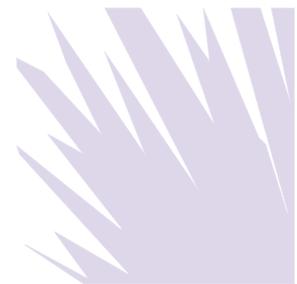


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DISPUTED ISSUES IN AWARDING UNJUST ENRICHMENT DAMAGES IN TRADE SECRET CASES

*David S. Almeling, Walter Bratic, Monte Cooper,
Alan Cox & P. Anthony Sammi**

I. INTRODUCTION

There are three primary forms of compensatory damages in trade secret cases: unjust enrichment, actual loss, and a reasonable royalty. This article addresses unjust enrichment damages.

In civil cases involving trade secret misappropriation, a successful plaintiff can recover a defendant's unjust enrichment that was caused by the misappropriation. Both state law and federal law use similar language in permitting unjust enrichment damages:

- Federal Defend Trade Secrets Act ("DTSA"): "damages for any unjust enrichment caused by the misappropriation of the trade secret that is not addressed in computing damages for actual loss"¹

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1. 18 U.S.C. § 1836(b)(3)(B)(i)(II).

- State-based Uniform Trade Secrets Act (“UTSA”): “unjust enrichment caused by misappropriation that is not taken into account in computing actual loss”²

We focus on unjust enrichment damages because it is often the largest measure of damages in trade secret cases and because it contains several disputed issues. This article addresses five such issues:

1. whether unjust enrichment can include the entire fair market value of the trade secret defendant;
2. the appropriate duration of unjust enrichment damages;
3. the appropriate role of burden shifting in determining defendant’s profits in the context of unjust enrichment damages;
4. how to avoid double-counting of damages between unjust enrichment and actual loss; and
5. under what circumstances conveyed sales should be included within unjust enrichment damages.

II. UNJUST ENRICHMENT AS THE ENTIRE FAIR MARKET VALUE OF THE DEFENDANT

In December 2016, The Sedona Conference Working Group on Patent Damages and Remedies (Working Group 9) published *The Sedona Conference Commentary on Patent Reasonable Royalty Determinations* (the “Patent Commentary”).³ The Patent Commentary includes certain principles and best practices concerning the Entire Market Value Rule (“EMVR”), which, in the

2. Uniform Trade Secrets Act (UTSA) § 3(a) (amended 1985).

3. Available at <https://thesedonaconference.org/publication/WG9%20Patent%20Damages%20and%20Remedies>.

context of patent law, “allows for the recovery of damages based on the value of an entire apparatus containing several features only when the feature patented constitutes the basis for customer demand.”⁴ Those principles and best practices are reproduced below for context:

Principle No. 3: In cases involving an accused product with many components, the royalty should not be applied to the entire market value of the accused product unless it is shown that the patented feature or method provides the basis for customer demand for the product or substantially creates the value of the component parts.

Best Practice 1: When determining whether the entire market value rule (EMVR) applies, the basic, underlying functionality of an accused product or process must not be disregarded.

Best Practice 2: When determining whether the EMVR applies, it is important to consider whether the particular claimed invention was in fact the basis for consumer demand, and not merely one alternative among noninfringing alternatives to achieve a desired solution.

Principle No. 4(a): Where a patent claim is drawn to an individual component of a multi-component product that is found to infringe, and the entire market value rule does not apply, it is necessary to apportion the royalty base between its patented and unpatented features.

4. *Id.* at sec. III.B.

Principle No. 4(b): It may be appropriate to consider the smallest salable unit containing the feature or embodying the patented method for use as the apportioned royalty base; however, consideration of further apportionment may be required in assessing the royalty rate to ensure that the royalty reflects only the value of the patented features.

This section addresses whether and in what circumstances the unjust enrichment measure of damages can include the entire fair market value of the trade secret defendant. A preliminary question is whether the EMVR is applicable in trade secret cases at all.

A. Is the Entire Market Value Rule Applicable in Trade Secret Cases?

The EMVR originated in patent law, but that does not necessarily preclude its applicability to trade secret law. Courts regularly consider patent law precedents when determining damages for trade secret misappropriation.

Indeed, courts take a “flexible and imaginative approach to the problem of damages” in cases of trade secret misappropriation.⁵ Even where damages are uncertain, that uncertainty does not preclude recovery because “the plaintiff should be afforded every opportunity to prove damages once misappropriation is shown.”⁶ That mandate of flexibility ensures that plaintiffs can recover when defendants misappropriate trade secrets instead of acquiring them legally as “the law is far more concerned with

5. Univ. Computing Co. v. Lykes-Youngstown Corp., 504 F.2d 518 (5th Cir. 1974).

6. *Id.* at 539.

the rights and interests of the aggrieved plaintiff than in the interests of the defendants which they would have tried to protect had they dealt openly with the plaintiff from the beginning.”⁷

Accordingly, a number of courts have considered the EMVR in cases involving trade secrets. For example, in *Versata Software, Inc. v. Internet Brands, Inc.*,⁸ a court in the Eastern District of Texas (Bryson, J., Fed. Cir., sitting by designation) addressed five post-trial motions, including a motion for remittitur.⁹ The dispute concerned competitors who developed software for car manufacturers for use by shoppers to configure and compare different models.¹⁰ The jury awarded \$2,000,000 on counterclaims concerning trade secret misappropriations after determining that Versata misappropriated counterclaimant Autodata’s trade secrets in applications that Versata provided to Toyota.¹¹ The damages award represented the full amount of Versata’s profits from its projects related to Toyota.¹²

Versata argued that the jury’s award was invalid because Autodata’s “damages expert did not properly apportion the amount of Versata’s profits that were directly attributable to the misappropriation.” Versata asserted that Autodata was relying on the EMVR, questioned whether the EMVR was applicable to trade secret cases, and argued that even if the EMVR was applicable, Autodata’s evidence was “not up to the task.”¹³ The court sidestepped the question of applicability, stating:

7. *Id.* at 544.

8. 902 F. Supp. 2d 841 (E.D. Tex. 2012).

9. *Id.* at 845.

10. *Id.*

11. *Id.* at 845, 851.

12. *Id.* at 855.

13. *Id.* at 855 n.3.

In any event, all that is at issue here is whether the evidence supports the jury's finding that Autodata's trade secrets were of sufficient importance to Versata's work on the Toyota project that requiring Versata to disgorge all of its profits on the Toyota contracts is an appropriate remedy on the facts of this case.¹⁴

The court concluded that the evidence supported the verdict. Specifically, the court noted evidence that "one of Autodata's trade secrets . . . was incorporated into the vast majority of the software components sold by Versata"; "the basis for the demand for Versata's product was the . . . functionality enabled by the misappropriated [trade secret]"; and "the jury was entitled to conclude that the trade secrets were the basis for the core features of the products offered to Toyota and that Versata's profits on the Toyota contracts were therefore entirely attributable to the trade secrets."¹⁵

Although the district court's analysis is resonant with the EMVR, on appeal both parties asserted that the EMVR was inapplicable.¹⁶ The Federal Circuit summarily affirmed, without comment, pursuant to Federal Circuit Rule 36.¹⁷ Although the parties disclaimed the applicability of the EMVR to the facts of that case, Judge Bryson's query may be a useful formulation of the EMVR as applied to trade secret cases: Is the basis for the market demand for the infringing product the functionality enabled by the misappropriated trade secret?

14. *Id.*

15. *Id.* at 856–57.

16. (Fed. Cir. Nos. 13-1074, ECF No. 69 at 15, ECF No. 76 at 5 n.1).

17. 550 F. App'x 897 (Fed. Cir. 2014).

