it may not price a tied product, for which it does not control the relevant market, below its costs without running afoul of the provisions of the Sherman Act. We have been asked to resolve nothing more than that question raised by the unique facts of this case, and I would venture no further in our analysis.