In a subsequent case, *Bianco v. Globus Medical, Inc.*,¹⁸ Judge Bryson again addressed the EMVR while sitting by designation in the Eastern District of Texas. The plaintiff was a surgeon who alleged that Globus had misappropriated trade secrets concerning the design of continuously adjustable and reversible spacers for use in spinal surgeries.¹⁹ The jury awarded \$4.3 million in damages, “which was five percent of the profits that Globus earned on the products up to the original trial date.”²⁰ The court also awarded an ongoing royalty of five percent of future sales for 15 years.²¹ In evaluating the defendant’s motion for a new trial on damages, Judge Bryson assumed, without deciding, that the EMVR was applicable to trade secret law, and he proceeded to reject the argument that the EMVR would preclude the jury’s award, distinguishing *Bianco* from the “prototypical fact pattern in which the infringing feature in the accused product is a minor subcomponent of, or makes a minor contribution to, the overall product.”²² He explained:

In this case, however, Dr. Bianco’s trade secret was the idea for the adjustable interbody spacer itself. *Dr. Bianco’s trade secrets did not relate to only a single subcomponent or feature of the Caliber and Rise products; instead, they related to the overall idea for a continuously adjustable and reversible interbody spacer for use in fusion surgeries and included many of the key features disclosed in Dr. Bianco’s drawings. Therefore, even assuming that the Federal Circuit’s strict requirements for applying the*

18. No. 2:12-cv-00147, 2014 WL 5462388 (E.D. Tex. Oct. 27, 2014).

19. *Id.* at *1–2.

20. *Id.* at *2.

21. *Id.*

22. *Id.* at *18.

entire market value rule apply in this case under Texas trade secret law, Dr. Bianco met his burden of proof when he presented the jury with sufficient evidence to support his theory of trade secret misappropriation. In other words, the Caliber and Rise products are the “smallest salable units” that reflect the use of Dr. Bianco’s trade secrets. . . . [T]he jury was entitled to find that the scope of the appropriation extended to the entire Caliber and Rise line of products, since what was alleged to have been appropriated was the idea for an adjustable interbody spacer and the combination of the basic features of such a spacer, which were incorporated in the Caliber and Rise devices. *In that setting, the entire market value rule does not require that the royalty base be apportioned among features of the device in question.*²³

The court continued by recognizing an alternative rationale for the jury’s conclusion: there was evidence that “[u]nlike in the Federal Circuit cases dealing with the entire market value rule, . . . Globus’s regular practice was to grant royalties based on the net sales of its product.”²⁴ Thus, the specific defendant’s actual business practice of basing royalties on the net sales of the entire product may have outweighed the EMVR’s general application. This alternative rationale may be generally applicable.

In another case, *MSC Software Corp. v. Altair Engineering, Inc.*,²⁵ after a jury determined that the defendants misappropriated three of the plaintiff’s trade secrets for use in their software program, a special master, in advance of a new trial on damages,

23. *Id.* at *18–19 (emphasis added).

24. *Id.* at *19.

25. No. 07-12807, 2015 WL 13273227 (E.D. Mich. Nov. 9, 2015).

issued a report and recommendation concerning the defendant's *Daubert* motion regarding the testimony of the plaintiff's damages expert.²⁶ That expert based his analysis on "his estimate of the entire profit of [the software at issue] or the entire value of [that software]." ²⁷ He did not "apportion the damages to the contribution made by [the] three trade secrets."²⁸

The plaintiff sought to preserve the expert's testimony by arguing, among other things, that the EMVR "is not directly applicable to trade secret cases."²⁹ The special master, citing *University Computing*, noted that "[t]he requirement of apportionment, and the related Entire Market Value Rule (EMVR), are both established parts of the patent damages case law," such that it was appropriate to consider the EMVR in the trade secret context.³⁰ The special master analyzed the applicability of the EMVR to trade secrets cases as follows:

[The plaintiff] contends that the EMVR requirement that the infringing component "drive the demand" for the entire product cannot ever literally apply to a trade secret case because, by its very nature, the trade secret is hidden from the customer. The hidden and unknown trade secret may not literally be what the customer demands, but in a credible EMVR case, the product's known functionality or physical property that is *enabled* by the

26. *Id.* at *1-2.

27. *Id.* at *6.

28. *Id.* at *2.

29. *Id.* at *12.

30. *Id.* at *14.

hidden trade secret could very well be the basis of the customer's demand for the product.³¹

The special master also rejected the plaintiff's contention that the *Versata Software* court declined to apply the EMVR in that trade secrets case.³² The special master concluded that the plaintiff had failed to show that its trade secrets enabled any identifiable feature that was the basis for customer demand.³³ Accordingly, he recommended that the court exclude the proffered damages opinion.³⁴

B. Can Damages for Trade Secret Misappropriation Be Based on the Entire Value of the Misappropriating Company?

Where the entire value of a company stems from misappropriated trade secrets, it may be appropriate to consider the value a reasonably prudent investor would pay for the company when evaluating damages. Several courts have taken that approach.

For example, in *Wellogix, Inc. v. Accenture, L.L.P.*,³⁵ the plaintiff (Wellogix) had developed software to help oil companies

31. *Id.* at *15 (citation omitted).

32. *Id.* (quoting the *Versata Software* court's statement that "the basis for the demand for Versata's product was the . . . functionality enabled by the misappropriated [trade secret]").

33. *Id.* at *16.

34. *Id.* at *20. The court in *MSC Software* did not rule on the *Daubert* motion until 2017, after the parties engaged in extensive additional briefing, mainly under seal. The special master issued a Second Supplemental Report and Recommendation under seal in March 2017. ECF No. 1188. The court later granted the motion to exclude the damages expert's testimony in a sealed order. *See* ECF No. 1218 (referring to having granted the motion to exclude in ECF No. 1213, which is sealed). Because the order is under seal, it is not clear whether the court adopted the special master's analysis of the EMVR.

35. 716 F.3d 867 (5th Cir. 2013).

plan, procure, and pay for certain well-construction costs known as complex services.³⁶ Wellogix shared its source code subject to confidentiality agreements with two other companies (SAP and Accenture). When a Wellogix client sought to “implement global software that was not just for complex services, but was for its entire system,” SAP and Accenture developed that software together, without notifying Wellogix, and used Wellogix’s technology without permission.³⁷ Wellogix asserted claims for misappropriation of its trade secrets, and the jury awarded substantial damages.³⁸ The jury’s award was based on an actual investment made in Wellogix and reflected the entire value of Wellogix, which the Fifth Circuit concluded was reasonable because the company’s value derived entirely from the misappropriated technology.³⁹ The court specifically noted that the jury’s award was based on testimony that “established the market value of the business immediately before and after the alleged misappropriation.”⁴⁰

Similarly, in *CardioVention, Inc. v. Medtronic, Inc.*,⁴¹ the defendant argued that “there is no precedent for allowing a plaintiff in a trade secret misappropriation case to recover unjust enrichment damages constituting the entire business value of a company.”⁴² Yet the court allowed the expert to testify, noting that “[c]ourts have recognized that a plaintiff’s actual damages can be measured by the value of the loss of the secret to the

36. *Id.* at 872.

37. *Id.* (internal quotation marks, omissions, and alterations omitted).

38. *Id.*

39. *Id.* at 879–80 & n.6.

40. *Id.* at 880.

41. 483 F. Supp. 2d 830 (D. Minn. 2007).

42. *Id.* at 845.

plaintiff under the circumstances” and determining that the entire value of the company was an accurate measure in that case.⁴³

Indeed, in *DSC Communications Corp. v. Next Level Communications*,⁴⁴ Judge Paul Brown of the Eastern District of Texas observed that where a company has no marketable product and the assets of the company “consist almost exclusively” of misappropriated intellectual property, the price at which the misappropriating company was purchased “may be the least speculative measure” of damages:

DSC has contended both before and during trial that the entire acquisition of Next Level by GI is relevant to show the amount of damages suffered by DSC. In fact, since neither party has yet to produce a product that is ready for sale to customers, *the purchase price of Next Level, whose assets consist almost exclusively of the ideas that DSC claims were stolen, may be the least speculative method of deriving the value of the alleged trade secrets.*⁴⁵

The Fifth Circuit ultimately affirmed the jury’s damages award for misappropriation based on “[t]he damages model DSC presented,” that is, a damages model based on the entire market value of the misappropriating company.⁴⁶

On the other hand, in some circumstances the entire market value of a misappropriating company may be an inappropriate measure of damages. For example, in *Alcatel USA, Inc. v. Cisco*

43. *Id.* at 845–46.

44. 929 F. Supp. 239 (E.D. Tex. 1996).

45. *Id.* at 246 (emphasis added).

46. *DSC Commc’ns Corp. v. Next Level Commc’ns*, 107 F.3d 322, 327–28 (5th Cir. 1997).

Systems, Inc.,⁴⁷ a plaintiff (Alcatel) sued Cisco, a company that had acquired another company (Monterey) that allegedly had stolen Alcatel's trade secrets prior to its acquisition by Cisco. Alcatel sought to measure its damages under theories of reasonable royalty and unjust enrichment by the price that Cisco had paid to acquire Monterey. Monterey's sole product was a network router that it had developed *prior to* any alleged misappropriation. Alcatel contended that Cisco would not have acquired Monterey but for Monterey's subsequent incorporation of Alcatel trade secrets into its router, on the theory that Monterey would not have been invited to compete on a critical bid without the benefit of those misappropriated trade secrets. The discovery record established, however, that numerous companies making competing routers had been invited to participate in that bid, and Alcatel's own expert could not say whether Monterey would have been invited to bid in the absence of misappropriation.⁴⁸ Given those facts, Judge Brown held that Alcatel could not establish its damages without providing any basis for segregating the value of its alleged trade secrets "from the rest of Monterey's cross-connect product or Wavelength Router technology," and he granted summary judgment against Alcatel "for lack of remedy."⁴⁹

Based on these cases, it appears that the entire fair market value of a misappropriating company can be an acceptable measure of damages in appropriate circumstances, such as when the entire value of the company is based on a misappropriated trade secret.

47. 239 F. Supp. 2d 660 (E.D. Tex. 2002).

48. *Id.* at 669.

49. *Id.* at 671, 673.

III. DURATION OF “HEAD START” UNJUST ENRICHMENT DAMAGES

The duration of unjust enrichment damages in trade secret cases is relatively straightforward, at least until a court gets to the issue of deciding the issue of a “head start” period.

The general rule is that the accounting of unjust enrichment damages commences at the moment that use of the misappropriated trade secret confers a benefit on the defendant.⁵⁰ Damages then accrue until such time, if ever, that the defendant would have acquired knowledge of the trade secret through legitimate means, such as public disclosure, reverse engineering, or independent development.⁵¹

In certain cases, a misappropriator tries to limit the duration of unjust enrichment based on the head start doctrine. Under this doctrine, unjust enrichment damages are limited to a head start period when a misappropriator can show that it would have acquired knowledge of the trade secret through legitimate means.⁵² This period is defined as the time between the date a misappropriator began benefiting from misuse of a trade secret

50. LOUIS ALTMAN & MALLA POLLACK, CALLMANN ON UNFAIR COMP., TR. & MONO. § 14:42 (4th Ed.); NuCar Consulting, Inc. v. Doyle, 2005 WL 820706, at *13 (Del. Ch. Apr. 5, 2005), *aff'd*, 913 A.2d 569 (Del. 2006).

51. See, e.g., RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 (1995); 92 A.L.R.3d 138 (collecting cases); Med. Store, Inc. v. AIG Claim Servs., Inc., No. 02-80513-CIV, 2003 WL 25669175, at *5 (S.D. Fla. Oct. 17, 2003) (citing RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 (1995); Specialized Tech. Res., Inc. v. JPS Elastomerics Corp., 80 Mass. App. Ct. 841, 849 (2011) (affirming disgorgement of all of defendant’s net profits when defendant “would not have been able to develop [the trade secret method] independently”).

52. LOUIS ALTMAN & MALLA POLLACK, CALLMANN ON UNFAIR COMP., TR. & MONO. § 14:42 (4th Ed.); Russo v. Ballard Med. Prods., 550 F.3d 1004, 1020 (10th Cir. 2008).

and the date the misappropriator would have gained knowledge of the trade secret through legitimate means.

The complication of the head start doctrine is in its application. Courts take different approaches in calculating the head start period, and it is usually the subject of competing expert testimony about what would theoretically happen in a world in which the misappropriator did not misappropriate but instead acquired the trade secret through legitimate means. Below are examples of how various courts have addressed this doctrine:

- In *Agilent Technologies, Inc. v. Kirkland*, the defendant misappropriated trade secrets for developing liquid chromatography columns.⁵³ In determining that defendant's misappropriation gave it a three-year head start, the court considered expert testimony by both parties. The court also considered that it took plaintiff, and a third-party competitor, three years to develop their analogous products.⁵⁴
- In *NuCar Consulting, Inc.*, the defendant misappropriated the plaintiff's automotive dealers client list and created a new company to compete with the plaintiff.⁵⁵ In a bench trial, the court concluded that had the defendant not misappropriated this trade secret, he would have developed a comparable client list within

53. C.A. No. 3512-VCS, 2010 WL 610725, at *1 (Del. Ch. Feb. 18, 2010).

54. *Id.* at *26; see also *Robin Singh Educ. Servs., Inc. v. Blueprint Test Preparation, LLC*, No. B204775, 2013 WL 240273, at *33 (Cal. Ct. App. Jan. 23, 2013), as modified on denial of reh'g (Feb. 20, 2013) (using competing expert testimony to determine "head start" period, in which the defendant's expert developed his opinion by comparing its development time to plaintiff's own development time).

55. See *NuCar Consulting, Inc. v. Doyle*, No. Civ.A. 19756-NC, 2005 WL 820706, at *13 (Del. Ch. Apr. 5, 2005).

two years. In reaching this conclusion, the court considered the facts that the defendant purchased contact information from various automotive dealers, sent out promotional mailers, and “could have engaged in other activities” to grow the client list. The court did not consider expert testimony nor mention how long it took for the plaintiff to develop its client list.

- In *Johns Manville Corp.*, the defendant argued on summary judgment that damages for misappropriation of a trade secret used in a spinner alloy should be limited to a head start period of 39 months.⁵⁶ The defendant arrived at this number because plaintiff’s 30(b)(6) witness “opined” in deposition that creating an analogous spinner alloy from scratch would take 40–52 months. Then defendant argued that 12 of these months are merely inventory build-up and that another month was allotted to selecting a spinner alloy recipe that instead could be taken from the public domain. The court found there were “many unknowns in this computation” and denied the motion.

Courts occasionally decide not to apply a head start limitation, even if it is otherwise applicable. In *RRK Holding Co.*, the court upheld a jury award beyond the head start period simply because it found that Illinois case law, though requiring a head start limitation for injunctive relief, did not require such a limitation for damages.⁵⁷ Further, after the *Agilent* court determined the appropriate head start period, discussed above, it concluded that “Agilent is entitled to damages beyond the three year head

56. See *Johns Manville Corp. v. Knauf Insulation, LLC*, 2017 WL 4333621, at *8–10 (D. Colo. Sept. 22, 2017).

57. *RRK Holding Co. v. Sears, Roebuck & Co.*, 563 F. Supp. 2d 832, 836 (N.D. Ill. 2008).

start period.”⁵⁸ The court found that defendant would continue to enjoy an increased market share from its misappropriation and thus it was “equitable” to award more damages.

Courts view calculations of the head start as a fact question for the jury to resolve. In *Premier Lab Supply*, for example, the judge gave a jury instruction titled “Accounting Period,” which “instructed the jury that, with respect to calculating the amount of unjust enrichment, the jury should award damages only for the period of time the trade secret remained a trade secret.”⁵⁹ The jury considered evidence that certain technology incorporating the trade secret was “widely available” but nonetheless awarded damages that were not limited by the defendant’s proffered head start period. The defendant appealed, arguing the judge erred in refusing to give the jury further guidance on how to determine the duration of head start damages. The appellate court affirmed the jury award, finding that it was the “domain of the finder of fact” to determine the appropriate time period.

Ultimately, the application of unjust enrichment damages is a fact-intensive inquiry. The fact-finder must determine if the misappropriator would have ever discovered the trade secret through legitimate means. If so, the fact-finder must determine the period of time the misappropriator enjoyed a head start through its misappropriation, including through expert testimony and comparison to plaintiff’s own production time.

Another factor to consider in analyzing a head start damages period is the methodology used to calculate the defendant’s profits during the assumed head start period. There are at least two approaches that can be used to quantify the defendant’s

58. *Agilent Techs., Inc.*, 2010 WL 610725, at *27.

59. *Premier Lab Supply, Inc. v. Chemplex Indus., Inc.*, 94 So. 3d 640, 643 (Fla. Dist. Ct. App. 2012).

profits during a head start period: (1) profits acceleration approach, and (2) incremental profits approach.

The profits acceleration approach is premised on the assumption that, as a result of the defendant's use of the trade secrets, it was able to accelerate its generation of sales and profits that it otherwise would have generated in a later time period if it had not used the trade secrets. The analysis consists of a comparison between the present value of the defendant's profits attributable to the trade secret and the present value of the defendant's profits, if any, that were expected if the defendant had not used the trade secrets. From an economic perspective, the present value calculations can be performed as of the date of the alleged misappropriation. The difference between these two amounts is the defendant's head start advantage in the form of profits acceleration. It is essentially a time value of money benefit obtained through unauthorized use of the trade secrets.

The profits acceleration approach may be considered in situations where customers would have delayed their purchases of the defendant's products if the trade secrets had not been misappropriated. For example, consider a scenario where installation of new manufacturing equipment embodying a trade secret results in a significant cost reduction associated with a manufacturing process. A manufacturer may decide to replace its existing equipment with new equipment containing the trade secret if it expects to obtain cost reductions from doing so. However, if the manufacturer does not have the opportunity to purchase equipment with the trade secret, it would make do with its existing equipment. Thus, the trade secrets would result in the defendant's ability to generate sales and profits that would not have been made during the head start period, but for the defendant's misappropriation of the trade secrets. But if the defendant had lawfully developed the trade secret, or equiva-

lent information, on its own during the avoided head start period, the defendant still could have, arguably, made the same sales to the same customers, but at a later date. Therefore, the profits acceleration approach focuses primarily on the timing of sales made by the defendant, thereby suggesting present valuation calculations of the defendant's profits with and without the benefit of its misappropriation.

The incremental profits approach focuses more closely on the sales and profits made by the defendant during the head start period. The notion behind the incremental profits approach is that if the defendant had not misappropriated the trade secrets, it may have missed a unique opportunity to sell products or services incorporating the trade secrets during the head start period.

The incremental profits approach may be considered in situations where there is an existing market for products or services incorporating the trade secrets and there are competitors in the market. It may also be considered if the defendant's customers would not have delayed their purchases absent the incorporation of the trade secrets into the defendant's products. For example, consider a scenario where there are multiple suppliers of a chemical feedstock used in a continuous manufacturing process. One of the suppliers is the defendant, which differentiates itself by selling feedstock incorporating the trade secrets. Manufacturers would not delay their purchases of feedstock to obtain the benefits of the trade secrets at a later date because that would disrupt their continuous manufacturing process. Instead, they would buy feedstock from one of the defendant's competitors, thereby precluding the defendant from making those specific sales during the head start period. In this scenario, one may consider a calculation of the defendant's incremental profits attributable to the trade secrets during the head start period, as opposed to the profits acceleration approach.

The selection of a methodology to use when calculating the defendant's profits based on the head start advantage is a fact-specific exercise that depends not only on the market dynamics in play during the head start period, but also the availability of relevant financial information before, during, and after the head start period.

IV. BURDEN SHIFTING IN DETERMINING DEFENDANTS' PROFITS IN UNJUST ENRICHMENT DAMAGES

The burden of proving unjust enrichment in trade secrets litigation can be daunting due to the inherent difficulties in valuing trade secrets themselves and in evaluating the market channels in which the allegedly misappropriated trade secret has been employed. An expert is essentially mandatory.⁶⁰ And, as already noted in Sections II and III, significant issues remain regarding whether a plaintiff can rely upon the EMVR when seeking unjust enrichment damages, and whether it is necessary or appropriate to apportion such damages or employ the head start rule.

Nonetheless, history has shown that a plaintiff, upon proving both misappropriation of trade secrets and unjust enrichment, may be entitled to a very significant recovery as exemplified by the previously discussed cases in Section II.B.⁶¹ That is

60. See, e.g., *Trident Prods. & Servs., LLC v. Canadian Soiless Wholesale, Ltd.*, 859 F. Supp. 2d 771 (E.D. Va. 2012) (granting summary judgment to defendant on claims for misappropriation of trade secrets and unjust enrichment where the plaintiff failed to proffer expert testimony, noting that "[t]he defendant . . . bears no burden on proving the role of the trade secret in a new product").

61. For instance, in *E. I. du Pont de Nemours and Company v. Kolon Industries Inc. et al.*, Case No. 3:09-cv-00058 (E.D. Va.), a jury in the Eastern District of Virginia found that Kolon Industries, a South Korean entity, stole trade secrets related to the production and marketing of Kevlar bulletproof vests from DuPont, and awarded damages in the amount of \$919.9 million. After

because unjust enrichment can include more than the defendant's increased profits derived from its use of a misappropriated trade secret. In many courts, unjust enrichment can also include any "avoided costs," such as a defendant's increased savings related to its avoiding development of its own technology.⁶² These savings may reflect research and development (R&D) that the defendant avoided, as well as the shortened time to production that the defendant experienced as a result of misappropriating the trade secret. Unjust enrichment may also include any increased business value to defendant that is attributable to the misappropriation, such as the company's potentially lucrative (though difficult to quantify) "first mover advantage" achieved by acceleration of its product or business to market before that of any other competitor (including the plaintiff).⁶³ As the Fifth

the Fourth Circuit reversed the damages finding due to the improper exclusion of evidence, the parties settled for \$275 million in restitution as a part of a larger agreement in which Kolon also paid \$85 million to the U.S. Government in fines. Similarly, in *Lexar Media, Inc. v. Toshiba Corp.*, CV-812458 (Cal. Super. Ct., Santa Clara County, March 2005), a California jury awarded the plaintiff \$465.4 million in damages upon a finding of trade secret misappropriation. After the trial court ordered a new trial on damages, the parties settled for \$288 million.

62. Not all courts permit recovery of avoided costs in trade secrets cases. See *E.J. Brooks Co. v. Cambridge Security Seals*, 2018 N.Y. LEXIS 1080 (N.Y. Ct. App. May 3, 2018) (responding to certified question from the U.S. Court of Appeals for the Second Circuit, and holding that, in New York, a plaintiff in a trade secrets case cannot recover damages that are measured by the costs the defendant avoided due to its unlawful activity).

63. See, e.g., *Bourns, Inc. v. Raychem Corp.*, 331 F.3d 704 (9th Cir. 2003); *Ajaxo, Inc. v. E*Trade Fin. Corp.*, 187 Cal. App. 4th 1295 (2010); see also RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 cmt. f (1995) ("[i]f the benefit derived by the defendant consists primarily of cost savings, such as when the trade secret is a more efficient method of production, the 'standard of comparison' measure that determines relief based on the savings achieved through the use of the trade secret may be the most appropriate measure of relief").

Circuit observed in *University Computing Co. v. Lykes-Youngstown Corp.*,⁶⁴ when it characterized “the appropriate measure of damages” for unjust enrichment in trade secret cases to be analogous to remedies available in patent infringement actions, the relevant measure of harm is “not what [the] plaintiff lost, but rather the benefits, profits, or advantages gained by the defendant in the use of the trade secret.” Not surprisingly, therefore, unjust enrichment is rapidly becoming a popular recovery tool in situations in which the plaintiff claims that the defendant’s use of the trade secret inherently is responsible for the underlying value assigned to a company’s net worth, such as when a start-up company obtains significant capital investment shortly after introducing a technology alleged to be predicated upon misappropriated trade secrets.⁶⁵

Unjust enrichment is a case and fact-specific remedy available in jurisdictions that employ variations of the UTSA,⁶⁶ in states like New York and Massachusetts⁶⁷ in which trade secrets litigation is premised on the common law, and under the newly enacted DTSA.⁶⁸ Typically, unjust enrichment, as opposed to a calculation of lost profits, is used as a remedy for trade secret misappropriation in all of these legal systems only when there

64. 504 F.2d 518 (5th Cir. 1974).

65. That is not to say that such a theory will be successful, however. *Cf. Waymo LLC v. Uber Techs., Inc.*, No. C 17-00939 WHA (N.D. Cal. Nov. 2, 2017) (Order under seal) (excluding plaintiff’s expert who alleged he calculated trade secret misappropriation damages in the amount of \$1.86 billion from the acquisition by defendant Uber of a company that employed plaintiff’s former engineer by simply looking at Uber’s own estimate of how valuable the technology was to Uber at the time of acquisition).

66. Uniform Trade Secrets Act § 3(a) (amended 1985), 14 U.L.A. 384 (2005).

67. *See, e.g., Softel, Inc. v. Dragon Med. & Sci. Commc’ns*, 891 F. Supp. 935 (S.D.N.Y. 1995); *Incase Inc. v. Timex Corp.*, 488 F.3d 46 (1st Cir. 2007).

68. 18 U.S.C. § 836(b)(3)(B)(i).

are no provable profits earned by the defendant, such as when the plaintiff itself is a start-up and has not ramped up production.⁶⁹ Unjust enrichment can also be employed when additional losses beyond lost profits are proven, as well as in situations involving convoyed sales of products tainted by the misappropriation (*see infra*, Section VI).⁷⁰ However, a plaintiff can never recover both lost profits and unjust enrichment if to do so will result in double recovery for the same harm (*see infra*, Section V).⁷¹

A plaintiff seeking unjust enrichment damages will have the burden of proving the defendant's net profits gained from actions like those attributable to accelerated time to market and avoided costs that are proximately caused by the misappropriation of the plaintiff's trade secrets.⁷² A common mechanism

69. RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 cmt. f (1995) (“[i]f the benefit derived by the defendant consists primarily of cost savings, such as when the trade secret is a more efficient method of production, the ‘standard of comparison’ measure that determines relief based on the savings achieved through the use of the trade secret may be the most appropriate measure of relief”).

70. RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 cmt. f (1995) (“profits on the sale of consumable supplies used in a machine embodying the trade secret or profits on spare parts and service may be included in the accounting to the extent that such profits were made possible by the defendant's sale of the original product”).

71. *See* comments to Uniform Trade Secrets Act § 3 (amended 1985), 14 U.L.A. 384 (2005).

72. *See, e.g.,* *MicroStrategy, Inc. v. Li*, 268 Va. 249 (2004) (the proponent “must bear the burden of proving a trade-secret claim,” and “[t]his burden does not shift, even when a plaintiff has presented a prima facie case”); *Microstrategy, Inc. v. Bus. Objects, S.A.*, 429 F.3d 1344 (Fed. Cir. 2005) (affirming the district court's grant of partial summary judgment on damages in favor of defendant on the grounds that plaintiff did not show the amount of damages “sustained with reasonable certainty” or “a causal connection between the damages it suffered and the actions of” defendant); *Do It Best Corp. v.*

used to calculate unjust enrichment is an accounting of the defendant's actual profits earned by using the misappropriated trade secrets.⁷³ As with largely identical calculations directed to determining lost profits, a defendant's profits achieved through unjust enrichment are typically measured by determining the number of additional sales that the plaintiff would have made if the defendant had not acted improperly, coupled with the plaintiff's incremental profits on these sales.⁷⁴ These incremental profits may consist of the revenue that the plaintiff would have made on the additional sales, subtracting any incremental costs that the court or jury concludes the plaintiff would necessarily have incurred while making those same sales.⁷⁵

The defendant bears its own burdens in the unjust enrichment calculation too. In determining the defendant's net prof-

Passport Software, Inc., No. 01-C-7674, 2005 WL 743083, at *16 (N.D. Ill. Mar. 31, 2005) (“[Plaintiff] offers numerous facts that purportedly establish a violation of ITSA, but there is nothing to tie that alleged violation to [Defendant’s] provision of maintenance services to its members.”).

73. See, e.g., *Reingold v. Swiftships, Inc.*, 210 F.3d 320 (5th Cir. 2000); *Softel Inc. v. Dragon Med. & Sci. Commc’ns, Inc.*, 118 F.3d 955 (2d Cir. 1997).

74. See, e.g., *ADA Motors, Inc. v. Butler*, No. 70047–2–I, 183 Wash. App. 1002 (Wash. Ct. App. Aug. 18, 2014) (unpub.) (holding that the jury instructions incorrectly stated the law because Ada Motors’ initial burden was only to prove there were sales attributable to the use of a trade secret, but the instructions further required “damages from sales” to prove unjust enrichment, which was incorrect since the plaintiff did not need to prove anything beyond “sales” to meet its initial burden); *RRK Holding Co. v. Sears, Roebuck & Co.*, 563 F. Supp. 2d 832 (N.D. Ill. 2008) (noting that the “unjust enrichment portion of damages is calculated by subtracting the Plaintiff’s loss amount from Defendant’s total gain”).

75. See generally John E. Elmore, *A Quantitative Analysis of Damages in Trade Secrets Litigation*, *INSIGHTS*, Spring 2016, at 79-94, available at http://www.willamette.com/insights_journal/16/spring_2016_11.pdf.

its, the court also may consider various setoffs that the defendant establishes which then lower the expected recovery.⁷⁶ For instance, the court may exclude from recovery any research and development expenses the defendant proves it incurred independently from its use of the trade secret, any gross receipts that the defendant establishes reflect its actual costs of production, the salaries and labor expenses the defendant can show would have been paid by the company notwithstanding the misappropriation, any advertising and marketing expenses the defendant demonstrates were inevitable notwithstanding the misappropriation, and similar expenses that the defendant establishes are unrelated to or incurred by the company notwithstanding the misappropriation.⁷⁷

With these basic principles in mind, a highly over-simplified hypothetical may be helpful to understand how the unjust enrichment calculation is rendered in a scenario where some lost profits can also be determined, and where defendant can prove it is entitled to setoffs. Assume that a defendant corporation with hundreds of millions of dollars in capital acquires a recently incorporated start-up whose employees have misappropriated key trade secrets related to Widget A from their former employer. As a result of the acquisition, further assume that the defendant is able to enter the product market for Widgets by a full year earlier than it otherwise would have been able to do so.

76. See Annotation, *Proper Measure and Elements of Damages for Misappropriation of Trade Secrets*, 11 A.L.R.4th 12 (1982); RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 cmt. f (1995) (“[t]he plaintiff has the burden of establishing the defendant’s sales; the defendant has the burden of establishing any portion of the sales not attributable to the trade secret and any expenses to be deducted in determining net profits”).

77. RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 cmt. f (1995) (“[t]he rules governing the deductibility of expenses and the allocation of overhead are analogous to those stated in § 37, Comments g and h, on accountings in actions for trademark infringement”).

This entry to market not only causes the plaintiff to lose revenues of \$50 million as a result of a reduction in sales of its own Widgets, but it also causes the plaintiff to expend \$10 million more in marketing. However, the loss of market share also saves the plaintiff \$5 million in incremental costs. The combination of \$50 million in lost sales and \$10 million in additional advertising results in compensable damages to plaintiff of \$60 million. That amount must then have the incremental savings the company achieved of \$5 million in costs subtracted from it, for a total of \$55 million. However, assume further that the defendant's first mover advantage allows it to achieve \$100 million in sales in year one after the acquisition of the start-up that employed the individuals who misappropriated plaintiff's trade secrets, and further that during this time it saved \$50 million in R&D costs. Nonetheless, of those \$50 million in R&D savings, \$10 million were attributable to independent development of concepts ultimately implemented in the Widget sold by defendant.

Here, to avoid any double recovery on the amount of lost profits that plaintiff suffered that is reflected equally in the amount that defendant gained, the total amount of lost profits that plaintiff would be entitled to recover is \$90 million (its own losses of \$45 million, plus an additional \$45 million of the defendant's own \$100 million in profits from year one). Defendant thus does not have to pay plaintiff \$55 million of the \$100 million in sales it produced in year one. However, plaintiff would also be entitled to recover as additional unjust enrichment damages the \$10 million in marketing expenses it incurred, and the \$50 million in savings to defendant in R&D and other costs. So, plaintiff would be entitled in this admittedly simplistic scenario to a total award of \$150 million. Defendant would then be able to set off \$10 million from that amount due to its independent contributions to R&D, so that plaintiff presumably could recover "only" \$140 million.

However, this hypothetical does not tell the whole story about how unjust enrichment calculations would actually have to be proven, or what other issues are buried in the calculations as a result of the burdens that the parties carry at trial. For instance, all courts require that unjust enrichment damages must not be speculative, and hence the plaintiff must establish these damages with reasonable certainty.⁷⁸ In situations in which the plaintiff seeks recovery for the increased value that a company has achieved as a result of investment after an alleged misappropriation, it may be highly speculative for the plaintiff to claim that increased value was a product of defendant's use of its trade secrets, as opposed to independent venture capital enthusiasm generated from other aspects of the defendant's marketing and introduction of a particular technology. In the hypothetical above, a similar issue may prevent the plaintiff from establishing without speculation what amount of additional unjust enrichment profits the defendant achieves as a result of its first mover advantage *after* year one, or for how long that advantage will last and be subject to recovery. Indeed, that problem arguably is what often incentivizes plaintiffs to claim as unjust enrichment damages virtually all of the value of a start-up which is alleged to have misappropriated plaintiff's trade secrets prior to its receiving significant capitalization. Yet, such a claim is fraught with danger since investor capitalization can be attributable to any number of independent factors, such as the potential of the start-up to independently develop its own intellectual property.

78. See *Microstrategy, Inc. v. Bus. Objects, S.A.*, 429 F.3d 1344 (Fed. Cir. 2005) (affirming the district court's grant of partial summary judgment on damages in favor of defendant on the grounds that plaintiff did not show the amount of damages "sustained with reasonable certainty" or "a causal connection between the damages it suffered and the actions of" defendant).

Further complicating the unjust enrichment calculation is the fact that the plaintiff carries the burdens of proving the existence of a legally protectable trade secret and a nexus between the misappropriation of that trade secret and the profits associated with the defendant's unlawful gain.⁷⁹ Needless to say, the requirement of establishing the relevant nexus between the perceived value of what is often an intangible asset and the profits a defendant achieved in introducing its own products or services allegedly incorporating that asset can be challenging for a plaintiff. For instance, in *Vermont Microsystems, Inc. v. Autodesk, Inc.*,⁸⁰ in a case in which the plaintiff alleged misappropriation of trade secrets related to its software product, the court of appeals affirmed a magistrate judge's finding that the evidence

79. *ClearOne Commc'ns v. Chang*, No. 09-4128, 2011 WL 3468215 (10th Cir. Aug. 9, 2011) (slip op.) (upholding the denial of prejudgment interest to a plaintiff awarded unjust enrichment damages, finding that there was no definite and ascertainable sum of money to define the unjust enrichment; the court reasoned that the unjust enrichment only approximated the value of the benefits the defendants gained from misappropriating plaintiff's trade secrets, and the plaintiff's expert calculated unjust enrichment by calculating the defendants' profits, but the relevant benefits could have been determined in numerous ways, and not all of the defendants' profits may have been attributable to the misappropriation of trade secrets); *Jet Spray Cooler v. Compton*, 377 Mass. 159 (1979) (Court holds that it "cannot determine whether the plaintiffs' lost profits in this action were "due to" the defendants' sales of products utilizing the trade secrets, or whether the plaintiffs' lost profits were "due to" the plaintiffs' own business decision to refrain from marketing products containing the information in the report," and therefore the plaintiffs failed to prove "their lost profits 'due to' the defendants' sales to the plaintiffs' customers with sufficient certainty to allow the plaintiffs to recover damages based on lost profits."); see also RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 45 cmt. B; RESTATEMENT (SECOND) OF TORTS § 912; *MicroStrategy, Inc. v. Li*, 268 Va. 249 (2004); *Katskee Nev. Bob's Golf of Neb., Inc.*, 472 N.W.2d 372 (Neb. 1991); *Midland Hotel Corp. v. Rueben H. Donnelley Corp.*, 515 N.E.2d 61 (Ill. 1987).

80. 138 F.3d 449 (2d Cir. 1998).

that had been presented before him was “too imprecise and speculative as well as based on opinion and survey results which rely on assumptions and hypotheticals” to permit the trier-of-fact to determine the amount of unjust enrichment that plaintiff argued the defendant should disgorge. In that situation, the court of appeals agreed with the magistrate judge that the doctrine of “reasonable royalty” should instead be applied, greatly reducing the plaintiff’s proposed recovery. Similarly, in *O2 Micro Int’l, Ltd. v. Monolithic Power Systems*,⁸¹ the jury found that the plaintiff, which was seeking recovery based on unjust enrichment, was entitled to recover for just one of eleven allegedly misappropriated secrets. Since the court found, based on the record, that there was no reasonable basis upon which the jury could have determined the portion of the defendant’s alleged unjust enrichment that was attributable to only one secret, it concluded that unjust enrichment was not provable as a matter of law. Because neither unjust enrichment nor damages had been proven, the trial court granted the plaintiff’s request in the alternative for a reasonable royalty.

As these cases reflect, the burdens associated with proving unjust enrichment are inherently tied to the plaintiff’s critical decision to identify what information it contends are its trade secrets and, equally importantly, how that information is alleged to have benefited the defendant. As any attorney who has litigated a trade secret knows, these are not easy tasks, since the burden will always remain with plaintiff to prove the confidentiality and value of its trade secrets, while normally being prevented outside discovery from knowing how the defendant potentially is using that valuable intellectual property. Further, virtually all the information about how a defendant has profited will be in the control of the defendant, and an error in judgment

81. 399 F. Supp. 2d 1064 (N.D. Cal. 2005).

by the plaintiff about how the trade secret has been employed in defendant's marketing channels can have a significant impact upon its damages calculations. These issues are further complicated by the fact that some courts may further require the plaintiff to apportion the damages it attributes to trade secret misappropriation (*see supra* Section II).⁸²

Defendants to trade secret actions also face complicated tactical decisions due to the burdens of proof. For instance, as discussed in Section III, *supra*, in the discussion of "head start," depending upon the court in which the plaintiff is seeking recovery, the defendant may carry the burden of proving when any accounting period for the defendant's lost profits terminated as a result of the trade secret becoming public information. That, of course, requires the defendant to deconstruct its own R&D process, which can easily expose how the defendant has profited in the period that the plaintiff alleges misappropriation has occurred, providing plaintiff with the very proof it needs to establish entitlement to recovery of unjust enrichment. Further, in some jurisdictions, the calculation of unjust enrichment damages may necessitate a bench trial, as opposed to the use of a jury.⁸³ As long as there remains significant room for further development of these concepts, or divisions of opinion about their applicability, they will continue to warrant careful consideration by plaintiffs and defendants alike.

82. *E.g.*, *Goldberg v. Medtronic, Inc.*, 686 F.2d 1219 (7th Cir. 1982) (awarding plaintiff, as damages for trade secret misappropriation, 10% of the profits of electrical leads, where the court concluded plaintiff's confidential disclosures contributed 10% to the development of those leads).

83. *See Texas Advanced Optoelectronic Solutions, Inc. v. Renesas Electronics America, Inc.*, Nos. 2016-2021, -2208, 2235 (Fed. Cir. May 1, 2018) (holding that any disgorgement award in a trade secrets case under Texas law lies in equity, and requires a Bench trial rather than a calculation by a jury).

V. RIGOROUS ESTIMATION OF UNJUST ENRICHMENT AND LOST PROFITS

We start with a relatively simple trade secrets damages scenario. We assume that the benefits of trade secret misappropriation contain two elements: (1) savings on the costs of R&D and (2) early entry into the market which results in sales that would not otherwise have been made by the misappropriator.⁸⁴

The expected profit from selling a new product or service when there is no trade secret misappropriation is:

$$\pi_0 = PV((P_t - MC) \times Q_t^0) - PV(RD_0) - I_0$$

Where $PV()$ indicates a present value calculation, P_t is the expected price in year t , Q_t^0 is the expected quantity sold in year t when there is no misappropriation, RD_0 is the research and development costs incurred to develop the infringer's product without misappropriation, and I_0 is the investment in manufacturing facilities to make that product. MC is the costs of goods sold incurred in making the product.

The expected profit when there is misappropriation is:

$$\pi_M = PV((P_t - MC) \times Q_t^M) - PV(RD_M) - I_M$$

Q_t^M is the expected quantity sold in year t when there is misappropriation, RD_M is the research and development costs incurred to develop the product that embodies the misappropriated trade secrets, and I_M is the investment in manufacturing facilities to make the product that embodies the trade secrets.

84. It can be just as general to assume that trade secrets misappropriation results in increased incremental profit or total profit through lowering production cost. Lowering production costs either increases incremental profit or keeps incremental profit the same with lower prices, resulting in larger market share and increased total sales.

Annual profits with misappropriation and profits without misappropriation are depicted in Figure 1.

For simplicity, we can assume that there is no difference between the misappropriation case and the no-misappropriation case in investment spending, in prices, and in marginal costs. We assume that research and development costs are lower in the misappropriation situation than the no-misappropriation situation, that is $RD_M < RD_0$.

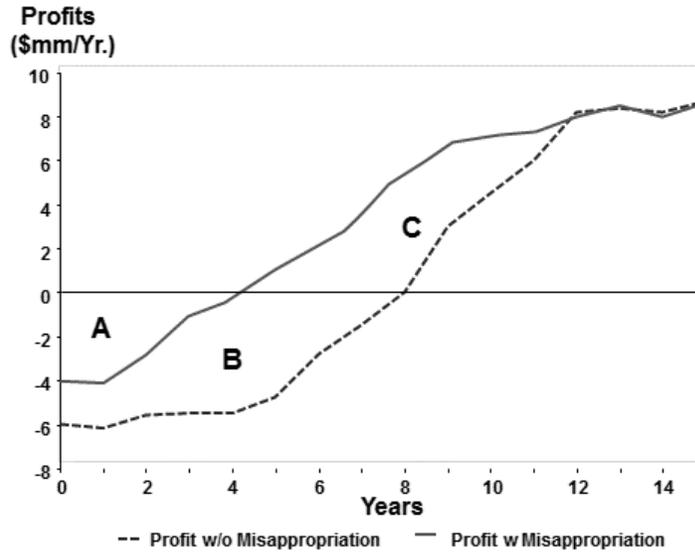
The gains from misappropriation are simply:

$$\Delta = \pi_M - \pi_0$$

$$\Delta = PV((P_t - MC) \times (Q_t^M - Q_t^0)) + PV(RD_0 - RD_M)$$

This is the amount of unjust enrichment that results from misappropriation. The term on the left side of the plus sign represents the benefit of the head start, including both the plaintiff's lost profits and unjust enrichment from sales taken from other market participants. The term on the right side represents the benefits of reduced research and development costs due to misappropriation.

Figure 1 provides a general depiction of the scenario, displaying these two terms. The area labeled B represents the savings in R&D costs, and the area labeled C represents profits from the additional sales made due to the head start. This depiction does not adjust lost profits for price erosion or differences in manufacturing costs between plaintiff and defendant, a matter we discuss below.

Figure 1. Gross Profits and Investment Costs

RD_0 , defendant's research and development expenditure had it not misappropriated, cannot be observed. Plaintiffs' costs of developing the trade secrets at issue might provide a reasonable estimate of RD_0 , though they often must be calculated.

So far, we have not accounted for the different sources of lost profits. Some part of the amount ($Q_t^M - Q_t^0$) in the first term in the formula for Δ are the defendant's profits resulting from sales being diverted from the owner of the trade secrets, (lost profits). The rest are profits that arise from sales that would have been made by other market participants. If the defendant's production costs are different from those of the plaintiff, it is generally necessary to separate these two sets of sales. Sales that result in lost profits may be determined in a variety of ways, including the market share approach.⁸⁵ Defendant's sales that would have

85. *Agilent Techs. v. Kirkland*, C.A. No. 3512-VCS, 2010 WL 610725, at *28 (Del. Ch. Feb. 18, 2010). (The "method of determining lost profits based on a

been made by the defendant are then subtracted from the additional sales made due to the head start. Other issues that may need to be accounted for include the possibility that entrance of the misappropriator may cause price erosion.⁸⁶ Finally, entrance of the misappropriator may increase plaintiff's costs.

One immediate conclusion that can be drawn from even this simple model is that calculating damages merely on the basis of getting to market earlier understates the full extent of the unjust enrichment. The misappropriator also benefits from reduced expenditure on R&D. In *Agilent*, however, the court made no damage award related to defendant's saved R&D costs, notwithstanding that it had found clear evidence of such savings.⁸⁷

This simple formula for unjust enrichment also makes it very clear that damages could be greater than the entire value of the defendant company. This would be the case, for example, if a company sells only product made with the misappropriated technology and if both unjust enrichment and saved R&D costs are awarded. If the plaintiff can show that, absent the misappropriation, the defendant could not have entered the plaintiff's market and would not have made any sales, then the first term in the formula above becomes merely $PV((P_t - MC) \times Q_t^M)$. This is the present value of all future gross profits earned using misappropriated trade secrets which should approximate the defendant company's market value.⁸⁸ The damages award could

market share is an acceptable approach [for] demonstrating the causal relationship between misappropriation and lost profits.”).

86. *Roton Barrier, Inc. v. Stanley Works*, 79 F.3d 1112, 1119–20 (Fed. Cir. 1996) (holding that losses included price reductions necessary to compete with misappropriator until the plaintiff could restore prior pricing).

87. *Agilent*, 2010 WL 610725, at *28.

88. A more realistic accounting would take into account the present value of future capital and other expenditures that the misappropriator would need to make in order to remain in business.

be greater than the market value if saved R&D costs are also awarded.

*USA Power Corp., LLC v. PacifiCorp*⁸⁹ provides an example of an award of all the profits from an investment that incorporated misappropriated trade secrets. The defendant was accused of misappropriating financial data and other trade secrets on an electric generation project. Both defendant and plaintiff later submitted bids for the right to build a project to supply electricity. The misappropriated trade secrets allowed the defendant to submit the winning bid to build a technically very similar project at a different location. The Supreme Court of Utah sustained an award that disgorged all profits over the plant's thirty-year life because the jury could have reasonably concluded "that all of [defendant's] profits were the result of misappropriation." Had the court also awarded saved R&D costs, the award would have been greater than the value of the project.

The formula can be used to examine the reasonableness of using plaintiff's entire expenditure on R&D on the relevant product as an estimate of unjust enrichment. This was, for instance, what was done in the *Kevlar* case, where the original damages award of nearly \$1 billion was based on DuPont's cost of developing Kevlar.⁹⁰ It appears that this is not a generally accurate derivation of unjust enrichment under the assumptions used in deriving the formula. It can only be an accurate measure of unjust enrichment if three conditions are met. First, the defendant must have incurred no R&D costs, (that is, $RD_M = 0$). Second, the defendant's R&D costs had it not misappropriated (RD_0) would have been the same as plaintiff's. Finally, there was

89. *USA Power, LLC v. PacifiCorp*, 372 P.3d 629 (Utah 2016).

90. Redacted Final Brief of Appellee E.I. Du Pont de Nemours and Company, *E.I. du Pont de Nemours and Company v. Kolon Industries, Inc.*, No. 12-1260 (4th Cir. Feb. 22, 2013), available at <http://s3.amazonaws.com/cdn.orrick.com/files/Trade-Secret-Blog-Jun5-Attachment-H-DuPont-brief.pdf>.

no head start due to the misappropriated trade secrets, (that is, the average value of $(Q_t^M - Q_t^0)$ is zero).⁹¹

An additional issue relates to apportioning damages among the trade secrets alleged to have been misappropriated. In *O2 Micro v. Monolithic*,⁹² O2 asserted eleven trade secrets and claimed consequential damages of \$16 million for infringement of all eleven trade secrets. O2's damages expert did not apportion the damages among the trade secrets. The jury found that five trade secrets were infringed and awarded \$12 million. The court vacated all consequential trade secret damages since the jury had not been provided any basis upon which to award partial damages.

Since the *O2 Micro* decision, experts have often avoided the burden of apportionment among trade secrets by claiming that the impact on unjust enrichment would be exactly the same if any subset of the asserted trade secrets were found to be valid and misappropriated. In other words, these experts assert that no matter how many or which of the asserted trade secrets were infringed, the amount of unjust enrichment is the same. For example, in *CardiAQ Valve Technologies, Inc. v. Neovasc Inc. et al.*, CardiAQ's damages expert claimed "that the total damages figure was \$90 million, that the jury could award that figure by finding misappropriation of Trade Secrets 1 and 2 together, or 3, 4, or 6 separately, but that if the jury found misappropriation of multiple trade secrets, it should not add damages for each theory of liability."⁹³ While such assertions may be reasonable in some cases, they are probably not generally correct, given the

91. Of course, the result of such a calculation may occasionally give an accurate value of unjust enrichment but that would merely be coincidental.

92. *O2 Micro Int'l Ltd. v. Monolithic Power Sys.*, 399 F. Supp. 2d 1064 (N.D. Cal. 2005).

93. *CadiAQ Valve Techs., Inc. v. Neovasc Inc.*, 708 Fed. Appx. 654, 666 n.7 (Fed. Cir. Sept. 1, 2017).

sequential nature of research and scientific discovery and the incremental costs of making the discoveries that are the subject of each trade secret.

There is also the issue of apportionment between the alleged trade secrets and other inputs into the production, marketing, and sale of products that embody the alleged trade secrets. The ruling in *Mentor Graphics* may be pertinent.⁹⁴ There the Federal Circuit held that a *Panduit* analysis provides adequate apportionment of patent infringement lost profits. The court appeared to understand that in the but-for world, a patent infringer, if unable to use patented technology, would still attempt to compete by offering a noninfringing alternative or offering lower prices or both. A properly done *Panduit* analysis arguably takes these competitive responses into account. The conventional unjust enrichment damages analysis undertaken in trade secrets matters also attempts to model what would have happened if there had been no misappropriation. If that is correct, then no further apportionment may be required.

VI. CONVOYED SALES AND UNJUST ENRICHMENT

The federal patent statute provides for recovery of the plaintiff's damages, which are no less than a reasonable royalty for the defendant's use of the patent.⁹⁵ The patent statute does not provide for recovery of defendant's profits with respect to utility patents.

In the context of patent infringement, the Federal Circuit has defined convoyed sales as "the relationship between the sale of a patented product and a functionally associated non-patented

94. *Mentor Graphics Corp. v. EVE-USA, Inc.*, No. 2015-1470, 2017 WL 1024502 (Fed. Cir. Mar. 16, 2017).

95. 35 U.S.C. § 284.

product.”⁹⁶ Specifically, “[a] patentee may recover lost profits on unpatented components sold with a patented item . . . if both the patented and unpatented products ‘together were considered to be components of a single assembly or parts of a complete machine, or they together constituted a functional unit.’”⁹⁷

In addition to lost profits, the issue of convoyed sales is a factor considered in determining a reasonable royalty in a patent infringement matter. The oft-cited *Georgia-Pacific* factors indicate that one may consider “[t]he effect of selling the patented specialty in promoting sales of other products of the licensee; the existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.”⁹⁸

Trade secrets law is not well developed with respect to recovery of a defendant’s convoyed sales. As discussed above, both state and federal trade secrets law provide for recovery of the defendant’s unjust enrichment caused by misappropriation.⁹⁹ One could contemplate circumstances wherein a defendant’s profits from products that do not incorporate trade secrets are nonetheless attributable to its misappropriation. For example, consider the following set of circumstances:

1. The defendant sells a product incorporating the plaintiff’s trade secrets.
2. The trade secrets are the sole basis of demand for the defendant’s products.

96. *Am. Seating Co. v. USSC Grp., Inc.*, 514 F.3d 1262, 1268 (Fed. Cir. 2008).

97. *Id.*

98. *Georgia-Pacific Corp. v. United States Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970).

99. Defend Trade Secrets Act of 2016, § 2(b)(3)(B)(i)(II); Uniform Trade Secrets Act § 3(a) (amended 1985).

3. The defendant sells additional products that do not incorporate the trade secrets to customers who purchased the products containing the trade secrets (i.e., convoyed sales).
4. The only reason the defendant generated convoyed sales was due to the defendant's sale of products containing the alleged trade secrets.

In the above circumstances, it appears that the owner of the trade secrets can establish that defendant's convoyed sales are attributable to its misappropriation. As a result, one may consider calculating the defendant's profits from convoyed sales as an additional measure of the defendant's unjust enrichment. However, as discussed above, there appears to be no legal consensus on the issue of apportionment of a defendant's profits under a claim for unjust enrichment. Thus, if assumptions 2 or 4 in the above scenario are eliminated, a claim for defendant's profits from convoyed sales may become more tenuous and, therefore, more difficult to establish.

For example, consider a scenario where only 50% of the defendant's profits from a product are directly attributable to incorporation of a trade secret into the product's design, and only 50% of the defendant's convoyed sales are attributable to the sale of products incorporating the trade secrets. Without additional confirmatory evidence, several possible dynamics could result in this sales relationship, as follows:

- 25% of the defendant's convoyed sales are attributable to its misappropriation, based on serial application of apportionment factors ($50\% \times 50\% = 25\%$);
- 50% of the defendant's convoyed sales are attributable to its misappropriation, based on 100% alignment between the portion of convoyed sales attributable to

sales of products containing the trade secrets and consumer demand for the trade secrets (i.e., for all customers who purchased a conveyed item, the trade secrets were the sole basis of demand for the product containing the trade secrets: $50\% \times 100\% = 50\%$); and

- 0% of the defendant's conveyed sales are attributable to its misappropriation, based on no overlap in demand for the trade secrets and conveyed sales (i.e., the only customers who purchased a conveyed item did so because of their demand for features other than the trade secrets: $0\% \times 50\% = 0\%$).

The above dynamics indicate the potential challenge associated with calculating defendant's profits from conveyed sales attributable to misappropriation. However, an analysis of unjust enrichment is a fact-specific exercise that depends on the market dynamics present in each case.